NEW YORK STATE AGENCIES

Battery Park City Authority (BPCA)**
Empire State Development Corporation (ESDC)
Hudson River Park Trust (HRPT)**
Lower Manhattan Development Corporation (LMDC)**
Metropolitan Transportation Authority (MTA)
MTA, New York City Transit (NYCT)**
New York Metropolitan Transportation Council (NYMTC)
New York State Department of Environmental Conservation (NYSDEC)
New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)*
New York State Office of General Services (NYSOGS)
New York State Department of State (NYSDOS)
New York State Department of Transportation (NYSDOT)**

NEW JERSEY STATE AGENCIES

New Jersey Department of Transportation (NJDOT)
New Jersey Transit (NJ Transit)
North Jersey Transportation Planning Authority (NJTPA)

NEW YORK CITY AGENCIES

New York City Art Commission**
New York City Department of City Planning (NYCDCP)**
New York City Department of Design and Construction (NYCDDC)
New York City Fire Department (FDNY)**
New York City Department of Environmental Protection (NYCDEP)
New York City Department of Parks and Recreation (NYCDPR)
New York City Department of Sanitation (NYCDOS)
New York City Department of Transportation (NYCDOT)**
New York City Economic Development Corporation (NYCEDC)
New York City Fire Department (FDNY)
New York City Landmarks Preservation Commission (LPC)**
New York City Mayor's Office of Environmental Coordination
Mew York City Office of Emergency Management (OEM)
New York City Office of Management and Budget (OMB)
New York City Planning Commission (CPC)
New York City Police Department (NYPD)

ELECTED OFFICIALS

CONNECTICUT

U.S. Representative Christopher Shays, District 4**

NEW JERSEY

U.S. Senator Jon Corzine**
U.S. Senator Frank Lautenberg
U.S. Representative Michael Ferguson, District 7

U.S. Representative Rodney Frelinghuysen, District 11
U.S. Representative Robert Menendez, District 13
U.S. Representative William Pascrell, District 8
U.S. Representative Donald A. Payne, District 10
U.S. Representative Steven Rothman, District 9

New Jersey State Governor, Richard J. Codey (Acting)

New Jersey State Assemblymember Donald Kofi Tucker, District 28
New Jersey State Assemblymember Wilfredo Caraballo, District 29
New Jersey State Assemblymember Anthony Chappone, District 31
New Jersey State Assemblymember Mims Hackett, District 27
New Jersey State Assemblymember Vincent Prieto, District 32
New Jersey State Assemblymember Louis Manzo, District 31
New Jersey State Assemblymember John F. McKeon, District 27
New Jersey State Assemblymember William D. Payne, District 29
New Jersey State Assemblymember Joan M. Quigley, District 32
New Jersey State Assemblymember Craig A. Stanley, District 28
New Jersey State Assemblymember Albio Sires, District 33
New Jersey State Assemblymember Brian P. Stack, District 33
New Jersey State Senator Richard J. Codey, District 27
New Jersey State Senator Joseph V. Doria, Jr., District 31
New Jersey State Senator Sharpe James, District 29
New Jersey State Senator Bernard F. Kenny, District 33
New Jersey State Senator Ronald L. Rice, District 28
New Jersey State Senator Nicholas J. Sacco, District 32

Mayor Jerramiah Healy, City of Jersey City
Mayor Joseph V. Doria, Jr., City of Bayonne
Mayor Sharpe James, City of Newark
Mayor Raymond J. McDonough, City of Harrison
Mayor David Roberts, City of Hoboken

NEW YORK

U.S. Senator Hillary Rodham Clinton
U.S. Senator Charles Schumer
U.S. Representative Carolyn Maloney, District 14**
U.S. Representative Jerrold Nadler, District 8**
U.S. Representative Nydia M. Velazquez, District 12
U.S. Representative Susan W. Kelly, District 19
U.S. Representative Brian Higgins, District 27

New York State Governor, George E. Pataki**
New York State Comptroller, Alan G. Hevesi
New York State Attorney General Eliot Spitzer
New York State Senator Diane J. Savino, District 23
New York State Senator Martin Connor, District 25**
New York State Senator Thomas Duane, District 29
New York State Assemblymember Deborah J. Glick, District 66
New York State Assemblymember Sheldon Silver, District 64**

Mayor Michael R. Bloomberg, City of New York, New York**
New York City Comptroller, William Thompson, Jr.
New York City Public Advocate, Betsy Gotbaum
Manhattan Borough President, C. Virginia Fields**
New York City Councilmember Alan J. Gerson, District 1**
New York City Councilmember A. Gifford Miller, District 5
New York City Councilmember Margarita Lopez, District 2
New York City Councilmember Christine Quinn, District 3

SECTION 106 CONSULTING PARTIES

The following reflects groups and organizations involved in the Section 106 process for the Permanent WTC PATH Terminal in addition to the agencies and elected officials identified above by an asterisk (*). The Section 106 Consulting Parties have been notified of the project's NEPA documentation. Certain consulting parties also serve as community interest groups, public interest groups, and local utility owners. However, these groups are listed within this section rather than under subsequent sections of this chapter.

Alliance for Downtown New York, Inc.
American Institute of Architects, New York Chapter
American Planning Association, New York Metro Chapter
Architectural League of New York
Association for a Better New York
BCRE-90 West Street Corp.
BPC United
Cantor Fitzgerald Relief Fund
Community Board 1-Landmarks Committee
Community Board 1-WTC Redevelopment Committee
Coalition of 9/11 Families
Coalition to Save West Street
Consolidated Edison
Families of September 11th
Give Your Voice
Greek Orthodox in America
Historic Districts Council
Imagine New York
Lower Manhattan Cultural Council
Lower Manhattan Emergency Preservation Fund
Municipal Art Society
National Trust for Historic Preservation
New York Historical Society
New York Landmarks Conservancy
New York New Visions
Pace University – Center for Downtown New York
Partnership for New York City
Preservation League of New York State
Rebuild Downtown Our Town (R.dot)
Regional Plan Association/Civic Alliance
September's Mission

Silverstein Properties, Inc.
Skyscraper Safety Campaign
St. Paul's Church
Team Twin Towers
Tribeca Organization
Tribeca Partnership
Van Alen Institute
Verizon Communications
Voices of September 11th
Wall Street Rising
World Monuments Fund
WTC Families for a Proper Burial
WTC Residents Coalition
WTC Survivors' Network

MAJOR INSTITUTIONS, COMMUNITY GROUPS, AND INTEREST GROUPS

Access to the Region's Core Study
AFL-CIO
Alliance for the Arts
American Institute of Certified Public Accountants
American Institute of Graphic Arts
American Society of Civil Engineers, Metropolitan Section
American Society of Landscape Architects, New York Chapter
American Stock Exchange
Andrew Glover Youth Program
Arcane School
Asian American Business Development Center
Asian American Federation of New York
Asian American Legal Defense and Education Fund
Asian Americans for Equality
Auto Free New York/IRUM, Inc.
Automobile Club of New York
Barrier Free Living
Battery Conservancy
Battery Park City Owners Association
Borough of Manhattan Community College
Bowling Green Association
Brooklyn College Graduate Center
Building & Construction Trades Council of Greater NY
Building Trades Employers Association
Cases Center Alternative
Center for Justice & Democracy
Center for Social & Economic
Center for Urban Community Service
Chambers-Canal Civic Association
Chatham Square Congregation
Cheung on Kan Tin DOA
Chinatown Chinese Congregation

Chinatown LDC
Chinese American Planning Council
Chinese Conservative Baptist Church
Chinese Consolidated Benevolent Association New York
Chinese Evangel Mission Church
Chinese Missionary Baptist Church
Chinese United Methodist Church
Church of Jesus Christ of Latter Day Saints
Citizens Budget Commission
Citizens Housing & Planning Council
Citizen's Union Foundation
CityKids Foundation
Civic Alliance-Regional Plan Association
Civitella Ranieri Center
Clean Air Campaign
Collegiate Reformed Dutch Church
Committee for Better Transit
Community Food Resource Center
Community Training Center
Council on the Environment of NYC
Disabled in Action
District Council 37 AFSCME – Health Center
Downtown Business Network
Downtown Athletic Club
Downtown Community TV Center
Downtown Lower Manhattan Association Inc.
Downtown NYC!
El Mesias
Electric Railroaders Association
Empire State Transportation Alliance
Environmental Defense
Episcopal Church of Our Saviour
Family Association of Tribeca East
First Chinese Baptist Church
First Chinese Presbyterian Church
First Street Block Association
Friends of Hudson River Park
Garden State News
General Contractors Association of New York
Global Institute of Finance
Heavenly Grace Buddhist Temple
High School for Leadership & Public Service
High School of Economics & Finance
House Church in New York
Independence Plaza Tenants Association
Institute for Civil Infrastructure Systems
Institute for Rational Urban Mobility
International Brotherhood of Teamsters, Local 282

International Union of Operating Engineers
IS 289
IS/JHS 707
Jersey City Economic Development Corporation
Jersey City Redevelopment Agency
Jewish Heritage Museum
Joint Council 16, Teamsters
Ling Jiou Mountain Buddhist
Local 100 – Transport Workers of America AFL-CIO
Louise LoPresti
Lower Manhattan Residents Relief Coalition
Lower Manhattan Tenants Coalition
Lutheran Community Service
Mahayana Temple Buddhist Association
Manhattan Academy of Technology
Manhattan Chamber of Commerce
Manhattan School of Computer Technology
Manhattan Youth Recreation
Mariners' Temple Baptist Church
Murry Bergtraum High School for Business Careers
National Museum of the American Indian
Natural Resources Defense Council
New Life of New York City, Inc.
New Urban Transportation Systems
New Jersey Association of Railroad Passengers
New York Alfred E. Smith Rec
New York Association of Consulting Engineers
New York Building Congress, Inc.
New York Career Institute
New York Chinese Community Center
New York City Central Labor Council AFL-CIO
New York City Coalition Against Hunger
New York City Partnership
New York City Transit Museum
New York City Transit Riders Council
New York Downtown Beekman Hospital
New York Law School
New York Lawyers for the Public Interest
New York League of Conservation Voters
New York Mercantile Exchange, Inc.
New York Public Library: Manhattan Branch
NOW Legal Defense and Education Fund
Nursing Home Community
NY Chinese Baptist Church
Nyack College Graduate Center
Nyack College Undergraduate Center
NYC & Company - Convention and Visitors Bureau
Our Lady of Victory Church

PATH Patron Advisory Board
Permanent Citizens Advisory Committee to the MTA
Pratt Institute Center for Community and Environmental Development
Professional Business Institute
PS 124 – Yung Wing School
PS 126 – Jacob Riis School
PS 150 – Tribeca Learning Center
PS 1 – Alfred E. Smith
PS 2
PS 234 – Independence School
PS 89
Real Estate Board of New York
Riis Upper School
Rudin Center for Transportation Policy and Management
Seamens Church Institute of NY & NJ
South Street Seaport
South Street Seaport Museum
St. Andrews Roman Catholic Church
St. Barbara Greek Orthodox Church
St. Elizabeth Ann Seton Shrine
St. James Church
St. Johns United Methodist Church
St. Joseph's Church
St. Peter's Church
St. Teresa's Church
Straphangers Campaign
Structural Engineers Association of New York
Stuyvesant High School
Supporters of World Trade Center Preservation
Tischman Construction
Transconfiguration Catholic Church
Transportation Alternatives
Transworld Buddhist Association
Trinity Church
Tri-State Transportation Campaign
True Buddha Diamond Temple
True Light Lutheran Church
Trust in God Baptist Church
U.S. Green Building Council, New York Chapter
Union of Orthodox Jewish
UNITE – Union of Needletrades
Vision of September 11th
West Harlem Environmental Action
WKTU-FM Radio
Women's City Club
World Trade Center Restoration Movement
WTC United Family Groups
Youth Organizers United

LOCAL BUSINESSES, PROPERTY OWNERS, AND PROPERTY MANAGERS

111 Cedar Street, LLC
112 Liberty Street Residence
114 Liberty Street, LLC
119 Cedar Street
120 Greenwich Development Associates, LLC
120 Liberty Street, LLC
140 Liberty Street Association
ABN AMRO Incorporated
Aegis Insurance Services, Inc.
Alba Wheels UP International, Inc.
American Eagle Tankers
Apple Bank
B&P International, Ltd.
Bankers Trust Company
Barclay Street Realty
Barclay Vesey LLC
Bell Atlantic
Blue Millennium Realty
Brack Capital Real Estate
Brookfield Financial Properties
Castega-20 Vesey Street
CDL (New York)
Cedar Management Corp
Century 21, Inc.
Chase Manhattan Bank
Chemical Residential Mtg.
Cigna Healthcare
Citibank
Cushman & Wakefield
David M Baldwin Realty
Deutsche Bank Trust Company NJ, Ltd.
Dow Jones & Company, Inc.
Emigrant Mortgage Company
EquiServe, Inc.
Estee Lauder Services, Inc.
Federal Farm Credit Banks Funding
Federal Home Loan Bank of New York
Fidelity Investments
Financial Information, Inc.
Financial Sciences Corporation
Fleet Bank, N.A.
Fred Alger & Company, Inc.
From the Ground Up
Fundtech, Ltd.
Garban Intercapital Services, LLC
Goldman, Sachs & Co.
Greater Blouse, Skirt & Undergarment Association

Greystone Properties Vesey, LLC
Hellenic Orthodox Church of St. Nicolas
Hellman & Friedman
Independence Savings Bank
J&R Music and Computer World
JPMorgan Chase Bank, Inc.
K P Realty LLC
KS Engineering
Leafstone Staffing Services
Lehman Brothers Holdings, Inc.
Lewco Securities Corporation, Inc.
Liberty Street Association
M & T Bank
Mack-Cali Realty Corporation
Mayore Estates LLC
Merrill Lynch & Company, Inc.
Metropolitan Life Insurance Company
Millenium Hilton
Morgan Stanley Dean Witter Trust FSB
Narwest Mtg Inc
Nationsbanc Mortgage Corporation
New York County Lawyers Association
New York Marriott Financial Center
New York Mercantile Exchange, Inc.
New York Stock Exchange
New York Telephone Company
New York University
Newport Office Properties Corp., Inc.
Nick Spyreas Enterprises
North Fork Bank
PNC Bank, N.A.
PR Newswire Association, Inc.
PricewaterhouseCoopers, L.L.P.
Prudential Securities, Inc.
Sakele Brothers, LLC
Sargents LLC
Schwab Capital Markets, LP
Tara Realty Company LLC
Westfield Corporation Inc.
Y.S.G.F. Realty LLC

UTILITY COMPANIES

New York Power Company
Public Service Energy and Gas (PSE&G)

B. PUBLIC VIEWING LOCATIONS

WEBSITE

www.panynj.gov/pathrestoration

GOVERNMENT OFFICES

Federal Transit Administration, Lower Manhattan Recovery Office
One Bowling Green, Room 436
New York, NY 10004

Port Authority of New York and New Jersey
115 Broadway, 10th Floor
New York, NY 10006

Manhattan Borough President's Office
Municipal Building, 19th Floor
One Centre Street
New York, NY 10007

COMMUNITY BOARD OFFICES

Manhattan, Community Board #1
51 Chambers Street, Room 716
New York, NY 10007

LIBRARIES

NEW JERSEY

Free Public Library and Cultural Center of Bayonne
697 Avenue C
Bayonne, NJ 07002

Harrison Public Library
415 Harrison Avenue
Harrison, NJ 07029

Hoboken Public Library
500 Park Avenue
Hoboken, NJ 07030

Jersey City Public Library
472 Jersey Avenue
Jersey City, NJ 07302

Newark Public Library
5 Washington Street
Newark, NJ 07101

NEW YORK

New York Public Library – Chatham Square Regional Branch
33 East Broadway
New York, NY 10002

New York Public Library – New Amsterdam Branch
9 Murray Street
New York, NY 10007 ✷

This document was prepared by the Port Authority of New York and New Jersey (PANYNJ), a bi-state public benefit corporation of the States of New York and New Jersey, under the direction of and with active involvement from the U.S. Department of Transportation, Federal Transit Administration (FTA). Key individuals and firms involved in the preparation of this Environmental Impact Statement are indicated below.

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Glossary of Abbreviations

ACHP	Advisory Council on Historic Preservation (U.S.).
ACE	U.S. Army Corps of Engineers.
ADA	Americans with Disabilities Act of 1990 (42 USC §§12101 et seq).
APE	Area of Potential Effect.
AQI	Air Quality Index.
AQNMP	Air Quality and Noise Management Plan.
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers.
AST	Above-ground storage tank.
BBT	Brooklyn-Battery Tunnel.
BID	Business Improvement District.
BMCC	Borough of Manhattan Community College.
BPC	Battery Park City.
BPCA	Battery Park City Authority.
BUD	Beneficial Use Determination.
CAAA	Clean Air Act Amendments of 1990.
CBD	Central Business District.
CDC	Centers for Disease Control and Prevention.
CEPP	Construction Environmental Protection Program (see below).
CEQ	Council on Environmental Quality.
CEQR	City Environmental Quality Review, (Executive Order No. 91 of 1977)
CFR	Code of Federal Regulations.
CMP	Construction Management Plan.
CO	Carbon monoxide.
Con Edison	Consolidated Edison of New York, Inc.
CPC	New York City Planning Commission.
CSO	Combined sewer outfall.
CZMA	Federal Coastal Zone Management Act of 1972 (16 USC §1456).

dB	Decibel, a unit of sound level.
dBA	A weighted decibel. A sound pressure level that incorporates the human ear's sensitivity to pitch.
Decibel (dB)	The unit for measuring noise, which is 10 times the logarithm of the ratio of the sound pressure squared to a standard reference pressure squared.
DEIS	Draft Environmental Impact Statement.
DOHMH	New York City Department of Health and Mental Hygiene.
DOC	Diesel Oxidation Catalyst.
DOE	Determination of Eligibility
DPF	Diesel Particulate Filter.
Downtown Alliance	Alliance for Downtown New York, Inc.
DU	Dwelling unit.
EFH	Essential Fish Habitat.
EDR	Environmental Data Resources.
EIS	Environmental Impact Statement.
EPA	U.S. Environmental Protection Agency.
EPC	Environmental Performance Commitment.
ESDC	Empire State Development Corporation.
FAR	Floor area ratio, the ratio of a building's floor area to its lot size.
FDNY	New York City Fire Department.
FDR	Franklin D. Roosevelt (refers to FDR Drive, the elevated expressway along the East River waterfront of Manhattan).
FEIS	Final Environmental Impact Statement.
FEMA	U.S. Department of Homeland Security, Federal Emergency Management Agency.
FEMP	Federal Energy Management Program.
FHWA	U.S. Department of Transportation, Federal Highway Administration.
FIRE	Finance, Insurance, and Real Estate.
FRA	U.S. Department of Transportation, Federal Railroad Administration.
FSTC	Fulton Street Transit Center.
FTA	U.S. Department of Transportation, Federal Transit Administration.
GAFO	General merchandise, apparel and accessories, furniture and home furnishings, and other comparison goods.
GEIS	Generic Environmental Impact Statement.

gpd	Gallons per day.
GSA	U.S. General Services Administration.
H&M	Hudson and Manhattan (refers to the railroad that operated the Hudson Tubes between New Jersey and New York).
HASP	Health and Safety Plan.
HCM	Highway Capacity Manual.
HDC	New York City Housing Development Corporation.
HEP	Harbor Estuary Program.
HP	Horsepower.
HRPT	Hudson River Park Trust.
HUD	U.S. Department of Housing and Urban Development.
HVAC	Heating, ventilation, and air conditioning.
ICG	Interagency Consultation Group.
IRT	Interagency Review Team.
L_{dn}	An average sound level over the entire day where the nighttime hours are weighted more than those during the daytime.
L_{eq}	Equivalent sound level, or an energy average sound level, usually specified over a period of time. This is the constant sound level that, in a given period, conveys the same sound energy as the actual time-varying sound.
JFK	John F. Kennedy (refers to John F. Kennedy Airport).
LEED	U.S. Green Building Council, Leadership in Energy Efficiency.
LM	Lower Manhattan (refers to Special New York City Zoning District).
LMDC	Lower Manhattan Development Corporation.
LMEPF	Lower Manhattan Emergency Preservation Fund.
LOS	Level of service (see above).
LPC	New York City Landmarks Preservation Commission.
LRTPs	Long-range transportation plans.
LWRP	Local Waterfront Revitalization Program.
mgd	Million gallons per day.
MOA	Memorandum of Agreement.
MOBILE6.2	The latest emissions model developed by the Environmental Protection Agency to compute vehicular exhaust emission factors.
MOU	Memorandum of Understanding.
MPO	Metropolitan Planning Organization.

MPT	Maintenance and Protection of Traffic.
msf	Million square feet.
MSHA	U.S. Department of Labor, Mining Safety and Health Administration.
MTA	Metropolitan Transportation Authority.
NAAQS	National Ambient Air Quality Standards (see below).
NCWPCP	Newtown Creek Water Pollution Control Plant.
NEPA	National Environmental Policy Act of 1969 (42 USC §§4231 et seq).
NJDEP	New Jersey Department of Environmental Protection.
NJ Transit	New Jersey Transit.
NFPA	National Fire Protection Association.
NHL	National Historic Landmark.
NHPA	National Historic Preservation Act of 1966 (16 USC §470).
NJDOT	New Jersey Department of Transportation.
NJTPA	North Jersey Transportation Planning Authority.
NMFS	U.S. Department of Commerce, National Marine Fisheries Service.
NO_2	Nitrogen dioxide; an air pollutant and precursor to ozone.
NO_X	Nitrogen oxides.
NPS	U.S. Department of the Interior, National Park Service.
NR	National Register of Historic Places.
NRDC	National Resources Defense Council.
NYC	New York City.
NYCAS	New York City Audubon Society.
NYCDCP	New York City Department of Planning.
NYCDDC	New York City Department of Design and Construction.
NYCDEP	New York City Department of Environmental Protection.
NYCDOS	New York City Department of Sanitation.
NYCDOT	New York City Department of Transportation.
NYCDPR	New York City Department of Parks and Recreation.
NYCEDC	New York City Economic Development Corporation.
NYCHPD	New York City Department of Housing Preservation and Development.
NYCL	New York City Landmarks and Historic Districts.
NYCRR	New York Codes, Rules and Regulations.
NYCT	Metropolitan Transportation Authority, New York City Transit.

NYDOH	New York City Department of Health.
NYMA	New York Metropolitan Area.
NYMTC	New York Metropolitan Transportation Council.
NYPD	New York Police Department.
NYS	New York State.
NYSDEC	New York State Department of Environmental Conservation.
NYSDOL	New York State Department of Labor.
NYSDOS	New York State Department of State.
NYSDOT	New York State Department of Transportation.
NYSE	New York Stock Exchange.
NYSOGS	New York State Office of General Services.
NYSOPRHP	New York State Office of Parks, Recreation and Historic Preservation.
NYNHP	New York State Natural Heritage Program.
NYU	New York University.
OEM	New York City Office of Emergency Management.
OMB	New York City Office of Management and Budget.
OIG	Office of Inspector General.
OSHA	U.S. Department of Labor, Occupational Safety and Health Administration.
PABT	Port Authority Bus Terminal.
PAC	Public Advisory Committee.
PAHs	Polycyclic aromatic hydrocarbons.
PANYNJ	Port Authority of New York and New Jersey.
PATH	Port Authority Trans-Hudson.
PCBs	Polychlorinated biphenyls.
PM_{10}	Particulate matter of 10 microns or less.
$PM_{2.5}$	Particulate matter of 2.5 microns or less.
PPE	Personal protection equipment.
P.S.	New York City Primary School.
PSE&G	Public Service Energy & Gas.
psf	Per square foot.
REBNY	Real Estate Board of New York.

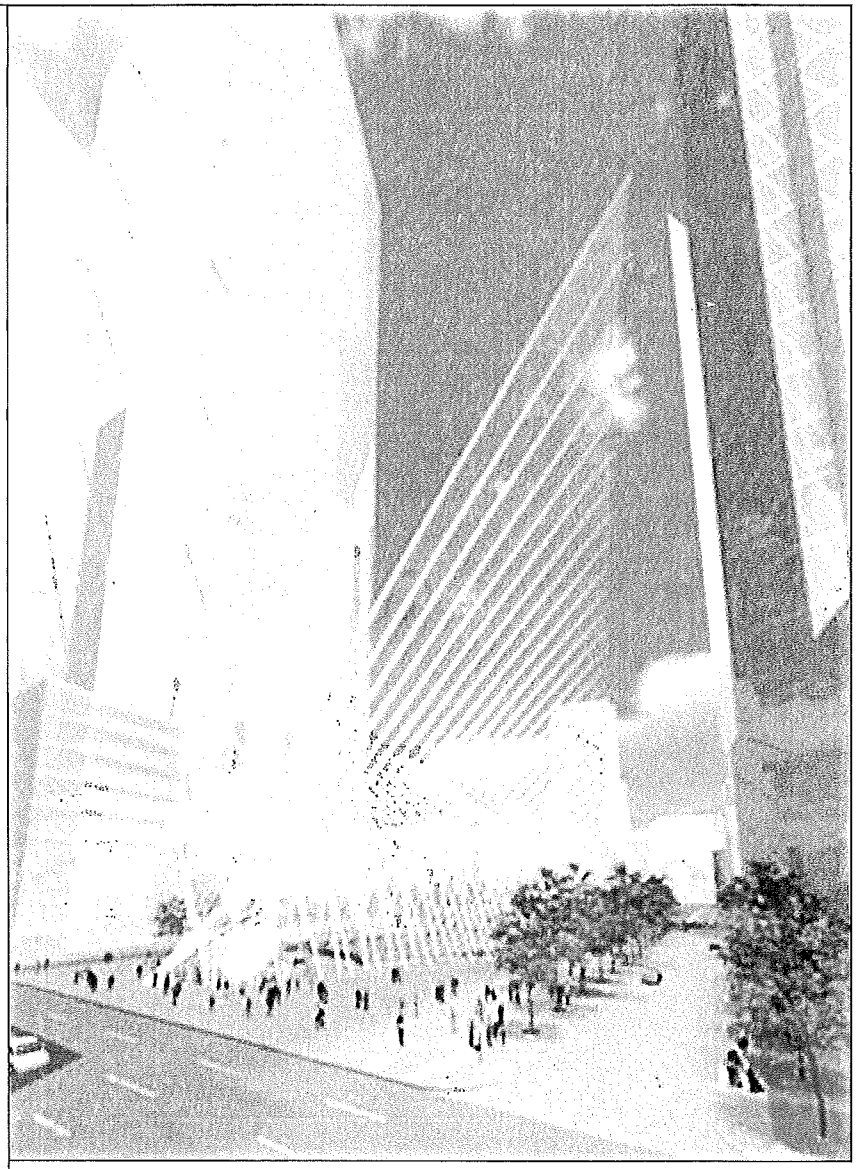
Route 9A	New York State Highway 9A (refers to the roadway that runs along the western periphery of the World Trade Center site. Route 9A is also referred to as West Street. West Street is used for building addresses along Route 9A in the vicinity of the World Trade Center Site).
RIMS II	Regional Input-Output Modeling System.
RTK	Right-To-Know.
SAV	Submerged aquatic vegetation.
SBA	U.S. Small Business Administration.
SDEIS	Supplemental Draft Environmental Impact Statement.
Section 4(f)	Section 4(f) of the Department of Transportation Act of 1966 (49 USC §303).
Section 106	Section 106 of the National Historic Preservation Act of 1966 (16 USC §470(a)).
SEQRA	New York State Environmental Quality Review Act.
SFP	Square feet per Pedestrian
SHPA	New York State Historic Preservation Act of 1980.
SHPO	State Historic Preservation Officer, a division of the New York State Office of Parks, Recreation, and Historic Preservation.
SIC	Standard Industrial Code.
SIP	State Implementation Plan.
SLM	Sound Level Meter.
S/NR	State and National Registers of Historic Places.
SO_2	Sulfur dioxide; an air pollutant mainly associated with the combustion of sulfur-containing fuels such as diesel and fuel oil.
SPDES	New York State Pollutant Discharge Elimination System (Article 17, Title 8, of the New York State Environmental Conservation Law).
SR	New York State Register of Historic Places.
SWPPP	Stormwater Pollution Prevention Plan.
TAC	Technical Advisory Committee.
TIP	Transportation Improvement Program.
TMP	Traffic Management Plan.
TMU	Tribeca Mixed-Use.
UDC	New York State Urban Development Corporation.
USC	U.S. Code.
USCG	U.S. Department of Homeland Security, Coast Guard.

USDOT	U.S. Department of Transportation.
USGBC	U.S. Green Building Council.
USGS	U.S. Geological Survey.
USFWS	U.S. Department of the Interior, Fish and Wildlife Service.
UST	Underground storage tank.
ULSD	Ultra low-sulfur diesel.
v/c	Volume-to-capacity ratio.
VdB	A unit of measure of vibration in decibels, which are distinct from noise decibels.
VOC	Volatile organic compound.
vph	Vehicles per hour.
WFC	World Financial Center.
WRP	Waterfront Revitalization Program.
WSURA	Washington Street Urban Renewal Area.
WTC	World Trade Center.

✳

PERMANENT WTC PATH TERMINAL

FINAL ENVIRONMENTAL IMPACT STATEMENT



VOLUME II

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Part 1 of 2
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United States Department of Transportation
Federal Transit Administration

THE PORT AUTHORITY OF NY & NJ

PATH

MAY 2005

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Appendix A

Land Use, Neighborhood Character, and Public Policy

Appendix A: Land Use, Neighborhood Character, and Public Policy

Table A-1
2006 Construction Period Future Common to All Alternatives: Lower Manhattan Projects Planned for Completion*

Map No.**	Name	Address	Status	Use
WTC Redevelopment Sites—Under Construction				
North of WTC Site				
1	Barclay-Vesey (Verizon) Building	140 West Street	2004	Restoration: 1,171,540 sf office
2		125 Church Street	2004	50 residential units
7	Woolworth Building	233 Broadway	2004	150 residential units
3	7 World Trade Center	Vesey and Greenwich Streets	2005	1,685,000 sf office + 2 electrical substations
4	Federal Office Building/U.S. Post Office	90 Church Street	2005	500,000 sf (Post Office) & 626,260 sf (Office)
5		10 Barclay Street	2005	375 residential units, 19,341 sf community facility, 90 parking spaces
6	WSURA Site 5C	Route 9A and Chambers Street	2006	456 residential units, 14,000 sf retail, 18,000 sf community facility, 102-space parking garage
Broadway Corridor—NONE				
Greenwich South Corridor				
8		90 West Street	2005	410 residential units, 11,400 sf retail, 69 accessory parking spaces
Battery Park City				
9	Teardrop Park	22 River Terrace	2004	Recreation/open space
10	Museum of Jewish Heritage	Site 14C, BPC S	2004	Institutional(museum expansion)
12		Site 18B, BPC	2005	268 residential units, 14,000 sf retail
13		Site 19B, BPC	2005	264 residential units
14		Pier A	2005	7,000 sf retail
17		Site 3, BPC S	2006	420 residential units, 45,000 sf institutional (BPC Parks Conservancy)
18	Route 9A—Promenade South	Between West Thames Street and Battery Place; Battery Place between Route 9A and Washington Street	2006	Transportation
49		Site 16/17, BPC N	2006	530 residential units, 12,000 sf NY Public Library Branch, 4,000 sf World Hunger, 10,000 sf cultural not-for-profit, 100 sf BPC Parks Conservancy, 1,400 seat café, 14,682 sf open space
Tribeca				
19		161 Hudson Street	2004	Residential conversion
20		200 Church Street	2004	20 residential units
21		3-9 Hubert Street	2004	34 residential units
22		416 Washington Street	2004	87 residential units
23	NY Law School	Church Street between Leonard and Worth Streets	2005	Educational (expansion)
24		448 Greenwich Street	2006	120 residential units
Chinatown below Canal Street—NONE				
Brooklyn Bridge to Battery Park				
25		10 Liberty Street/William Street	2004	284 residential units, 3,000 sf retail
26		2 Gold Street	2004	605 residential units, 24,500 sf retail
27	Whitehall Ferry Terminal	Whitehall Street	2004	Transportation, 10,000 sf retail
28	Hampton Inn	320 Pearl Street	2004	80 hotel rooms
29		63 Wall Street	2005	475 residential units
30		85 South Street	2005	50 residential units
67	Block 97	Front Street, Beekman Street, Peck Slip	2005	100 residential units
64		15 William Street	2006	348 residential units, 68,000 sf office, 5,500 sf retail, 91 accessory parking spaces
68	NYU Downtown Hospital	Between Spruce and Beekman Streets	2006	800 residential units, 40,000 sf ambulatory care center, 400 parking spaces
Civic Center Area—NONE				

Notes: * Residential conversions of 20 units or less have not been included.
** See Figure A-1 for corresponding No Build map.

Sources: AKRF, Inc., New York City Department of City Planning, Lower Manhattan Development Corporation, New York State Department of Transportation, Alliance for Downtown New York, Manhattan Community Board One, Battery Park City Authority.

Table A-2
2009 Opening Year Future Common to All Alternatives: Lower Manhattan Projects Planned for Completion*

Map No.**	Name	Address	Status	Use
WTC Redevelopment Sites				
31	Memorial	WTC Site, Southwest Quadrant	2009	212,200 sf Memorial
31	Memorial Center	WTC Site, Southwest Quadrant	2009	50,000 sf museum space dedicated to September 11 and related events
31	Cultural	WTC Site, Southwest Quadrant	2009	200,000-240,000 sf (includes Memorial Center and other cultural uses)
31	Freedom Tower	WTC Site, Northwest Quadrant	2009	2.6 million sf office, 60,000 sf garden, space for café (600 seats) and restaurant (400 seats), 6,000 sf viewing deck (400-person capacity)
31	Performing Arts	WTC Site, Northwest Quadrant	2009	Performing Arts center, 2,200 seats
31	Tower 2 Base	WTC Site, Northwest Quadrant	2009	57,000 sf retail
31	Tower 3 Base	WTC Site, Northwest Quadrant	2009	126,000 sf retail
31	Tower 4 Base	WTC Site, Northwest Quadrant	2009	127,500 sf retail
31		WTC Concourse Levels	2009	Additional retail area, bringing total up to 1 million square feet; parking for automobiles and loading facilities to accommodate 80 trucks; utilities and possible bus garage
31	September 11 Place	WTC Site, Southwest Quadrant	2009	12,562 sf open space
31	PATH Plaza	WTC Site, Southeast Quadrant	2009	30,545 sf open space
31	Wedge of Light (north of Fulton)	WTC Site, Northeast Quadrant	2009	21,602 sf open space
31	Wedge of Light (south of Fulton)	WTC Site, Southeast Quadrant	2009	25,174 sf open space
31	Liberty Park	South of Liberty Street	2009	29,766 sf open space
31	Bus Parking Facility	Below grade South of Liberty Street or the WTC Site	2009	Below-grade bus parking facility (100 buses)
North of WTC Site				
32	WSURA Site 5B	270 Greenwich Street	2008	730 residential units, 240,000 sf retail
41	Fiterman Hall	30 West Broadway	By 2009	360,000 sf institutional
Broadway Corridor				
33	Fulton Street Transit Center	Fulton Street and Broadway	2008-09	Transportation
Greenwich South Corridor				
72	Castle Clinton	Castle Clinton National Monument, Battery Park	2007	Cultural
Battery Park City				
15		Site 23, BPC N	2007	246 residential units, 20,000 sf institutional (BPC Parks Conservancy)
16		Site 24, BPC N	2007	345 residential units, 40,000 sf community recreation center
34	Route 9A—Reconstruction	Between Chambers and West Thames Streets	2007	Transportation
11		Site 2, BPC S	By 2009	282 residential units, 125,000 sf Women's Museum
35		Site 26, BPC N	2009	2.3 million sf office (1.275 million sf office, 450,000 sf trading floors, 200,000 sf building amenity space, 345,000 sf mechanical space), up to 30,000 sf retail, up to 300 accessory parking spaces
54	Ponte Sites	Leonard Street and West Broadway	By 2009	380 residential units
Tribeca				
36		258 West Street	By 2009	68 residential units
37	Hudson River Park, Segment 3	Chambers Street to north of Canal Street	By 2009	Public open space
Chinatown below Canal Street				
59	New York Post	Catherine Slip on Water Street	2007	650 residential units, mini-storage use (existing)
Brooklyn Bridge to Battery Park				
38		23 Wall Street / 15 Broad Street	2007	428 residential units, 850,000 sf institutional and/or hotel and/or retail
39	South Ferry Subway Terminal	South Ferry	2007	Transportation
66		250 Water St, Peck Slip-Beekman Street	2007	300 residential units, 175,000 sf institutional
63		Rockrose/ 201 Pearl Street	2008	315 residential units, 30,000 sf retail
73		20 Exchange Place	By 2009	Residential conversion (720 units)
74	Wall Street Regent Hotel	55 Wall Street	By 2009	Residential conversion (200 units)
Civic Center Area—NONE				

Notes: * Residential conversions of 20 units or less have not been included.
** See Figure A-1 for corresponding No Build map.

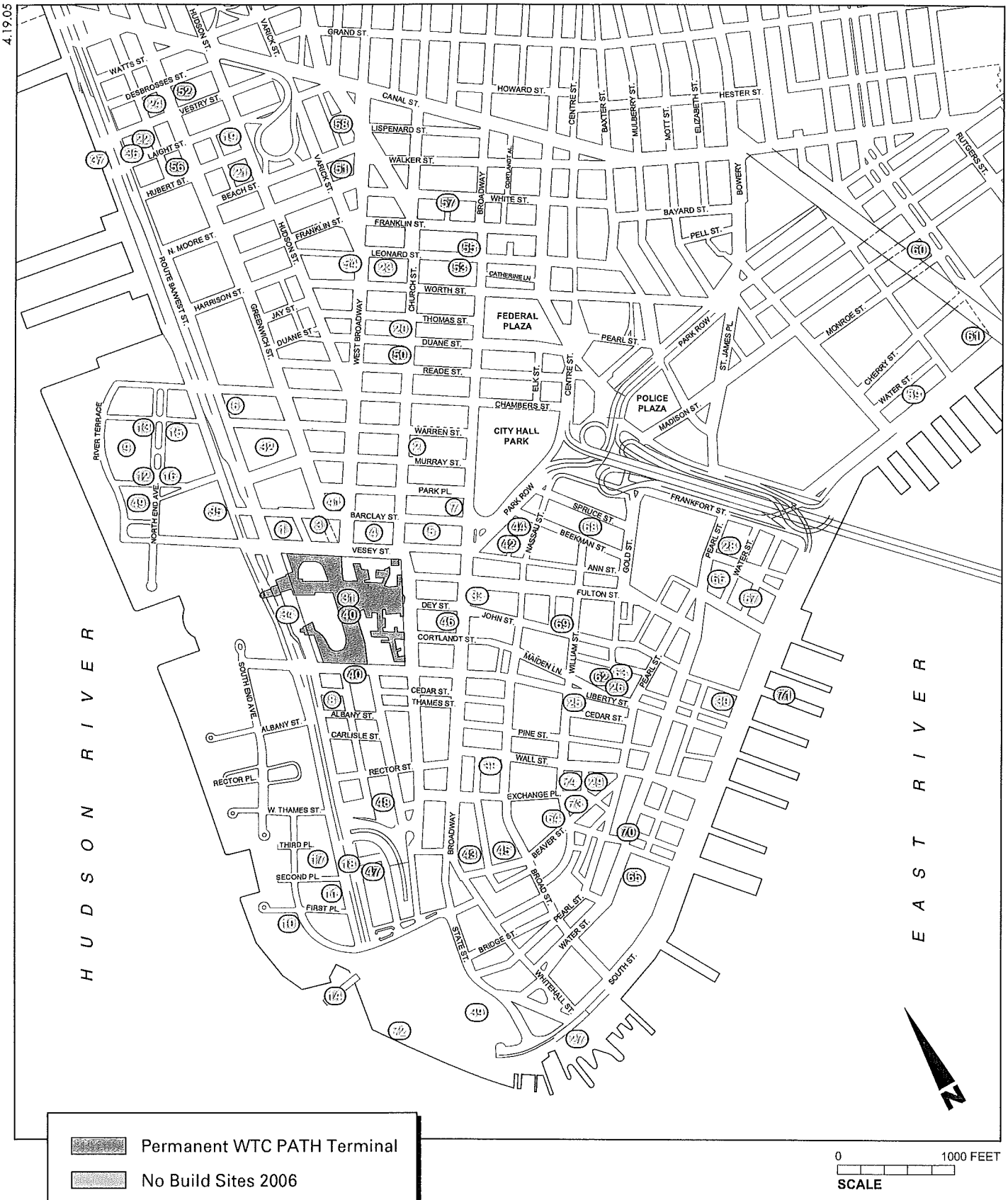
Sources: AKRF, Inc., New York City Department of City Planning, Lower Manhattan Development Corporation, New York State Department of Transportation, Alliance for Downtown New York, Manhattan Community Board One, Battery Park City Authority.

Table A-3
2025 Design Year Future Common to All Alternatives:
Lower Manhattan Projects Planned for Completion**

Map No.**	Name	Address	Status	Use
WTC Redevelopment Sites				
40	Tower 2	WTC Site, Northeast Quadrant	2015	2.2 million sf office
40	Tower 3	WTC Site, Southeast Quadrant	2015	1.9 million sf office
40	Tower 4	WTC Site, Southeast Quadrant	2015	1,7 million sf office
40	Tower 5	South of Liberty Street	2015	1.6 million sf office, 17,300 sf retail
40	Hotel	WTC Site, Northeast Quadrant	2015	600,000 sf hotel (800+ rooms), 150,000 sf function space
North of WTC Site				
Broadway Corridor				
42		115 Nassau Street	Proposed	Residential conversion
43		10 Broadway	Proposed	Residential conversion
44		5 Beekman Street	Proposed	Residential conversion
45		60 Broad Street	Potential	200 residential units, 800,000 sf office
46		West side of Broadway between Cortlandt and Dey Streets	Potential	unknown
Greenwich South Corridor				
47	Former Downtown Athletic Club	16-20 West Street	Potential	Residential or hotel
48	Battery Garage/ Greenwich Square	Greenwich / West Streets	Potential	600 residential units, open space
Battery Park City				
Tribeca				
50		130 Duane at Church	Proposed	45 hotel rooms
51		24 Varick Street / 240 West Broadway	Proposed	32 residential units
52		443 Greenwich Street	Proposed	256 residential units
53		90 Leonard Street	Proposed	275,838 sf (either res. or retail)
55		353-59 Broadway	Potential	
56		408 Greenwich Street	Potential	44,000 sf office with residential
57		55 White St	Potential	20 residential units
58		6 York St / West Broadway (at Sixth Avenue)	Proposed	150 hotel rooms
Chinatown below Canal Street				
60		150 Madison St	Potential	73,000 sf manufacturing
61		Two Bridges Site – north of Manhattan Bridge	Potential	
Brooklyn Bridge to Battery Park				
62		79 Maiden Lane	Proposed	400 residential units
65		55 Water Street	Proposed	518,050 sf office
69		59 John Street	Proposed	residential conversion
70	Second Avenue Subway	From 125th Street to Water Street at Hanover Square	Proposed	Transportation—new 8.5-mile subway line
71	East River Waterfront Park/ Developments	From Battery Maritime Building in Battery Park to South Street Seaport	Potential	Potential for active and passive open spaces, housing and cultural institutions
	Airport Access	Direct links from Lower Manhattan to JFK and Newark International Airports	Potential	Transportation
Civic Center Area—NONE				

Notes: * Residential conversions of 20 units or less have not been included.
** See Figure A-1 for corresponding No Build map.

Sources: AKRF, Inc., New York City Department of City Planning, Lower Manhattan Development Corporation, New York State Department of Transportation, Alliance for Downtown New York, Manhattan Community Board One, Battery Park City Authority.



PERMANENT WTC PATH TERMINAL
Final Environmental Impact Statement

Figure A-1
No Build Projects

Appendix B

Cultural Resources

Appendix B-1: **Coordinated Determination of National Register Eligibility—World Trade Center Site, New York City, New York**

U.S. Department
of Transportation

Federal Transit Administration
Lower Manhattan Recovery Office
One Bowling Green, Suite 436
New York, NY 10004
212-668-2500
212-668-2505 (fax)

Federal Highway Administration
New York Division
Leo W. O'Brien Federal Building, 7th Floor
Albany, NY 12207
518-431-4125
518-431-4121 (fax)

LMDC
Remember Rebuild Renew

Lower Manhattan Development Corporation
One Liberty Plaza, 20th Floor
New York, NY 10006
212-962-2300
212-962-2431 (fax)

March 31, 2004

To: Section 106 Consulting Parties (see attached list)

Re: *Coordinated Determination of National Register Eligibility—World Trade Center Site*

Dear Consulting Party:

Following review of comments on the February 6, 2004 coordinated determination of eligibility, Lower Manhattan Development Corporation, Federal Highway Administration, and Federal Transit Administration have prepared a revised Coordinated Determination of National Register Eligibility, dated March 31, 2004. A copy of that document is enclosed.

We thank you for your participation in the Section 106 process thus far and the coordinated determination of eligibility. We look forward to continuing consultation in the next steps of the Section 106 process as our respective projects proceed.

Sincerely,

Kevin M. Rampe
Lower Manhattan Development Corporation
President

Bernard Cohen
Federal Transit Administration
Director, Lower Manhattan Recovery Office

for Robert Arnold
Federal Highway Administration
New York Division Administrator

cc: Bernadette Castro, NY SHPO
New York State Office of Parks, Recreation and Historic Preservation

Richard Schmalz
New York State Department of Transportation

Joseph Seymour
The Port Authority of New York and New Jersey

Jan C. Opper
U.S. Department of Housing and Urban Development

List of Consulting Parties and Potential Consulting Parties

Charlene	Vaughn	Advisory Council on Historic Preservation
Klima	Don	Advisory Council on Historic Preservation
Anna	Melman	Alliance for Downtown New York, Inc.
Frederic	Bell	American Institute of Architects – NY Chapter
Michael	Levine	American Planning Association – NY Metro Chapter
Rosalie	Genevro	Architectural League of New York
Michelle	Adams	Association for a Better New York
Stephanie	Gelb	Battery Park City Authority
Helene	Seeman	BPC United
Edie	Lutnick	Cantor Fitzgerald Relief Fund
Richard	Kennedy	CB 1 WTC Redevelopment Committee
Bruce	Ehrmann	CB 1 Landmarks Committee
Anthony	Gardner	Coalition of 9/11 Families
Jack	Lynch	Coalition of 9/11 Families
Lee	Ielpi	Coalition of 9/11 Families
Phyllis	Wahahrockah-Tasi	Delaware Nation
Tom	Roger	Families of September 11th
Nikki	Stern	Families of September 11th
George	Schira	Greek Orthodox in America (St. Nicholas)
Robert	Kornfeld	Historic Districts Council
Laura	Blackman	Hudson River Park Trust

Kate	Daly	Landmarks Preservation Commission
Tricia	Mire	Lower Manhattan Cultural Council
Ninfa	Segarra	WTC Residents Coalition
David	Stanke	WTC Residents Coalition
Hon. C Virginia Fields		Manhattan Borough President
Frank	Sanchis	Municipal Art Society
Vicki	Weiner	Municipal Art Society
Marilyn	Fenollosa	National Trust for Historic Preservation
Elizabeth	Merritt	National Trust for Historic Preservation
Deborah	Bershad	New York City Art Commission
Robin	Forst	Office of Council member Gerson
Amanda	Burden	New York City Department of City Planning
Michael	Samuelian	New York City Department of City Planning
Kenneth T.	Jackson	New York Historical Society
Peg	Breen	New York Landmarks Conservancy
Bruce	Fowle	New York New Visions
Debra	Lester	Speak Silver's Office
Matt	Viggiano	Senator Connor's Office
Paul	Laudato	NYS Office of Parks, Recreation, and Historic Preservation Field Services Bureau
Robert	Kuhn	NYS Office of Parks, Recreation, and Historic Preservation Field Services Bureau
Kathy	Wylde	Partnership for New York City
Patty	Nonnan	Partnership for New York City

Daniel	Slippen	Pace University – Ctr for Downtown NY Poospatuck Nation Tribal Council
Scott	Heyl	Preservation League of New York State
Ken	Lustbader	Preservation League of New York State Consultant
Jesi	Pezzuoli	R.dot (Rebuild Downtown Our Town)
Petra	Todorovich	Regional Plan Association/Civic Alliance
Monica	Iken	September's Mission
Winonah	Warren	Shinnecock Nation Cultural Center and Museum
Michael	Gerrard	Silverstein Properties
Daniel	Matthews	St. Paul's Church
Kevin	Madigan	St. Peter's Church
Paul	Thompson	St. Regis Band of Mohawk Indians
Sherry	White	Stockbridge-Munsee Band of Mohicans
Jonathan	Hakala	Team Twin Towers
Hon. Michael Bloomberg		The City of New York
Keith	Martin	New York State DOT
Sharon-Frances Moore		Tribeca Organization
Philip	Craft	Congresswoman Maloney's Office
Linda	Rosenthal	Congressman Nadler's Office
Christopher	Shays	United States Congress
		US General Services Administration
Raymond	Gastil	Van Alen Institute
Sherida	Paulsen	Van Alen Institute
Megan	Cook	Verizon

Noah	Pfefferblit	Wall Street Rising
Bonnie	Burnham	World Monuments Fund
Diane	Homing	WTC Families for a Proper Burial
Sally	Regenhard	Skyscraper Safety Campaign
Mary	Fetechel	Voices of September 11
Louise	Lopresti	
Hon. George	Pataki	Governor of New York State
Peter	Miller	WTC Survivors' Network
Tim	Carey	Battery Park City

COORDINATED DETERMINATION OF NATIONAL REGISTER ELIGIBILITY—WORLD TRADE CENTER SITE NEW YORK CITY, NEW YORK, MARCH 31, 2004

I. INTRODUCTION

This document has been prepared pursuant to Section 106 of the National Historic Preservation Act in association with proposed reconstruction and redevelopment in the area of the approximately 16-acre World Trade Center superblock (WTC Site), bounded generally by Vesey Street on the north, Liberty Street on the south, Route 9A/West Street on the west and Church Street on the east.

The Federal Transit Administration (FTA), Federal Highway Administration (FHWA), and Lower Manhattan Development Corporation (LMDC), as a recipient of funds from U.S. Department of Housing and Urban Development (HUD), are coordinating the Section 106 processes for several proposed undertakings on or adjacent to the WTC Site: Permanent World Trade Center PATH Terminal (FTA with the Port Authority of New York and New Jersey [Port Authority]), World Trade Center Memorial and Redevelopment Plan (LMDC with HUD funding), and Route 9A Reconstruction (FHWA with New York State Department of Transportation [NYSDOT]). The substance of this document will be incorporated by each of the agencies into their respective environmental review documents.

Section 106 requires federal agencies to identify historic properties (e.g. buildings, structures, sites, objects and districts listed in or eligible for inclusion in the National Register of Historic Places) that may be affected by a proposed undertaking. This document focuses on the WTC Site.

Each of these undertakings is subject to environmental review under the National Environmental Policy Act (NEPA) and to review under Section 106. Environmental impact statements are being prepared for each of these independent undertakings. Because each of the undertakings is different and may have different effects, different Areas of Potential Effect (APEs) have been or will be defined for each undertaking. Identification of historic properties elsewhere in the various projects' APEs and the analysis of potential effects on those properties are being conducted separately.

This document includes information gathered in the NEPA scoping processes for the projects and in meetings with the consulting parties held in the offices of the LMDC at One Liberty Plaza, New York, New York, on January 6, 2004, and on February 2, 2004, as well as written comments received by the coordinating agencies through March 8, 2004.

This document is not intended to be an exhaustive history of the development of Lower Manhattan, the WTC, the events that lead up to September 11, 2001, the horrific events of September 11, or the rescue and recovery operations in the wake of those events. There is substantial and ongoing documentation of those events elsewhere in the numerous articles, books, films, and television reports and productions. This document is intended to express why the coordinating agencies have made a determination that the WTC Site is eligible for listing on the National Register of Historic Places. Each agency's environmental review document will include information relating to its specific project site and additional historical information relating to each project.

The coordinating agencies recognize however, that the WTC Site has been substantially altered since the attacks and collapses on September 11 and include an Appendix relating to artifacts removed from the WTC Site and a discussion regarding the current state of the WTC Site.

II. HISTORICAL INFORMATION

A. BACKGROUND

Prior to European contact in the early 17th century, Native Americans speaking a Munsee dialect of the Eastern Algonquin language inhabited Manhattan Island. Native Americans referred to the island of Manhattan as "Minna-atn" which meant "Island of Hills." The first contacts between Native Americans and Europeans occurred when early explorers began to trade with the native population. Dutch trading expeditions had been visiting the Hudson River for many years prior to the founding of New Amsterdam at the southern tip of Manhattan in 1626. These groups made contact with the native population; Robert Juet, who traveled with Henry Hudson on his 1609 voyage, provides in his journal a description of the native population and their trading practices. Dutch colonization in Manhattan began in earnest in 1625 when an expedition of farmers from the Dutch West India Company arrived at the southern tip of Manhattan with the purpose of building a fort and laying out nine Company farms.

Wall Street was once the northern line of land fortification for the settlement and Pearl Street, to the east of the WTC Site, formed the eastern edge of the island. The Hudson River waterfront ran along the approximate location of Greenwich Street today. Because it was a high bluff, shipping and piers were located along the East River. Blocks were largely formed in an irregular pattern as former farms were developed, giving the area its characteristically winding and narrow system of streets. By the end of the 18th century, the island's shoreline had been extended with new land created on fill. The city's waterfront, particularly around the southern portion of the island, was its important trade and business area. Residential areas, concentrated both inland and farther north including Tribeca, were located away from the commercial and industrial uses.

Tribeca is a neighborhood in Lower Manhattan, generally bounded by Canal Street to the north, Broadway to the east, Barclay Street to the south and the Hudson River to the west. The area's name was adopted by real-estate developers in the mid-1970s and stands for "triangle below Canal." Originally farmland, Tribeca was transformed into a residential neighborhood in the early 1800s, including an enclave of stately brick residences surrounding St. John's Park (subsequently redeveloped with a freight depot and now the site of St. John's Rotary and the exit of the Holland Tunnel) on Hudson Street. Bear Market, a fruit and produce market (which became known as Washington Market), opened at the western end of the neighborhood in 1813, and became one of the city's key food suppliers. It came to occupy a full block along Washington Street between Fulton, Vesey, and West Streets, now part of the WTC Site. However, the neighborhood remained primarily residential until the 1840s, when shipping and commerce in Lower Manhattan intensified, attracting business and making the area a major point of transfer. By the 1860s, the area had become a commercial district as the city's commercial core stretched north. The western portion, containing the Washington Market district, became New York's wholesale food center, covering roughly the western half of what is Tribeca today. In 1872, the New York Mercantile Exchange, known first as the Butter and Cheese Exchange of New York, was founded by dairy merchants seeking to standardize the wholesale business. Booming business necessitated the construction of a new structure for the Exchange at the corner of Hudson and Harrison Streets in 1882; the Exchange occupied this location until its move to a larger space in the WTC in 1977 and then again to Battery Park City (BPC). During the 1880s, new warehouses were built to house mercantile exchanges dealing in butter, cheese, and eggs. At the time of construction of the 1884 Washington Market building, a time capsule containing business cards and a note in remembrance of the construction of the market signed by 32 businessmen was buried; this was discovered at the excavation for the WTC. The eastern portion of Tribeca became a central transfer point for textiles and dry goods by the middle of the century, with new stores, factories, and storage houses built to house those uses.

The development of Lower Manhattan as a shipping and mercantile district continued through the late 19th century. At the same time, banks, investment companies, and brokerage firms built corporate offices in Lower Manhattan to be near the trading activity of the New York Stock Exchange (NYSE) and other

financial and trading institutions, creating what is known to this day as New York City's Financial District. Construction of the Brooklyn Bridge was completed in 1883 to link the cities of Brooklyn and New York and to serve a growing Brooklyn population which until then could only travel to Manhattan by ferry. In addition, the bridge opened up trade routes to Brooklyn, Queens, and the remainder of Long Island, which were primarily farmland. At the turn of the century, tall towers began to appear on the Lower Manhattan skyline. In 1898, 15 Park Row became the world's tallest office tower. Subsequently, other large buildings were erected during the first half of the 20th century—among them the Equitable Building, the Woolworth Building, 70 Pine Street, and 40 Wall Street.

During the first half of the 20th century, Tribeca, including the Washington Market, remained a vital commercial district. However, in the 1950s and 1960s, the Tribeca area underwent yet another transformation. Shifts in market and economic trends resulted in the moving away and/or closure of wholesale business, leaving the many warehouses in the area empty. In the 1960s, the city established the Washington Street Urban Renewal Area (WSURA), which transformed Tribeca and adjacent neighborhoods from failing wholesale and industrial uses to new residential and office uses with schools to serve the new community. Artists were the first to make use of the available spacious and lit buildings, with many factories and warehouses converted to residential lofts. Today Tribeca is a fashionable residential district that includes art galleries, upscale shops, and restaurants.

B. THE WORLD TRADE CENTER

The WTC was originally conceived in the early 1960s by the Downtown-Lower Manhattan Development Association. Chase Manhattan Bank chairman David Rockefeller, founder of the development association, and his brother, New York governor Nelson Rockefeller, pushed hard for the project, insisting it would benefit the entire city. In 1962, the States of New York and New Jersey authorized and directed the Port of New York Authority, now known as the Port Authority of New York and New Jersey (the Port Authority), to acquire the Hudson & Manhattan (H&M) Railroad, an interstate public transit system (now known as PATH). That same year, the Port Authority began plans to build the WTC, and selected architect Minoru Yamasaki to design the project, architects Emery Roth & Sons to handle production work, and, at the request of Yamasaki, the firm of Skilling, Helle, Christiansen and Robertson to serve as engineers. The Port Authority envisioned a project with a total of 10 million square feet of office space. To achieve this, Yamasaki considered more than a hundred different building configurations before settling on the concept of twin towers and three lower-rise structures.

A 12-block area was cleared to create the WTC Site. Five city streets were closed, buildings on the site were demolished, and the site was extensively excavated, especially the area west of the No. 1/9 IRT subway line where the "bathtub" that became the base for the Twin Towers was created. The WTC Site, including the Twin Towers, was built around the Hudson Tubes of the H&M Railroad, which traversed the bathtub, without any interruption of train service. A new PATH Terminal and tracks were constructed at a lower level in the bathtub, replacing the Hudson Terminal of the H&M Railroad on Church Street.

STRUCTURAL AND BUILDING FEATURES

Several structural and building features made the construction of the WTC possible. These features are described below and involved the foundations, elevators and structural system.

Foundations

Much of the ground on which the WTC would be located lay on landfill, which had extended the west side of Lower Manhattan into the Hudson River. Roughly half of the WTC would be located where the Hudson River once flowed. As over a million cubic yards of fill would need to be excavated to set the WTC on bedrock, at issue was how to keep the waters of the Hudson River out. John M. Kyle Jr., chief engineer at the Port Authority, is credited with developing a solution by suggesting the use of the slurry trench method. With this method, excavating machines dug a three-foot-wide trench down to bedrock,

roughly 70 feet below street level. These trenches were dug in 22-foot-wide sections. As fill was removed from each section, a slurry of water and bentonite (an expansive clay) was pumped in. The clay naturally plugged any holes in the sides of the dirt walls. A giant reinforcing steel cage was then lowered into the trench with attachment points for reinforcing tiebacks that were later anchored to bedrock outside the wall. Then, concrete was poured into the trench which forced out the temporary slurry as it rose from the bottom up. These three-foot-thick wall sections became known as the bathtub, although it was meant to keep water out, not in. Once the wall was complete, earth from within the bathtub was removed, and was used as fill on which BPC was later built. When the infrastructure inside the bathtub was complete, the tiebacks were severed.

Elevators

A second feature associated with the Twin Towers was the design of express and local elevators. Although the invention of elevators made skyscrapers possible, elevators were thought to limit how high skyscrapers could go—the higher the building, the more people in the building and, therefore, a greater number of elevators would be needed. Additional elevators would occupy more floor space, thus leaving less floor space available to rent. This dilemma was a limiting factor in the development of skyscrapers and is why most skyscrapers seldom climbed beyond 80 stories. In order to maximize floor space and provide enough elevators to support all the office workers, the Twin Towers were divided into three zones for vertical transportation needs. Local elevators for each of these zones were stacked vertically in the core of the building serving the floors within the zone. Large express elevators traveled up to "skylobbies" on the 44th and 78th floors. At these floors passengers would exit the elevators on the side opposite from where they had entered and would cross the lobby to utilize local elevators. Each tower also had two express elevators that went all the way to the top from street level, and a freight elevator that went all the way to the top from the bottom subgrade level. This skylobby system, by separating express and local elevators, maximized efficiency of transport and economy of space.

Structural System

Tube-style construction was used for the Twin Towers whereby structural steel columns were located only along the exterior wall and around the central core of elevator shafts, stairwells and bathrooms. Thus, the exterior walls would carry the vertical loads as well as resisting all lateral winds. This construction method was made possible by the use of high-strength steels that had not been available previously. The vertical load bearing columns were closely spaced and also served as frames for the narrow floor-to-ceiling windows.

The perimeter columns of the Twin Towers extended vertically into the concrete floor of the bathtub, although in certain areas the perimeter column loads were transferred to span over bottom level infrastructure, including the PATH tracks. Therefore, not all of the perimeter columns in the concrete floor of the bathtub were aligned with the actual façade perimeters of the Twin Towers that were visible at grade.

COMPLETION OF WTC

The WTC represented major urban renewal planning of the 1960s. It comprised six buildings, including the 110-story Twin Towers (1 and 2 WTC). These buildings rose over 1,350 feet and were the two tallest buildings in the world when completed in December 1970 and April 1972. The roof of 1 WTC also had a 351.5-foot mast supporting television and FM radio antennae for major public and private broadcasters in New York City. Occupancy of the Twin Towers began in December 1970 at 1 WTC and in April 1972 at 2 WTC.

The WTC also included Four and Five World Trade Center (4 and 5 WTC), both of which were nine-story buildings; the eight-story United States Customs House (6 WTC); and a 22-story hotel (3 WTC), all of which surrounded the Austin J. Tobin Plaza (the Plaza). Directly below the Plaza was the Concourse,

which consisted of a retail mall and transportation hub that provided pedestrian connections to the PATH trains to New Jersey and several subway lines operated by MTA/NYCT. There were six below-grade floors in the bathtub and three below-grade levels on the east side of the WTC Site, providing parking for approximately 2,000 cars, a system of freight servicing and loading, and significant infrastructure and utilities supporting the operation of the WTC's buildings and transportation facilities, including PATH. The six below-grade floor slabs also provided critical lateral stability for the slurry wall of the bathtub. This subgrade area in the bathtub contained various central plant and services and a grid of columns (30-foot by 30-foot in most areas) to support these subgrade slabs and buildings. Certain structural columns, particularly those adjacent to the north and south slurry walls, were placed in accordance with the contours of the bathtub, the PATH tracks, and other infrastructure components. Thus, there were notable exceptions and an irregular pattern in the areas of the PATH tracks at the north and south ends of the WTC bathtub.

Historically, Lower Manhattan's skyline was developed with the most technologically advanced buildings of the time. As skyscraper technology allowed taller buildings to be built, many pioneering buildings were erected in Lower Manhattan, several of which were intended to be—and were—the tallest building in the world, such as the Woolworth Building. These modern skyscrapers were often constructed alongside older low buildings. By the mid 20th-century, the Lower Manhattan skyline was a mix of historic and modern, low and hi-rise structures, demonstrating the evolution of building technology, as well as New York City's changing and growing streetscapes. Although many skyscrapers were located in the immediate vicinity, the new WTC introduced structures of a much larger scale. When completed, the Twin Towers were the most prominent features of the new WTC and Lower Manhattan's skyline

The large volume of soil excavated for the WTC became fill that began the creation of BPC. BPC was originally conceived around the construction of a seven-story megastructure containing urban functions and amenities, including shops, restaurants, schools, parks, rapid transit, utilities, and public and recreational facilities. A partly glassed-in, partly open service spine was designed to run through the length of BPC connecting all the buildings. The BPC area of 23.5 acres was deeded to New York City.

POST WTC COMPLETION

Shortly after the WTC opened, the recession of the mid-1970s began, the local real estate market collapsed, and plans for BPC were halted. However, a movement to reuse old industrial and commercial buildings was well underway to the north in the newly named SoHo neighborhood, a trend which moved to other industrial and commercial districts, including Tribeca. Attracted by spacious floors, large windows, and low rents—and aided by tax abatement—artists led what became a strong trend of converting former industrial space to residential use.

In the late 1970s, the financial industry rebounded. As the real estate market recovered, space, so plentiful a few years earlier, became scarce. A new wave of office construction began. This activity was accompanied by a new Master Plan for BPC in 1979 that would create a mixed commercial and residential development. The 1979 plan introduced sidewalks and extended the street grid toward the Hudson River. The commercial center was moved from the southern end of the WTC Site up to the middle, tying it to the WTC, with residential developments planned to the north and south.

Pursuant to an agreement between the Port Authority and New York State's Battery Park City Authority (BPCA), a climate-controlled pedestrian bridge was built connecting the northern part of the WTC Site with the commercial core of BPC constructed by the BPCA west of the WTC. North of the 16-acre WTC Site proper was Seven World Trade Center (7 WTC), a 47-story office building completed in 1987 over two electrical substations occupied by Consolidated Edison Company of New York, Inc. (Con Edison). 7 WTC was connected to the WTC Site by a pedestrian bridge over Vesey Street.

South of the WTC Site the two blocks fronting Liberty Street between Greenwich Street and Route 9A were occupied by a 39-story office building at 130 Liberty Street, the Church of St. Nicholas at 155 Cedar Street and a parking lot surrounding the church.

On February 26, 1993, at 12:18 pm, a terrorist truck bomb was set off in the public parking garage underneath the WTC killing six individuals, including a pregnant woman, and causing extensive damage to subgrade infrastructure and the hotel (3 WTC). Following the bombing, public parking was eliminated and a security improvements (capital upgrade) program, as well as certain operational security measures were implemented. In 1995, the Port Authority erected a public "World Trade Center Memorial" on the plaza level of the WTC above the blast site and a private memorial area was established in a subgrade level.

By the turn of the 20th century, the WTC was more than 95 percent occupied and a major economic driver in Lower Manhattan and the Twin Towers were symbols of commercial vitality, representing the strength of the Financial District and New York City as a world leader in trade and finance. The WTC also was a symbol of the rebirth of the downtown. The Twin Towers were the most prominent buildings at the WTC and had become cultural icons and important symbols of the nation's global economic power. The sheer height and scale of the towers was a bold architectural statement. The Twin Towers were also one of the country's most widely recognized architectural symbols. Located at the heart of the nation's third-largest business district, the WTC employed over 42,000 workers, and contained approximately 12 million square feet of commercial office space within the Twin Towers and four adjacent office buildings, as well as hotel and conference facilities, open space, and one of the most successful enclosed specialty retail centers in the country.

C. SEPTEMBER 11, 2001

THE ATTACKS

On September 11, 2001, terrorists hijacked three commercial jetliners (two of which departed from Logan International Airport and one of which departed from Washington Dulles International Airport) and used them to destroy the WTC and damage the Pentagon, respectively. An additional commercial jetliner (which departed from Newark Liberty International Airport) was hijacked and subsequently crashed in Pennsylvania.

At 8:46 am, American Airlines Flight 11 carrying 92 people struck the north tower (1 WTC) between floors 94 and 98, with the impact roughly centered on the north face. Almost immediately, national and international media coverage began. At 9:03 am, United Airlines Flight 175 carrying 65 people struck the south tower (2 WTC) between floors 78 and 84 toward the east side of the south face. Each plane banked steeply as it was flown into a tower, causing damage across multiple floors. As the aircraft impacted the buildings, fireballs erupted and jet fuel spread across the impact floors and down interior shaftways, igniting fires.

As the resulting fires raged throughout the upper floors of the two towers, thousands attempted to evacuate the buildings. Anecdotes taken from survivors indicate heroic behavior was commonly displayed. Some mobility-impaired occupants were carried down many flights of stairs by other occupants. There were numerous reports of people frequently stepping aside and temporarily stopping their evacuation to let burned and badly injured occupants pass by. As the occupants evacuated down and out of the buildings, firefighters and first responders were working their way up the stairways toward the fires.

THE COLLAPSES, DESTRUCTION, AND LOSS OF LIFE

At 9:59 am, 56 minutes after it was struck, the south tower collapsed. The north tower continued to stand until 10:29 am when it, too, collapsed.

The collapses of the towers caused destruction of or extensive damage to all the other buildings on the WTC Site as well as several adjacent buildings. Portions of the south tower (2 WTC) fell on the hotel (3 WTC) at the corner of Liberty Street and Route 9A, on the building at the corner of Liberty and Church Streets (4 WTC), on the central plaza and on the surrounding streets and the area south of Liberty Street, including the building and plaza at 130 Liberty Street just to the south of the WTC. When the north tower (1 WTC) collapsed portions fell on 6 WTC, on 5 WTC, on the plaza, and on the surrounding streets and structures west of Route 9A and north of Vesey Street. All mass transit stations and facilities at the WTC Site were destroyed, and service on several lines was shut down until new connections could be established. The aftermath left victims, human remains, building materials and burning debris covering the entire WTC Site (see Photo 1).

Images of these events were broadcast and were recorded by the media as well as by eyewitnesses. These images were seared in the minds of those who survived the events as well as those who witnessed them in person or on television.

North of the WTC Site, damage to 7 WTC resulted in its collapse later that day. South of the WTC Site, the Church of St. Nicholas was destroyed; 130 Liberty Street was severely damaged, and its two-level plaza along Liberty Street was destroyed. Other buildings surrounding the WTC Site, including the Hilton Hotel, Century 21 Department Store and the Federal Office Building/U.S. Post Office on Church Street, Fiterman Hall on Barclay Street, 90 West Street and the Barclay-Vesey (Verizon) Building on Route 9A, and the Winter Garden, the World Financial Center, and Gateway Plaza in BPC were also severely damaged. Material covered a larger area, with the bulk in the immediate area extending north to Chambers Street, east to Nassau/Broad Streets, south to the Battery, and west to the Hudson River waterfront.

While an estimated 15,000 people were evacuated from the WTC Site, approximately 2,749 people in and around the WTC lost their lives including workers, commuters, residents, visitors, those on the hijacked airliners, and rescue personnel. This death toll number includes 343 New York City fire fighters, 23 New York City police officers, 37 members of the Port Authority Police Department, 92 passengers on American Airlines Flight 11 and 65 passengers on United Airlines Flight 175. Tens of thousands of others were evacuated from the immediate area. There was no loss of life in the PATH system, as PATH trains were directed to not offload passengers at the WTC, and service to the WTC was suspended.

THE AFTERMATH, RESCUE AND RECOVERY OPERATIONS

Shortly after the two attacks on the WTC, all flights in the United States were grounded by the order of the Federal Aviation Administration (FAA). The Port Authority of New York and New Jersey Police Department (PAPD) and other Port Authority employees, the New York City Police Department (NYPD), the Fire Department of the City of New York (FDNY), other emergency response personnel, and concerned citizens rushed to respond to these attacks.

In recognition of the disastrous impact of the terrorist attacks, President George W. Bush declared Lower Manhattan a national disaster area and $21 billion in aid was approved by the United States Congress for the repair, restoration, and recovery efforts. These funds were allocated to the Federal Emergency Management Agency (FEMA), FTA, and HUD for specific objectives and grants, to be separately administered by each of the agencies and local project sponsors.

In November 2001, the New York State Urban Development Corporation d/b/a Empire State Development Corporation (ESDC) established the LMDC, to oversee the revitalization and rebuilding of Lower Manhattan. Eight of the 16 members of the Board of Directors of LMDC are nominated by the Governor of the State of New York and eight are nominated by the Mayor of the City of New York. LMDC's activities, including the currently proposed WTC Memorial and Redevelopment Plan, are being funded through grants from HUD made possible under a $2.783 billion appropriation from the United States Congress for the purpose.

The effects of the terrorist attacks were felt throughout the region and the country, leading to an outpouring of support from local, national, and international levels for the physical, financial, and emotional recovery efforts that continue to this day. Roughly 1,600 FEMA workers were dispatched to Lower Manhattan to assist in the recovery effort. Thousands of volunteers came to the area to assist. In the aftermath, the image of the Twin Towers became a symbol of antiterrorist resolve and the collective determination of the city, the state, and the nation called for rebuilding to restore the iconic center of the Financial District and to honor those who died there on September 11, 2001 and on February 26, 1993.

Much of Lower Manhattan south of Houston Street became a restricted area and was cordoned off in the weeks following the attacks for security and recovery reasons. Large streets and parks, including Route 9A, Battery Park, and the Hudson River Park below Houston Street, were taken over by safety installations, emergency vehicles, recovery equipment, and rescue and recovery facilities for extended periods of time. Some streets remain closed or occupied by safety installations and construction equipment. Many of the businesses and residents in the surrounding area were temporarily displaced, and some have not returned. The building at 130 Liberty Street remains standing, damaged and vacant.

The WTC Site as it existed as of noon on September 11 was transformed yet again by the rescue and recovery operations that began immediately after the attacks under the direction of the FEMA and the New York City Department of Design and Construction (DDC). Work continued 24 hours a day, seven days a week. Initial efforts were tremendous and focused on human rescue operations; only eighteen people were rescued from the ruins of the WTC, two of them were injured police officers discovered in the underground retail concourse. The remaining sixteen were all found among the ruins of 1 WTC. Fourteen of them, twelve firefighters, one police officer and one civilian office worker, were found largely unscathed in an intact stairwell section between the second and fourth floors, sandwiched between collapses. The remaining two rescued were two Port Authority employees recovered in the rubble of the north Tower. The second of these two was rescued approximately 27 hours after the collapse and was the last person to emerge alive from the ruins. As the days passed, the likelihood of successful rescue diminished. As of January 2004, the New York City Office of the Chief Medical Examiner (OCME) confirmed the deaths of 2,749 individuals. Nearly 20,000 human remains have been recovered to date, some of which have not been identified. The unidentified remains have been preserved by the OCME. There are more than 1,200 victims for whom no remains have been identified.

Following September 11, 2001, the City of New York maintained primary responsibility for the recovery efforts and coordinated its efforts with other private and governmental entities until June 30, 2002, when recovery efforts concluded and DDC returned the WTC Site to Port Authority control. Approximately 1.8 million tons of damaged structures and materials were removed through the fall, winter, and spring of 2001-2002. Damaged portions of the lower facades of the Twin Towers that were still intact in the aftermath were cut and removed to allow the recovery of human remains. On the east side of the WTC Site, the standing portions of 4 WTC and 5 WTC were demolished with wrecking balls and removed. Removal of the material from building structures above and below ground exposed the 70 foot deep bathtub within the western portion of the WTC Site which had contained the bases of the Twin Towers, the hotel (3 WTC) and the U.S. Customs House (6 WTC) as well as the PATH Terminal and supporting facilities including the parking garage where the explosives were detonated in the 1993 terrorist attack on the WTC.

As material was removed from areas near the WTC and the near-term stability of standing structures was verified, workers and residents were generally allowed to return to the surrounding area. By the beginning of 2002, the restricted area was pushed back west of Broadway and south of Barclay Street and a public viewing platform was constructed on Fulton Street just east of Church Street. The platform remained in place until Church Street was opened and a wide sidewalk/viewing area on the west side of the street (on the eastern edge of the WTC Site) was created. While Liberty, Vesey, and Barclay Streets surrounding the WTC Site remain closed to vehicular traffic, pedestrian paths have been created across Vesey and Liberty Streets from Church Street to Route 9A. Route 9A was re-opened on March 29, 2002, after construction

of an interim roadway allowing the re-opening of the Brooklyn Battery Tunnel. However, some buildings to both the south and the north of the WTC Site remain unoccupied. Most are being repaired or reconstructed. The fate of Fiterman Hall, a building on the north side of Barclay Street being renovated for use by the Borough of Manhattan Community College before September 11, is uncertain.

In order to stabilize and conserve what remained of the WTC Site as well as to protect the health and safety of rescue workers, necessary infrastructure repairs were undertaken concurrently with the recovery efforts, including the temporary stabilization of the slurry wall with over a thousand steel cable tiebacks and flood-proofing portions of the WTC Site primarily along the south, east and west portions of the WTC bathtub. Structural slabs in the northern portion of the bathtub (underneath 6 WTC) were left for interim stabilization of the northern slurry wall. Recovery efforts concluded as of June 30, 2002 when the WTC Site was returned to Port Authority control. MTA/NYCT completed reconstruction of the No. 1/9 subway tunnel in September 2002 and service resumed on that subway line to Lower Manhattan. The Cortlandt Street station within the WTC Site remains closed.

In order to restore service to a major regional transit hub, construction of a temporary WTC PATH station by the Port Authority began in July 2002 upon conclusion of the recovery operations. The station opened for service in November 2003. The temporary WTC PATH station was constructed in substantially the same configuration that existed on the morning of September 11, except that the tracks and platforms are not fully enclosed, and were built to an eight-car length (and not the original 10-car length), and the station is not heated or air-conditioned, has fewer pedestrian and transit connections, and has only one entrance/exit located on Church Street near Vesey Street.

South of the WTC Site, 130 Liberty Street remains vacant and shrouded in black netting. Its plaza and the supporting structure for the plaza were removed, leaving a deep hole in the ground. To the west, the block formerly occupied by St. Nicholas Church and the parking lot was repaved and has been used for site access and construction staging.

Most of the structural steel from the WTC was removed and distributed for recycling under recovery contracts let by DDC. Major pieces of steel from the towers and 7 WTC were taken to the National Institute of Standards and Technology in Gaithersburg, Maryland for analysis. In addition, selected building remnants (structural steel, building materials, and building components including portions of the structural tridents at the lobby level of the North Tower) and artifacts (including crushed emergency and private vehicles, trackage from the PATH and No. 1/9 lines, and a bicycle rack,) were salvaged for possible memorial and museum use and stored by the Port Authority in Hangar 17 at John F. Kennedy International Airport. In October 2002, the Port Authority Board formally acted to approve a program and funding to protect, catalog and store these artifacts. Other artifacts were salvaged by the New York State Museum and are stored at their facility in Albany. The New York State Museum also gave salvaged artifacts to other museums and institutions in New York and New Jersey. (Appendix A discusses artifacts that were removed from the WTC Site, including those stored at the New York State Museum in Albany, NY and at Hangar 17.)

On March 11, 2002, six months after the attacks on WTC, LMDC, the Port Authority, and the City of New York, established an Interim Memorial in Battery Park. The centerpiece of the memorial is the damaged *Sphere*, a bronze sculpture that had stood in the center of the WTC plaza and made available as a result of a donation by the AXA Art Insurance Corporation. Also on March 11, 2002, Governor Pataki and Mayor Bloomberg dedicated the *Tribute in Light*, two banks of 44 spotlights which projected light almost one mile into the night sky near the location of the Twin Towers. The *Tribute in Light* was the result of collaboration between civic organizations and artists from a broad range of disciplines, and could be seen from up to 25 miles around Lower Manhattan. The lighting of the *Tribute in Light* was one of many ceremonies held across the United States that day and continued to illuminate the night sky for 32 days.

Government programs aimed at providing assistance to individuals affected by the events of September 11 were also established in the months following. The Victim Compensation Fund provides economic compensation to families and dependents of victims in lieu of pursuing a civil court case for damages; the Small Business Administration offered low-interest loans to eligible individuals to repair or replace damaged property and personal belongings not covered by insurance; FEMA's Disaster Housing Program made funds and services available to individuals whose homes were uninhabitable, while FEMA and New York State also provided cash grants to those who did not qualify for the Small Business Administration loans; Department of Labor also made funds available for extension of unemployment assistance. Financial assistance provided by individuals and nonprofit organizations such as the American Red Cross, September 11th Fund, Twin Towers Fund, and New York State World Trade Center Relief Fund also proved invaluable in the recovery efforts.

Following July 1, 2002, the Port Authority continued site stabilization measures including necessary slurry wall repairs, structural shoring, de-watering systems, and other work and structural monitoring. The Port Authority also constructed perimeter walkways and a perimeter fence with information panels describing the history of the WTC Site and the area for the thousands of daily visitors to the WTC Site.

In August 2002, Congress appropriated $4.55 billion in federal funding to be provided through FEMA and the FTA for transportation projects in Lower Manhattan. FTA, the lead federal agency, continues to work with the governor of New York and state and local agencies to identify and develop projects using this federal aid.

III. RESOURCE DESCRIPTION

The WTC Site is located on the west side of Lower Manhattan. Occupying approximately 16 acres, the WTC Site is bounded by Vesey Street on the north, Liberty Street on the south, Route 9A/West Street on the west and Church Street on the east. The IRT No. 1/9 subway divides the WTC Site into two parts—a western portion and an eastern portion (see Photo 2). The west portion of the WTC Site contains approximately 11 acres. It is delineated by reinforced concrete walls approximately three feet thick and approximately 70 feet high. Within these walls, the ground was excavated to bedrock for construction of this portion of the WTC and the below-ground PATH Terminal. This foundation structure was early on named the bathtub, the concrete walls serving to seal the basement of this part of the WTC against water seeping from the nearby Hudson River. With removal of the ruined structures and debris following the attacks, the bathtub has been exposed to nearly full view for the first time since it was constructed (see Photos 3 and 4). The slurry walls constructed around the bathtub area are visible in this portion of the WTC Site except where a portion of the substructure of 6 WTC has been left in place to support those walls. The east portion of the WTC Site was not so deeply excavated (and it has a typical basement structure). Along Church Street the east portion is at grade with three below-grade levels.

The following inventory is divided as the WTC Site is divided into west and east portions. Surviving elements of the WTC observed during site visits in November 2003 are listed below. Elements constructed or installed in association with the recovery and stabilization efforts following September 11, as well as elements associated with the temporary PATH station, are also included to provide a complete picture of the WTC Site today.

West Portion of the WTC Site—Bathtub

After the removal of approximately 1.8 million tons of material from the site, the only standing and remaining structure in this portion of the WTC Site was a remnant of the below-grade (basement) levels of 6 WTC, located along Route 9A and Vesey Street. The most visible remnants of the WTC are the slurry walls which surrounded the bathtub.

1. West wall (constructed pre-September 11): This wall was under the roadbed of Route 9A and adjacent to Tower One, the hotel (3 WTC) and 6 WTC. The north end of the wall is partially covered and obscured from view by remnants of the below-grade structure of 6 WTC (see Photo

5). Damage to the wall from September 11 is apparent as is the new concrete used to repair the damage and increase the height of the wall to prevent flooding. Water damage is also apparent on the wall and sections of reinforcement have been exposed. A number of features are visible, including:

a. Vehicular entrance ramps (constructed pre-September 11): Two sets of rectangular openings are located in the west wall. They were the vehicular entrances/exits for the WTC parking garage from ramps formerly in the median of Route 9A—now beneath the northbound lanes of the temporary roadway. They were located at the B2 basement level and are approximately 42 feet above the bathtub floor. The north pair is located just south of the surviving sections of 6 WTC (see Photo 5). The south pair flanks the southern set of cooling water pipes (see Photos 6 and 7). The north ramp of this southern pair (to the right in Photos 6 and 7) was used by the terrorists to drive the vehicle with explosives into the garage in the 1993 attack on the WTC.

b. Cooling Water Pipes (constructed pre-September 11): Openings for two pairs of cooling water intake and outflow pipes are located in the west wall. The pipes painted green are the 60-inch pipes installed with the original construction (see Photos 6 and 7). These two pipelines ran under West Street between the WTC Site and a subterranean Hudson River Water Pump House facility in BPC. Pipes painted blue are the 66-inch pipes installed in the 1990s. These pipes were routed underneath subgrade entrance ramps under West Street/Route 9A and entered the WTC Site underneath Tower One.

c. Tiebacks (installed post-September 11/temporary): Nearly 1,000 temporary tiebacks were installed during the recovery to hold the wall in place when the debris and damaged below-grade structures were removed. Some tiebacks extend as much as 40 feet long and are anchored to bedrock around the bathtub area. All the tiebacks visible on this wall have been capped to protect them.

d. Southern Projection (constructed pre-September 11): This is the largest apparent opening in the wall that is visible (see Photo 8). It is near the southern end of the wall. The structure was used for emergency PATH tunnel egress and ventilation, and also as part of the venting system for the garage, as well as emergency diesel generators, and connected to vent structures that were located in the median of Route 9A. Note there is also a similar projection behind the remnants of the 6 WTC substructure.

e. PATH tunnel access (constructed pre-September 11): This is located in the southern projection for the southern tunnel (see Photo 8). The restored tracks, covered and partially walled, emerge from the southern projection at the bottom of the bathtub. Note the second PATH tunnel is in the northern projection and not visible due to the remnants of the 6 WTC substructure.

f. Egress stairs (constructed post-September 11/temporary): Steel egress stairs for the emergency egress from the PATH Tunnels "E" and "F" are located in the bathtub in the middle of the wall with a emergency walkway access from each tunnel to grade level along Route 9A.

2. South wall (constructed pre-September 11): The south wall was located under the middle of Liberty Street (see Photo 9). It was adjacent to Tower Two. Damage to this wall is also apparent, as are the new concrete repairs and the vertical extension of the wall to prevent flooding.

   a. PATH tracks (constructed post-September 11): The PATH tracks are adjacent to the base of this wall in the same location that they ran prior to September 11, 2001.

   b. PATH substation (constructed post-September 11): This is the new blank-walled structure above the PATH tracks providing the traction power for train operations.

c. Recovery and Construction ramp (constructed post-September 11/temporary): This ramp provides temporary primary construction access for pedestrians and vehicles from street level to the floor of the bathtub, installed in March 2002 during the recovery effort. This is also among the emergency egress routes for the temporary WTC PATH station.

d. Tiebacks (constructed post-September 11/temporary): Tiebacks were installed during the recovery to hold the wall in place when the debris and damaged below-grade structures were removed.

3. East wall (constructed pre-September 11): This wall is visible above the temporary PATH tracks and on either side of the portion of the temporary WTC PATH station in the bathtub (see Photos 9 and 10). September 11 damage as well as new concrete in repaired sections of the wall are distinguishable.

   a. Hudson Tubes (constructed pre-September 11): Two cast-iron ring tubes are located in the east wall. Only the south tube is visible (see Photo 11).

   b. Vehicular access ramp (constructed pre-September 11): A former vehicular ramp into the below-grade service areas on the WTC Site is just west of the east wall (see Photo 12). Inside the WTC Site (at approximately Fulton Street) the ramp connects to and runs through a portion of the one of the original Hudson Tubes. It connected to the outside world on Barclay Street under 7 WTC where trucks entered and exited the WTC.

   c. Temporary WTC PATH station (constructed post-September 11/temporary): The new structure of the temporary WTC PATH station is visible, and is adjacent to the eastern wall of the bathtub (see Photos 13 and 14). The structures are at the same location and elevations as the pre-September 11 station facility. PATH trains enter and exit the station on the track/platform level. Above that is the mezzanine level (also within the bathtub) where the turnstiles are located. Along the west wall of the mezzanine and overlooking the bathtub, the open structure has screen panels that are translucent; they allow light into the mezzanine level but do not obscure most views out to the WTC Site. Printed panels are also located along the walls and have quotes of famous New Yorkers. Four temporary emergency exit staircases lead from the PATH mezzanine to the floor of the bathtub.

4. North wall (constructed pre-September 11): This wall is largely obscured by the remnants of the substructure of 6 WTC.

   a. 6 WTC (constructed pre-September 11): Remnants of the grade level slab, an egress staircase, and six below-grade floors of 6 WTC (Levels B1-B6) are remaining at the north end of the bathtub (see Photo 15). Smoke scars from the September 11 terrorist attacks are visible at levels B1-B5 from the exterior. These areas were used as below-grade parking (see Photos 16 and 17) and have been temporarily stabilized and shored as part of the site recovery following September 11, 2001.

   b. Tiebacks (constructed post-September 11/temporary): Some tiebacks have been installed where slabs have been demolished (see Photo 18). A few tiebacks near the truck access ramp have cables that have not been cut back and capped.

   c. Vehicular access ramp (constructed pre-September 11): This heavily damaged ramp once connected the WTC Site to Barclay Street (under 7 WTC) and is visible in this area.

5. Area within Bathtub: This is the area that was generally excavated to the concrete floor of the bathtub. It is within the slurry walls (see Photos 2-4). Tower One, Tower Two, 3 WTC (the hotel) and 6 WTC all stood above the bathtub. The concrete floor of the bathtub lies over a layer of gravel which varies in thickness depending upon the geology of a particular location within the bathtub. In addition to the portions of 6 WTC and the temporary WTC PATH station, and

operations and maintenance facilities and its elements identified above, other features or structures now present in the bathtub include:

a. Tower perimeter column bases (constructed pre-September 11): The original subgrade column grid for the Twin Towers was configured in the bathtub to span above the former H&M tunnels traversing the bathtub as well as the new PATH tracks. During the recovery and site clean-up, the perimeter column bases that outline the space where the Twin Towers stood (sometimes referred to as footprints) were cut off just at or above the concrete floor of the bathtub, but remnants remain (see Photos 19 and 20). The perimeter outlines of the north tower and south tower are delineated by column bases forming squares. Prior to September 11, 2001, the PATH facility occupied approximately the east half of the south tower's footprint. There were 84 perimeter columns extending into the concrete floor of the bathtub that would outline the north tower and, due to the configuration and crossing of PATH tracks, 73 perimeter columns extending into the concrete floor of the bathtub that outline the south tower. Of the 73 perimeter columns outlining the south tower, 34 of them were in the PATH facility.

b. Other column bases (constructed pre-September 11): These column bases supported other structures or infrastructure that once existed in the bathtub. They include column bases inside the perimeter of the Twin Towers. Most of the columns were arranged in a 30-foot by 30-foot grid pattern, with notable exceptions and an irregular grid pattern occurring in the areas of the PATH tracks at the north and south ends of the WTC bathtub.

c. Other infrastructure (constructed pre-September 11): Other infrastructure including elevator pits, sump pumps, ejector pumps and drainage lines are located within the bathtub area.

East Portion of the WTC Site

This is the portion of the WTC Site outside of the bathtub area. This area is located east of the alignment of Greenwich Street and the restored No. 1/9 subway line which permits service to the Rector and South Ferry Stations. The new temporary WTC PATH station concourse level and street entrance is located in the north half of this area. There are no surviving remnants of buildings 4 WTC and 5 WTC in this area. Features identified in the eastern portion of the WTC Site include the following:

1. Temporary WTC PATH station main entrance (constructed post-September 11): This new structure is entered from Church Street at Fulton Street. The station has a sculptural form, with two wings rising from a central truss supported on two vertical trusses.

2. Temporary WTC PATH station concourse (constructed post-September 11): This is located one level below-grade (see Photo 21). It connects to the pre-existing downtown platform of the NYCT N/R/W line running under Church Street and at the northeast corner of the WTC Site to the NYCT E line.

3. WTC PATH Terminal underpass (constructed pre-September 11): This is a pedestrian underpass connecting the mezzanine level to the concourse level, located under the No. 1/9 subway line, just as it did in the former WTC. This underpass structure itself remained intact despite the destruction and damage of September 11. New escalators were installed post-September 11.

4. Restored NYCT No. 1/9 subway line (constructed post-September 11): A concrete box enclosing the subway tracks, as well as portions of the former Cortlandt Street station, runs north-south across the WTC Site, just east of the slurry wall. The tracks and enclosure were completely rebuilt after September 11.

5. Plaza and subway access from Vesey Street (constructed pre-September 11): The heavily damaged stair and escalator structure on Vesey Street lead up to the WTC plaza and the bridge to 7 WTC (see Photo 22). It also provided access to the No. 1/9 Cortlandt Street subway station which was under the WTC.

6. Remnants of the Hudson Terminal and the H&M Railroad (constructed pre-September 11): These are found below grade in the middle of the WTC Site along Church Street between Fulton and Cortlandt Streets. When the new WTC PATH Terminal opened in 1971, unused portions of the Hudson Tubes were converted to truck ramps. Sections of these unused portions of the cast-iron tubes exist on site. Below-grade portions of the former terminal that were used for truck loading, parking, and commercial storage also exist on site. All components of the former H&M Terminal substation have been removed (during construction of the WTC), and only large openings in the ground where these features were located survive.
7. Sidewalks and fencing (constructed post-September 11): These sidewalks and fencing are located around the perimeter of the WTC Site.
8. Passageway to the NYCT WTC subway station (constructed pre-September 11): Remnants of the WTC passageway to the E subway line are located below-grade and include steps, a ramp, doors and flooring (see Photos 23 and 24). This passageway has been reopened and connects with the temporary WTC PATH station.
9. Steel cross (erected post-September 11): A section of two connected beams forming a steel cross was found near 6 WTC and erected by recovery workers on the WTC Site.

IV. NATIONAL REGISTER ELIGIBILITY EVALUATION

The WTC Site meets National Register Criterion A for its association with the September 11, 2001 attacks on the two 110-story towers of the WTC which on local, state and national levels constitute "historic events that have made a significant contribution to the broad patterns of our history." In connection with the events of September 11, the WTC Site is significant in the areas of political and government issues, social history and economic history. The WTC Site is exceptionally significant in the history of the United States as the location of events that immediately and profoundly influenced the lives of millions of American citizens and for its role in symbolizing and commemorating those events for survivors, families of victims, New Yorkers, Americans and visitors from all over the world. The WTC Site is defined as the approximately 16-acre property bounded by Route 9A (West Street), and Vesey, Liberty, and Church Streets.

Although the events of September 11 occurred just over two years ago, the WTC Site meets the requirement of National Register Criteria Consideration G that a property achieving significance within the last 50 years must be of exceptional importance. The flying of two large commercial jetliners into the WTC's Twin Towers were the acts that precipitated numerous events of great magnitude, among them the deaths of an unprecedented number of individuals in a single location resulting from foreign attacks on American soil, and also actions, still unfolding, taken by the United States both at home and abroad in response to the attacks themselves and to the issues of global terrorism of which they were a part. The ultimate historical importance of the various events and actions resulting from the attacks has yet to be fully determined, since they are still underway and additional actions are likely to be initiated in the foreseeable future. However, there exists more than sufficient information at this time to document the exceptional importance of the attacks on the WTC to the history of the United States in the 21st century.

The attacks on the Twin Towers on September 11 caused the death of what is currently estimated to have been nearly 2,800 people and when taken together with the attack on the Pentagon and the crash of hijacked Flight 93 in Shanksville, PA, the total rises to more than 3,000. An immediate result of the attacks was a profound transformation in both local and national security. Shortly after the attacks, the FAA grounded all flights then within United States airspace and turned back all flights then coming into the country—something that it had never done before and that continued for several days after September 11. The United States Office of Homeland Security (which later became the Department of Homeland Security) was established on October 8, 2001. In early October 2001, the United States and other members of the international community attacked and then invaded Afghanistan, where the governing

Taliban regime harbored terrorist leaders and training camps. The comprehensive federal response to the events of September 11 also included Congressional enactment of major legislation such as the Aviation and Transportation Security Act, National Construction Safety Team Act, Air Transportation Safety and System Stabilization Act, the United States Patriot Act, and the Terrorism Risk Insurance Act of 2002, as well as major changes in foreign policy.

The significance of the WTC Site is enhanced by the fact that the collapses of the Twin Towers was captured on film, witnessed on television by millions of people as it occurred, and has been replayed countless times all over the world. As such, the image has been indelibly burned into our collective memory, and the WTC Site is a compelling reminder of the tragic events of that terrible day.

In addition to its direct association with the events of September 11, the WTC Site has already acquired significance as the primary place for commemorating the events that transpired there. Almost from the day of the attacks, crowds of people from all over the world, representing diverse cultures, nationalities, and classes, have journeyed to the WTC Site to pay their respects to the victims and bear witness to the significance of the events. It has been the location of countless memorials, ceremonial events, and private pilgrimages by the families of the victims, survivors, rescue workers, government officials, world leaders, and citizens of New York, the nation, and the world. On each of the two subsequent anniversaries of the attacks, the name of each of the victims has been read aloud at the WTC Site, thus publicly proclaiming the collective grief of a nation.

The period of significance begins on September 11, 2001, the day on which the attacks occurred, and continues to June 30, 2002, the date on which DDC concluded the recovery efforts and returned the WTC Site to Port Authority control. Absent the events of September 11, the Twin Towers would not have collapsed, thousands of people would not have lost their lives, the WTC and several adjacent buildings would not have been destroyed or extensively damaged, the massive search, rescue and recovery efforts would not have taken place, the PATH system and the No. 1/9 subway line and station below the towers would have remained in operation, and the numerous actions taken by the United States at home and abroad in the name of national security and war on terrorism would not have taken place (or, with regard to the latter, not in the manner they have to date).

The WTC Site was the locus of the events of September 11 and the significance of those events and their aftermath to American history makes the WTC Site eligible for National Register listing, even at this early date. Although the existing elements on the site do not fully express the scale or catastrophic nature of the events of the day, various remnants of the WTC's Twin Towers and other structures help convey in different ways the events of September 11 and their aftermath and, therefore contribute to the WTC Site's historic significance.

Foremost among these items are the truncated box-beam column bases that help define the perimeter or "footprints" of the former Twin Towers and the slurry walls that form the sides of the underground bathtub for the Twin Towers. The truncated box-beam column bases serve to poignantly delineate the areas where so many lives were lost that day. As revealed by the recovery efforts, the west wall in particular helps to convey the scale of both the bathtub and the destruction wrought on September 11.

Other items also contribute to the understanding of the events in a different way. The remnants of the parking garage contain slabs and interior columns charred with smoke from the fires that burned for months. The beams forming a cross erected by recovery workers reflect the faith and dedication of thousands of rescue and recovery workers both on September 11 and in the months following.

Other remnants, such as the portion of the concrete steps and escalator ramp from Vesey Street to the subway and the remaining portion of the passageway to the E subway line, serve as reminders that the WTC Site was not limited to the Twin Towers and included both pedestrian and transit connections to the surrounding communities.

The significance of the WTC Site is reflected by its integrity of location, setting, feeling, association, and materials. Physical remnants on the WTC Site possess integrity of materials that convey the catastrophic

events of September 11. The WTC Site retains integrity of location, as it is the location of the now-destroyed complex where the September 11 attacks occurred. It also retains integrity of setting. Although buildings and infrastructure within the WTC were destroyed and their ruins removed, the physical environment surrounding the WTC Site remains essentially as it was on September 11, for example its relationship to other buildings in the neighborhood and its location near the Hudson River in Lower Manhattan (a location that necessitated the construction of the slurry walls and bathtub visible today). The WTC Site retains integrity of feeling—the surviving physical features at the site, including the large bathtub, slurry walls, and the bases of steel columns, as they have been revealed by the rescue and recovery efforts, convey the destruction that took place on September 11. The WTC Site also retains integrity of association, which is the direct link between an important historic event and a historic property. The Twin Towers were the targets of these September 11 attacks, and physical features surviving on this site that have material integrity retain their quality of association with the profound events of that day, as well as the post September 11 recovery effort.

The WTC Site is significant due to the extraordinary and catastrophic events of September 11, 2001. These events are important at the local, state and national levels due to the people who died and who gave their lives trying to help others, the physical destruction of the WTC and the unprecedented recovery effort. During the recovery, surviving elements of the WTC were disassembled and removed as part of the search and rescue operations; these actions also contribute to the site's significance. Some of these artifacts (as described in Appendix A) could also contribute to the site's significance if returned to the WTC Site to convey aspects of the events that give rise to the site's eligibility. The individual project sponsors will consider the reuse and interpretative value of artifacts as they further develop their undertakings.

BOUNDARY DESCRIPTION AND JUSTIFICATION FOR THE NATIONAL REGISTER-ELIGIBLE WTC SITE

The boundaries of the eligible property are contiguous with the boundaries of the WTC Site. The WTC Site was the immediate setting in terms of historical development, design and function for the 110-story Twin Towers, which were the specific objectives of the terrorist attacks, and is the primary area onto which they collapsed on September 11. The targets of the attacks, the area that suffered the most catastrophic loss of lives and buildings, and the location most widely recognized for its association with the attacks, is the 16 acres once occupied by the WTC. This area most directly and outstandingly represents the events of September 11. The WTC Site is also associated with the extensive recovery effort that continued on the WTC Site until June 30, 2002.

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VII. COMMENTS

Comments on the January 21, 2004 and February 6, 2004 drafts of this Coordinated Determination of National Register Eligibility were received from:

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APPENDIX A—ARTIFACTS

During the rescue and recovery operations, a number of artifacts were removed from the WTC Site. Artifacts are the materials that were identified, secured, and preserved. This section deals with those artifacts that were taken from the WTC Site during the recovery efforts. A structure or pieces of a structure or a site removed from their historic location would not usually be considered for National Register eligibility because they have lost their integrity of location. However, based on consultation between the State Historic Preservation Office and the National Park Service, it has been determined that if artifacts are returned to the WTC Site, then they could be considered to contribute to the historic significance of the property.

Of the artifacts removed from the WTC Site one of the most famous is the Sphere, an artwork by Fritz Koenig originally located on the fountain at the center of the Tobin Plaza. The Sphere was damaged in the September 11 attacks and was donated by AXA Insurance Company to the Interim Memorial created on March 11, 2002, in Battery Park by LMDC, the Port Authority, and the City of New York. The Interim Memorial is dedicated "to all whose lives were taken, and the many who gave their lives trying to save them at the World Trade Center in the attacks of September 11, 2001." On the first anniversary of the attacks, Mayor Michael Bloomberg dedicated an eternal flame at the Interim Memorial.

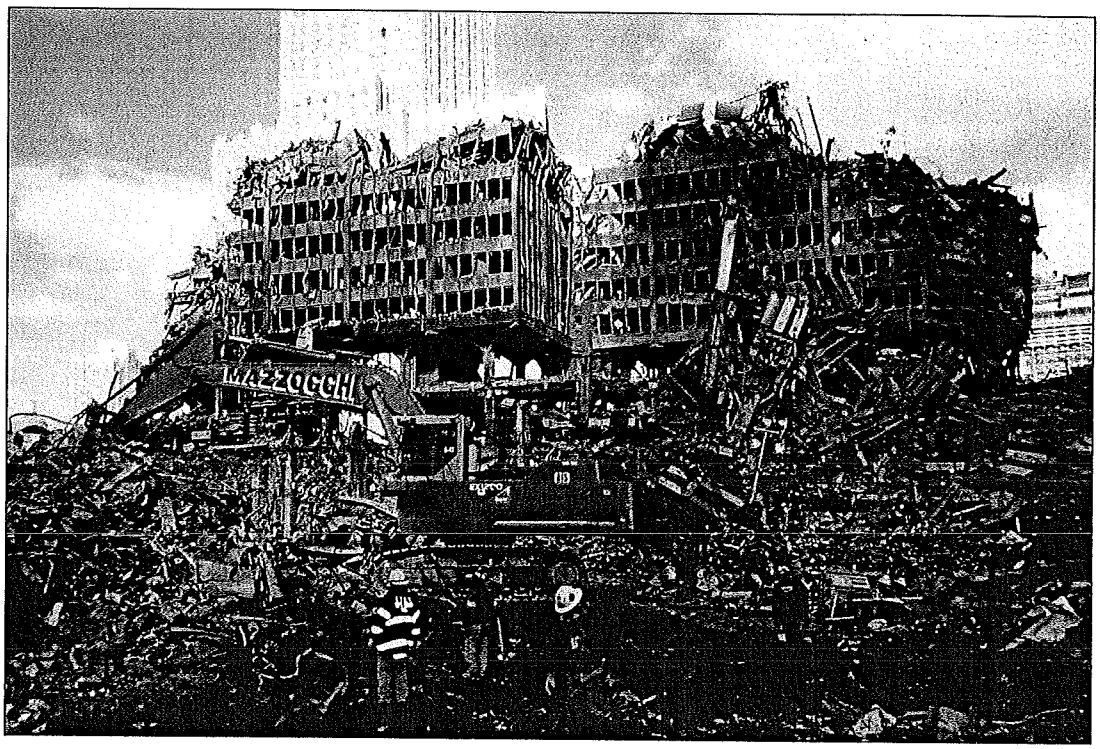
During the rescue and recovery period when New York City's Department of Design and Construction controlled the WTC Site, the materials were taken to Fresh Kills landfill and steel was taken to a steel recycling plant in New Jersey. The National Institute of Standards and Technology selected certain pieces of steel for testing to study factors leading to the collapse of the Towers.

A note on the cover of the Steel Data Collection Spreadsheet attached to FEMA's World Trade Center Building Performance Study indicates that: "As of May 2002, of the 156 steel pieces listed in the spread sheet, 41 are at the National Institute of Standards [and Technology], 19 were discarded after [samples] were taken, 45 are at the salvage yards, and the rest either were discarded after they were documented or were accidentally processed in the salvage operation before or after being documented."

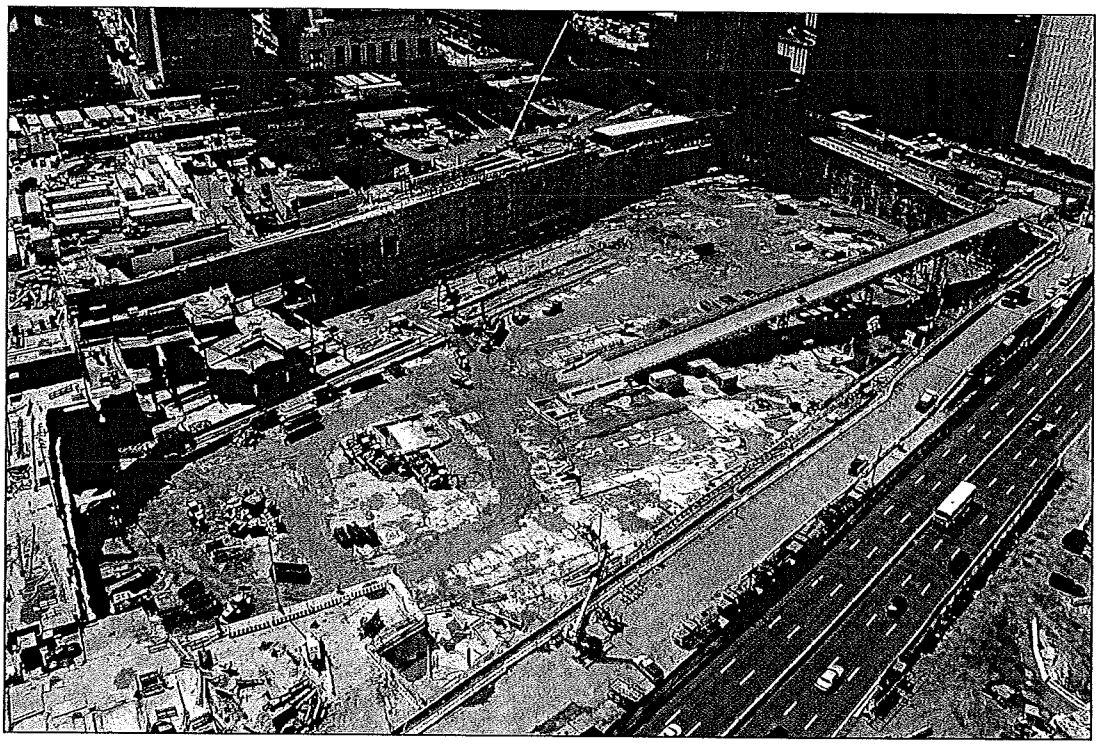
During the recovery efforts numerous requests were made by museums and other organizations for materials from the WTC Site. These requests were directed to the New York City Office of Emergency Management (OEM) and OEM allowed some organizations to take some materials. It has been reported that artifacts are in the possession of the Smithsonian Institution, the Federal Bureau of Investigation (FBI), the New York City Police Department (NYPD), the Fire Department of New York (FDNY), the Museum of the City of New York, the New York City Police Museum, the New York City Fire Museum, the Staten Island Historical Society, the New York Historical Society and the New Jersey Historical Society. One round planter containing a living yew tree was salvaged from the WTC Site and is now located at the Governor's mansion in a nursery behind the house. A 60-ton piece of steel was given to the United States Navy and was melted down for the SS New York. At one point the Mayor's office was giving away two-foot sections of steel and some of this steel is at Mt. Manresa—a retreat house in Staten Island that housed out-of-town workers involved in the recovery efforts at Fresh Kills. In addition, a traveling exhibition from the NYSM titled "Recovery: The World Trade Center Recovery Operation at Fresh Kills" has about 50 rare photographs and 40 objects and is touring the country.

The New York State Museum in Albany has a number of artifacts from the WTC Site including the heavily damaged Engine 6 pumper, recovered NYPD and FDNY objects, architectural remains, several battered flags, a large steel column from floors 7-9 of Tower Two, a damaged 20-foot high, 10-ton steel column from floors 71-73 of Tower One, the steering wheel from a car, observation deck souvenirs, melted floppy discs, keys, a crushed payphone, a large collection of firearms from the U.S. Customs House (Six World Trade Center), destroyed street lampposts, fire hydrants, a destroyed elevator door, pieces of the airplanes that crashed into the Twin Towers including a portion of the wheel assembly from one of the planes, a piece of fuselage, and a steel beam with an embedded airplane piece.

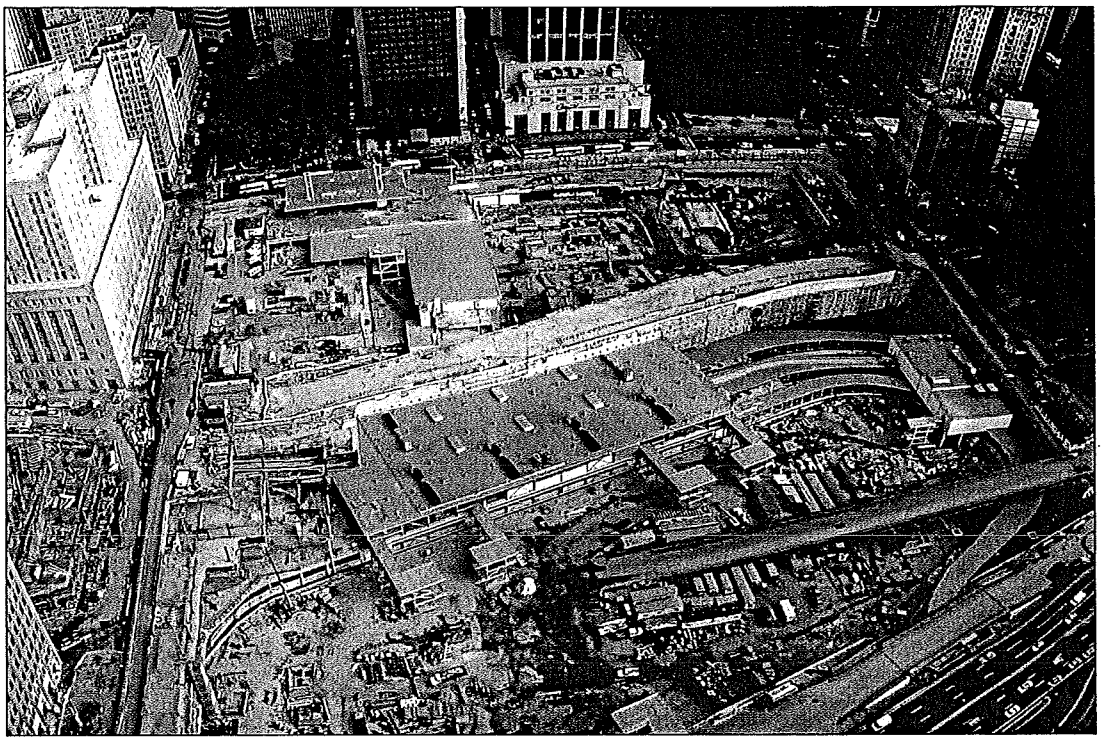
The Port Authority has a large number of artifacts catalogued and stored in Hangar 17 at John F. Kennedy (JFK) Airport. They were retrieved from Fresh Kills landfill and the steel recycling yard in New Jersey, as well as the WTC Site. One of the objects is a 36-foot-by-4-foot steel column that was the last large piece of steel carried off the WTC Site. It was removed in the ceremony on May 30, 2002, marking the day following the recovery of the last human remains at the site. Hangar 17 also contains pieces of a 100-foot-tall by 100-foot-wide section of the lower facade of Tower One with its Gothic arches. The collection also includes a portion of the Tower One antenna, a turnstile from the WTC PATH Terminal, a motor from one of the Twin Towers giant elevators, a bicycle rack with seven abandoned bikes and a silver and blue helmet, and six crushed ladder trucks and fire engines.



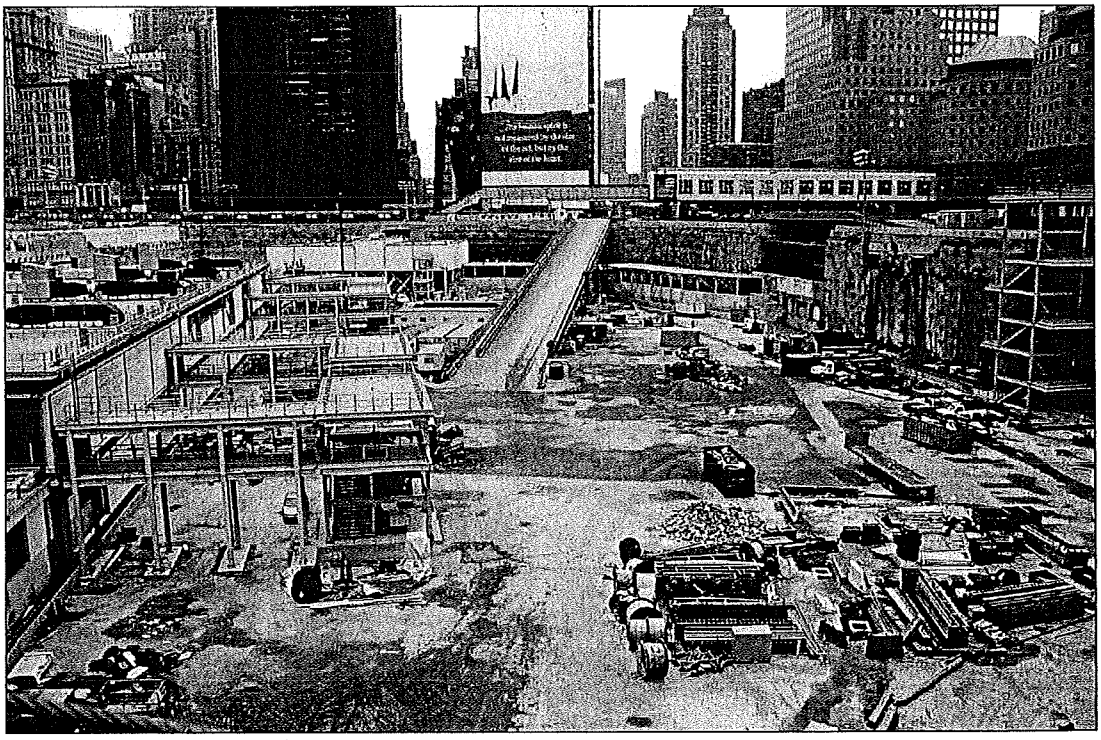
View of WTC Site as it appeared in December 2001 (Port Authority) 1



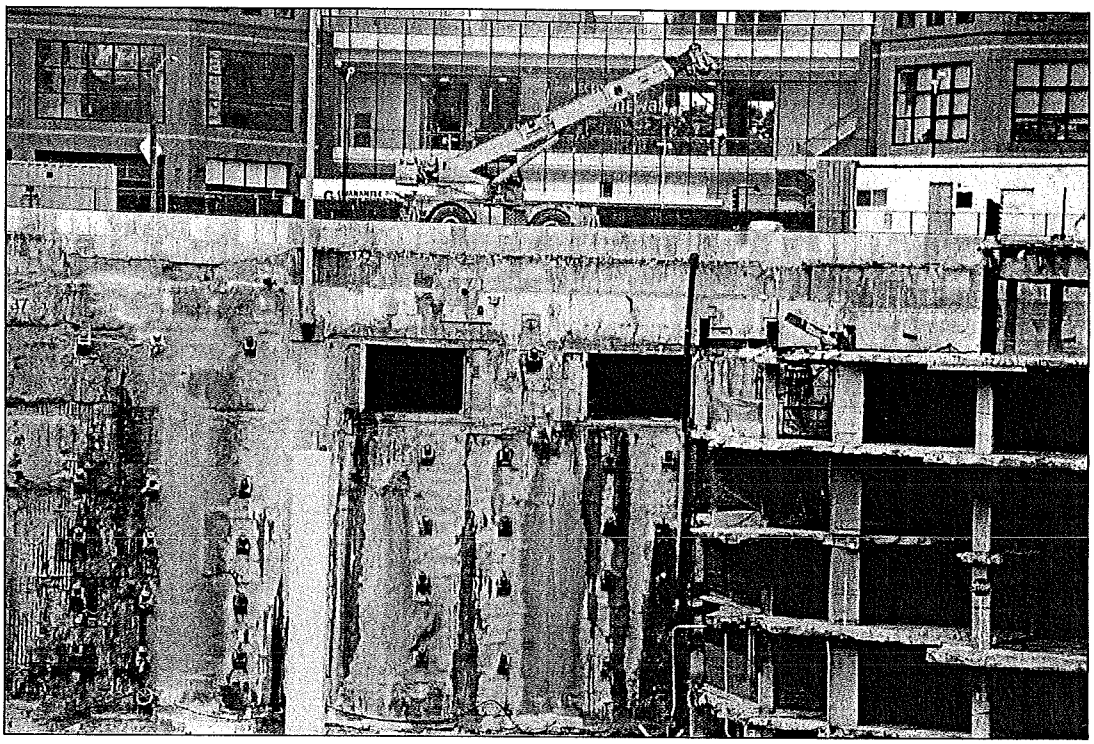
View of WTC Site as it appeared in June 2002 (Port Authority) 2



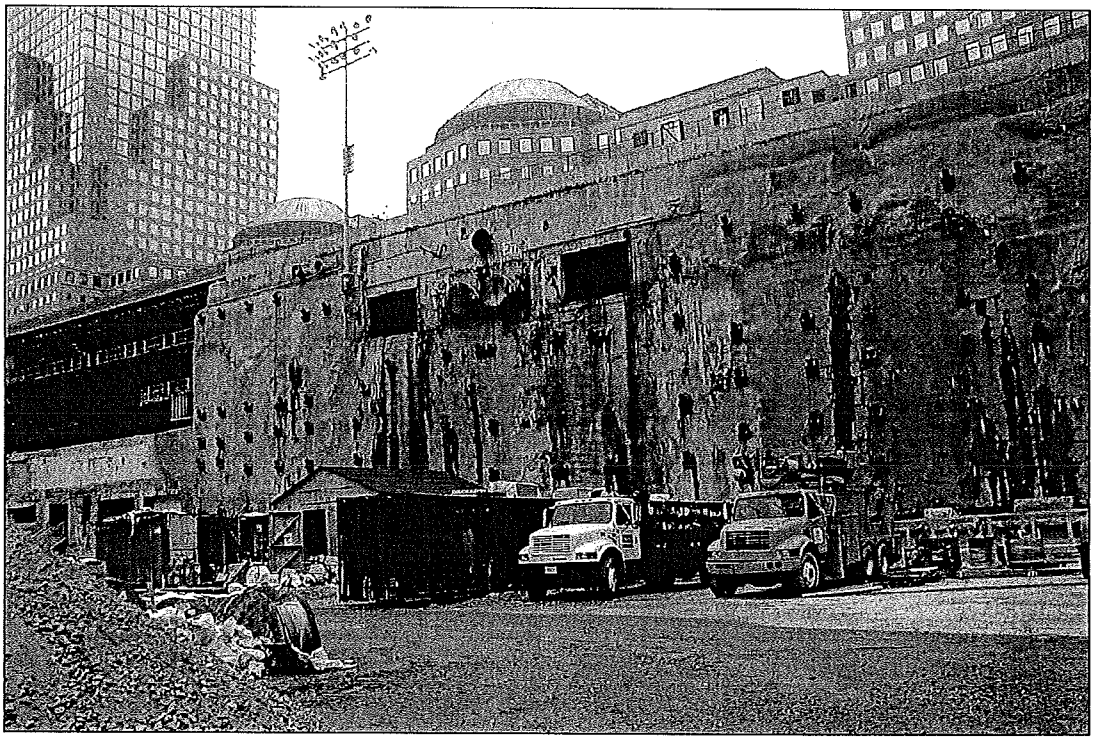
Aerial view of WTC Site (Port Authority) **3**



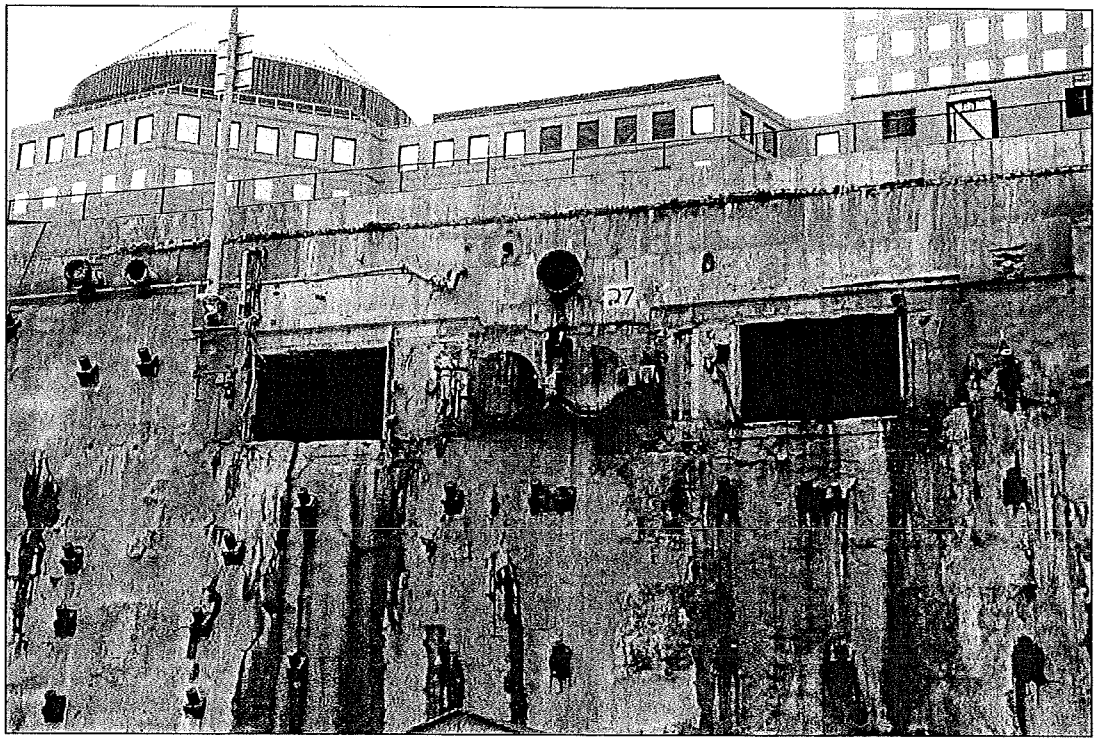
View of bathtub, looking south from northern edge of WTC Site **4**



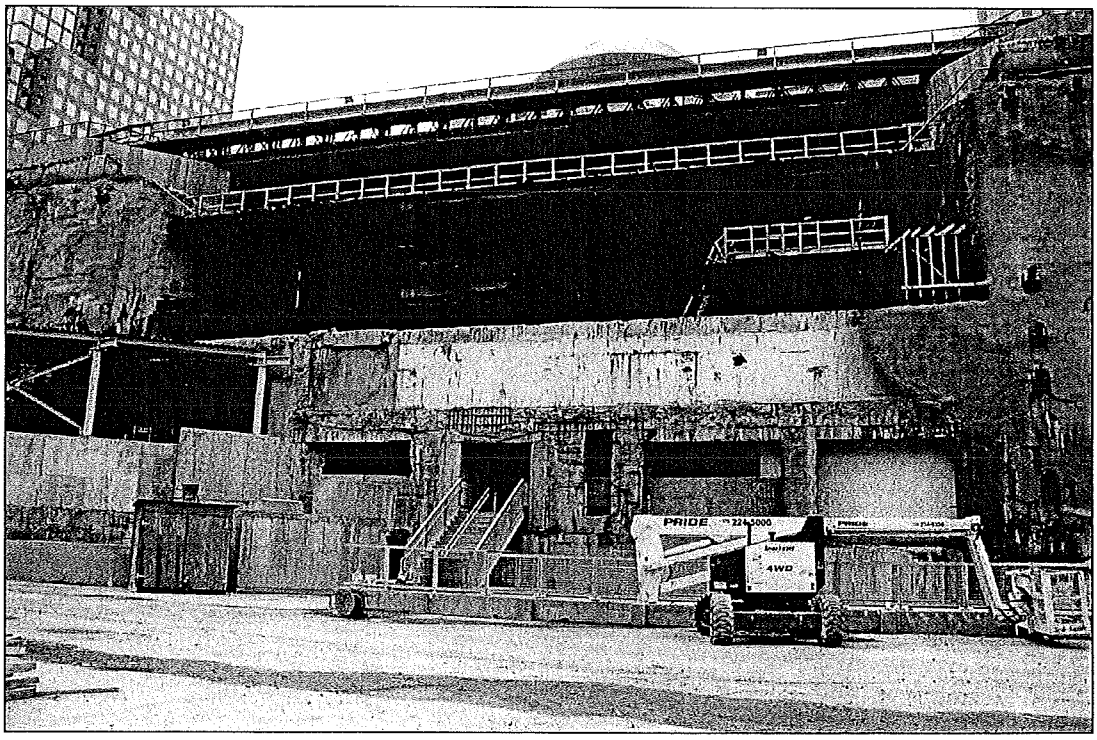
West slurry wall, north end **5**



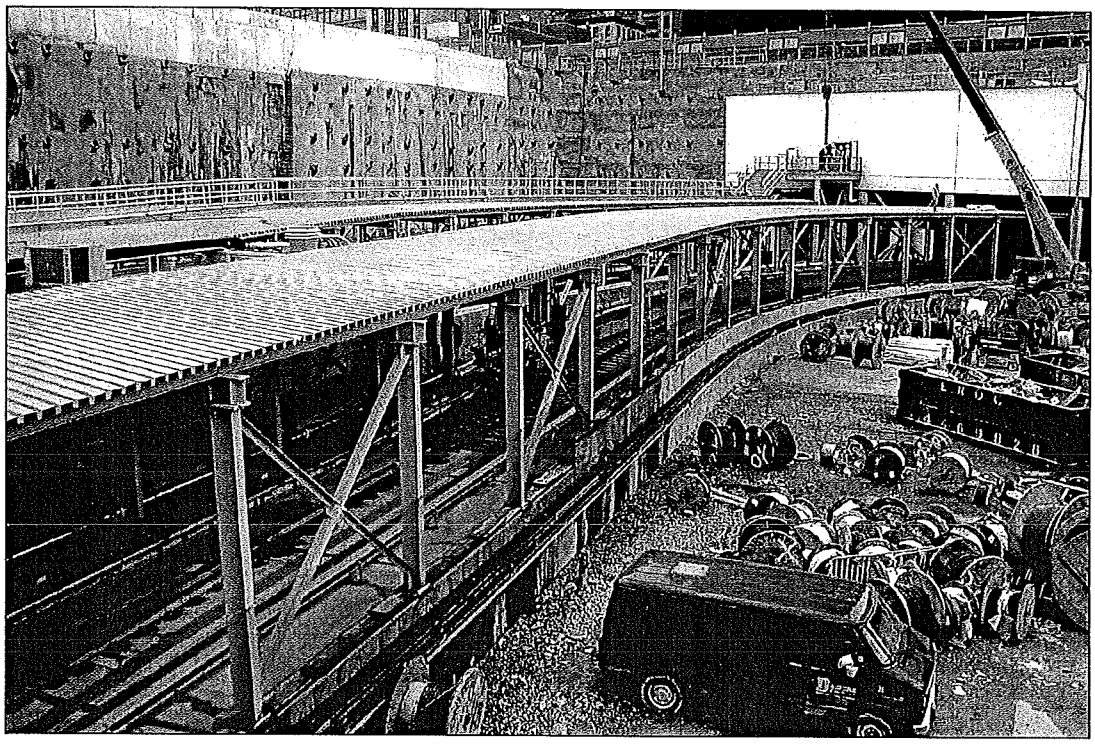
West slurry wall, view of vehicular entrance ramps and southern projection **6**



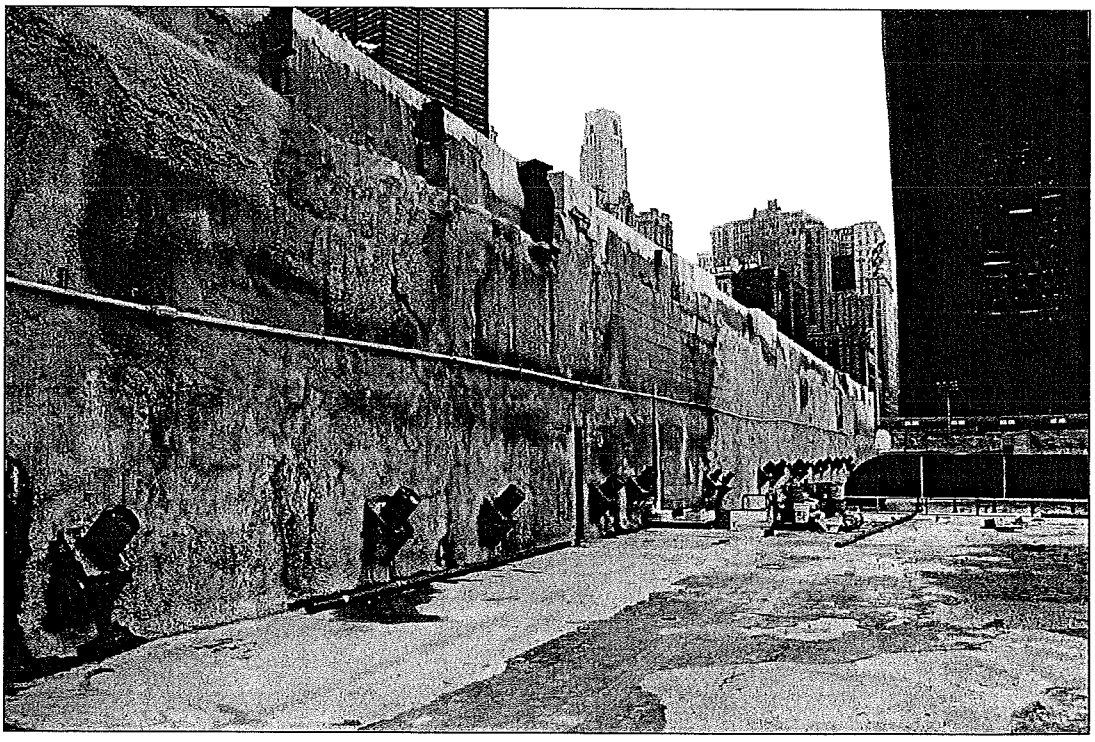
West slurry wall, detail view of vehicular entrance ramps and cooling water pipes **7**



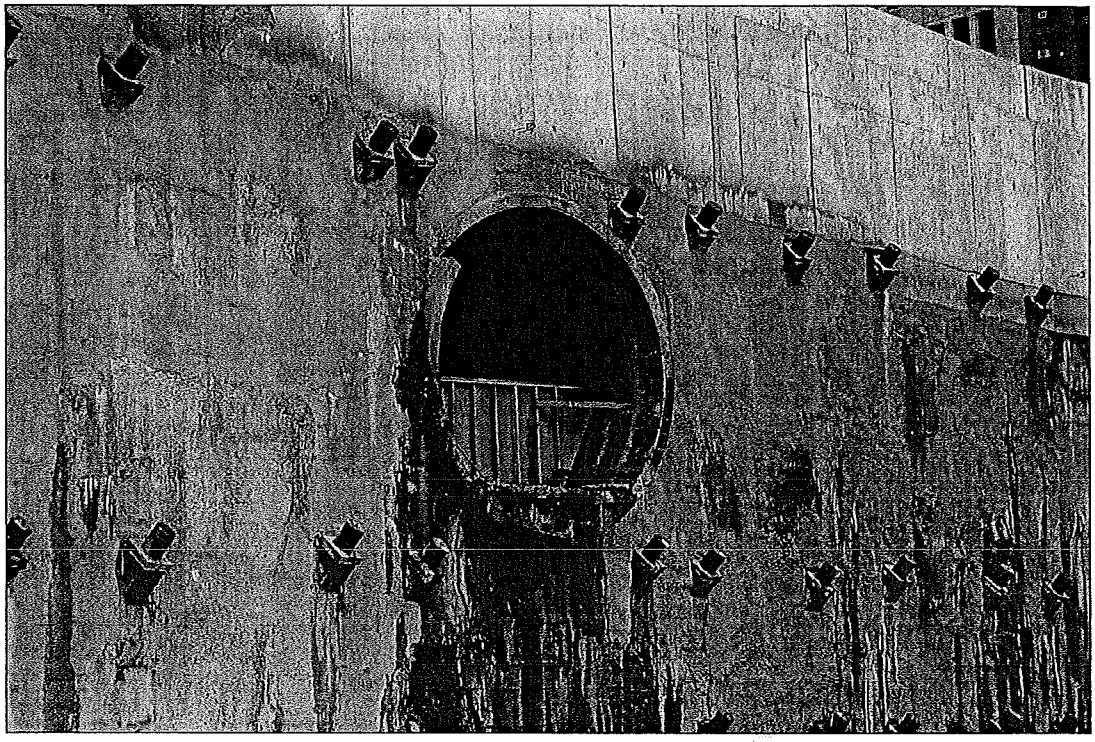
West slurry wall, view of southern projection and PATH tunnel access **8**



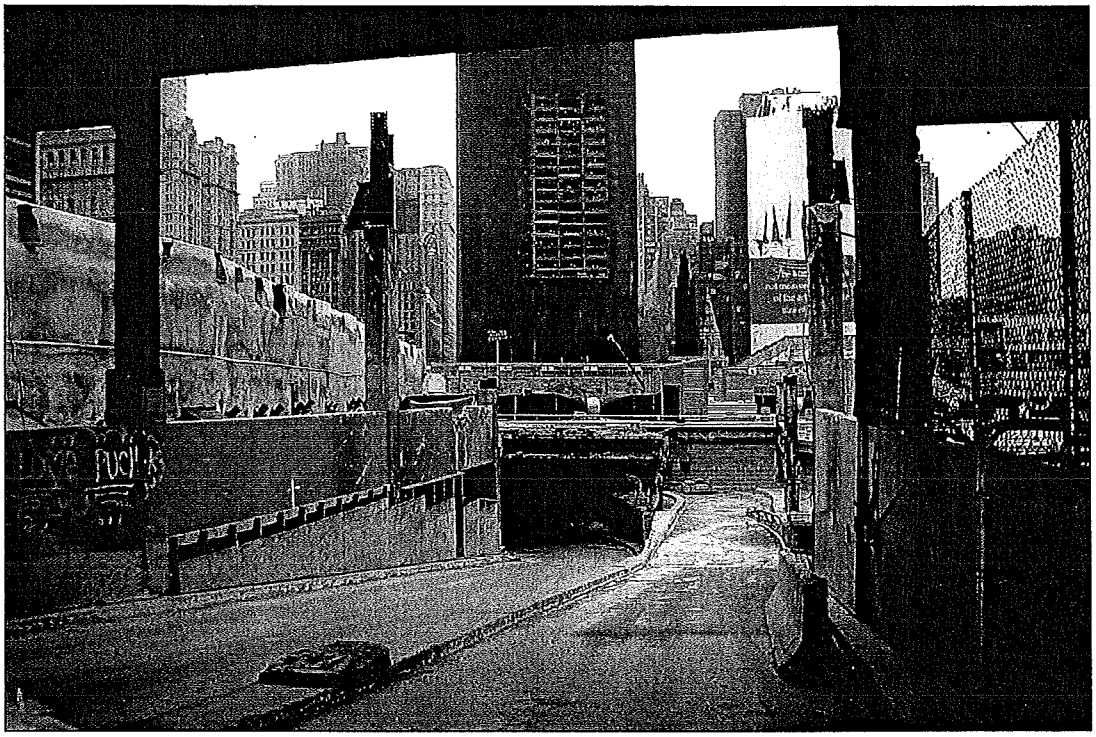
South and east slurry walls, view of new PATH tracks **9**



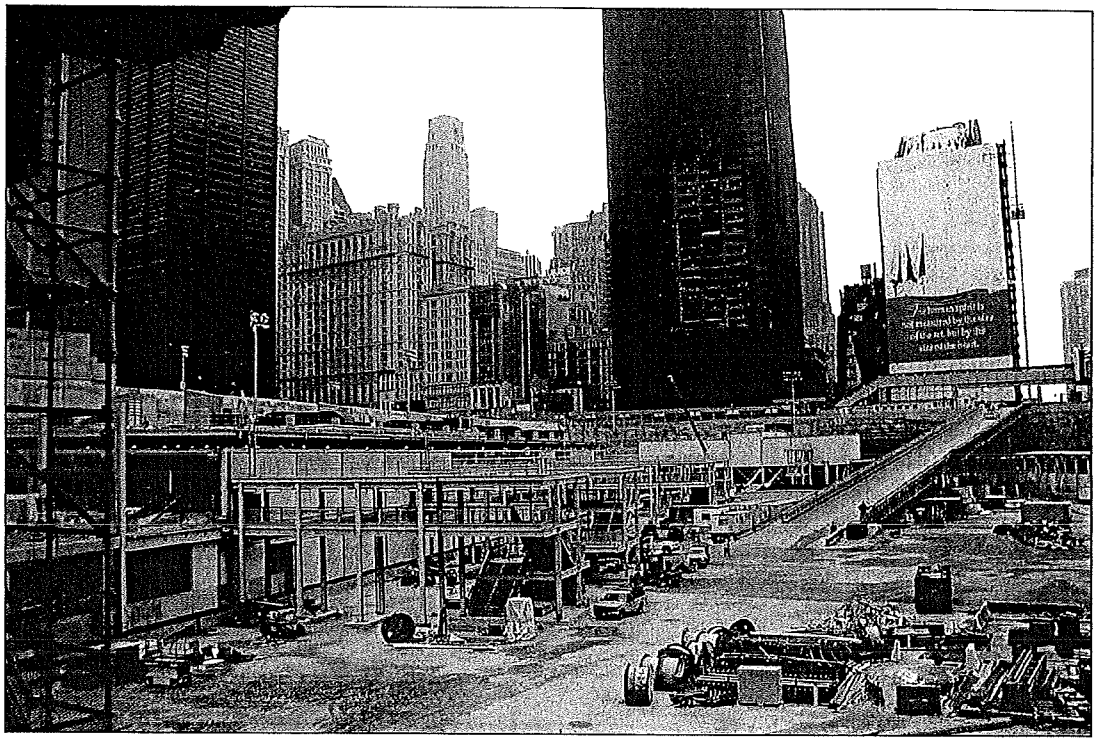
East slurry wall **10**



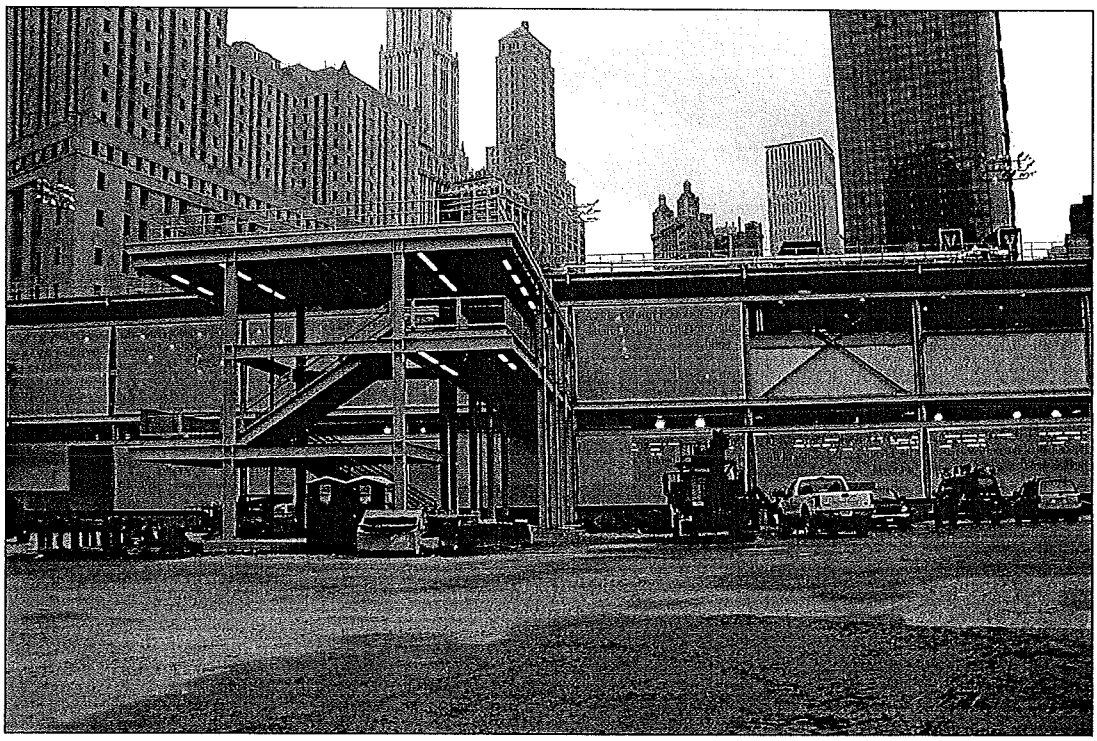
East slurry wall, view of Hudson Tube **11**



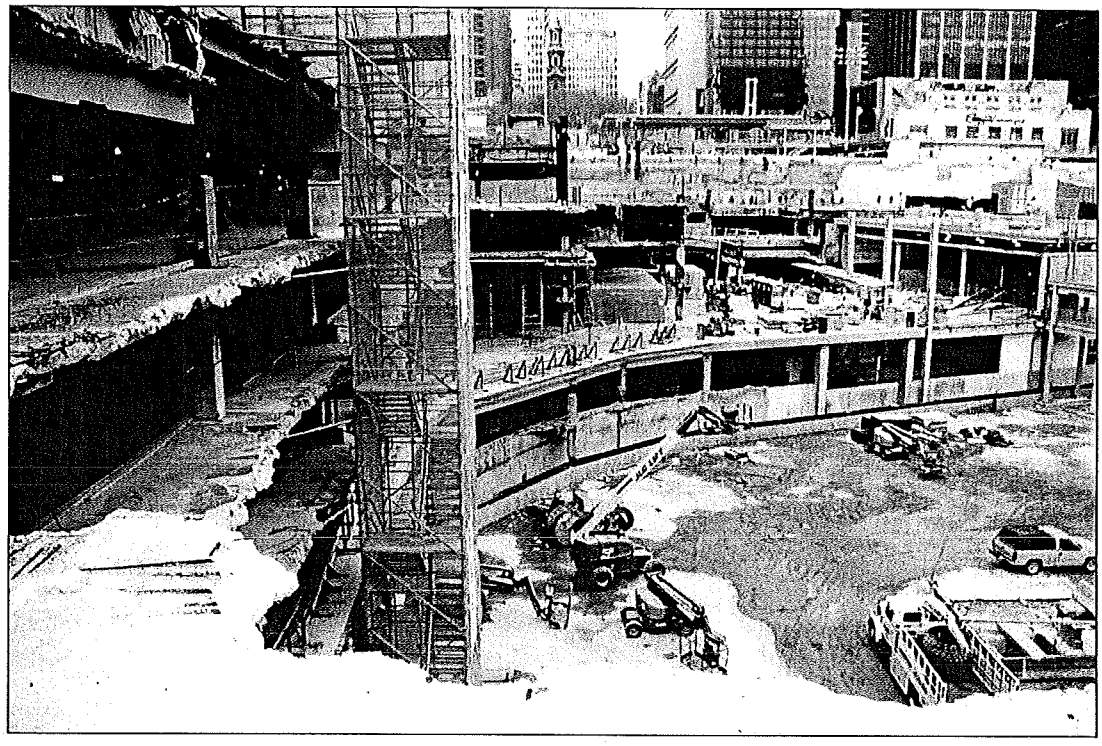
East slurry wall, view of vehicular access ramp **12**



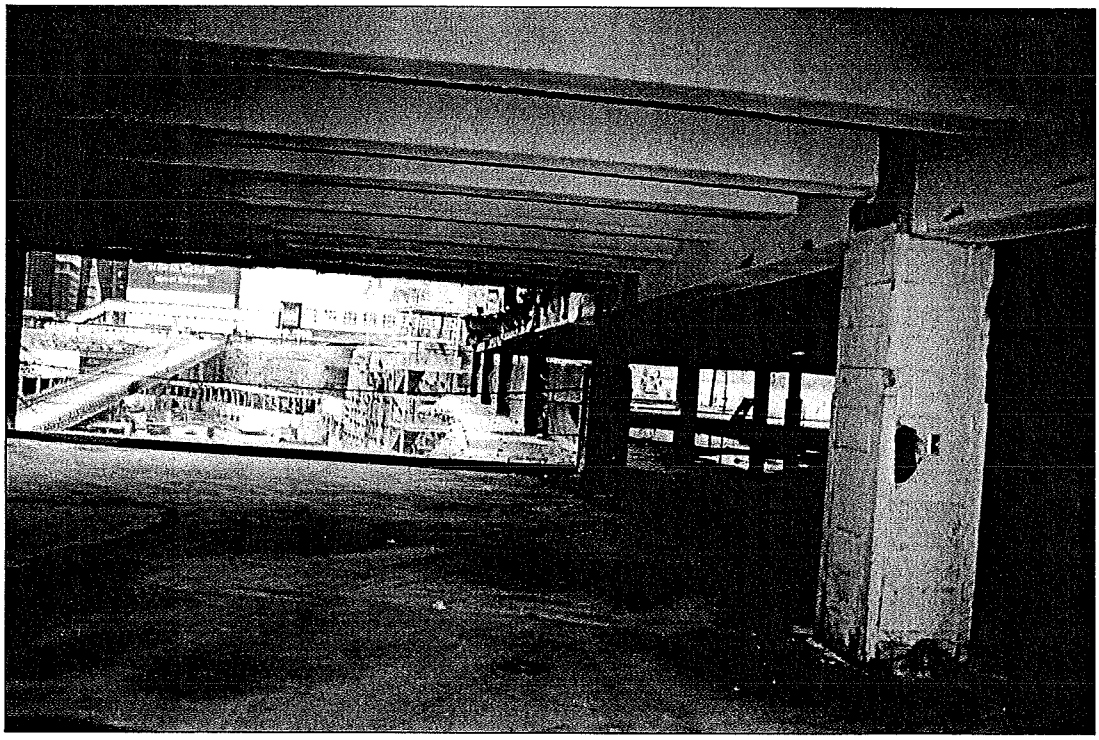
View of temporary WTC PATH station, adjacent to east slurry wall **13**



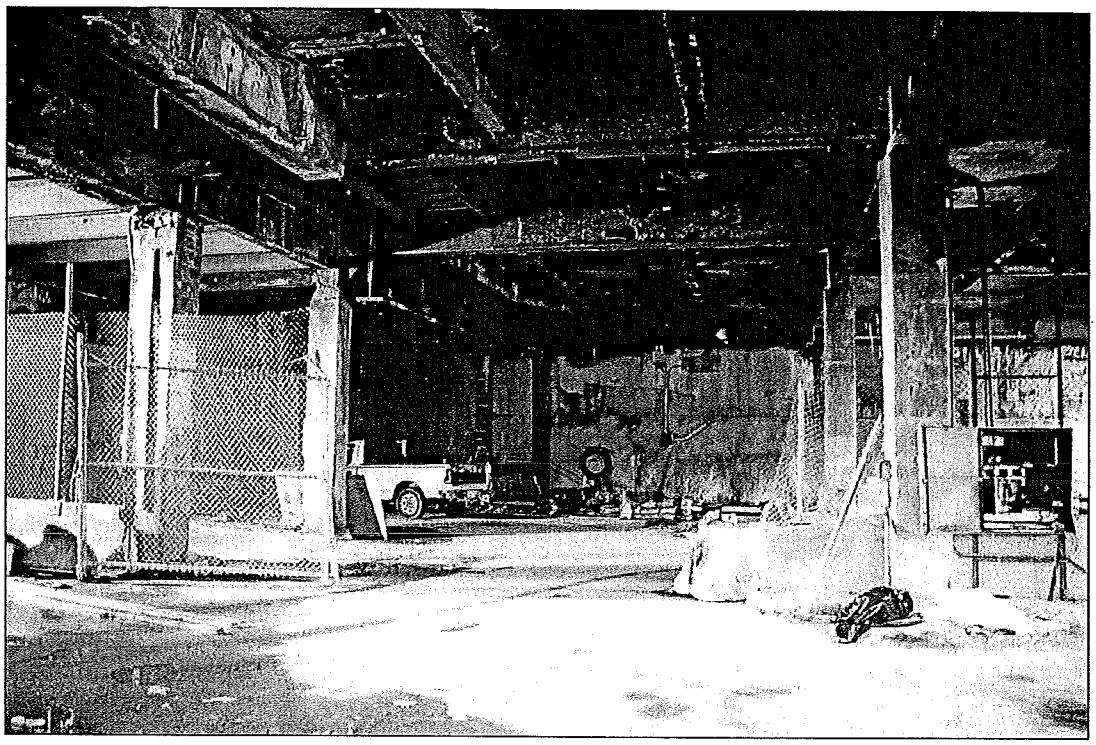
View of temporary WTC PATH station **14**



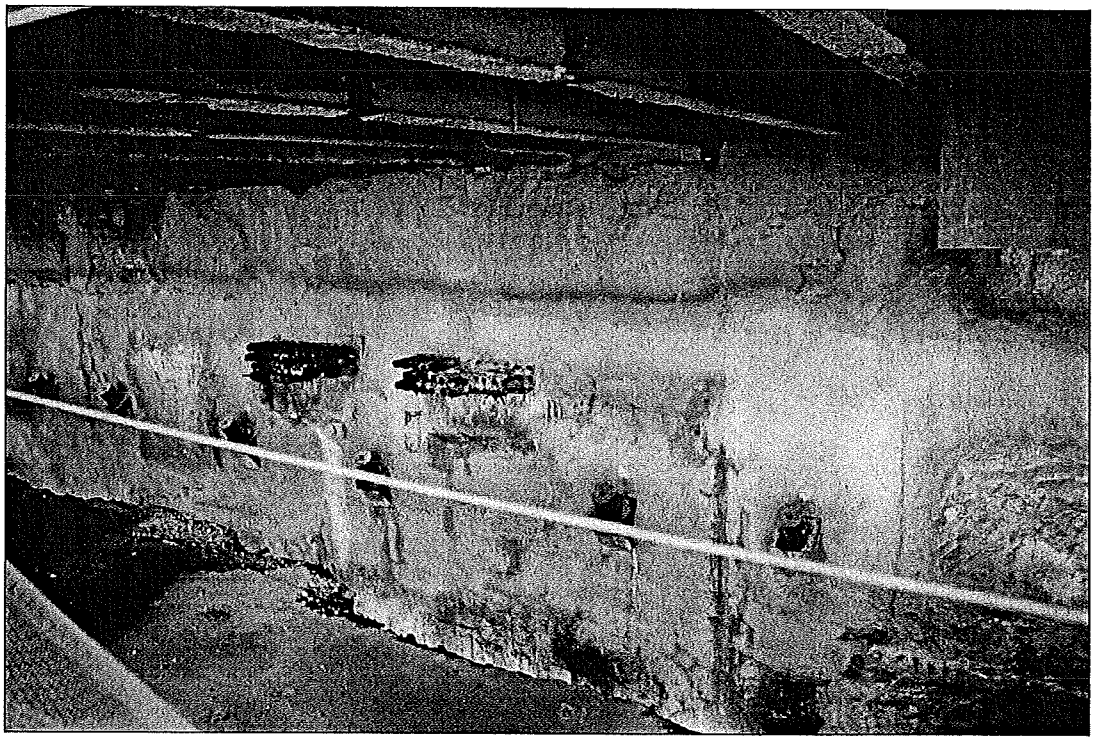
North slurry wall, view of remnants of 6 WTC **15**



View of 6 WTC remnants, former area of below-grade parking **16**

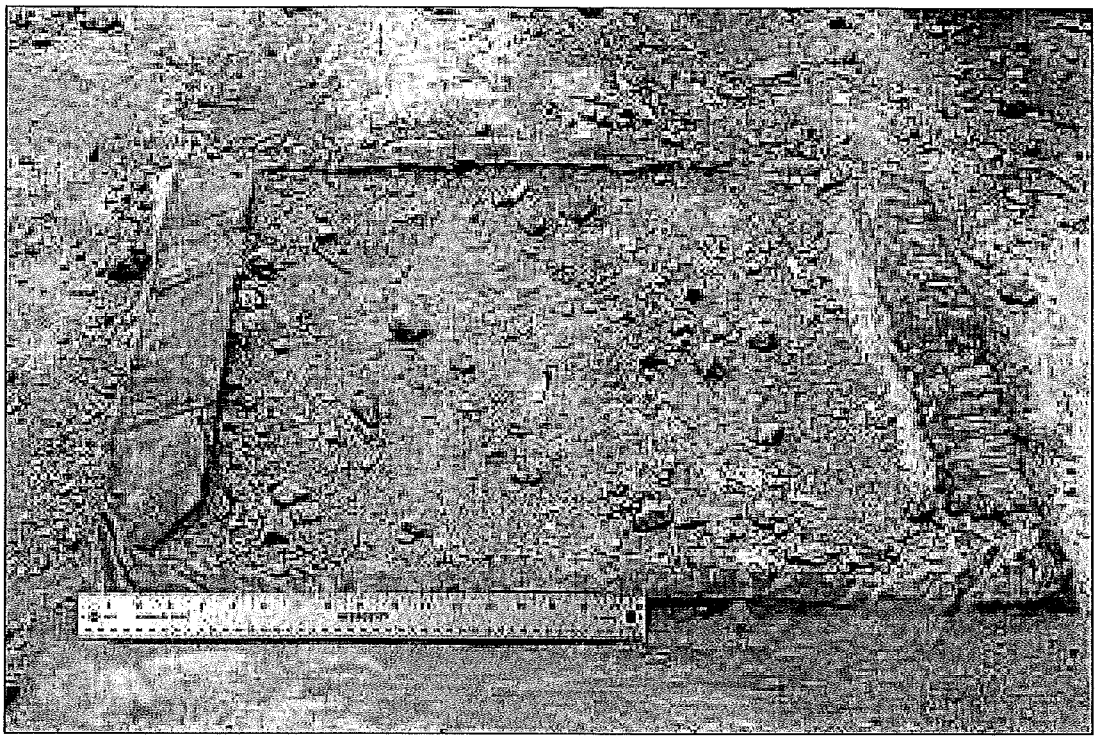


View of 6 WTC remnants, former area of below-grade parking **17**

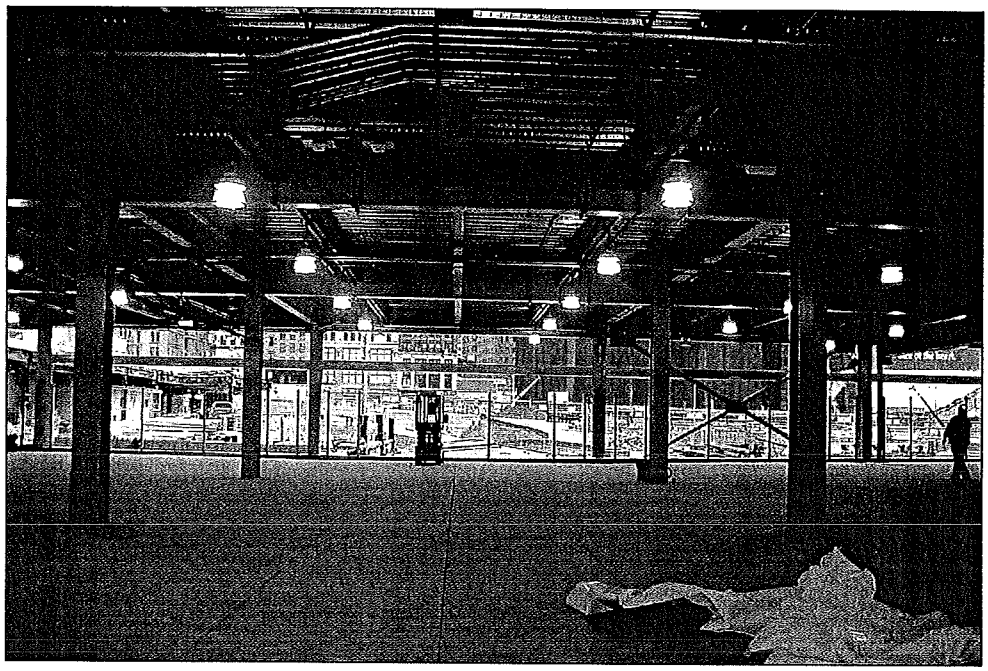


North slurry wall, view of temporary tieback caps **18**

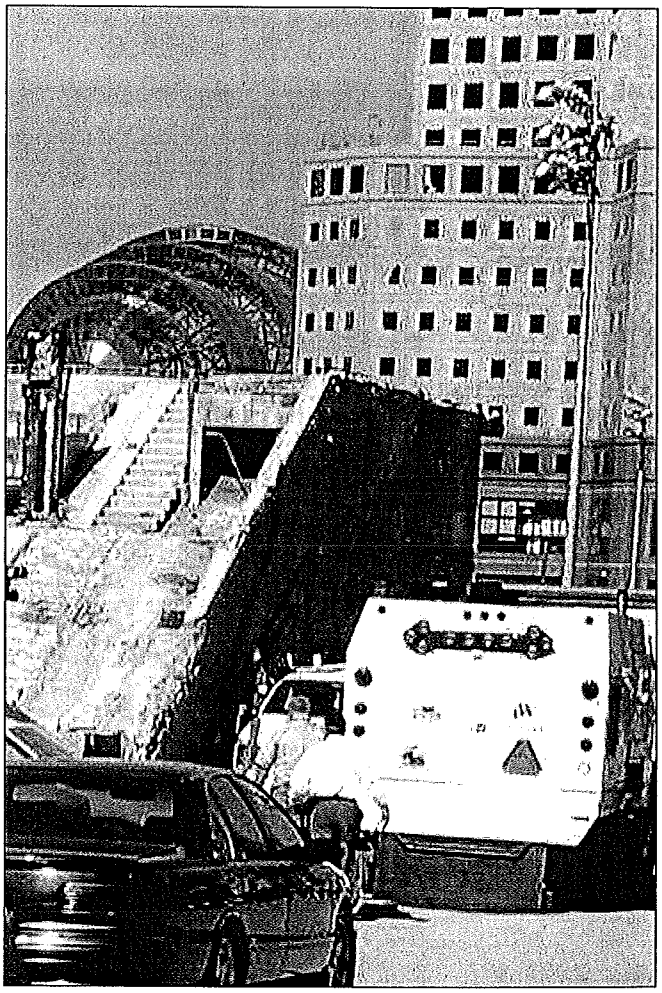
Bathtub area, truncated box beam column bases **19**



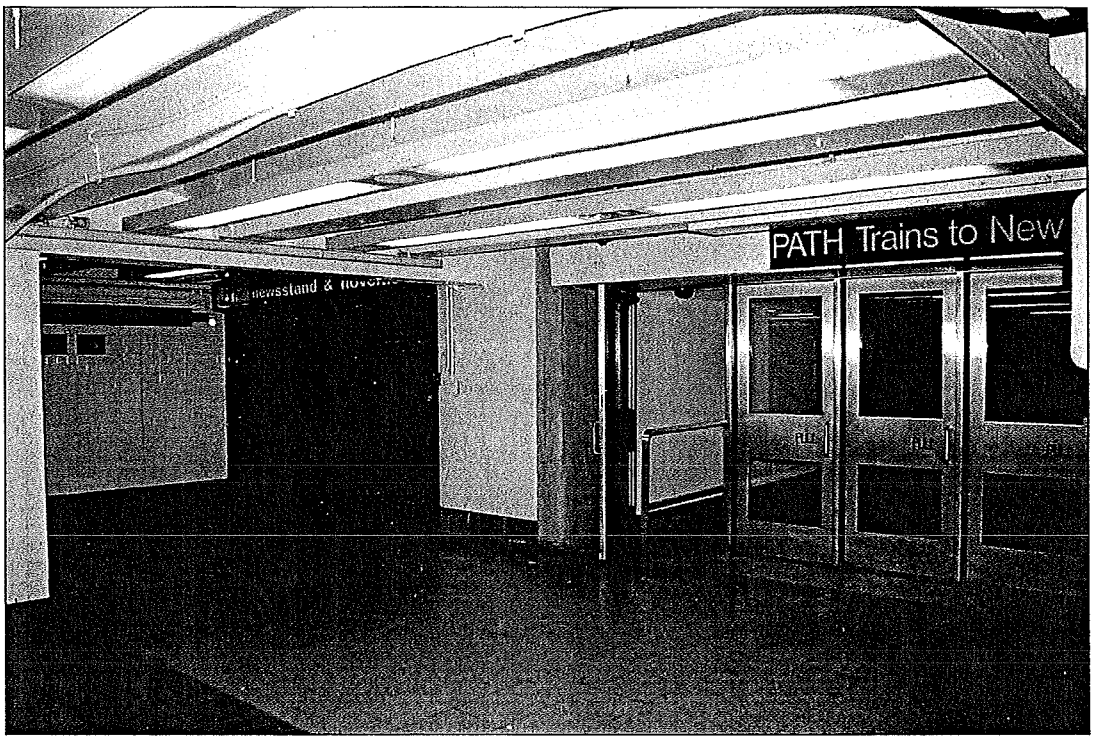
Bathtub area, detail view of truncated box beam column base **20**



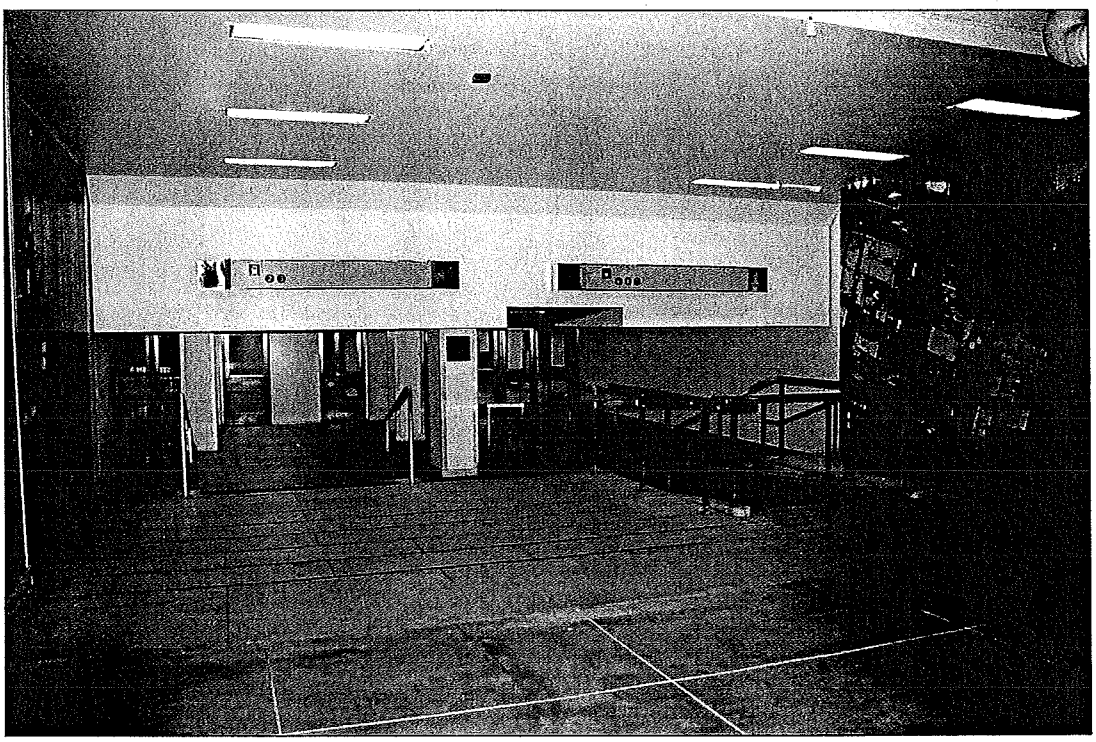
View of new temporary WTC PATH station concourse **21**



View of damaged stair and escalator structure on Vesey Street **22**



Remnants of the WTC passageway to the E subway line **23**



Remnants of the WTC passageway to the E subway line **24**

MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE
ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND
THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
REGARDING THE
WORLD TRADE CENTER TRANSPORTATION HUB
(WTC PATH TERMINAL AND PEDESTRIAN CONNECTIONS)
IN NEW YORK CITY, NEW YORK

WHEREAS, the Port Authority of New York and New Jersey ("PANYNJ") proposes to construct a World Trade Center Transportation Hub, consisting of a permanent WTC PATH Terminal and pedestrian connections ("the Project") at the World Trade Center ("WTC") Site, currently bounded by Church, Liberty, West, and Vesey Streets in Manhattan; and

WHEREAS, the previous WTC PATH Terminal facility was destroyed as the result of the terrorist attacks on September 11, 2001, and re-establishment and enhancement of the WTC PATH transportation facility is critical to the long term economic revitalization and growth of Lower Manhattan; and

WHEREAS, a temporary WTC PATH station was constructed by PANYNJ and has been operating since November 23, 2003; and

WHEREAS, PANYNJ is proposing to use funding assistance from the Federal Transit Administration ("FTA") to implement the Project, assistance that renders the Project a Federal undertaking subject to Section 106 of the National Historic Preservation Act ("Section 106"), 16 USC § 470; and

WHEREAS, FTA, as lead agency, in cooperation with PANYNJ, has prepared an Environmental Impact Statement ("EIS") in accordance with the National Environmental Policy Act ("NEPA") to evaluate the Project's potential environmental impacts and consider various project alternatives; and

WHEREAS, FTA has consulted with the New York State Historic Preservation Office ("SHPO") and the Advisory Council on Historic Preservation ("ACHP") about the Project in accordance with the Section 106 regulations (codified at 36 CFR Part 800); and

WHEREAS, FTA, in consultation with SHPO, has determined the Area of Potential Effect ("APE") for the Project as defined in 36 CFR 800.16(d), to be as depicted on the map presented as Exhibit A hereto, and have identified the properties listed in or eligible for inclusion in the National Register of Historic Places ("Historic Properties" and/or "Historic Resources") within that APE (pursuant to 36 CFR 800.4[b]-[d]), and has determined the effects of the Project on the identified Historic Properties in accordance with 36 CFR 800.5; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project will have an adverse effect on the following Historic Properties within the APE:

a. WTC Site (Tower Perimeter Column Remnants outlining the footprints of the North Tower and the South Tower and the footprints with Other Column Bases and Infrastructure, E Subway Entrance, East and West Slurry Walls, Steel Beams in Cross Form and Remnants of the Hudson Terminal and the H&M Railroad); and
b. Hudson River Bulkhead; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project may have an adverse effect on the following Historic Properties within the APE:

a. WTC Site: Vehicular Entrance Ramps, Cooling Water Pipes, Southern Projection, Tiebacks, PATH Tunnel Access, South Slurry Wall, Recovery and Construction Ramp, Hudson Tubes, Vehicular Access Ramp (connecting Barclay Street with 7 WTC), North Slurry Wall, 6 WTC, Vehicular Access Ramp to Barclay Street (under 7 WTC), and Restored NYCT No. 1/9 Subway Line;
b. Barclay-Vesey Building, 140 West Street;
c. Former East River Savings Bank, 26 Cortlandt Street;
d. Beard Building, 125 Cedar Street;
e. 114-118 Liberty Street; and
f. St. Paul's Chapel and Graveyard, Broadway and Fulton Street; and

WHEREAS, FTA finds, in consultation with SHPO and PANYNJ, that the Project may have adverse effects on archaeological resources yet to be identified within the APE in areas depicted in Exhibit B attached hereto; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project will result in no adverse effect on the following Historic Properties within the APE:

a. WTC Site (any elements not included in the foregoing two Whereas clauses);
b. Federal Office Building/U.S. Post Office, 90 Church Street;
c. St. Peter's Roman Catholic Church, 22 Barclay Street;
d. Former St. Peter's School;
e. 30 Vesey Street;
f. Old New York Evening Post Building, 20 Vesey Street;
g. New York County Lawyers' Association, 14 Vesey Street;
h. Astor Building, 217 Broadway;
i. Transportation Building, 225 Broadway;
j. African Burial Ground and the Commons Historic District, bounded by Duane Street, Park Row, Broadway and Center Street;

k. Former AT&T Company Building, 195 Broadway;
l. 21-23 Thames Street;
m. 90 West Street;
n. Fulton Street IRT Station;
o. Plaza and subway access from Vesey Street; and
p. United States Realty Building, 115 Broadway; and

WHEREAS, since early 2002, PANYNJ and the Lower Manhattan Development Corporation ("LMDC") have coordinated with New York State Department of Transportation ("NYSDOT"), FTA, the U.S. Department of Housing and Urban Development ("HUD"), and the Federal Highway Administration ("FHWA") with respect to historic and environmental analyses including Environmental Performance Commitments ("EPC's") (attached hereto as Exhibit C), coordinated Section 106 meetings prior to the execution of a Coordinated Determination of Eligibility ("DOE"), and the execution of a Coordinated DOE itself; and

WHEREAS, PANYNJ, LMDC, NYSDOT and New York Metropolitan Transportation Authority ("MTA") concurred to adhere to certain common commitments set forth in the EPC's, as part of the Environmental Analysis Framework ("EAF") (attached hereto as Exhibit D), that commit to the coordinated analysis of cumulative environmental impacts including Air Quality, Noise and Vibration, Cultural and Historic Resources, Access and Circulation, and Economic Effects; and

WHEREAS, coordinated Section 106 meetings occurred among PANYNJ, LMDC, NYSDOT, FTA, HUD, FHWA and SHPO, which, in addition to soliciting input from the Project's Consulting Parties, developed the framework for a Coordinated DOE; and

WHEREAS, a Coordinated DOE, in consultation with the Project's Consulting Parties, was finalized on March 31, 2004, and concluded that the WTC Site is eligible for inclusion in the National Register of Historic Places; and

WHEREAS, the Coordinated DOE of the WTC Site for the National Register identified elements that contribute to the WTC Site's historic significance; and

WHEREAS, based on the findings in the Coordinated DOE, the federal agencies proceeded with the planning and development of their separate projects under their jurisdiction. Where the Permanent WTC PATH Terminal Project and another project (the WTC Memorial and Redevelopment Plan, Fulton Street Transit Center, or the Route 9A Project) affect a particular element as identified in the DOE, PANYNJ and the appropriate sponsoring agency(s) will coordinate their respective projects such that the effects of the Project on these elements are fully addressed in consultation with SHPO and the Project's Consulting Parties; and

WHEREAS, PANYNJ, during project design, construction, system testing, and the first six months of full operation of the Project, will review and consider all construction plans for redevelopment of the WTC Site that may result in long-term or unanticipated adverse effects on the WTC Historic Property in order to avoid, minimize, or mitigate such effects on historic

properties that may result from multiple projects and their incremental cumulative impacts on the WTC Site as defined in 40 CFR 1508.7; and

WHEREAS, the United States Department of Transportation ("DOT") is evaluating project alternatives for the reconstruction of a half-mile section of Route 9A (West Street) along the west side of the WTC Site through FHWA; and is proposing construction of the Fulton Street Transit Center, which will have pedestrian connections to the Project through FTA; and has executed a Section 106 Amendment to the 1994 Programmatic Agreement dated October 13, 2004 and attached hereto in Exhibit E; and executed a Section 106 Programmatic Agreement dated September 24, 2004, respectively; and

WHEREAS, LMDC, as a recipient of community development block grant assistance from HUD, is responsible for the planning and execution of the WTC Memorial and Redevelopment Plan, that is the subject of a Programmatic Agreement among LMDC, SHPO and ACHP executed on April 22, 2004 and attached hereto as Exhibit F hereto; and

WHEREAS, these other projects associated with the WTC Site are subject to certain executed Section 106 Agreement documents(s) referenced above and this Memorandum of Agreement ("Agreement") is not intended to amend, modify and/or create additional requirements for those projects under their respective executed Section 106 Agreement document(s); and

WHEREAS, pursuant to that certain Programmatic Agreement, LMDC, in cooperation with PANYNJ, has prepared documentation ("Proposed Removal of Remnants from the Northwest Corner of the World Trade Center Site") of the Northwest Slab remnants located in the WTC Site and has identified the following resources to be removed from the WTC Site to Hangar 17 at John F. Kennedy International Airport ("Hangar 17"):

a. smoke-scarred column;
b. column with blistered paint;
c. wall section from Level B2 with locational sign;
d. day-glow handrails; and

WHEREAS, SHPO, on May 24, 2004, has concurred with the "Proposed Removal of Remnants from the Northwest Corner of the World Trade Center Site"; and

WHEREAS, LMDC and PANYNJ, recognized that certain other items were relevant to the WTC Site and shall preserve the wall section with heart and cross graffiti and two steel beams with the name "Levinson" stamped on them, from the Northwest Slab remnants from the WTC Site; and

WHEREAS, PANYNJ is the interim custodian of certain structural materials and other items (hereafter referred to as "off-site artifacts") removed from the WTC Site and the immediately surrounding area during the post-September 11, 2001 recovery effort and now located in Hangar 17 and other PANYNJ locations; and

WHEREAS, the Project's key goals and objectives include the following: Create a World-Class, Transportation Facility; Support the Redevelopment of Lower Manhattan; Provide for Improved

Pedestrian Connections; Provide for Advanced Security; Enhance Pre-September 11, 2001 PATH Operations; Support 10-Car PATH Trains in Order to Support Ridership Growth; Minimize Impacts to Temporary PATH Service during Construction; Minimize Impacts to the Local Environment during Construction; and Minimize Construction Cost and Duration; and

WHEREAS, of the different alternatives further evaluated and identified in the EIS, FTA and PANYNJ determined that one alternative is the optimal configuration; and

WHEREAS, FTA and PANYNJ evaluated three alternatives to be carried forward for further study in the Draft EIS, identified as a No Action Alternative, and two alternatives of the optimal configuration: a Terminal with Liberty Plaza Connection Alternative and a Terminal without Liberty Plaza Connection Alternative; and determined that the selected alternative for transit service between New Jersey and Lower Manhattan is the Terminal without Liberty Plaza Connection; and

WHEREAS, this Agreement was developed with appropriate public involvement (pursuant to 36 CFR 800.2[d] and 800.6[a]) both coordinated with the scoping, public review and public hearings conducted to comply with NEPA and its implementing regulations and through public meetings specifically conducted to comply with NHPA and its implementing regulations; and in consultation with the SHPO, ACHP and (pursuant to 36 CFR 800.2[d] and 800.6[a]) more than 70 invited Consulting Parties (identified in Exhibit G hereto); and

WHEREAS, National Park Service ("NPS") may have an ongoing interest in the WTC Site and will be recognized as a Consulting Party in the implementation of this Agreement, and will be provided appropriate documentation to assist in any subsequent evaluation of the WTC Site; and

WHEREAS, the public was provided the opportunity to comment on the Project and the following Project documents, and the public will hereafter be provided with further opportunities to comment on the Project as stipulated further in this Agreement:

1. Scoping document for the preparation of an EIS for the Project pursuant to NEPA and its implementing regulations;
2. Draft EIS for the Project, dated May 2004, prepared pursuant to NEPA;
3. Draft Finding of Effects, distributed June 3, 2004, prepared pursuant to NHPA; and

WHEREAS, on June 4, 2004, by copy of the Draft EIS, the following Native American Tribes have been invited, through the NEPA process, to comment on the Project: the Shinnecock Nation; the Cayuga Nation; the Tuscarora Nation; the Saint Regis Band of Mohawk Indians; the Delaware Nation; the Poospatuck Nation; the Onondaga Indian Nation; the Oneida Indian Nation; the Tonawanda Band of Seneca; and the Stockbridge-Munsee Band of Mohicans. To date, FTA and PANYNJ have received comment from the Shinnecock Nation. An opportunity for further comment will continue as per provisions stated in Stipulation X; and

WHEREAS, the following Native American Tribes have been invited to participate in the Section 106 review: Cayuga Nation, Delaware Nation, Shinnecock Nation Cultural Center and Museum, St. Regis Band of Mohawk Indians, Stockbridge-Munsee Band of Mohicans. To date,

FTA and PANYNJ have received comments from the Shinnecock Nation. An opportunity for further comment will continue as per provisions stated in Stipulation X; and

WHEREAS, in response to Executive Order 133 for the State of New York signed on November 22, 2004, the Lower Manhattan Construction Command Center ("LMCCC") was established to ensure that adverse effects at Lower Manhattan Recovery Projects are minimized, coordinate the work of the participants, institute and implement construction coordination protocols and requirements, and mediate conflicts in schedules.

NOW, THEREFORE, FTA, SHPO, ACHP and PANYNJ, as the signatory parties to this agreement, agree that the Project will be implemented in accordance with the following stipulations to ensure that the effects of the Project on Historic Properties are taken into account.

STIPULATIONS

FTA, as the Federal lead agency, remains responsible for the implementation of the terms of this Agreement and will require, as a condition of any approval of Federal funding for the Project, adherence to the stipulations set forth herein. PANYNJ, the project sponsor, will have the lead in the implementation of each stipulation unless otherwise noted in the stipulation.

I. WORLD TRADE CENTER SITE

Because the WTC Site is located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate treatment of the WTC Site with LMDC.

A. DOCUMENTATION

1. As a measure to address adverse effects to the WTC Site, PANYNJ, prior to removal or alteration of any historic features of the WTC Site in connection with this Project, shall ensure that the WTC Site and its historic features are documented to Level II standards of the Historic American Buildings Survey/Historic American Engineering Record ("HABS/HAER"). This documentation shall consist of large format black-and-white photographs of the Site and historic features, as they currently exist.

   The construction fill on the footprints was temporarily removed for the purposes of documentation stipulated by this Agreement, and will be replaced with clean rounded gravel after the documentation in order to protect the footprints and column remnants from ongoing construction. Large-format photographic reproduction of selected drawings of current conditions and of pre-9/11 conditions, and a written history will be prepared and a description of the Site and historic features utilizing information previously generated for the Coordinated DOE for the WTC Site and the Project's EIS. HABS/HAER documentation generated by PANYNJ will be presented as a single submission to SHPO.

2. PANYNJ shall consult with SHPO and HABS/HAER to determine whether particular features warrant measured drawings; any such drawings shall be prepared by an individual

with demonstrated expertise in the preparation of measured drawings to HABS/HAER standards.

3. PANYNJ shall deposit the completed documentation in the following repositories unless otherwise determined by SHPO: (a) New York Historical Society; (b) New York City Public Library; (c) HABS/HAER; and (d) two copies to SHPO with one set to be forwarded to the New York State Archives. The large-format photographs prepared to HABS/HAER standards shall consist of the views itemized on the Schedule of Photographs appended hereto as Exhibit H. One set of the completed documentation will be presented to the WTC Memorial Center.

B. PERIMETER COLUMN REMNANTS OUTLINING NORTH TOWER AND SOUTH TOWER FOOTPRINTS AND THE TOWER FOOTPRINT AREAS AFFECTED

1. In the design and construction of the Project, PANYNJ shall to the maximum extent feasible, preserve in place 84 column base remnants in the North Tower and 39 column base remnants in the South Tower at the existing floor at elevation 242 (58 feet below Sea Level) that outline the footprints of the former Twin Towers at the WTC Site and are not located in the PATH right-of-way.

2. While striving to preserve in place the 84 column base remnants in the North Tower and the 39 column base remnants in the South Tower, up to a total of 16 column bases in the North Tower and up to a total of 3 column bases in the South Tower have the potential to be temporarily or permanently removed. If they are to be removed, they are to be removed as follows:

   a. *Platform D.* Every effort will be made to avoid removing any column bases, however, up to 5 column bases in the North Tower and up to 3 column bases in the South Tower could be temporarily or permanently removed to construct Platform D. The design of Platform D in the northeast corner area of the North Tower has been modified to move the vertical circulation element to the north and west on the Platform allowing the corner of the North Tower to be symbolically represented in the finish materials on the Platform. A minimum of 5 to a maximum of 7 column bases of the east column line of the North Tower will be visible from Platform D. The viewing area will consist of a glass wall tilted inward from the Platform combined with a mirrored wall along the west wall enabling viewing of the column bases from this area of the Platform. Appropriate signage, graphics, and lighting will complete the viewing area.

   b. *Platforms B, C, and D.* The locations of column remnants of the South Tower that may be removed or permanently obscured by the Project platforms shall be symbolically represented on these platforms through architectural treatments that will define and differentiate the portions of the infrastructure that are within the Tower footprint areas. These treatments may include color differentiation, texture differentiation, symbolic representation of Tower perimeter column remnants and/or an emblematic marker designating the location of the Historic Resource.

c. *Project Foundation.* Up to 4 column bases in the North Tower could be temporarily removed by work to install other Project structures and infrastructure. Of the 4 column bases that could be affected by the Project foundation, those column bases that remain in situ undisturbed or are temporarily removed and returned to their original locations will be accessible following the completion of these foundations.

3. Removing column bases, on either a temporary or permanent basis, will be considered only after practical engineering design options pursuant to Stipulations I. B. 2a and 2b, to preserve column bases in place have been exhausted. Column bases that are removed will be returned to their original locations if practical engineering design permits. Permanent removal of column bases will only take place as a last resort, and these column bases will be removed to Hangar 17 pursuant to Stipulation I. H.

4. The proposed east-west pedestrian corridor shall be designed and built in a manner that avoids the column remnants projecting above the concrete slab that outline the north perimeter of the North Tower and place this corridor at least 5 feet outside the North Tower footprint as measured from the center line of each projecting column base to the face of the nearest structural support wall.

5. The temporary PATH track (in addition to the existing 5 tracks) and associated ballast that will be installed on a temporary basis during construction of the Project tracks and platforms shall be removed upon completion of the permanent tracks and platforms to re-expose the North Tower and South Tower perimeter column remnants and portions of the North Tower and South Tower footprints that may be covered by the temporary track and ballast.

6. The total extent of the North Tower footprint at the lowest level, at approximately elevation 242 (58 feet below Sea Level) to be permanently occupied by any portion of the Project will be approximately 1,600 square feet and will not exceed 4% of the North Tower footprint area. The total extent of the South Tower footprint at the lowest level, at approximately elevation 242 (58 feet below Sea Level) to be permanently occupied by any portion of the Project will be approximately 21,615 square feet currently occupied by the WTC PATH facility, plus an additional 2,000 square feet required by the Project, and will not exceed 53% of the South Tower footprint area.

7. The construction fill on the footprints has been temporarily removed for the purposes of documentation of the footprints pursuant to Stipulation I.A. of this Agreement, and will be replaced with clean rounded gravel as required after the documentation in order to protect the footprints and column remnants from ongoing construction. Further treatments may be specified in the Resource Protection Plan.

8. Where treatments are set forth in this Stipulation under I. B. 2, PANYNJ shall follow this process:

   a. Design plans for the treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.

b. Design plans will be made available, subject to Stipulation IX.D., to the Consulting Parties and the public via the PANYNJ website at www.PANYNJ.gov/pathrestoration (Project website). The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such plans to Consulting Parties upon request.

c. The review of the plans shall focus on the architectural treatments defining and differentiating the portions of the Project within the Tower footprint areas.

d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.

e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.

f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.

C. E SUBWAY ENTRANCE

1. The new pedestrian connection between the Terminal and the MTA/NYCT E Subway shall be designed to incorporate the existing E Subway entrance, in its current location, in a manner that retains existing materials and features of this entrance, including, but not limited to, the handrails, travertine flooring, including the existing steps and doors separating the E train from the pedestrian connection, and overhead signage, to the extent possible and consistent with current building codes and Americans with Disabilities Act requirements. This design will include, at a minimum, a plaque identifying the historic features of the E subway entrance.

a. Design plans for treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.

b. Design plans will be made available to the Consulting Parties and the public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.

c. The review of the plans shall focus on the treatment of the existing E Subway entrance.

d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.

e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.

f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.

2. If during construction of the new pedestrian connection between the Terminal and the E Subway, it is determined that the existing E Subway entrance doors need to be removed, then they will be removed in accordance with Stipulation VI below.

D. PENETRATION OF EAST AND WEST SLURRY WALLS FOR THE PROJECT

1. The design for the Project shall provide visibility from within the Terminal to a portion of the East or West Slurry Wall if the following criteria are met: the condition of the slurry wall evokes the image now understood to represent the historic nature of the wall (e.g. Tiebacks are part of the area to be exposed, Tiebacks project beyond the re-stabilized slurry wall); the exposure provided would enable a view of the slurry wall which is clear, recognizable, and respectful of the slurry wall; and the exposure would not pose a safety hazard to the public from exposed finishes of the wall or its components. The design for the East-West Pedestrian Connector shall include a location from which the members of the public using the Connector may, at a minimum, view a plaque and photograph of the West Slurry Wall.

a. Design plans for treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.

b. Design plans will be made available to the Consulting Parties and public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.

c. The review of the plans shall focus on the slurry wall mitigation.

d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.

e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.

f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.

E. STEEL BEAMS IN CROSS FORM

PANYNJ shall relocate the steel column and crossbeam mounted on a concrete pedestal and currently situated within the WTC Site near Church Street to Hangar 17 or an alternate location in accordance with Stipulation VI below, where the object will remain in the custody and control of PANYNJ as are other off-site artifacts in Hangar 17 from the WTC Site, pending final disposition of these artifacts in accordance with the rights of the respective owners thereof.

F. RESOURCE PROTECTION PLAN FOR CONSTRUCTION AT WTC SITE

1. To protect historic elements of the WTC Site that are to remain in situ from inadvertent damage during construction activities of this Project within the WTC Site, PANYNJ, in consultation with SHPO and in coordination with LMDC and with (as appropriate) those with certain property interests in the WTC Site, shall develop a WTC Resource Protection Plan ("WTCRPP") for the Project after the Record of Decision for the Project.

2. The WTCRPP will describe in detail the construction procedures of the Project related to Historic Properties and the construction procedures associated with other projects under construction in the vicinity of those Historic Properties. It will also provide, with respect to the Project, for the inspecting and reporting of existing conditions at these historic elements; establish protection procedures; establish a monitoring program; establish and monitor construction methods; and establish methods and materials to be used for any repairs. A historic architect who meets the Secretary of the Interior's professional qualifications standards (48 F.R. 44716) in historic preservation will be part of the design/construction team for the Project and will have the opportunity to review design drawings and specifications for the Project prior to construction in order to prevent damage to Historic Resources.

3. The WTCRPP will empower the historic architect, in consultation with the Chief Engineer of PANYNJ ("Engineer") or the Engineer's designee, to issue "stop work" orders with respect to this Project to prevent any unanticipated damage to Historic Properties, and any recommencement of work shall only be permitted at such time that the Engineer and historic architect determine that the appropriate modifications have been made to the construction technique to assure that no damage will occur to Historic Properties.

4. PANYNJ shall furnish copies of the WTCRPP to SHPO, ACHP, NPS and Consulting Parties for review and comment on the WTCRPP with respect to the Project. NPS and Consulting Parties shall have 21 calendar days in which to comment on the WTCRPP with respect to the Project. SHPO and ACHP shall have 30 calendar days in which to review and comment on the WTCRPP with respect to the Project. Should SHPO and ACHP fail to respond within the 30 calendar day period, PANYNJ may assume

concurrence with the WTCRPP. PANYNJ shall consider all comments on the WTCRPP with respect to the Project received within this review period in preparing the final WTCRPP. The WTCRPP for the Project shall be in place prior to the commencement of construction of the WTC PATH Terminal.

G. CUMULATIVE EFFECTS

1. PANYNJ shall follow the process described below to address previously unanticipated cumulative adverse effects on the Historic Resources on the WTC Site during Project design, implementation, and testing, and the first six months of full operation of the Project that are caused in part by the permanent WTC PATH Terminal project together with other WTC Site project activities that, when considered along with existing conditions as well as reasonably foreseeable future conditions may cause irreversible or long-term adverse effects on qualifying characteristics of the WTC Site that were to be preserved or protected based upon the terms of this Agreement or other executed Section 106 Agreement document(s) associated with the WTC Site.

2. PANYNJ shall request all agencies that are constructing projects within the WTC Site to submit preliminary and pre-final documents to the PANYNJ to allow coordination of the Project activities with such other work and to permit the PANYNJ's assessment of the Project to include the potential for cumulative adverse effects on the WTC Site per I.G.1.

3. PANYNJ and its historic preservation consultant, will consult with SHPO and Lower Manhattan Emergency Preservation Fund (consisting of the following coalition of five preservation groups: Municipal Art Society, National Trust for Historic Preservation, New York Landmarks Conservancy, Preservation League of New York State, and the World Monuments Fund) in assessing whether there is a potential for cumulative adverse effects of the Project and other WTC Site projects per I.G.1.

4. If PANYNJ and SHPO agree that Project plans or completed activities have resulted in or are likely to result in cumulative adverse effects on the WTC Site per I.G.1 of this Agreement, then PANYNJ shall consider measures with respect to the Project to mitigate or minimize such effects, including technical or financial measures for the protection, rehabilitation, or repair and Project design modifications. Disagreements between the PANYNJ and SHPO, including those related to effects findings, will be resolved pursuant to Stipulation X.

5. PANYNJ shall make all appropriate PANYNJ-generated and prepared documentation related to the Project for Section 106 purposes and utilized in consideration of cumulative adverse effects in I.G.4 available to the Consulting Parties and NPS via the Project website. Consulting Parties will be notified of the documentation posting to the Project website via electronic notification. The Consulting Parties and NPS shall have 21 calendar days to comment on the documentation. PANYNJ will provide paper copies of such documentation to Consulting Parties upon request. SHPO, ACHP, and WTC project agencies will respond within 30 calendar days of receipt of all required documentation. Should SHPO, ACHP, or any project agency, fail to respond within 30 calendar days

after receipt of all documentation, it shall be assumed that they have no comments on the proposed action, if any, to minimize or mitigate cumulative adverse effects.

6. The review of the documentation by all parties per I.G.5 shall focus on the historic elements of the WTC Site Historic Property that may be affected by the Project relative to the potential for cumulative adverse effects.

7. PANYNJ, in coordination with other project agencies as appropriate, and SHPO will consider and respond to comments on the Project and its potential for cumulative adverse effects on the WTC Site Historic Property from Consulting Parties and attempt to resolve any concerns about how PANYNJ intends to address cumulative adverse effects per I.G.1 of this Agreement. If PANYNJ, in consultation with SHPO are unable to reach a resolution with the Consulting Parties who have commented pursuant to I.G.5. regarding an adverse effect with respect to the Project and its potential for cumulative adverse effects on the WTC Site Historic Property, the PANYNJ will notify the FTA, and as appropriate, consult with the ACHP, in accordance with Stipulation X.

8. PANYNJ shall comply with other agreement documents referenced in this Agreement and the EIS related to archaeological resource treatment, noise and vibration in the WTC Construction Protection Plan for the Barclay-Vesey Building, Former East River Savings Bank, Beard Building, 114-118 Liberty Street, and St. Paul's Chapel and Graveyard and the WTCRPP when considering cumulative adverse effects on the Historic Properties both on and off of the WTC Site that may result from the Project and other related, approved project undertakings.

H. OFF-SITE ARTIFACTS

PANYNJ shall safeguard all artifacts from the WTC Site that are now or may come to be in its custody and control, pending final disposition of such artifacts in accordance with the rights of the respective owners thereof. This obligation will be fulfilled in consultation with LMDC as specified in Stipulation 4(a)(3) and Stipulation 4(b) of the April 22, 2004 Programmatic Agreement among the ACHP, LMDC and SHPO for the WTC Memorial and Redevelopment Plan. A complete inventory listing of all off-site WTC artifacts in PANYNJ's custody and control as of August 2004 shall be available to the Consulting Parties upon written request to PANYNJ. Additional artifacts may come into the custody and control of PANYNJ, and the listing of these artifacts will be incorporated into the semiannual report to be distributed to the signatory parties and Consulting Parties.

II. HUDSON RIVER BULKHEAD

A. COORDINATION

Because the Hudson River Bulkhead is located in the APE of the proposed reconstruction of West Street (Route 9A) as well as in the APE for the Project, PANYNJ shall coordinate treatment of this Historic Property with FHWA and NYSDOT.

B. LOCATION AND IDENTIFICATION

In consultation with the SHPO, and, as appropriate with NYSDOT, PANYNJ shall develop and implement a plan to locate and identify intact portions of the Hudson River Bulkhead that will be affected by construction of the East-West Pedestrian Connector.

C. TREATMENT

In the event that intact portions of the Hudson River Bulkhead are identified as a result of execution of Stipulation II.B, PANYNJ shall, in consultation with the SHPO and NYSDOT, prepare a treatment plan for those portions of the Hudson River Bulkhead to be affected by the Project.

D. TREATMENT PLAN

1. Design plans for treatments will be developed in consultation with the SHPO and submitted for SHPO comment at the preliminary (35%) and pre-final (75%) completion stages. NPS and Consulting Parties will also be given the opportunity to comment.

2. Design plans will be made available to the Consulting Parties and the public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.

3. The review of the plans shall focus on the Hudson River Bulkhead mitigation.

4. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.

5. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plan.

6. PANYNJ will consider and respond to all comments received from SHPO within the specified comment period and Consulting Parties prior to approval of submitted plans and specifications.

III. BARCLAY-VESEY BUILDING, FORMER EAST RIVER SAVINGS BANK, BEARD BUILDING, 114-118 LIBERTY STREET, AND ST. PAUL'S CHAPEL AND GRAVEYARD

A. COORDINATION

Because the Historic Properties listed in the title of this Stipulation are located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate treatment of them with LMDC.

The Former East River Savings Bank and St. Paul's Chapel and Graveyard are also located within the APE of the Fulton Street Transit Center. PANYNJ shall therefore coordinate treatment of these Historic Properties with MTA/NYCT.

B. CONSTRUCTION PROTECTION PLAN FOR THE BARCLAY-VESEY BUILDING, FORMER EAST RIVER SAVINGS BANK, BEARD BUILDING, 114-118 LIBERTY STREET, AND ST. PAUL'S CHAPEL AND GRAVEYARD

1. To protect these buildings from project-generated construction vibration from the Project, PANYNJ, in consultation with SHPO and in coordination with LMDC and, as appropriate, with MTA/NYCT, shall develop a Construction Protection Plan ("CPP") for the Project. The CPP will set forth measures for protection and avoidance of structural and architectural damage from the Project for these Historic Properties.

2. The CPP will be based on the requirements laid out in the "New York City Department of Buildings Technical Policy and Procedure Notice ("PPN") #10/88" regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines an adjacent historic structure as being contiguous to or within a lateral distance of 90 feet from a lot under development or alteration.

3. The CPP will describe in detail the construction procedures of the Project related to Historic Properties and the construction procedures associated with other projects under construction in the vicinity of each of these Historic Properties. With respect to the Project, the CPP will also provide for the inspecting and reporting of existing conditions at these properties; establishing protection procedures; establishing a monitoring program to measure vertical and lateral movement and vibration; establishing and monitoring construction methods to limit vibrations; and establishing methods and materials to be used for any repairs. The CPP shall also specify the implementation of special vibration protection measures to protect these Historic Properties from increased vibration levels associated with construction activities of the Project. For these extremely fragile buildings, these vibration protection measures for the Project shall reduce vibration levels to levels below FTA's vibration damage threshold criterion of 0.12 in/sec (approx 95 VdB). The CPP will provide for a historic architect meeting the Secretary of the Interior's professional qualifications standards (48 F.R. 44716) to work with an engineer with demonstrated comparable expertise in working with historic buildings to supervise implementation of the CPP.

4. The CPP will empower the historic architect, in consultation with the Chief Engineer of PANYNJ ("Engineer") or the Engineer's designee, to issue "stop work" orders with respect to this Project to prevent any unanticipated damage to Historic Properties, and any recommencement of work shall only be permitted at such time that the Engineer and historic architect determine that the appropriate modifications have been made to the construction technique to assure that no damage will occur to Historic Properties.

5. PANYNJ shall furnish copies of the CPP to SHPO, ACHP and Consulting Parties for review and comment with respect to the Project. The Consulting Parties will have 21 calendar days in which to comment on the CPP with respect to the Project. SHPO and ACHP shall respond

within 30 calendar days of the request for review and comment on the CPP with respect to the Project. Should SHPO and ACHP fail to respond within the 30 calendar day period, the PANYNJ may assume concurrence with the CPP. PANYNJ shall consider all comments received with respect to the Project within this review period in preparing the final CPP. The CPP for the Project shall be in place prior to the commencement of construction of the WTC PATH Terminal that could affect fragile buildings in the APE.

IV. ARCHAEOLOGICAL RESOURCES

A. COORDINATION

The areas of potential historic archaeological sensitivity in the Project's APE are former Lots 8-17 on former Block 85 (south side of Vesey Street between Greenwich and Church Streets) and former Lots 5, 6 and 10 on former Block 60 (north side of Liberty Street between Greenwich and Church Streets). Because these areas of potential historic archaeological sensitivity are located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate fulfillment of this Stipulation with SHPO and LMDC. The locations of these archaeologically sensitive areas are shown on the map appended hereto as Exhibit B.

B. LOCATION, IDENTIFICATION, AND EVALUATION

Prior to any Project-related subsurface disturbance at any of the locations that have been determined to be sensitive for historic archaeological resources, PANYNJ shall, in consultation with the SHPO, and LMDC as appropriate, locate, identify, and evaluate the National Register eligibility of any archaeological resources at these locations in accordance with 36 CFR 800.4.

C. TREATMENT PLAN FOR ARCHAEOLOGICAL RESOURCES

1. In the event that FTA, in consultation with SHPO, determines that National Register-eligible archaeological resources will be adversely affected by construction of the Project, PANYNJ shall, in consultation with FTA, SHPO, and LMDC as appropriate, and the Consulting Parties, develop and implement a Treatment Plan for the Project. The Treatment Plan will balance Project (engineering, environmental and economic) and historic preservation concerns while addressing specific research questions. The Treatment Plan and documentation will adhere to the standards established by the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716), including the standards therein for professional qualifications

2. The Treatment Plan will be made available to the Consulting Parties via the Project website. The Consulting Parties will be informed of the availability of the plan by electronic notification as the plan is posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans.

3. SHPO shall have 30 calendar days in which to comment on the Treatment Plan. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the Treatment Plan.

4. The Treatment Plan described above will be posted on the Project website. PANYNJ will provide paper copies of the Treatment Plan to the Consulting Parties upon request.

V. UNANTICIPATED DISCOVERIES OF ARCHAEOLOGICAL RESOURCES AND UNANTICIPATED EFFECTS ON HISTORIC RESOURCES

A. UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL RESOURCES

In the event that unanticipated archaeological deposits or features are encountered during the construction of the Project, PANYNJ shall immediately implement the procedures described in Exhibit I hereto.

B. UNANTICIPATED EFFECTS ON HISTORIC RESOURCES

In the event that PANYNJ determines that construction of the Project will affect or has affected a Historic Resource in an unanticipated manner other than those identified in Stipulation I.F., PANYNJ shall stop Project construction in the vicinity of the affected resource and shall take reasonable measures with respect to the Project, to avoid harm to the resource until it has consulted with the SHPO to develop a treatment or mitigation plan with respect to the Project. PANYNJ may perform additional measures to secure the job site if it determines that unfinished work in the vicinity of the affected resource will cause major safety or security concerns. Upon notification, SHPO will have 14 calendar days to review and comment on the treatment or mitigation plans. Should SHPO fail to respond within the 14 calendar day period, the PANYNJ may assume concurrence with the treatment plan or mitigation plans. If PANYNJ and SHPO cannot agree on a treatment or mitigation plan, the dispute resolution process set forth in Stipulation X below will be followed.

VI. TEMPORARY RELOCATION OF HISTORIC ELEMENTS OF THE WTC SITE

TEMPORARY RELOCATION OF HISTORIC ELEMENTS

If PANYNJ determines that historic elements (potentially anticipated to be Tower Perimeter Column Remnants and E Subway Entrance of the WTC Site) must be temporarily relocated in order to protect them from damage during construction of the Project, PANYNJ shall:

1. Prior to relocation, notify SHPO and Consulting Parties of the elements requiring temporary relocation.

2. Prior to relocation, consult with their design/construction team historic architect who meets the Secretary of the Interior's professional qualifications standards (48 FR 44716) and in consultation with SHPO, develop a plan for (a) removing the elements in a manner that maintains their integrity of materials and workmanship; (b) safeguarding the removed elements while relocated to Hangar 17 or any other agreed upon location; (c) returning the elements to the WTC Site, based on criteria to be developed by PANYNJ and reviewed by ACHP and SHPO. Elements not returned to the WTC Site will remain in the control and custody of PANYNJ in Hangar 17 or other PANYNJ sites until the final disposition of all

artifacts in PANYNJ's custody has been determined. This determination of custody will take place outside the parameters of this Project.

3. Prior to relocation, SHPO will respond within 30 calendar days or earlier to the plan for temporary relocation and safeguarding of the element or elements. Should SHPO fail to respond within the 30 calendar day period, PANYNJ may assume concurrence with the relocation plan.

4. Prior to the relocation, PANYNJ will consider those comments provided within the specified time frame in finalizing the plans. PANYNJ shall implement the final plan.

5. PANYNJ shall notify SHPO and Consulting Parties in writing when temporarily removed elements have been returned to the WTC Site.

6. The Consulting Parties will be provided updates regarding the above 5 items through electronic notification and the Project website.

VII. MONITORING

SHPO may monitor activities carried out pursuant to this Agreement at its discretion. PANYNJ will cooperate with SHPO with respect to such monitoring activities.

VIII. ADDITIONAL COORDINATION REGARDING NEWLY AFFECTED HISTORIC PROPERTIES

1. If construction activities associated with the Project may affect Historic Properties other than those whose treatments will be coordinated with other agencies as set forth in Stipulations I, II and III of this Agreement, PANYNJ shall determine whether the newly affected Historic Property is within the APE of the WTC Memorial and Redevelopment Plan, the reconstruction of West Street, and/or the Fulton Street Transit Center. If the newly affected Historic Property is not also within the APE of one or more of these projects, PANYNJ will proceed as set forth in Stipulation V.B.

2. If PANYNJ determines that the newly affected Historic Property is also within the APE of one or more of these projects, PANYNJ shall include this information in any notification to the SHPO under Stipulation V.B and shall invite the relevant project sponsor(s) and respective lead agency to participate in consultation with SHPO to determine the appropriate course of action.

IX. ADMINISTRATION OF THIS AGREEMENT

A. COOPERATION

During implementation of this Agreement, each signatory party agrees to cooperate with the other signatory parties to facilitate the satisfaction of their respective obligations under this Agreement. The signatory parties each agree to work in good faith with the other signatory parties to meet their respective obligations in a timely manner.

B. SUBMITTALS TO SHPO

Unless otherwise specified in this Agreement, PANYNJ shall submit to SHPO all documents, drawings or other materials for which PANYNJ requests review, comment or concurrence.

C. SEMIANNUAL STATUS REPORTING

On or before January 31st and June 30th of each year and commencing on January 31, 2006, until the terms of this Agreement have been fulfilled, PANYNJ shall prepare and provide a semiannual report addressing the following topics:

- Progress in completing Stipulations I through V;
- Any unexpected issues encountered during the preceding six months; and
- Any changes that PANYNJ believes should be made in implementation of this Agreement.

PANYNJ shall make this report available to the signatory parties and Consulting Parties, and will invite Consulting Parties to provide comments to PANYNJ. PANYNJ will respond to comments received and, as appropriate, will provide the signatory parties with how PANYNJ responded to comments and notify the signatory parties if they need to further consider any comments. Any signatory party may request a meeting on the report. The report will also be posted on the Project website.

D. DOCUMENTATION

Notwithstanding any other provision in this Agreement, all documentation to be provided to the signatory parties, Consulting Parties, and the Public shall relate to the historic aspects of the Project as set forth in this Agreement subject to appropriate considerations, such as security concerns.

X. DISPUTE RESOLUTION

A. OBJECTIONS TO PLANS OR REPORTS BY SIGNATORY PARTIES

In the event any signatory party to this Agreement objects to any plan or report presented for the Project pursuant to this Agreement within 30 calendar days of its receipt, or within such other time frame specified in this Agreement, PANYNJ will consult further with the objecting signatory party to seek resolution. If PANYNJ is unable to reach resolution with respect to the Project, it will notify FTA, which in turn will consult with the objecting party to seek resolution with respect to the Project. If FTA determines that the objection cannot be resolved, FTA will invite the ACHP to review all Project documentation relevant to the dispute, including FTA's proposed resolution to an objection. ACHP will provide its comments to FTA within 30 calendar days. FTA will take these comments into account in reaching a final decision concerning the dispute.

Any recommendation or comment by the ACHP will pertain only to the subject of the dispute. The responsibility of the signatory parties to implement all actions pursuant to this Agreement that are not subject to the dispute will remain unchanged.

B. CONSULTING PARTY COMMENTS AND DISPUTE RESOLUTION

1. If PANYNJ receives written objections from any Consulting Party with respect to the Project regarding the treatment of Historic Properties, or on the design of the new structure or measures taken to implement the terms of this Agreement within 30 days of electronic notification of posting of plans, designs, or measures on the Project website, PANYNJ will consult with the objector regarding such objections.

2. PANYNJ shall consult with the objecting Consulting Party within 30 calendar days after receipt of written comments. If PANYNJ and the Consulting Party cannot resolve the matter with respect to the Project, PANYNJ shall notify SHPO and provide copies of the objection. SHPO, as appropriate, shall advise PANYNJ of measures, if any, that could resolve the matter.

3. If PANYNJ in consultation with SHPO cannot resolve the matter with respect to the Project, and PANYNJ and SHPO consider the issue of sufficient importance, PANYNJ and SHPO shall proceed as set forth in Stipulation X.A. above.

XI. AMENDMENT AND TERMINATION

A. AMENDMENT

Notwithstanding any other provision in this Agreement, any signatory party to this Agreement may request that it be amended, whereupon the signatory parties will consult to consider such amendment. PANYNJ will facilitate such consultation within 30 calendar days of such request. Any amendment must be in writing and signed by FTA, ACHP, SHPO and PANYNJ to be effective. The appropriate contacts for the signatory parties are provided in Exhibit J hereto.

B. TERMINATION

This agreement will terminate upon full completion of Project construction and after the first six months of full operation of the Project, or at such time as PANYNJ notifies the other parties in writing that the Project has been terminated.

This agreement may be terminated at the request of any of the signatory parties to this Agreement within 30 calendar days of written notification to the other signatory parties. In the event the Agreement is terminated, FTA, in consultation with SHPO, shall comply with 36 CFR Part 800 on a case-by-case basis for each proposed project activity.

Execution of this Agreement by FTA, SHPO, PANYNJ and ACHP and implementation of its terms will be evidence that FTA has taken into account the effect of the Project on Historic Properties, has afforded the ACHP and Consulting Parties an opportunity to comment on the Project and its effects on Historic Properties, and has completed all processes in accordance with Section 106 of the National Historic Preservation Act.

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

FEDERAL TRANSIT ADMINISTRATION

By: _____ Date: April 19, 2005

Name Bernard Cohen

Title Director, Lower Manhattan Recovery Office

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 4/8/05

Name John M. Fowler

Title Executive Director

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

NEW YORK STATE HISTORIC PRESERVATION OFFICE

By: _____ Date: 4/6/05

Name Paul J. Laudato

Title Deputy State Historic Preservation Officer

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: _____ Date: 4/11/05
Name Kenneth J. Ringler, Jr.
Title Executive Director

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 3.31.05

Name: Carl Weisbrod

Title: President

Alliance for Downtown New York, Inc.

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: William C. Love, Jr. Date: 3/26/05

Name: William C. Love, Jr.

Title: Vice Chair, Coalition to Save West Street

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 3/21/05

Name: BRUCE L. EHRMANN

Title: CHAIR, LANDMARKS COMMITTEE, COMMUNITY BOARD #1, MANHATTAN

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: David E Stanke Date: March 30, 2005

Name: David E. Stanke

Title: Co-chair BPC United

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 3/20/05

Name: [illegible]

Title: [illegible]

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

LOWER MANHATTAN DEVELOPMENT CORPORATION

By: _____ Date: 4/12/06
Name: Kevin M. Rampe
Title: President

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 9/15/05

Name: Peg Breen, President

Title: New York Landmarks Conservancy

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: April 5, 2005

Name: Mysore L. Nagaraja, P.E.

Title: President, MTA Capital Construction

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 04/15/05

Name: Ken Lustbader

Title: Preservation Consultant, Lower Manhattan Emergency Preservation Fund

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 3/3/05

Name: Richard J. Schmalz, P. E.

Title: Route 9A Project Director, NYSDOT

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: Bruce De Cell Date: March 30, 2005

Name: Bruce De Cell

Title: The Skyscraper Safety Campaign

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: Bonnie Burnham Date: April 1, 2005

Name: Bonnie Burnham

Title: President, World Monuments Fund

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 3/28/05

Name: Albert Capsouto

Title: Director, Tribeca Organization
Tribeca Committee Chair CB #1

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: Martin Connor Date: March 29, 2005

Name: MARTIN CONNOR

Title: State Senator

Mar 31 2005 12:31 P.02

CONSULTING PARTY CONCURRENCE
WTC Transportation Hub Section 106 Memorandum of Agreement

By: _____ Date: 03\31\2005

Name: CRAIG HALL

Title: WTCRC - PRESIDENT

(WORLD TRADE CENTER RESIDENTS COALITION)

LIST OF EXHIBITS

EXHIBIT A: AREA OF POTENTIAL EFFECT

EXHIBIT B: MAP OF ARCHAEOLOGICALLY SENSITIVE AREAS WITHIN THE PROJECT APE

EXHIBIT C: ENVIRONMENTAL PERFORMANCE COMMITMENTS

EXHIBIT D: ENVIRONMENTAL ANALYSIS FRAMEWORK

EXHIBIT E: AMENDMENT TO THE 1994 PROGRAMMATIC AGREEMENT DATED OCTOBER 13, 2004

EXHIBIT F: PROGRAMMATIC AGREEMENT FOR WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN

EXHIBIT G: LIST OF CONSULTING PARTIES

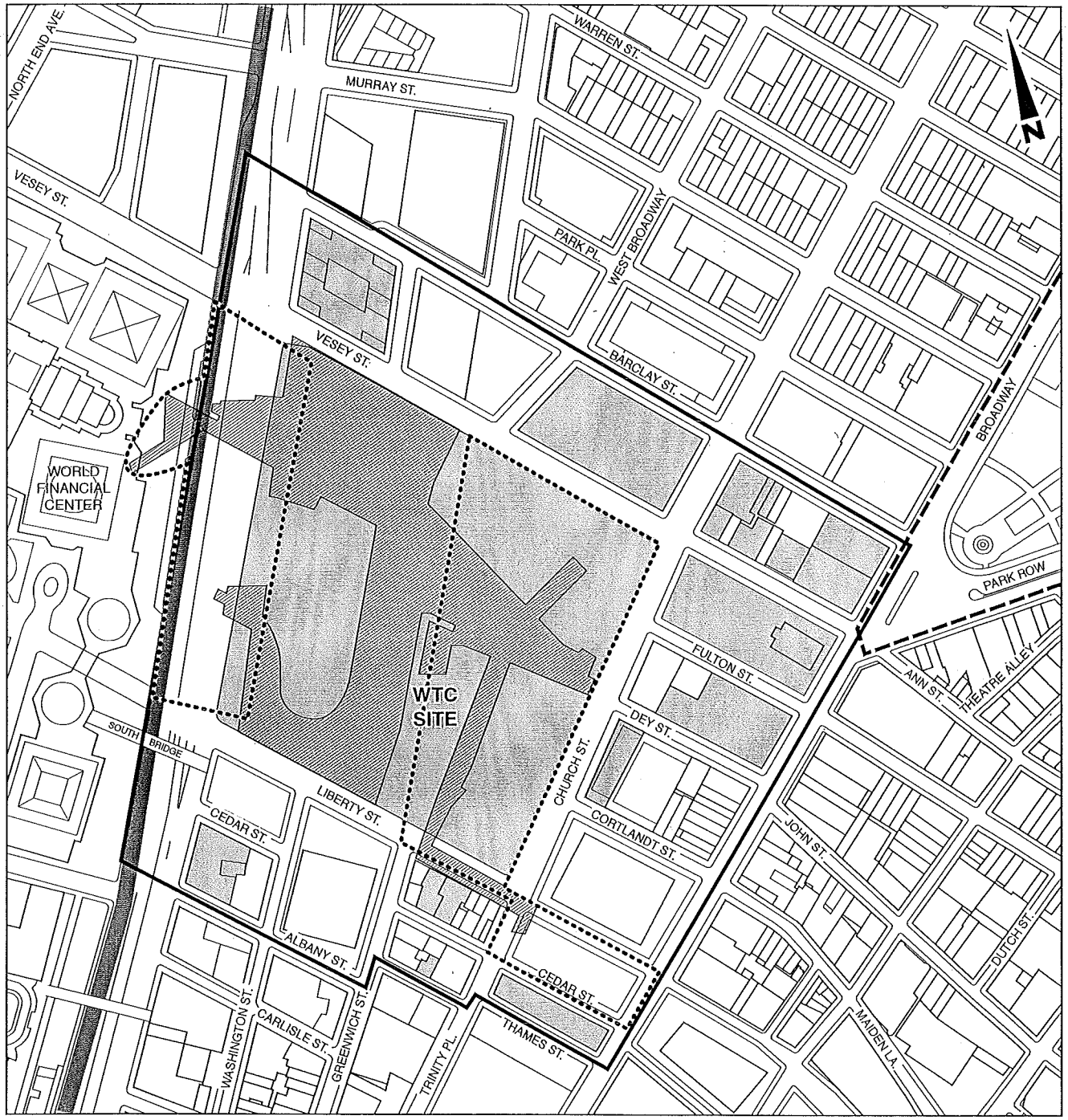
EXHIBIT H: SCHEDULE OF PHOTOGRAPHS FOR WORLD TRADE CENTER SITE

EXHIBIT I: PLAN FOR UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL FEATURES OR MATERIALS

EXHIBIT J: CONTACT INFORMATION

EXHIBIT A

10.13.04



Permanent WTC PATH Terminal

Area of Potential Effect for Archaeological Resources

Area of Potential Effect for Historic Resources

Known Historic Resource

Known Historic District

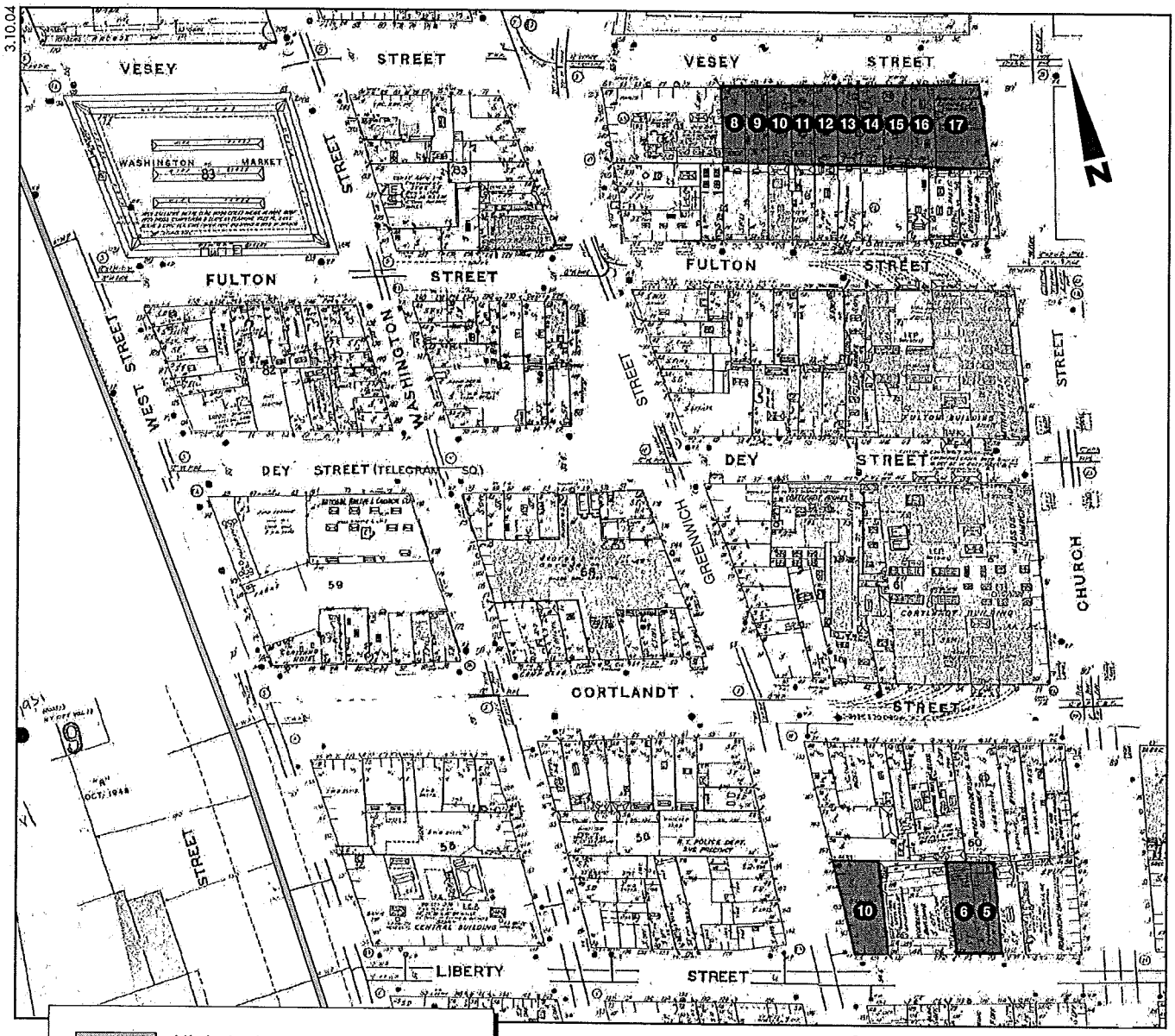
0 200 500 FEET

SCALE

Exhibit A

Area of Potential Effect

EXHIBIT B



PERMANENT WTC PATH TERMINAL
Draft Environmental Impact Statement

Figure 6-2
Areas of Potential Archaeological Sensitivity

LOWER MANHATTAN FEDERAL TRANSPORTATION RECOVERY PROJECTS
COMMON ENVIRONMENTAL PERFORMANCE COMMITMENTS

These common environmental performance commitments are made by the Project Sponsors accepting the Environmental Analysis Framework for Federal Transportation Recovery Projects in Lower Manhattan. As noted in the Environmental Analysis Framework, actual requirements and specifications implementing the commitments will be set forth in each Project Sponsor's public involvement and governmental entities coordination plan, construction environmental protection plan, design documents and contracts.

Air Quality:

Proposed Commitments
Use ultra low sulfur diesel fuel in off-road construction equipment with engine horsepower (HP) rating of 60 HP and above.
Where practicable, use diesel engine retrofit technology in off-road equipment to further reduce emissions. Such technology may include Diesel Oxidation Catalyst / Diesel Particulate Filters, engine upgrades, engine replacements, or combinations of these strategies.
Limit unnecessary idling times on diesel powered engines to 3 minutes.
Locate diesel powered exhausts away from fresh air intakes.
Control dust related to construction site through a Soil Erosion Sediment Control Plan that includes, among other things: a. spraying of a suppressing agent on dust pile (non-hazardous, biodegradable); b. containment of fugitive dust; and c. adjustment for meteorological conditions as appropriate.

Noise and Vibration:

Proposed Commitments
Where practicable, schedule individual project construction activities to avoid or minimize adverse impacts.
Coordinate construction activities with projects under construction in adjacent and nearby locations to avoid or minimize impacts.
Consider condition of surrounding buildings, structures, infrastructure, and utilities where appropriate.
Prepare contingency measures in the event established limits are exceeded.

Cultural and Historic Resources:

Proposed Commitments
Establish coordination among projects to avoid or minimize interruption in access to cultural and historic sites.
Initiate public information and involvement outreach with sensitivity to local cultural resources.
Identify public information outlets that will receive and provide current information about access during construction.
Consult with the New York State Office of Historic Preservation and the New York City Landmarks Preservation Commission regarding potentially impacted, culturally significant sites. Monitor noise and vibration during construction at such sites as appropriate.

Access and Circulation:

Proposed Commitments
Establish a project-specific pedestrian and vehicular maintenance and protection plan.
Promote public awareness through mechanisms such as: a. signage; b. telephone hotline; and c. Web site updates.
Ensure sufficient alternate street, building, and station access during construction period.
Regular communication with New York City Department of Transportation and participation in its construction coordination efforts.

Economic Effects:

Proposed Commitments
Coordinate with LMDC, Downtown Alliance or other entities to minimize residential and retail impacts as required through: a. relocation assistance, as applicable, to persons or businesses physically displaced by the project; and b. focus on essential businesses and amenities to remain in Lower Manhattan.
Add appropriate signage for affected businesses and amenities.

Design for the Environment:

Proposed Commitments
Energy Efficiency/Renewable Energy
Enhanced Indoor Environmental Quality (IEQ)
Conserving Materials and Resources
Environmentally-friendly Operations & Maintenance
Water Conservation and Site Management
Waste Management and Recycling (including during construction)

EXHIBIT D

ENVIRONMENTAL ANALYSIS FRAMEWORK FOR FEDERAL TRANSPORTATION RECOVERY PROJECTS IN LOWER MANHATTAN

In the aftermath of the September 11, 2001 attacks, a common framework of environmental analysis for reconstruction and redevelopment projects in Lower Manhattan can produce substantial benefits for each project, including the avoidance or minimization of environmental impacts and an increase in public understanding. The initiation of transportation recovery projects that are to be undertaken with the $4.55 billion in federal funding to restore and enhance functionality of the infrastructure and support the recovery of the area ("Federal Transportation Recovery Projects") will likely precede non-infrastructure projects. These projects therefore present an early opportunity for implementing a framework for evaluating and minimizing potentially adverse environmental effects, particularly cumulative effects, from other projects in Lower Manhattan that are constructed and put into operation during similar time frames and may affect the same resources (the "Framework"). As such, this Framework, which features a coordinated cumulative effects analysis approach, is offered to assist sponsors of Federal Transportation Recovery Projects ("Project Sponsors") in their environmental analyses.

The Framework for the Federal Transportation Recovery Projects was developed by a group of governmental entities involved with recovery in Lower Manhattan: the Metropolitan Transportation Authority ("MTA"), the Port Authority of New York and New Jersey ("Port Authority"), the New York State Department of Transportation ("NYSDOT"), and the Lower Manhattan Development Corporation ("LMDC"), in cooperation with the Federal Transit Administration ("FTA") and interested federal agencies. It is anticipated that at a minimum, this Framework, as applicable and where appropriate, will be used by the MTA, the Port Authority, and NYSDOT in connection with each of their proposed Federal Transportation Recovery Projects. This Framework will be introduced to additional local Project Sponsors, as appropriate, as additional Federal Transportation Recovery Projects are identified and prioritized. It is intended that, when completed, each Federal Transportation Recovery Project will result in an overall positive impact on the environment.

The temporary waiver of most transportation conformity requirements provided by Public Law 107-230 allows for these projects to proceed with out the need for a full conformity determination. To meet obligations set forth with the conformity waiver, the framework recognizes the need and value of interagency consultation and is consistent with the enhanced interagency consultation procedures during the transportation conformity waiver period.

In light of other reasonably foreseeable transportation and non-transportation actions in Lower Manhattan, this Framework for analyzing Federal Transportation Recovery Projects will establish a consistent set of information and commitments to be fulfilled in each Project Sponsor's project-specific environmental review and documentation. The Framework considers the regulations set forth by the Council on Environmental Quality ("CEQ") and takes into account the guidance in State Environmental Quality Review Act ("SEQRA") regulations, the City Environmental Quality Review ("CEQR") Technical Manual, industry best practices, and public input.

This *Environmental Analysis Framework* consists of the following components:

1. *Green Design, Green Construction, and Sustainability Principles;*
2. *Construction Environmental Protection Plan;*
3. *Public Involvement and Governmental Entities Coordination Plan; and*
4. *Baseline Assessment of Resources & Coordinated Cumulative Effects Analysis Approach*

1. Green Design, Green Construction, and Sustainability Principles

Each Project Sponsor cooperating with the FTA, and other interested federal agencies, recognizes the importance of avoiding and minimizing adverse impacts. Project Sponsors will address their advance commitment to undertake such avoidance efforts. In this regard, Project Sponsors have agreed to develop a common set of Environmental Performance Commitments ("EPCs") that they will each undertake. EPCs are items such as design elements, construction techniques, or operating procedures that will be implemented to lower the potential for adverse environmental impacts. This proactive approach is incorporated into this Framework and will diminish the likelihood of adverse cumulative effects. In addition, each Project Sponsor will undertake additional EPCs appropriate to its project based on the project's particular nature, timing, and scope.

Each Project Sponsor will describe the green practices that will be followed during construction for the following resources/areas of potential impact:

- Air Quality
- Pedestrian and Vehicular Access and Circulation
- Historic and Cultural Resources
- Noise and Vibration
- Business/Economic Interests

Project Sponsors will also set forth the green practices, high performance, and sustainable design features to be evaluated during design of the structures and facilities that will avoid or minimize adverse impacts and enhance overall environmental performance during operation.

2. Construction Environmental Protection Plan

Each Project Sponsor will provide a detailed outline of the EPCs and any other procedures to be implemented during the construction phase to protect sensitive resources that may be affected during construction. This plan will discuss how the initial condition of the resource will be assessed, where applicable; how the construction work will actually be implemented to avoid or minimize impacts; and how the environmental performance of the project will be monitored during construction. This plan will be based on the best available information and the ongoing construction coordination process in Lower Manhattan and a shared Lower Manhattan projects inventory being developed by LMDC. The plan will also provide an effective means for disseminating appropriate current information to the public and other developers.

3. Public Involvement and Governmental Entities Coordination Plan

Each Project Sponsor will describe how the environmental community, relevant governmental entities, and the general public will be involved as the Project Sponsor proceeds with its Federal

Transportation Recovery Project. Each Project Sponsor will develop a public and governmental entity involvement plan that will be coordinated with the public and governmental entity involvement plans for other Lower Manhattan projects. A key goal of the coordination will be to avoid or at least minimize adverse effects on the environment, particularly during construction. In addition, this plan will identify a protocol by which comments received during the construction phase will be addressed; appropriate current information will be provided to the public, including Project Sponsors' project implementation schedules; and coordination with other projects will occur. The process will build on an existing construction coordination protocol among parties already involved in rebuilding Lower Manhattan.

4. ***Baseline Assessment & Coordinated Cumulative Effects Analysis Approach.***
The components of the baseline assessment and coordinated cumulative effects analysis approach to be used by the Project Sponsors in Federal Transportation Recovery Projects are as follows:

- Each Project Sponsor will address cumulative effects, as applicable, as part of its independent project-specific environmental review process.
- The "baseline" to be used for the "No Build" comparison required under NEPA will be pre-September 11, 2001 conditions.
- The "baseline" for environmental review of construction-related impacts for each project will be adjusted to reflect, where appropriate, conditions anticipated to be in effect at the time of construction.
- Project Sponsors will share appropriate information, databases and documentation of the baseline and forecasted conditions.
- Each Project Sponsor will apply a consistent approach for the evaluation of cumulative effects focused on the five following "resources":
  - -- Air Quality (including the Enhanced Procedures during the Transportation Conformity Waiver Period);
  - -- Pedestrian and Vehicular Access and Circulation;
  - -- Historic and Cultural Resources
  - -- Noise and Vibration; and
  - -- Business/Economic interests
- The geographic area for analysis will be the area of Lower Manhattan south of Canal Street, but where appropriate, the geographic area may be adjusted for the specific resources.
- Each Project Sponsor will adhere, at a minimum, to the attached set of common EPCs to lower the potential for adverse environmental impacts as listed in Section 1 and above, thereby lessening the potential for each project to contribute to overall adverse cumulative effects.
- As each project matures through the NEPA process, the findings of the project will be incorporated into the cumulative effects analyses for the projects that follow it. As such, the project on which findings have been issued will constitute an "existing condition" for the cumulative effects analysis of the next project.

EXHIBIT E

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION
THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE ROUTE 9A PROJECT
NEW YORK CITY, NEW YORK

WHEREAS, a Programmatic Agreement for the Reconstruction of Route 9A (Attachment A), executed in 1994 by the Federal Highway Administration (FHWA), New York State Historic Preservation Officer (SHPO), and Advisory Council for Historic Preservation (ACHP), with concurrence by the New York State Department of Transportation (NYSDOT), established procedures for implementation pursuant to Sections 106 and 110(f) of the National Historic Preservation Act (16 USC 470f); and

WHEREAS, the reconstruction of Route 9A (Battery Place to 59th Street) implemented pursuant to the 1994 FEIS was nearly complete at the time of the September 11, 2001 terrorist attacks, however those attacks destroyed an approximately half-mile section of Route 9A in the vicinity of the World Trade Center (WTC); and

WHEREAS, the New York State Department of Transportation (NYSDOT), in coordination with the FHWA, currently proposes reconstruction of the half-mile section of Route 9A in the vicinity of the WTC and lying between Chambers and West Thames Streets that was destroyed or damaged by the attacks on September 11, 2001, and subsequent WTC site cleanup and/or recovery activities; and

WHEREAS, the FHWA, the Lower Manhattan Development Corporation (LMDC), and the Federal Transit Administration (FTA) coordinated the Section 106 determination of National Register eligibility for the WTC Site due to the proximity to the Site of their respective proposed undertakings; and

WHEREAS, the Area of Potential Effect (APE) for the proposed reconstruction of Route 9A has been modified since 1994 and includes, as shown in Figure C-1:

(1) the right-of-way for the Route 9A roadway alignment between West Thames Street and Chambers Street; and
(2) areas along intersecting streets east of Route 9A between West Thames Street and Chambers Street, including locations where construction may occur outside of the Route 9A right-of-way (e.g. foundations of potential pedestrian bridges); and

WHEREAS, historic properties within the modified APE include, as shown in Figure C-1:

(1) the WTC Site, which was determined eligible for the National Register of Historic Places, and documented in the *Coordinated Determination of National Register Eligibility for the WTC Site,* dated March 31, 2004 (Attachment B); and
(2) additional resources listed in or eligible for listing in the National Register of Historic Places, identified in Attachment C; and
(3) the New York City Hudson River Bulkhead as a potential archaeological site.

WHEREAS, it is intended that the 1994 Programmatic Agreement be amended to address: 1) the potential effects of the proposed undertaking to the World Trade Center Site; 2) the identification of additional historic resources located within the Area of Potential Effect (APE); 3) inclusion of the treatment and documentation of the bulkhead; and 4) the increased role of consulting parties so as to fully consider the views of the consulting parties and ensure that FHWA/NYSDOT have the information needed to make a reasoned assessment of how the proposed undertaking affects historic properties; and

WHEREAS, the proposed undertaking is part of the overall restoration of the transportation system of Lower Manhattan, and is an independent undertaking from those undertakings mentioned above and proposed by LMDC and FTA for projects at or adjacent to the WTC site; and

WHEREAS, during the course of consultation to identify additional historic properties within the modified APE an expansive list of consulting parties (Attachment D) participated in the identification process and are hereby recognized under the terms of this agreement; and

WHEREAS, consulting parties under this agreement shall have all opportunities for review and comment stipulated for interested parties under the original 1994 agreement, and accorded to consulting parties under revised Section 106 regulations effective August 5, 2004; and

WHEREAS, in accordance with comprehensive efforts for redevelopment under the Coordinated Construction Act for Lower Manhattan (11700 and 11716-A), signed August 10, 2004, the development and implementation of mitigation measures will be coordinated with other agencies involved in the Lower Manhattan Redevelopment projects; and

NOW, THEREFORE, FHWA, NYSDOT, SHPO and ACHP agree that the proposed undertaking covered by this Agreement shall be administered in accordance with the terms of the 1994 Programmatic Agreement for the Reconstruction of Route 9A and the following stipulations to satisfy FHWA's Section 106 responsibilities.

STIPULATIONS

FHWA, in coordination with NYSDOT, will ensure that the following stipulations are implemented as part of the subsequent planning, design and construction of the selected project alternative:

1. If FHWA proposes a finding of no adverse effect, it shall notify all consulting parties of the finding and provide them with the Analysis of Effect documentation. If within the 30-day review period the SHPO or any consulting party notifies FHWA in writing that it disagrees with the finding and specifies the reasons for disagreement, FHWA shall either consult with the party to resolve the disagreement, or request the Council to review the finding pursuant to 36 CFR 800.5(c)(2)(i) or (c)(2)(ii).

2. If the project is found to have an adverse effect, the FHWA shall so notify the SHPO and the consulting parties accompanied by documentation consistent with that required pursuant to 36 CFR 800.11(e) of the revised regulations. FHWA and NYSDOT shall consult further to develop monitoring and treatment plans and mitigation measures in coordination with the SHPO pursuant to Stipulation II of the 1994 Programmatic Agreement and taking into account the views presented by any consulting parties.

3. Monitoring, treatment and mitigation of the Hudson River Bulkhead:

   (a) Archaeological monitoring will be conducted during construction in the location of the Hudson River Bulkhead in order to identify and document the condition, integrity, depth, and extent of any existing subsurface remains of the Hudson River Bulkhead. Monitoring will be conducted in accordance with a monitoring plan prepared by an archaeologist qualified under National Park Service standards (36 CFR 61). The monitoring plan shall include standard plans for treatment of any anticipated adverse effects to contributing features of the bulkhead. The monitoring plan will be developed and approved in accordance with Stipulation I.E.6 of the original agreement prior to implementation of any ground disturbing activity in the vicinity of the bulkhead.

   (b) Consulting parties will be afforded a 30-day period to review and comment on the monitoring and treatment plan. The standard treatment plan will be implemented if the project is found to have an adverse effect on contributing features of the Hudson River bulkhead. Unless unanticipated effects to contributing features are discovered, implementation of the standard treatment plan shall conclude the

requirements for mitigation of effects to this resource. Unanticipated effects shall be addressed in accordance with 36 CFR 800.13(b)(3) of the revised regulations implementing Section 106.

4. Provisions of the 1994 Programmatic Agreement for the Reconstruction of Route 9A shall be implemented for all other historic properties within the revised APE.

5. In accordance with the revised regulations implementing Section 106 (36 CFR Part 800), consulting parties shall be entitled to share their views, receive and review pertinent documentation, offer ideas, and consider possible solutions together with the Federal agency and other consulting parties. Consulting parties will receive copies of the analysis of effects and proposed treatment plans for each of the additional historic properties identified within the modified APE. Consulting parties shall have 30 days following the receipt of any documentation in which to provide their comments to FHWA and NYSDOT. FHWA/NYSDOT will fully consider any comments from consulting parties submitted within the 30-day review period in finalizing determinations of effect and in developing and evaluating measures to minimize or mitigate adverse effects.

6. Impacts to historic buildings and structures, due to vibrations associated with construction operations, will be minimized through coordination of construction activities associated with other Lower Manhattan projects, the Department's Standard Specifications, and Special Notes to be included in the Contract Documents.
    a. Special Notes to address potential vibration impacts will be developed in consultation with the SHPO. The SHPO will be afforded a 10-day period to review and comment on these Notes.
    b. Measures to avoid and minimize vibration impact will include:
        i. The examination of the conditions of structures and buildings by a NYS licensed Professional Engineer. These reviews will be conducted prior to the commencement of work, at locations and times during construction as determined by NYSDOT, and after the completion of work under this contract.
        ii. Vibration monitoring performed in accordance with the Special Note, titled: "Building Condition Survey and Vibration Criteria", in the Contract Documents.
    c. If it is determined that NYSDOT construction activities caused damage to "Adversely Effect" a historic building or structure, NYSDOT, after consultation with the SHPO and the property owner as noted in Stipulation #2, will repair that damage that is reasonably attributable to the project activities.

Route 9A - AMENDMENT TO THE PROGRAMMATIC AGREEMENT

Execution and implementation of this amendment to the original agreement evidence that FHWA has satisfied its Section 106 responsibilities for the Route 9A project.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 10/13/04

John M. Fowler, Director

Route 9A - AMENDMENT TO THE PROGRAMMATIC AGREEMENT

Execution and implementation of this amendment to the original agreement evidence that FHWA has satisfied its Section 106 responsibilities for the Route 9A project.

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 10/12/04

Bernadette Castro, Commissioner

Execution and implementation of this amendment to the original agreement evidence that FHWA has satisfied its Section 106 responsibilities for the Route 9A project.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

By: _____ Date: 10.8.04

Richard Schmalz, Rte. 9A - Project Director

Route 9A - AMENDMENT TO THE PROGRAMMATIC AGREEMENT

Execution and implementation of this amendment to the original agreement evidence that FHWA has satisfied its Section 106 responsibilities for the Route 9A project.

FEDERAL HIGHWAY ADMINISTRATION

By: _____ Date: 10-12-04

Robert Arnold, Division Administrator

PROGRAMMATIC AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION,
THE
NEW YORK STATE HISTORIC PRESERVATION OFFICER,
AND THE
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING THE
RECONSTRUCTION OF ROUTE 9A
NEW YORK CITY, NEW YORK

WHEREAS, the Federal Highway Administration (FHWA) has determined that the Route 9A Reconstruction Project (Project) in New York City, New York may have an effect on properties/structures included in or eligible for inclusion in the National Register of Historic Places, and has consulted with the Advisory Council on Historic Preservation (Council) and the New York State Historic Preservation Officer (SHPO) pursuant to Sections 106 and 110(f) of the National Historic Preservation Act (16 U.S.C. 470f) and the Council's implementing regulations, "Protection of Historic Properties" (36 CFR Part 800); and

WHEREAS, the New York State Department of Transportation (DOT) has participated in the consultation and was invited to concur in this Programmatic Agreement;

WHEREAS, the FHWA, the SHPO and the Council agree that the undertaking shall be guided in principal by the methodologies outlined in the Draft Environmental Impact Statement (DEIS) / Supplemental DEIS (SDEIS) and Final Impact Statement (FEIS) for the project;

WHEREAS, the FHWA and DOT have agreed to provide all studies and other documentation to the New York City Landmarks Preservation Commission (LPC) for their information;

NOW, THEREFORE, FHWA, the SHPO and the Council agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of this Project on historic properties/structures.

STIPULATIONS

FHWA WILL ENSURE THAT THE FOLLOWING STIPULATIONS ARE IMPLEMENTED AS PART OF SUBSEQUENT PLANNING, DESIGN AND CONSTRUCTION OF THE SELECTED PROJECT ALTERNATIVE.

I. ARCHEOLOGICAL RESOURCES

Within the area of potential effect (APE) for archeological resources[1], a comprehensive program for the identification, evaluation, and treatment of archeological resources will be implemented in the manner set forth below.

A. Contextual Studies

To assess the large number of potential archeological sites that may exist within the APE and to refine predictions on locations of potential archeological sensitivity, FHWA and DOT will complete contextual studies for each of the following categories.

1. Prehistoric Sites.
2. Dwellings and Tenements.
3. Energy.
4. Meat Market.
5. Offices and Warehouses.
6. Land Transportation.
7. Unassociated Structures.
8. Lumber and Building Materials.
9. Manufacturing.
10. Services.
11. Piers and Wharves.
12. Landfill Devices and Sunken Ships.
13. 17th Century Fortifications and Foundations at Morris Street.

B. Review and Results of Contextual Studies

1. As the contextual studies for each category are completed, they will be provided to the SHPO for their review and comment.[2]

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[1] The area of potential effect for archeological properties includes (1) the right-of-way; (2) streets intersecting Route 9A for a 50-foot distance east of the roadway; (3) at locations where construction may occur east of the roadway, e.g. between Battery Place and Joseph P. Ward Street, Chambers Street, between Canal and Spring Streets, between Gansevoort and 13th Streets, between 14th and 15th Streets, and Thomas F. Smith Park; (4) footprints at pedestrian over passes or other special features; and (5) construction staging areas outside of the areas listed in (1)-(4) above.

[2] In this instance and in all similar provisions provided for in this Agreement, unless otherwise noted, where comments are sought from the SHPO and/or LPC, it is understood that the party will be provided 30 days from the receipt of the request to submit comments. If no comments are submitted during this review period, it is understood that the party has no wish to comment and concurs with the recommendations or conclusions for which comments were sought. Extensions, totalling no more than 15 days, will be added to the 30-day review period in cases where timely requests are made for additional documentation deemed necessary to complete a review.

2. For each study, FHWA and DOT, based on comments received from the SHPO, will:

a. Determine the need, if any, to verify the assumptions made in the study. If the need for verification exists, an appropriate field testing methodology will be developed by FHWA and DOT in consultation with the SHPO (See Stipulation I.C. below).

b. Determine which presumed site locations do not require further consideration. Provided the SHPO agrees with these conclusions, such site locations need receive no further consideration under this Agreement.

c. Determine which presumed site locations do require further consideration. These site locations should be treated in accordance with Stipulation I.D. below.

If conclusions reached by FHWA and DOT are not consistent with comments and recommendations received from the SHPO, FHWA and DOT will consult to resolve the objection. If the objection cannot be resolved, the recommendations of the Council will be sought consistent with Stipulation V of this Agreement.

C. Field Testing Assumptions of Contextual Studies

In consultation with the SHPO, FHWA and DOT will develop and undertake a strategy for carrying out field testing. If the results of such field testing demonstrates that assumptions upon which predictions were made in the Contextual Studies are not valid, the Studies, as appropriate, will be revised in a manner acceptable to the SHPO.

The Council will be kept apprised of any such field testing that is carried out and its results and will be provided copies of field reports and any revised Contextual Studies.

D. Further Evaluation of Potential Sites

For those site locations determined to require further consideration pursuant to Stipulation I.B.2.c. and determined by FHWA and DOT, in consultation with the SHPO, to be subject to possible project impacts, field testing will be undertaken to determine site characteristics and the degree of site integrity and disturbance. This field evaluation and testing program will be carried out in consultation with the SHPO and at a level sufficient to be able to determine if sites meet the criteria for listing in the National Register of Historic Places (36 CFR Section 60.4). For each field tested site, FHWA and DOT, in consultation with the SHPO, will apply the National Register criteria and reach one of the following conclusions:

1. The site does not meet the National Register criteria; no further action is required.

2. The site does meet the National Register criteria, in which case the site will be treated in accordance with Stipulation I.E. below.

3. A dispute exists regarding whether the criteria are met, in which case the opinion of the Keeper of the National Register will be sought to resolve the disagreement, and the site treated in accordance with the Keeper's finding.

FHWA and DOT will notify the SHPO, and interested parties of conclusions regarding evaluation of all sites for National Register.

E. Data Recovery

For those sites determined to be eligible for inclusion in the National Register, FHWA and DOT, in consultation with the SHPO, shall develop and conduct a data recovery plan that is consistent with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation(48 FR 44734-37) and the Council's Treatment of Archeological Properties and subsequent amendments (Advisory Council on Historic Preservation, 1980). The plan shall:

1. Be responsive to the relevant historic contextual study developed for this project;

2. Be designed to recover data sufficient to address significant research issues and to test assumptions set forth in the appropriate historic contextual study;

3. Provide adequate flexibility to allow for addressing unanticipated resource, site conditions, and alternative methods and scopes of work, as appropriate. The SHPO shall be kept apprised of any changes to the data recovery plan;

4. Include a process for consultation with the SHPO, LPC and interested parties, as appropriate, throughout the monitoring and data recovery phases; and,

5. Include a schedule of proposed data recovery efforts with reporting requirements.

6. In some cases, the data recovery plan may be implemented through a monitoring program during construction. The use of this method would be subject to approval by SHPO, DOT, and FHWA.

F. Professional Standards

DOT shall ensure that all archeology carried out pursuant to this Agreement is conducted by or under the direct supervision of a person or persons meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards (48 FR 44138-9).

G. Curation

DOT shall develop and implement, in consultation with the SHPO and in accordance with 36 CFR Part 79, a plan for the analysis and curation of material and records from the archeological excavations are curated in accordance with 36 CFR Part 79.

H. Reports

DOT shall ensure that all final archeological reports resulting from the actions pursuant to this Agreement shall be provided to the SHPO, LPC and interested parties, and submission to the National Technical Information Service (NTIS). FHWA and DOT shall ensure that all such reports are responsive to contemporary professional standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery Program (42 FR 5377-79).

I. Phasing of Construction Activities and Archeological Field Work

DOT will take all steps practical to ensure that needed archeological field analysis and data recovery can proceed in advance of construction activities. In establishing construction scheduling and staging, FHWA and DOT will fully consider, anticipate, and prepare for archeological work that must be undertaken. FHWA and DOT shall coordinate the site preparation in a manner

which allows maximum exposure of the areas to be tested at the earliest possible date. Further, FHWA and DOT will provide to the SHPO and LPC regularly scheduled status reports that will include notice about schedules, plans, and timing related to phasing archeological work with construction in order that the SHPO can better anticipate review requirements and thereby provide more timely advice.

II. HISTORIC PROPERTIES/STRUCTURES - WITHIN THE ROUTE 9A CORRIDOR

Within the area of potential effects for the Route 9A Corridor (APE) for historic properties/structures[1], a comprehensive program for assessment of effects and treatment of historic properties/structures will be implemented in the manner set forth below.

A. Analysis of Effects

In consultation with the SHPO, FHWA and DOT will determine if, there are any effects on the 39 historic properties/structures listed or determined eligible for listing in the National Register of Historic Places identified on Attachment A. Analysis of effects will be guided by the Criteria of Effect [36 CFR Section 800.9(a)]. A determination of effect will consider if there are physical takings, visual effects, vibrations resulting from construction and anticipated traffic increases, access changes, or noise impacts. These will be evaluated in light of those characteristics which make the properties/structures significant.

1. Findings of No Effect

If, after consultation with the SHPO, FHWA and DOT determines that there will be no effect to a property/structure, this finding will be documented and copies will be provided to the SHPO for review. Any objections and reasons therefore must be provided in writing within 30 days. Specific effects must be identified so that any possible mitigation measures can be considered and developed.

2. Findings of No Adverse Effect

If, after consultation with the SHPO, FHWA and DOT determines that there will be no adverse effect to a property/structure, this finding will be documented and copies will be provided to the SHPO for review. Should the SHPO object within 30 days, FHWA and DOT can either accept a finding of adverse effect for the property/structure or seek Council review pursuant to Stipulation V.

3. Findings of Adverse Effect

If, after consultation with the SHPO, FHWA and DOT determines that there will be adverse effects to a property/structure, FHWA and DOT will develop a treatment plan as set forth in Stipulation II.B.

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[1]The area of potential effect for historic structures includes the roadway frontage for the selected alternative and those areas where pedestrian bridges will be located.

B. Treatment of Adverse Effects

1. Treatment Measures

If adverse effects to historic properties/structures are identified, FHWA and DOT will consider, depending on the nature of the effect and the significance of the property/structure, mitigation measures including, but not limited to, the following:

a. Avoidance of demolition or taking through project redesign,
b. Use of noise attenuation design features,
c. Landscaping to minimize visual impacts,
d. Monitoring of seismic impacts, with modifications in construction techniques if seismic impacts are detected,
e. Signalization and other traffic control measures to reduce traffic generated impacts,
f. Use of construction materials and design features that will improve visual compatibility with adjacent historic properties/structures,
g. Documentation of existing streetscapes and/or historic properties/structures.

2. Views of Interested Parties

In considering mitigation measures for treatment of adverse effects, FHWA and DOT will take fully into account the views of interested parties, in particular LPC and owners of affected historic properties /structures. A community liaison office will be kept open during design and construction to allow input from the general public. Depending on the level of public interest, FHWA and DOT will institute means to solicit and fully consider the views of the public in arriving at appropriate treatment measures.

3. Development of Treatment Plans

Giving full consideration to the views of the property owners, FHWA and DOT, in consultation with the SHPO, will develop a treatment plan for each historic property/structure adversely affected. The treatment plan will set forth the mitigation measures that will be undertaken and will contain evidence that it has been reviewed and approved by the SHPO. An informational copy of the treatment plan will be provided to the Council. FHWA and DOT will then implement the approved treatment plan.

4. If FHWA, DOT and the SHPO are unable to agree on a treatment plan for an historic property/structure adversely affected, FHWA will complete the steps set forth in Sections 800.5(e) - 800.6 of the Council's regulations to address adverse effects to the property /structure.

III. HISTORIC PROPERTIES/STRUCTURES - WITHIN THE INLAND STUDY AREA

Using traffic data and modeling, FHWA and DOT, in consultation with the SHPO, will identify possible areas, streets, and/or locations within the inland study area where traffic changes are expected to occur as a result of the selected alternative. In determining these areas, DOT will use a criteria, which includes, functional classification changes, congestion, above normal traffic variations, land use, expected noise level changes and level of service changes.

A. Determination of APEs

The above noted parameters will indicate areas that need to be examined to determine if they are areas of potential effect (APEs). These areas will be assessed by FHWA and DOT in consultation with the SHPO. This assessment, which will include onsite reviews, will arrive at one of the following conclusions:

1. No Further Study

The areas and expected traffic condition and effects indicate the areas identified are not APEs and no further study is warranted.

2. Historic District Areas

The areas identified are in a historic district and overall effects on the historic district need to be examined.

3. Areas of Potential Effect

The area and expected traffic conditions are such that an APE is evident. Further evaluation of the APE is warranted to determine if there is a high concentration of historic properties/structures. If there is a low concentration or no historic properties/structures in the APE, no further study is warranted.

4. Additional Study Needed

If the SHPO determine that preliminary evidence is inconclusive, FHWA and DOT will undertake additional studies of properties/structures in the identified area(s) in order that the SHPO can conclude with certainty that an area is of high of low concentration.

B. Analysis of Effect

For those determined APEs that contain a high concentration of historic properties/structures, FHWA and DOT, in consultation with the SHPO, will determine the nature and extent of effects.

1. Historic Districts

a. No Effect - The cumulative affects of the expected traffic conditions on the Historic Districts are negligible and no effect is expected.

b. No Adverse Effect - There are some perceptible changes in the expected traffic conditions, but no adverse effects to the Historic District are evident.

c. Adverse Effect - Specific adverse effects will result from expected traffic conditions that will affect the character and setting of the Historic District. Possible mitigation measures will follow those steps in Stipulation II.B.

2. APEs - High Concentration of Historic Properties/ Structures

a. No Adverse Effect - The effects of the expected traffic conditions are perceptible and evident, but no specific adverse effects are expected on the specific historic properties/structures.

b. Adverse Effect - Specific adverse effects will result from expected traffic conditions that will affect the character and setting of the historic properties/structures. Possible mitigation measures will follow those steps in Stipulation II.B..

3. Views of Interested Parties

In considering mitigation measures for treatment of adverse effects, FHWA and DOT will take fully into account the views of interested parties. For those sites, the steps in Stipulation II.B.2. will be followed.

IV. REPORTING

One year from the date this agreement is concluded, and every year thereafter until project completion, DOT will provide to the Council, the SHPO, and LPC a report on activities carried under this Agreement during the preceding year. At the time the report is submitted the signatories of the Agreement will review implementation of the Agreement and determine whether revisions are needed. If revisions are needed, the parties to this Agreement will consult in accordance with 36 CFR Part 800 to make such revisions.

V. DISPUTE RESOLUTION

Should the Council or the SHPO object within 30 days to any actions proposed pursuant to this agreement, DOT and FHWA shall consult with the objecting party to resolve the objection. If FHWA determines that the objection cannot be resolved, FHWA shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

A. provide FHWA with recommendations, which FHWA will take into account in reaching a final decision regarding the dispute; or

B. notify FHWA that it will comment pursuant to 36 CFR Section 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will taken into account by FHWA in accordance with 36 CFR Section 800.6(c)(2) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; FHWA's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

EXECUTION AND IMPLEMENTATION OF THIS PROGRAMMATIC AGREEMENT EVIDENCES THAT FHWA HAS SATISFIED ITS SECTION 106 RESPONSIBILITIES FOR THE ROUTE 9A RECONSTRUCTION PROJECT.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 5-23-94

FEDERAL HIGHWAY ADMINISTRATION

By: _____ Date: 3/15/94

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 12 March '94

CONCUR:

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

By: _____ Date: 3/15/94

SEE NEXT SHEET FOR ADDED SIGNATURE IDENTIFICATION

Added After Signatures

Signature Identification

Signatories:

Robert W. Bush, Executive Director
Advisory Council on Historic Preservation

Gene K. Fong, Assistant Division Administrator
Federal Highway Administration

John Winthrop Aldrich, Deputy Commissioner for Historic Preservation
New York State Office of Parks, Recreation and Historic Preservation

Concurrence:

Robert J. Ronayne, Executive Director
Route 9A Reconstruction
New York State Department of Transportation

EXHIBIT F

WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN

PROGRAMMATIC AGREEMENT

Agreement, dated April 22, 2004, among the Advisory Council on Historic Preservation ("ACHP"), the New York State Historic Preservation Officer ("SHPO") and the Lower Manhattan Development Corporation ("LMDC") as a recipient of community development block grant assistance from the U.S. Department of Housing and Urban Development ("HUD").

WHEREAS, LMDC is responsible for planning and conducting environmental and historic reviews for a proposed undertaking known as the World Trade Center Memorial and Redevelopment Plan (the "Plan") for the World Trade Center site (the "WTC Site") and adjacent areas in New York City as shown on Exhibit A hereto (the WTC Site and such adjacent areas are referred to, collectively, as the "Project Site"); and

WHEREAS, The Port Authority of New York and New Jersey (the "Port Authority") is the owner of the WTC Site and has certain artifacts from the WTC Site in its custody and control, which it has catalogued and committed to continuing to maintain, as set forth in its letter, dated April 21, 2004, attached hereto as Exhibit H; and

WHEREAS, the Plan has been developed by LMDC, after extensive public input, to include at its heart a Memorial to honor the victims of September 11, 2001 and February 26, 1993 and commercial, retail, open space and other uses to revitalize Lower Manhattan while providing opportunities through the Memorial design for remembrance of the tragic events of September 11 and preservation of historic resources at the WTC Site; and

WHEREAS, as lead agency under the National Environmental Policy Act ("NEPA") and the New York State Environmental Quality Review Act ("SEQRA"), LMDC has undertaken a comprehensive environmental review of the Plan, as set forth in LMDC's Final Generic Environmental Impact Statement ("FGEIS") dated April, 2004, which includes an assessment of the potential impacts of the Plan on historic resources both on the Project Site and in an extended Area of Potential Effect ("APE") surrounding the Project Site, as shown in Exhibit B hereto and described in Exhibit E hereto; and

WHEREAS, LMDC has, in addition, undertaken a comprehensive review of the potential effects of the Plan on historic resources under Section 106 of the National Historic Preservation Act ("NHPA") and, as part of that review, has engaged in both (1) a joint review with the Federal Transit Administration ("FTA") and the Federal Highway Administration ("FHWA") of the potential eligibility of the WTC Site for listing on the National Register of Historic Places ("National Register") and (2) an extensive consultation process with approximately 60 consulting parties (identified in Exhibit C hereto) with respect to such eligibility and the potential effects of the Plan on historic properties; and

WHEREAS, after consulting with the SHPO and the consulting parties and taking into account and considering their respective comments on draft determinations of eligibility, LMDC determined, jointly with FTA and FHWA, that the WTC Site is eligible for listing on the National Register for the reasons set forth in the Coordinated Determination of National Register Eligibility for the WTC Site ("DOE"), dated March 31, 2004, a copy of which is attached as Exhibit D hereto; and

WHEREAS, LMDC has, as part of both its NEPA and Section 106 reviews, consulted with the SHPO and undertaken a comprehensive review of the National Register status of historic properties in the APE; and

WHEREAS, the purpose of this Agreement is to address any unanticipated or adverse effects on historic resources or properties that may occur as a result of the Plan's implementation and, in particular, to provide a further opportunity for the SHPO and the consulting parties to comment on plans for the Memorial and the Project Site as they are developed in order to avoid or minimize any potential for adverse effects to any historic resources on the Project Site;

NOW, THEREFORE, LMDC, the ACHP and the SHPO agree that implementation of the undertaking as covered by this Agreement shall proceed in accordance with the following stipulations to avoid, minimize or mitigate any adverse effects and satisfy LMDC's Section 106 responsibilities.

LMDC, in coordination with the Port Authority, will ensure that the following measures are carried out:

1. **Project Site Documentation**

LMDC will, within 60 days of the execution of this Agreement, consult with the National Park Service and submit existing documentation of the current appearance of the Project Site to the SHPO, the Historic American Engineering Record (HAER), the Historic American Building Survey (HABS) and/or the New York State Archives, as appropriate, to ensure that there is a permanent record of existing historic resources on the Project Site.

2. Adherence to the Treatment Plans in the FGEIS

LMDC shall ensure that all plans and contracts adhere to the treatment/no adverse effect plans set forth in the relevant portions of Chapter 5, "Historic Resources," Chapter 21, "Construction," and Chapter 22, "Mitigation Measures," of LMDC's FGEIS for the Plan in order to avoid or minimize adverse effects to those historic resources within the Project Site and the historic properties adjacent to (i.e., across the street from) the Project Site. Excerpts of the relevant sections of Chapters 5, 21 and 22 of the FGEIS are attached as Exhibit E hereto.

3. Design of the Memorial

(a) As part of the development of the plans for the Memorial, LMDC will preserve and provide for reasonable and appropriate access by Memorial visitors to (1) portions of the western slurry wall on the WTC Site and (2) truncated box beam column bases outlining portions of the lower "footprints" of the former Twin Towers at the WTC Site (collectively, the "Memorial Access Commitments").

(b) At such time as the Memorial plans have reached a design stage sufficient to permit reasonable review of architectural plans for the Memorial, LMDC will notify the SHPO and the consulting parties and furnish copies of schematic drawings relating to the Memorial Access Commitments and/or illustrative plans (which may include renderings) for the Memorial to the SHPO and any consulting party for review and comment. The review of the plans shall focus solely on the Memorial Access Commitments. LMDC will consult with the SHPO concerning such plans and subsequently convene a meeting, on no less than 10 days' notice, of the consulting parties for the purpose of affording the consulting parties an opportunity to share their views regarding the adherence of the preliminary plans to the Memorial Access Commitments. LMDC shall consider all such

comments in preparing final plans for the Memorial. It is understood, however, that, in considering comments related to the Memorial Access Commitments, LMDC shall not be required to consider modifications to its proposed activities for any other portion of the Plan except as may be otherwise required by this agreement. In view of relevant security considerations, such plans shall not be subject to further review under this Agreement once the review contemplated by this Stipulation 3(b) has been completed.

4. Artifact Review Process

(a) LMDC has committed to, and will, (1) develop a Memorial Center as part of the Plan; (2) establish a Memorial Center Advisory Committee that will assist in the review of suggestions from the consulting parties and other members of the public with respect to the installation or display at the Memorial Center of artifacts removed from the WTC Site; and (3) consult with the Port Authority to assure that the Port Authority safeguards all such artifacts that are in its custody and control, pending the final disposition of such artifacts in accordance with the rights of the respective owners thereof, and thereafter transfers any remaining items to LMDC or its designee for safekeeping or other appropriate disposition. All artifacts to be included in the Memorial or elsewhere on the WTC Site shall be evaluated by LMDC for their significance as part of the National Register eligible WTC Site.

(b) LMDC shall obtain from the Port Authority a copy of a complete inventory listing of all WTC artifacts in the Port Authority's custody and control as of July 1, 2004. LMDC shall request and obtain periodic updates of this inventory to include any additional artifacts that come into the Port Authority's custody and control. LMDC will consult with the Port Authority to share the inventory with the SHPO and each consulting party and provide an opportunity to comment regarding artifacts that may be installed in

or displayed at the Memorial Center and their potential significance to the WTC Site. LMDC will share the comments with the Memorial Center Advisory Committee, which shall assist LMDC in considering such comments, along with other relevant considerations (e.g., security, space, curation standards), with respect to the construction and operation of the Memorial Center.

5. **Consideration of Impacts to Additional Remnants of The WTC**

In preparing plans for the portions of the Plan on the WTC Site that would reasonably be expected to affect any of the Additional Remnants listed on Exhibit F hereto, LMDC and, where appropriate, the Port Authority will seek to minimize or mitigate, through reasonable and practicable steps, any potentially adverse effects to such Additional Remnants to the degree consistent with the overall Plan, sound engineering practice and relevant construction considerations. Such measures may include, for example, the relocation and display of Additional Remnants. At such time as the preliminary design plans permit a reasonable assessment of potential effects to such Additional Remnants, LMDC will furnish relevant preliminary design or illustrative plans and a summary of any proposed mitigation measures to the SHPO and the consulting parties. The SHPO and consulting parties shall be afforded no less than 30 days to submit comments to LMDC and, where appropriate, the Port Authority on the adequacy of such plans in minimizing or mitigating any such potential effects. LMDC and, where appropriate, the Port Authority will consider all such comments in developing its final mitigation plans. In view of relevant security considerations, such plans shall not be subject to further review under this Agreement once the review contemplated by this Stipulation 5 has been completed.

6. **Treatment of Archeological Resources**

Upon completion of the plans for further archaeological investigation and monitoring of the portions of the Project Site which have a high probability of containing archeological resources per preliminary studies, a map of which is attached as Exhibit G, LMDC will provide copies or summaries of the proposed plans to the SHPO and each consulting party for review and comment. The SHPO and consulting parties shall be afforded no less than 30 days to submit comments or recommendations to LMDC or the Port Authority, as appropriate, with respect to the adequacy of such plans. LMDC and, where appropriate, the Port Authority shall consider all such comments before finalizing the plans that will address, as appropriate, required surveys, National Register evaluation, monitoring procedures, treatment and mitigation, including data recovery.

7. **Treatment of Unanticipated Adverse Effects or Unknown Historic Resources or Properties**

(a) If, during project implementation, LMDC, the Port Authority, or any of their contractors discovers or identifies additional historic resources within the Project Site that may be adversely affected, or should there be any unanticipated adverse effects to historic resources on the Project Site or historic properties immediately adjacent to the Project Site beyond those referred to in the FGEIS or this Agreement, LMDC or the Port Authority shall promptly notify the SHPO and the ACHP and shall, in consultation with the SHPO, develop a treatment or mitigation plan for such resource or property or adverse effect condition and submit it to the ACHP and consulting parties as well as SHPO for comment within 15 days. The failure of the ACHP to comment within that time period shall constitute its concurrence with the proposed plan. LMDC shall consider comments before finalizing its treatment or mitigation plans. Under emergency conditions, the 15 day period may be shortened, with the ACHP's concurrence.

(b) LMDC and the Port Authority may proceed with all project activities while the treatment or mitigation plan is being developed and reviewed, but shall not take or permit actions that would adversely affect such resource or property during such period.

8. Coordination of Future Federally Funded Activities

In the event that the LMDC applies for other federal assistance to implement this undertaking, the federal funding agency may satisfy its Section 106 responsibilities by agreeing in writing to the terms of this Agreement and notifying the SHPO and ACHP accordingly.

9. Monitoring and Reporting Activities

LMDC will continue to provide relevant and up-to-date information related to its planning efforts on its website: www.RenewNYC.com. During project implementation, LMDC shall ensure that all monitoring plans and contracts adhere to the standards set forth in Chapters 5, 21 and 22 of the FGEIS. LMDC shall submit semi-annual reports to the SHPO and ACHP to summarize measures it has taken to comply with the terms of this Agreement. Reports shall be submitted in January and June of each year during the term of this Agreement or until the project is completed or the requirements of this Agreement are satisfied. The SHPO and the ACHP may monitor project activities carried out pursuant to this Agreement. The LMDC will cooperate with the SHPO and the ACHP in carrying out these monitoring and review responsibilities.

10. Dispute Resolution

In the event that the SHPO concludes, either on the basis of its own review or on the basis of an objection submitted to it by a consulting party or another member of the public, that LMDC has failed or is failing to carry out its obligations under this Agreement, the SHPO shall so advise LMDC and request it to consider taking

appropriate measures to remedy such failure. If, after considering the SHPO's views, LMDC determines that no such measures are warranted or appropriate, LMDC shall so advise the ACHP, which shall have 15 days to consider the matter and submit its recommendations, if any, to LMDC for further consideration. The failure of the ACHP to comment within that time period shall constitute its concurrence with LMDC's views on the disputed matter.

11. Terminating the Agreement

Any signatory to this Agreement may terminate it by providing 30 days' notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination and to clarify the procedures for future review of any outstanding activities subject to this Agreement. In the event of termination, LMDC shall either execute a new programmatic agreement per 36 CFR § 800.14(b) or request and consider the comments of the ACHP per 36 CFR § 800.7.

12. Duration of This Agreement

This Agreement constitutes a Programmatic Agreement as set forth in 36 CFR § 800.14(b) and will continue in full force for ten years following its execution or until such earlier time as it is terminated or the matters that are the subject of this Agreement have been performed in accordance with the provisions hereof.

13. Amendments

Should any of the signatories to this Agreement propose that it be amended, LMDC shall consult with the signatories in accordance with 36 CFR § 800.14(b)(3). Amendments shall be in writing and effective when approved in writing by all the signatories to this Agreement.

14. Successors

This Agreement shall be binding on and inure to the benefit of the parties' respective successors and assigns.

EXECUTION AND IMPLEMENTATION of this Agreement evidence that LMDC has afforded the ACHP a reasonable opportunity to comment on its Plan and that LMDC has taken into account the effects of the Plan on historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____
John L. Nau, III, Chairman

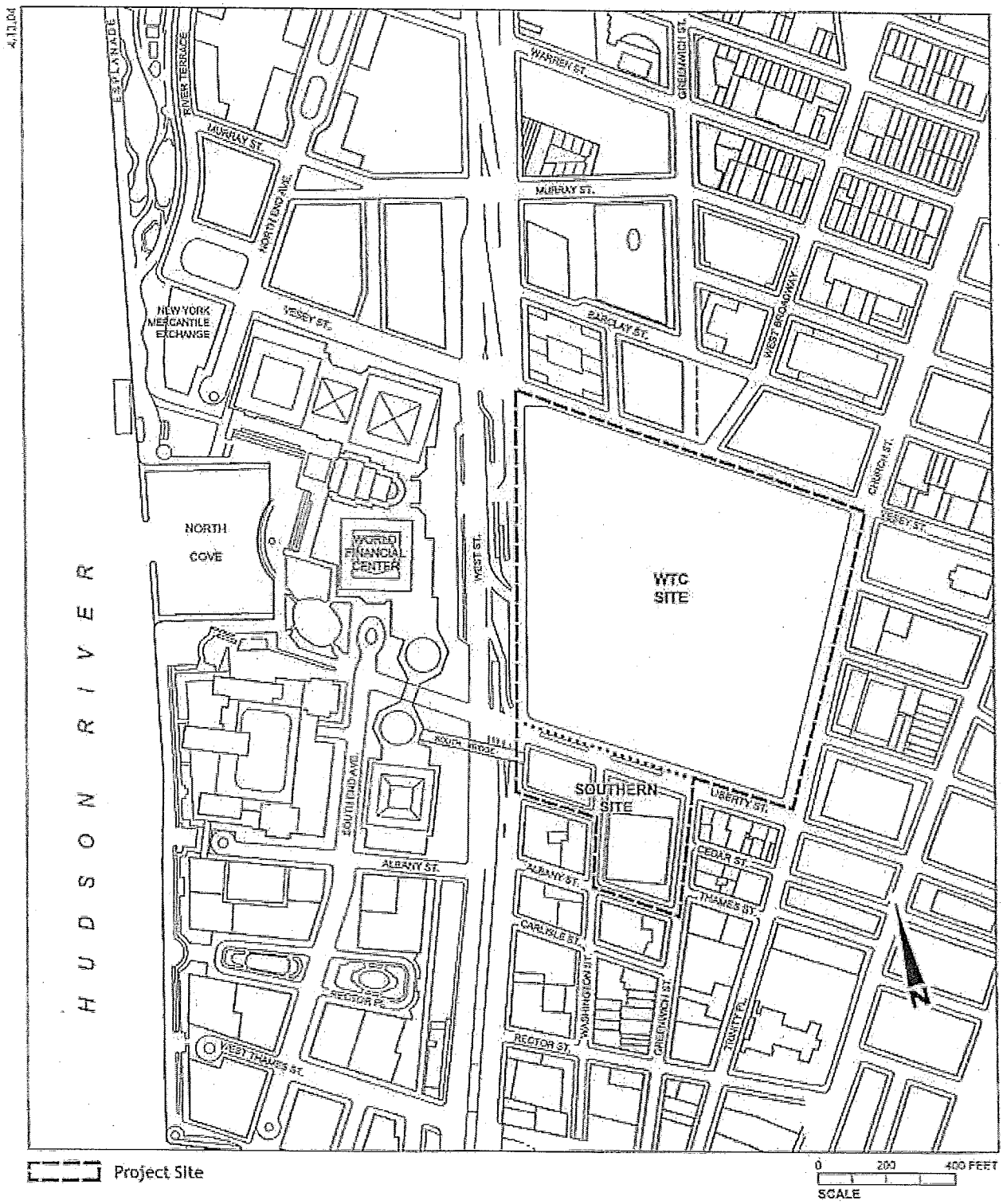
LOWER MANHATTAN DEVELOPMENT CORPORATION

By: _____
Kevin M. Rampe, President

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By: _____
Bernadette Castro, Commissioner
New York State Office of Parks,
Recreation and Historic Preservation

Project Site
Exhibit A



Area of Potential Effect

Exhibit B

Exhibit C

List of Consulting Parties

Eric	Allison	American Planning Association – NY Metro Chapter
Frederic	Bell	American Institute of Architects – NY Chapter
Deborah	Bershad	New York City Art Commission
Laura	Blackman	Hudson River Park Trust
Douglas	Blais	Office of the Governor
Hon. Michael	Bloomberg	The City of New York
Amanda	Burden	New York City Department of City Planning
Jonathan	Cohen-Litant	Van Alen Institute
Megan	Cook	Verizon
Philip	Craft	Congresswoman Maloney's Office for United States Congress
Kate	Daly	Landmarks Preservation Commission
John	Dellaportas	Coalition to Save West Street
Bruce	Ehrmann	CB 1 Landmarks Committee
Marilyn	Fenollosa	National Trust for Historic Preservation
Mary	Fetchet	Voices of September 11th
Robin	Forst	Office of Councilmember Gerson
Monica	Gabrielle	Skyscraper Safety Campaign
Anthony	Gardner	Coalition of 9/11 Families
Raymond	Gastil	Van Alen Institute
Marilyn	Gaull	Coalition to Save West Street
Stephanie	Gelb	Battery Park City Authority
Michael	Gerrard	Silverstein Properties
Craig	Hall	WTC Residents' Coalition
Alex	Herrerra	New York Landmarks Conservancy
Scott	Heyl	Preservation League of New York State
Diane	Horning	WTC Families for a Proper Burial, Inc.
Kurt	Horning	WTC Families for a Proper Burial, Inc
Lee	Ielpi	9/11 Widows and Victims Family Association
Monica	Iken	September's Mission
Richard	Kennedy	CB 1 WTC Redevelopment Committee
Joel	Klein	Coalition of 9/11 Families (Consultant)
Robert	Kornfeld	Historic Districts Council
Deborah	Lester	Speak Silver's Office in the New York State Assembly
Louise	LoPresti	
Ken	Lustbader	Lower Manhattan Emergency Preservation Fund (Consultant)
Edie	Lutnick	Cantor Fitzgerald Relief Fund
Jack	Lynch	9/11 Widows and Victims Family Association
Kevin	Madigan	St Peter's Church
Keith	Martin	New York State Department of Transportation
Elizabeth	Mattson	Senator Corzine's Office
Anna	Melman	Alliance for Downtown New York, Inc.

Elizabeth	Merritt	National Trust for Historic Preservation
Peter	Miller	WTC Survivor's Network
Tricia	Mire	Lower Manhattan Cultural Council
Sharon-Frances	Moore	Tribeca Organization
Patty	Noonan	Partnership for New York City
Jesi	Pezzuoli	R.dot (Rebuild Downtown Our Town)
Noah	Pfefferblit	Wall Street Rising
Sally	Regenhard	Skyscraper Safety Campaign
Tom	Roger	Families of September 11th
Linda	Rosenthal	Congressman Nadler's Office for United States Congress
Michael	Samuelian	New York City Department of City Planning
Frank	Sanchis	Municipal Art Society
George	Schira	Greek Orthodox in America (St. Nicholas)
Richard	Schmalz	New York State Department of Transportation
Helene Z.	Seeman	BPC United
Ninfa	Segarra	WTC Residents Coalition
Christopher	Shays	United States Congress
Daniel	Slippen	Pace University - Center for Downtown NY
David	Stanke	BPC United
Nikki	Stern	Families of September 11th
Tim	Stickelman	The Port Authority of New York and New Jersey
Petra	Todorovich	Regional Plan Association/Civic Alliance
Matt	Viggiano	Senator Connor's Office in the New York State Senate
Phyllis	Wahahrockah-Tasi	Delaware Nation
Winonah	Warren	Shinnecock Nation Cultural Center and Museum
Vicki	Weiner	Municipal Art Society
Kathy	Wylde	Partnership for New York City
Christopher	Zepple	The Port Authority of New York and New Jersey

Exhibit D

March 30, 2004 Coordinated Determination of National Register Eligibility

(separately provided)

EXHIBIT E

Excerpts of Relevant Sections of Chapters 5, 21, 22 of the FGEIS

EXCERPTS FROM CHAPTER 5 "HISTORIC RESOURCES" OF THE FGEIS

* * * * *

5.1.2 CONCLUSIONS

This section summarizes the conclusions of the analysis that follows in this chapter. The Proposed Action was analyzed with respect to historic resources under two scenarios, the Pre-September 11 Scenario and the Current Conditions Scenario.

Potential effects to historic resources can include both direct physical effects and indirect contextual effects. Potential effects to archaeological resources would occur during excavation and below-grade construction activities. These effects would occur within the area where construction and excavation for the Proposed Action would occur. In order to identify historic properties and assess the potential effects of the proposed project, a study area or Area of Potential Effect (APE) was defined and an inventory of historic and architectural resources located in the APE was compiled in consultation with the New York State Historic Preservation Officer (SHPO).

The Proposed Action would memorialize the tragic events of September 11 while returning the commercial, open space and other uses that existed on the Project Site on that date and reintroducing streets that pre-existed the WTC. The Memorial has been designed to reflect the former presence of the Twin Towers, and to provide access to portions of the west slurry wall and box-beam column bases outlining portions of the perimeters of the former Twin Towers. The Memorial Center would be a museum that would exhibit or incorporate significant artifacts from the former WTC.

Under either the Pre-September 11 or Current Conditions Scenario, the Proposed Action is not expected to have significant adverse impacts on historic resources on the Project Site—namely the WTC Site itself—or elsewhere in the APE. The Proposed Action would, however, have the potential to adversely affect some of the remaining remnants at the WTC Site. In implementing the Proposed Action, LMDC and the Port Authority would undertake appropriate efforts to avoid, minimize or mitigate any such adverse effects or any unexpected adverse effects on other historic resources. These efforts would include both the Environmental Performance Commitments described in Chapter 21, "Construction," and the measures described in Chapter 22, "Mitigation," and the Programmatic Agreement under consideration referred to below. Overall, the Proposed Action would serve to enhance the historic significance of the WTC Site and its role in the city's and the nation's consciousness.

PRE-SEPTEMBER 11 SCENARIO

As described in greater detail below, it is not expected that the Proposed Action would have any significant adverse impact on historic resources.

2009

Archaeological Resources

All below-grade construction activities would have occurred by 2009, with the possible exception of the foundation of Tower 5. Therefore, this phase is analyzed for potential effects to archaeological resources. Construction of the former Twin Towers and associated excavations on the west side of the WTC Site to create the existing bathtub have limited the potential for significant archaeological resources to exist in this area. However, the north and south portions of the WTC Site east of the No. 1/9 IRT subway and portions of the Southern Site may be potentially sensitive for archaeological resources, such as shaft features and wharf and/or cribbing features. In order to identify any potential impacts to archaeological resources, Phase IB investigations are recommended in those areas.

Architectural Resources

In the Pre-September 11 Scenario, the SHPO had determined that the WTC was not eligible for listing on the National Register, and no other agency had identified any historic resources on the Project Site. Therefore, absent the events of September 11, redevelopment would have no impact on historic resources on the Project Site. Fulton Street and Greenwich Street would be extended through the WTC Site, restoring the street linkage between historic resources to the north and south of the WTC Site. This would be particularly beneficial to resources south of Liberty Street that were isolated by the superblock of the WTC and the lack of view corridors through the WTC Site. The WTC Site would be divided at grade level into four separate blocks, instead of one large superblock, thus restoring part of the street grid and allowing development to relate better to the neighboring historic resources.

Lower Manhattan, specifically the WTC Site, has historically been developed with technologically advanced buildings—such as the Hudson and Manhattan (H&M) Terminal and the Twin Towers—that were pioneering achievements for their time of construction. The Proposed Action would continue this tradition of building evolution and design and would introduce a new and more modern skyscraper, Freedom Tower, to the Project Site and surrounding neighborhood.

The Proposed Action would shift the bulk of the buildings away from the footprints of the Twin Towers located in the southwest quadrant of the site, altering views of adjacent historic resources to the north of the Project Site. Freedom Tower would rise immediately south of the Barclay-Vesey Building, blocking views of the structure from the southwest that were previously afforded by the lower-rise 6 WTC. Although the Proposed Action would in these respects shift the bulk of development as compared to pre-September 11 conditions, this change would not be an adverse effect as the Project Site and immediate study area have historically been developed with tall and modern structures in close proximity to historic buildings.

On the other hand, the open spaces that would be part of the Proposed Action would benefit certain historic resources. Liberty Park would greatly improve the setting of 90

West Street and the Beard Building (125 Cedar Street). It would also generally improve the neighborhood for all the other historic resources south of the Project Site. Farther north on the WTC Site, Wedge of Light Plaza would link to St. Paul's Chapel and historic resources east of the WTC Site.

Because the proposed construction would take place within 90 feet of historic structures, adherence to Construction Protection Plans would be required to avoid potential damage to architectural resources located near the Project Site. (See Chapter 21, "Construction.") The increased traffic levels expected as a result of the Proposed Action are expected to have some effect on the setting of historic resources, but not to a degree that they would constitute an adverse effect. This is primarily because most of the traffic impacts would occur on streets already burdened with high levels of traffic, thus historic resources located in these areas have already existed in an urban environment with well-traveled city streets.

2015

The full development of the Proposed Action would further alter the Project Site. However, since there would have been no historic resources on the site, there would have been no impacts to on-site historic resources.

In addition to the impacts on off-site resources described in 2009, completion of the four other office towers would increase bulk along Church Street on the WTC Site and on the south end of the Southern Site. The proposed office tower and hotel on the northeast quadrant would face directly into the Federal Office Building/U.S. Post Office and block views of it from the southeast that were formerly afforded by the much lower 5 WTC building. The proposed office building south of the permanent WTC PATH Terminal entrance would tower over the former East River Savings Bank. Finally the tower at the southeast corner of the WTC Site would be taller and have a greater bulk than 4 WTC, altering the context of the Beard Building and 114-118 Liberty Street. Again this change would not be an adverse effect as the study area has historically been developed with tall, modern structures among smaller-scaled historic buildings.

As described for conditions in 2009, it is not expected that the increased traffic levels would have an adverse effect on historic resources.

CURRENT CONDITIONS SCENARIO

As described in greater detail below, it is not expected that the Proposed Action would have any significant adverse impact on historic resources.

2009

Archaeological Resources

All below-grade construction activities would have occurred by 2009, except, possibly, the foundation of Tower 5. Therefore, this phase is analyzed for potential effects to archaeological resources. As described above under the Pre-September 11 Scenario, the north and south portions of the WTC Site east of the No. 1/9 IRT subway and portions of the Southern Site may be potentially sensitive for archaeological resources, such as shaft features and wharf and/or cribbing features. In order to identify any potential impacts to archaeological resources, Phase IB investigations are recommended in those areas.

Architectural Resources

Based on the events of September 11, the WTC Site has been found eligible for listing on the National Register. Although the eligibility of the site does not depend on existing remnants of the prior structures, the Proposed Action would have an adverse effect on some of these remnants. LMDC will consult with SHPO, the Port Authority, and Silverstein Properties in order to minimize or mitigate such effects. LMDC is also considering a Programmatic Agreement with the Advisory Council on Historic Preservation (ACHP) and SHPO that would include additional consultation with the consulting parties who participated in the Section 106 process.

By 2009, Fulton Street and Greenwich Street would be extended through the WTC Site, restoring the street linkage between historic resources to the north and south of the WTC Site. This would be particularly beneficial to resources south of Liberty Street that are now isolated by the large construction site that remains on the WTC Site.

Although the Proposed Action would change the study area through the addition of tall and modern towers, this is not expected to have an adverse effect. The Project Site and immediate study area have historically been developed with tall and modern structures in close proximity to low-rise and high-rise historic buildings. In addition, the Proposed Action would be in keeping with the character of the Project Site and surrounding area, which were located in a densely developed urban setting.

New office towers would be constructed on the Project Site that would re-introduce tall, modern structures to this portion of the Lower Manhattan skyline. The towers of the Proposed Action would block views across the now largely open WTC Site to historic resources on the other side. In particular, views of the Barclay-Vesey Building and the Federal Office Building/U.S. Post Office from Church and Liberty Streets, and from the Winter Garden to St. Paul's Chapel and the former East River Savings Bank would be blocked. Views from the corner of Vesey and Church Streets and along Church Street to the Beard Building and 90 West Street would be blocked. The Proposed Action would create a series of structures with retail frontage along the north and east sides of the WTC Site. Freedom Tower would rise immediately south of the Barclay-Vesey Building. On the other hand, the open spaces that would be part of the Proposed Action would benefit certain historic resources. Liberty Park would greatly improve the setting of 90 West Street and the Beard Building. It would also generally improve the neighborhood for all the other historic resources south of the Project Site. Farther north on the WTC Site, Wedge of Light Plaza would link to St. Paul's Chapel and historic resources east of the WTC Site.

Due to the proximity of historic resources, adherence to Construction Protection Plans would be required to avoid potential construction period damage to architectural resources.

The increased traffic levels expected as a result of the Proposed Action are expected to have some effect on the setting of historic resources, but not to a degree that they would constitute an adverse effect. This is primarily because most of the traffic impacts would occur on streets already burdened with high levels of traffic, thus historic resources located in these areas have already existed in an urban environment with well-traveled city streets.

2015

In addition to the impacts on off-site resources described in 2009, completion of the four other office towers would increase bulk along Church Street on the WTC Site and on the south end of the Southern Site. The proposed office tower and hotel on the northeast quadrant would face directly into the Federal Office Building/U.S. Post Office. The proposed office building south of the permanent WTC PATH Terminal entrance would tower over the former East River Savings Bank. Finally the tower at the southeast corner of the WTC Site would alter the context of the Beard Building and 114-118 Liberty Street. Overall, this change would not be an adverse effect, as the study area has historically been developed with tall, modern structures among smaller-scaled historic buildings.

As described for conditions in 2009, it is not expected that the increased traffic levels would have an adverse effect on historic resources.

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5.5.3 PROBABLE IMPACTS OF THE PROPOSED ACTION 2009—CURRENT CONDITIONS SCENARIO

ARCHAEOLOGICAL RESOURCES

The northeast and southeast corners of the WTC Site, as well as portions of the Southern Site, were found to be potentially sensitive for archaeological resources. Phase IB investigations would be conducted prior to project construction to document any potential resources. These investigations would be developed in consultation with SHPO and LPC.

ARCHITECTURAL RESOURCES

Project Site

By 2009 with the Proposed Action, Fulton and Greenwich Streets would run through the WTC Site and Freedom Tower would rise in the northwest quadrant. A proposed performing arts center would be located east of the Freedom Tower. The Memorial, the Memorial Center, September 11 Place, and other cultural institutions would occupy the southwest quadrant. Wedge of Light Plaza would occupy a portion of the northeast and southeast quadrants. The PATH Plaza would be located in the southeast quadrant. By 2009, the retail bases of three office buildings east of Greenwich Street would be complete. Liberty Park and a below-grade bus parking facility would be complete in the area south of Liberty Street.

The centerpiece of the Proposed Action is the creation of a Memorial to remember the victims of September 11, 2001 and February 26, 1993 and to record the events of September 11, which have changed our lives. The Memorial would be set in a context that provides a quiet and respectful setting for remembrance and contemplation. LMDC conducted the World Trade Center Site Memorial Competition pursuant to detailed Memorial Competition Guidelines, including diagrams of Libeskind's Memory Foundations design and the Memorial Mission Statement and Program. The Memorial Competition jury recently announced its selection of the design concept "Reflecting Absence" by Michael Arad and Peter Walker from 5,200 other entries (including seven

other finalists). This concept is being refined in order to accomplish the principles set forth in the Memorial Mission Statement and Program.

The Proposed Action would build up an approximately 4.87-acre area set aside for the Memorial from bedrock to 30 feet below grade in order to stabilize the slurry walls. The Memorial would be constructed in this area and at grade. It would make visible each of the 1-acre areas occupied by the Twin Towers, allow access to a portion of those footprints at bedrock and would keep exposed a portion of the west slurry wall, including a section to bedrock. In addition to the recognition of each victim, the unidentified human remains will be interred at a designated area within the Memorial. Visitors from around the world are expected to come to the WTC Site to learn about the events of September 11, 2001, and February 26, 1993, and to remember those who died and those whose lives were changed forever.

It is not anticipated that the Proposed Action would have any significant adverse impact on the WTC Site. The proposed Memorial and Memorial Center would recognize the history of September 11 and would be constructed around two large voids and other features that would represent the former location of the Twin Towers. The openness of the site plan for the Memorial would recall the openness of the WTC Site as it now exists after the recovery efforts and the openness of the Austin J. Tobin Plaza at the center of the WTC before September 11. The size and the location of the Memorial reflect LMDC's commitment from the very beginning of its planning efforts to leave open the space at grade level where the Twin Towers once stood.

The surviving column bases that outline the space where the Twin Towers stood would remain. The Proposed Action would also allow access to a portion of the west slurry wall. A special facility would be created to preserve the more than 12,000 human remains of victims of the WTC attacks that the Office of the Chief Medical Examiner has not been able to identify. The return of these human remains to rest at the WTC Site where these innocent individuals died would contribute to the feeling of the WTC Site's historic significance.

In implementing the Proposed Action, LMDC and the Port Authority would undertake appropriate efforts to avoid, minimize, or mitigate any such adverse effects or any unexpected adverse effects on other historic resources. These efforts would include both the Environmental Performance Commitments described in Chapter 21, "Construction," and the measures described in Chapter 22, "Mitigation," and a Programmatic Agreement under consideration with ACHP and SHPO. Before construction activities begin, LMDC will submit existing documentation of the current appearance of the WTC Site to SHPO, the New York State Archives, and other organizations as appropriate, to ensure that there is a permanent record of existing historic resources on the site. In developing its plans for the WTC Site, LMDC will also provide for appropriate access to portions of the west slurry wall on the WTC Site and the box-beam column bases outlining portions of the footprints of the former Twin Towers (collectively, the Memorial Access Commitments). LMDC has committed to develop a Memorial Center, establish a Memorial Center Advisory Committee that will review public suggestions and advise LMDC with respect to the installation or display at the Memorial Center of artifacts removed from the WTC Site, and consult with the Port Authority, which is safeguarding all such artifacts that are in its custody and control. The draft Programmatic Agreement (see Appendix K.7)

addresses these specific commitments relating to the Memorial Access Commitments, treatment of remnants on the WTC Site, consideration of artifacts removed from the site, and any potential adverse effects on historic resources. Overall, the Proposed Action would serve to enhance the historic significance of the WTC Site and its role in the city's and the nation's consciousness.

Primary Area of Potential Effect

Ground-Borne Vibrations

Several known and potential historic resources are located within 90 feet of the Project Site. Construction of the Proposed Action has the potential to cause damage to these buildings from ground-borne vibrations and dewatering. Specifically, historic buildings or sites located within 90 feet of the Project Site include the Barclay-Vesey Building at 140 West Street, the Federal Office Building/U.S. Post Office at 90 Church Street, 30 Vesey Street, St. Paul's Church Cemetery at Church Street between Vesey and Fulton Streets, the former East River Savings Bank at 26 Cortlandt Street, the Beard Building at 125 Cedar Street, 114-118 Liberty Street, the Western Electric Company Factory at 125 Greenwich Street, the American Stock Exchange at 86 Trinity Place, the Hazen Building at 120 Greenwich Street, 123 Washington Street, and 90 West Street. In addition there are potential historic resources at 106, 110, and 112 Liberty Street; 130 Cedar Street; and, 137-139 Greenwich Street. These resources survived the initial clearance of the WTC Site and the construction of the WTC, and also survived the destruction of the site on September 11. (Other historic resources are more distant from the Project Site and are not within the area that is expected to be affected by project construction.)

To avoid any potential adverse effects to historic resources, a Construction Protection Plan(s) would be developed in consultation with the SHPO and implemented before commencement of any excavation or construction. The Construction Protection Plan(s) would consist of an overall plan(s) of protection and avoidance of structural and architectural damage for all the potentially affected historic resources. Implementation of these plans would avoid or minimize the potential for adverse effects to historic resources during construction.

The Construction Protection Plans would be based on the requirements laid out in the "New York City Department of Buildings Technical Policy and Procedure Notice (PPN) #10/88," concerning procedures for avoidance of damage to historic structures from adjacent construction (see Chapter 21, "Construction" for more information). The PPN defines an adjacent historic structure as being contiguous to or within a lateral distance of 90 feet from a lot under development or alteration. In addition, EPCs have been made by LMDC to avoid or minimize any adverse effects on historic resources during construction (see Chapter 21).

Contextual and Visual Effects

The Proposed Action would extend Fulton and Greenwich Streets through the WTC Site, restoring the street linkage between historic resources to the north and south of the WTC Site. New office towers would be constructed on the Project Site that would re-introduce tall, modern structures to this portion of the Lower Manhattan skyline. By 2009, Freedom Tower would rise immediately south of the Barclay-Vesey Building, blocking views of

the structure from the southwest. However, views of this building would be available from other locations within the study area.

Additional open spaces would be part of the Proposed Action and would benefit certain historic resources. Liberty Park would greatly improve the setting of 90 West Street and the Beard Building. It would also generally improve the neighborhood for all the other historic resources south of the Project Site. Farther north on the WTC Site, Wedge of Light Plaza would link to St. Paul's Chapel and historic resources east of the WTC Site.

In terms of contextual or visual impacts, the study area is developed with a mix of historic and modern structures that range in height from one to 60 stories. The size and architectural styles of these buildings vary greatly, reflecting the architectural styles of the eras in which they were designed and constructed. The built fabric of Lower Manhattan is already composed of historic structures near more modern structures, where many streets contain a mixture of historic structures in immediate proximity to contemporary glass and metal structures. Thus, the Proposed Action would continue the existing trend of modern buildings juxtaposed against the historic fabric of Lower Manhattan.

As described earlier, the historic context of the study area was dramatically changed when the 16-acre site was cleared for the construction of the WTC. Thus, the proposed development would not alter the historic context of the surrounding area, as this context was significantly altered with the completion of the WTC and subsequent modern office buildings that were erected in the following decades. Overall, the Proposed Action is not expected to have any adverse contextual or visual effects on any known or potential historic resources in the area surrounding the WTC Site.

Secondary Area of Potential Effect

Traffic-Related Effects

The increased traffic levels expected as a result of the Proposed Action are expected to have some effect on the setting of historic resources, but not to a degree that they would be expected to have an adverse effect. The increased traffic is not expected to alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. This is primarily because most of the traffic impacts would occur on streets already burdened with high levels of traffic, thus historic resources located in these areas have already existed in an urban environment with well-traveled city streets.

5.5.4 FUTURE WITHOUT THE PROPOSED ACTION 2015—CURRENT CONDITIONS SCENARIO

ARCHAEOLOGICAL RESOURCES

On the Southern Site, construction of two office towers at 130 and 140 Liberty Street could impact any potential archaeological resources that exist.

ARCHITECTURAL RESOURCES

Project Site

In 2015 without the Proposed Action, it is assumed that the WTC Site will continue to remain largely vacant, with only the permanent WTC PATH Terminal on site and the No.

1/9 IRT subway lines crossing the site. On the Southern Site, it is assumed that two office towers would be developed at 130 and 140 Liberty Street. Construction of these towers could potentially affect adjacent historic resources, including 90 West Street.

Primary Area of Potential Effect

North of WTC Site
No specific potential projects have been identified for the North of WTC Site subarea in the 2009–2015 timeframe.

Broadway Corridor
Potential future development in the Broadway Corridor may include residential conversions at 115 Nassau Street and 3-9 Beekman Street (NYCL).

Greenwich South Corridor
New York City's Vision for a 21st Century Lower Manhattan calls for the creation of a park, Greenwich Square, over the Brooklyn Battery Tunnel ramps, and for the area to become a center of new residential uses that may renovate and occupy some of the historic structures. There are a number of historic resources in this area that might be altered in use or context.

Secondary Area of Potential Effect

No specific projects in the secondary APE were identified for this time frame. However, it is likely that residential renovation and reuse will continue to occur in historic buildings and districts in Tribeca. To the extent that these resources are not NYCLs or NYCHDs and if there is no federal or state action involved, they may be inappropriately altered or even demolished.

5.5.5 PROBABLE IMPACTS OF THE PROPOSED ACTION 2015—CURRENT CONDITIONS SCENARIO

ARCHAEOLOGICAL RESOURCES

As all construction activities that could potentially impact archaeological resources would be complete by 2009, there would be no potential for adverse effects to archaeological resources in 2015.

ARCHITECTURAL RESOURCES

Project Site

By 2015, it is assumed that the full program for the Project Site would be developed, with the completion of the three towers on the east side of the WTC Site and a fifth tower south of Liberty Street. A 65-story office building (Tower 2) and a 25-story hotel would be completed in the northeast quadrant. In the southeast quadrant, a 62-story office building (Tower 3) and a 58-story office building (Tower 4) would be completed. A 57-story office building (Tower 5) would be completed south of Liberty Street.
As described in "Probable Impacts of the Proposed Action 2009" and in section 5.2.1, it is not anticipated that the Proposed Action would have an adverse effect on the WTC Site.

Primary Area of Potential Effect

The towers of the Proposed Action would re-introduce tall, modern structures to this portion of the Lower Manhattan skyline. These towers would block views across the largely vacant WTC Site to historic resources on the other side. Views of the Barclay-Vesey Building and the Federal Office Building/U.S. Post Office from Church and Liberty Streets would be blocked. Views from the Winter Garden to St. Paul's Chapel and the Former East River Savings Bank would be blocked. Views from the corner of Vesey and Church Streets and along Church Street to the Beard Building and 90 West Street would be blocked. New structures would create a high-rise wall along the north and east sides of the WTC Site. The proposed office tower and hotel on the northeast quadrant would face directly into the Federal Office Building/U.S. Post Office. The proposed office building south of the permanent WTC PATH Terminal entrance would tower over the former East River Savings Bank. Finally the tower at the southeast corner of the WTC Site would alter the context of the Beard Building and 114-118 Liberty Street.

New open spaces that would be part of the Proposed Action would benefit historic resources by improving their setting.

Due to the proximity of historic resources, adherence to Construction Protection Plans would be required to avoid potential construction period damage to architectural resources.

As described above under "Probable Impacts of the Proposed Action 2009—Current Conditions Scenario," the study area is developed with a mix of historic and modern structures. The built fabric of Lower Manhattan is already composed of historic structures near more modern structures, where many streets contain a mixture of historic structures in immediate proximity to contemporary glass and metal structures. Thus, the Proposed Action would continue the existing trend of modern buildings juxtaposed against the historic fabric of Lower Manhattan.

Overall, the Proposed Action is not expected to have any adverse contextual or visual effects on any known or potential historic resources in the area surrounding the WTC Site.

Secondary Area of Potential Effect

As described above under "Probable Impacts of the Proposed Action 2009—Current Conditions Scenario," it is not expected that the increased traffic levels would have an adverse effect on historic resources.

5.6 PRE-SEPTEMBER 11 SCENARIO

5.6.1 BASELINE CONDITIONS

ARCHAEOLOGICAL RESOURCES

Prior to September 11, the same archaeological resources would have potentially existed on site as under the Current Conditions Scenario.

ARCHITECTURAL RESOURCES

Project Site

In the Pre-September 11 Scenario, the 16-acre WTC complex, built by the Port Authority between 1966 and 1981, comprised six buildings, including the 110-story Twin Towers (1 and 2 WTC). These 1,350-foot-tall aluminum-clad towers were the tallest buildings in the world when completed in 1972 and 1973. Other buildings located in the WTC included a 22-story hotel (3 WTC), two nine-story buildings (4 and 5 WTC), and an eight-story U.S. Customs House (6 WTC). These buildings were situated around the Austin J. Tobin Plaza, which was decorated with several sculptures by prominent artists, including Fritz Koenig (the Sphere), James Rosati (Ideogram), and Masayuki Nagare (unnamed granite). A concourse was located directly below the Plaza and consisted of a retail mall and transportation hub. A pedestrian bridge over Route 9A connected the northern part of the WTC with the commercial core of BPC.

All buildings in the WTC, except 3 WTC, were designed by Minoru Yamasaki & Associates and Emery Roth and Sons. The Marriott Hotel (originally the Vista International Hotel), located at 3 WTC, was designed by Skidmore, Owings & Merrill and was constructed in 1981.

Prior to September 11, the block at the corner of Liberty Street and Route 9A was an active parking lot and the site of the St. Nicholas Greek Orthodox Church, destroyed on September 11. This small Greek Orthodox church stood at 155 Cedar Street, south of the WTC. Established in 1916 by Greek immigrants, it was only 35 feet tall with a rooftop bell cote. The church was notable for its small scale and its icons, which were a gift from the last czar of Russia, Nicholas II. The block to the east was occupied by a 39-story office building at 130 Liberty Street. Located directly across Liberty Street from 2 WTC, it was a fully occupied office tower with ground-floor retail. It had a plaza with a fountain, above which was an additional plaza level that was originally intended to connect to the plaza level at the WTC.

As of September 11, none of the buildings in the WTC or on the Southern Site was listed on or determined to be eligible for listing on the S/NR or designated as a NYCL. Buildings that were part of the WTC were evaluated in 1989 as part of the Route 9A Project and were determined ineligible for S/NR listing. Buildings on the Southern Site had never been evaluated for eligibility.

Primary Area of Potential Effect

It is assumed that the identification of known and potential resources would be the same in the Pre-September 11 Scenario. Although several resources were listed on or determined eligible for listing on the NR or designated as NYCL or NYCHD after September 11, these resources would have been determined eligible or designated in any event because their characteristics that qualify them for listing were not altered.
All the historic buildings that were damaged on September 11 would not have been damaged and would still be occupied as they were on September 11. The Barclay-Vesey Building would be fully occupied by New York Telephone. The Federal Office Building/U.S. Post Office would be occupied with office tenants and the Church Street Station of the post office would be open and serving its customers. The offices in the building at 90 West Street would be fully tenanted.

Secondary Area of Potential Effect

The identification of known and potential resources would be the same in the Pre-September 11 Scenario, as described above. Resources in this area were distant from the WTC and not directly damaged in the attacks.

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5.6.3 PROBABLE IMPACTS OF THE PROPOSED ACTION 2009—PRE-SEPTEMBER 11 SCENARIO

ARCHAEOLOGICAL RESOURCES

The northeast and southeast corners of the WTC Site, as well as portions of the Southern Site, were found to be potentially sensitive for archaeological resources. Phase IB investigations would be conducted prior to project construction to document any potential resources. These investigations would be developed in consultation with SHPO and LPC.

ARCHITECTURAL RESOURCES

Project Site

This scenario assumes that the buildings on the Project Site would be replaced by the Proposed Action. Buildings that were part of the WTC were evaluated in 1989 as part of the Route 9A Project and were determined ineligible for S/NR-listing. The building at 130 Liberty Street had never been evaluated for eligibility. Since these buildings were not officially recognized historic resources, their replacement would not be considered an adverse effect.

Primary Area of Potential Effect

The extension of Fulton and Greenwich Streets through the WTC Site would restore the street linkage between historic resources to the north and south of the WTC Site. This would be beneficial to resources south of Liberty Street that were isolated by the superblock of the WTC and the lack of view corridors through the WTC Site. The WTC Site would be divided at grade level into four separate blocks, instead of one large superblock, thus restoring part of the street grid and allowing development to relate better to historic resources in the surrounding area.

The Proposed Action would shift the bulk of the buildings away from the footprints of the Twin Towers located in the southwest quadrant of the site. Freedom Tower would rise immediately south of the Barclay-Vesey Building, blocking views of the structure from the southwest that were previously afforded by the lower-rise 6 WTC. However, the open spaces that would be part of the Proposed Action would benefit certain historic resources. Liberty Park would greatly improve the setting of 90 West Street and the Beard Building. It would also generally improve the neighborhood for all the other historic resources south of the Project Site. Farther north on the WTC Site, Wedge of Light Plaza would link to St. Paul's Chapel and historic resources east of the WTC Site.

Because the proposed construction would take place within 90 feet of historic structures, adherence to Construction Protection Plans would be required to avoid potential damage to architectural resources located near the Project Site.

Overall, the Proposed Action is not expected to have an adverse effect on historic resources in this scenario, since the historic context of the study area was significantly altered with the completion of the WTC as well as the construction of later modern skyscrapers.

Secondary Area of Potential Effect

The increased traffic levels expected as a result of the Proposed Action are expected to have some effect on the setting of historic resources, but not to a degree that they would be expected to have an adverse effect on those resources. The increased traffic is not expected to alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. This is primarily because most of the traffic impacts would occur on streets already burdened with high levels of traffic; historic resources located in these areas have long existed in an urban environment with well-traveled city streets.

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5.6.5 PROBABLE IMPACTS OF THE PROPOSED ACTION 2015—PRE-SEPTEMBER 11 SCENARIO

ARCHAEOLOGICAL RESOURCES

As all construction activities that could potentially impact archaeological resources would be complete by 2009, there would be no potential for adverse effects to archaeological resources in 2015.

ARCHITECTURAL RESOURCES

Project Site

As no historic resources would be located on the Project Site, there would be no potential for adverse effects to historic resources.

Primary Area of Potential Effect

By 2015, all the office towers as well as the hotel would be completed. The proposed office tower and hotel on the northeast quadrant would face directly into the Federal Office Building/U.S. Post Office and block views of it from the southeast that were formerly afforded by the much lower 5 WTC building. The proposed office building south of the permanent WTC PATH Terminal entrance would tower over the former East River Savings Bank. Finally the tower at the southeast corner of the WTC Site would be taller and have a greater bulk than 4 WTC, altering the context of the Beard Building and 114-118 Liberty Street. Although the Proposed Action would shift the bulk of development as compared to pre-September 11 conditions, this would not be an adverse effect as the Project Site and immediate study area has historically been developed with tall and modern structures in close proximity to low-rise historic buildings.

Because the proposed construction would take place within 90 feet of historic structures, adherence to Construction Protection Plans would be required to avoid potential damage to architectural resources located near the Project Site.

Overall, the Proposed Action is not expected to have an adverse effect on historic resources in this scenario, since the historic context of the study area was significantly altered with the completion of the WTC as well as the construction of later modern skyscrapers.

Secondary Area of Potential Effect

As described in greater detail in Chapter 13A, "Traffic and Parking," traffic volumes with the Proposed Action in 2015 would only be about 5 percent higher than volumes that would have been expected had the events of September 11 not occurred. Therefore, as described above under "Probable Impacts of the Proposed Action 2009—Pre-September 11 Scenario," it is not expected that the increased traffic levels would have an adverse effect on historic resources. *

EXCERPTS FROM CHAPTER 21 "CONSTRUCTION "OF THE FGEIS

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21.1.2 CONCLUSIONS

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CULTURAL RESOURCES

The pedestrian connection to the World Financial Center would be constructed through the Hudson River Bulkhead as part of the permanent WTC PATH Terminal project. Alteration of the bulkhead would require mitigation based on a Programmatic Agreement (previously established for Hudson River Park). Some limited areas of the eastern side of the WTC Site and of the Southern Site would require testing and monitoring, respectively to avoid adverse impacts to archaeological resources. Analysis as part of the environmental review for the permanent WTC PATH Terminal would insure the avoidance of any potential impacts to archaeological resources in the location of the potential below grade pedestrian connection under Church Street from the permanent WTC PATH Terminal to Liberty Plaza. Taken cumulatively, no significant adverse impacts to archaeological resources would be anticipated from the Proposed Action and the other major construction projects.

Construction of the Proposed Action has the potential to cause damage to nearby historic resources from ground-borne vibrations, dewatering (for the bathtub on the east side of the site and for the expansion of the existing bathtub to the south), and other activities. To avoid any adverse impacts to standing structures throughout the construction period, construction protection plans would be developed in consultation with the New York State Historic Preservation Officer. Taken cumulatively, it is not expected that there would be any adverse impacts to historic resources adjacent to the Project Site.

Construction activities on the WTC Site have the potential to adversely affect some of the remaining remnants from the former WTC Complex. To minimize or mitigate any such effects from the Proposed Action, LMDC has incorporated into the proposed Programmatic Agreement, referred to in Chapter 5, "Historic Resources," a series of commitments with respect to the future treatment of such remnants and procedures for consulting with the New York State Historic Preservation Officer (SHPO) and identified consulting parties concerning such treatment. It is expected that the sponsors of other Lower Manhattan Recovery Projects that might have the potential for similar effects on such remnants would enter into similar arrangements or take comparable actions to avoid or mitigate such impacts as well.

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21.6.7 CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

This section considers the full range of impacts to archaeological and historic resources. However, effects to archaeological resources may occur sooner in areas that would be excavated sooner, and there would be the potential for effects to historic resources later as construction progresses to the sites that would be developed later. Accordingly, there is no basis to believe that the Proposed Action would contribute to any potential cumulative archaeological impacts in the area.

The potential for historic period archaeological resources (shaft features, such as privies, cisterns, wells, and cesspools pre-dating the 1850s) has been identified in limited areas of the WTC Site (see Chapter 5, "Historic Resources"). Phase IB testing would be carried out on the potentially sensitive areas of the WTC Site prior to excavation and if necessary any mitigation and retrieval activities could be accomplished before or during excavation for construction.

Potential 18th and 19th century shaft features as well as wharf and/or cribbing features may also on the Southern Site and within the beds of Liberty, Washington, Cedar and Albany Streets that would be disturbed during construction of the Proposed Action. Since avoidance of these potentially sensitive areas is not feasible, Phase IB investigation is recommended to document potential shaft features and potential wharf and cribbing features. The Phase IB investigations would consist of archaeological monitoring during excavation following a plan developed in consultation with the State Historic Preservation Office (SHPO) and Landmarks Preservation Commission (LPC).

The potential below grade pedestrian connection under Church Street from the permanent WTC PATH Terminal to Liberty Plaza is being considered in the environmental review for the permanent WTC PATH Terminal and, if necessary based on the findings of the research report, further investigation and mitigation would be carried out.

Taken cumulatively, no significant adverse impacts to archaeological resources would be anticipated from the Proposed Action and the other major construction projects.

HISTORIC RESOURCES

Construction of the Proposed Action has the potential to cause damage to nearby historic resources from ground-borne vibrations, dewatering (for the bathtub on the east side of the site and for the expansion of the existing bathtub to the south), and other activities. Buildings or sites located within 90 feet of the Project Site are considered to be in the area of potential effect for construction activities. Historic resources in this area include the Barclay-Vesey Building at 140 West Street, the Federal Office Building/U.S. Post Office at 90 Church Street, 30 Vesey Street, St. Paul's Chapel Cemetery at Church Street between Vesey and Fulton Streets, the East River Savings Bank at 26 Cortlandt Street, the Beard Building at 125 Cedar Street, 114-118 Liberty Street, the Western Electric Company Factory at 125 Greenwich Street, the American Stock Exchange at 86 Trinity Place, the Hazen Building at 120 Greenwich Street, 123 Washington Street, and 90 West Street. In addition there are potential historic resources at 106, 110, and 112 Liberty Street; 130 Cedar Street; and, 137-139 Greenwich Street (see Chapter 5, "Historic Resources").

In the analysis year of 2006 construction activity would be in progress across the WTC Site and the Southern Site. Activities on the perimeters of these sites would be the most likely to have impacts on historic resources in the surrounding area. On the northwest quadrant of the WTC Site below grade retail space would be in construction while the structural faming would be erected in the first half of the year. This construction would be taking place immediately south of the Barclay-Vesey Building across Vesey Street. On the two eastern quadrants construction of the foundations and below grade structure would be completed during the year and construction of the retail bases of Towers 2, 3, and 4 would be begun. This work would be across Vesey Street from the Federal Office Building/U.S. Post Office, across Church Street from the graveyard of St. Paul's Chapel and the East River Savings Bank, and across Liberty Street from 114-118 Liberty Street and the Beard Building. On the portion of the Southern Site along Liberty Street (excluding the area of the building at 130 Liberty Street) excavation inside the new slurry walls would be completed during the year and construction of the below-grade structure would be largely completed by the end of the year. This work, which would involve dewatering, would take place across Cedar Street from 90 West Street.

To avoid any adverse impacts to standing structures throughout the construction period, construction protection plans would be developed in consultation with SHPO, as described in Chapter 5, "Historic Resources." Typical protective measures in construction plans are described below:

1. To the extent permitted, a preconstruction inspection of the buildings will be undertaken by an engineering firm licensed to practice in the State of New York (the "Inspecting Engineer"), to determine existing foundation and structural condition information and ascertain any pre-existing damage, existing structural distress, and any potential structural weakness of the foundations or structures of these buildings. The Inspecting Engineer will have experience with historic structures.

2. A written report would be prepared by the Inspecting Engineer documenting any potential weakness or structural distress and an assessment of the stability of any applied ornament, together with a protocol addressing any recommended remediation and steps taken to secure problem areas prior to the commencement of any construction activities. The written report would be submitted to SHPO and will be supplemented with photo-documentation—in the form of 8 inch x 10 inch black-and-white photographs keyed to a map or plan—in order to provide a clear record of existing conditions and any problem areas.

3. Controls on construction vibration would be required as per the Landmarks Preservation Commission (LPC) standards, or the specifications of the Inspecting Engineer if the latter is lower. LPC requirements limit maximum peak particle velocity to 0.5 inches per second for historic structures and 2.0 inches per second for non-historic structures.

4. The Construction Contractor would thereafter ensure that the appropriate vibration limits and any other criteria deemed appropriate by the Inspecting Engineer are incorporated into the sub-contracts for the excavation work, which may include rock

removal operations. The Construction Contractor will be responsible for monitoring these controls with periodic inspection by the owner's representative.

5. Under supervision of the Inspecting Engineer, the Construction Contractor will provide continuous seismic monitoring at the Project Site and inside the buildings during excavation and any other construction operations that would cause vibrations. Seismographs will be installed on the interior and exteriors of the buildings, to the extent permitted by building owners. These units will be located such that they are away from the general public but that they are accessible to the technicians who must monitor them. The seismographs will measure vibration levels during excavation and construction. Prior to the commencement of excavation operations, the seismographs will be installed and tested to ensure that they are in working order and to enable taking baseline readings. Daily logs of the seismic monitoring will be maintained and submitted to SHPO upon request.

6. If any excessive vibration (that which meets or exceeds the peak particle velocity level) is detected, the Inspecting Engineer will stop the work causing this excessive vibration. Buildings will be inspected for any structural degradation that may have occurred. The Inspecting Engineer will submit a report to SHPO detailing the reason for exceeding the peak particle velocity level and the presence or lack of damage to buildings. If any damage was sustained, it will be secured, and the work that caused any damage will be altered to reduce the vibration levels to within acceptable limits. The resumption of work, if damage was sustained, must be authorized by SHPO.

7. In addition, during excavation the Inspecting Engineer will monitor any exposed vertical rock faces or fissures, joint orientation, and potential weaknesses to ensure that underground utilities serving the identified buildings are protected from damage.

8. Should any cracking occur in any of the buildings during excavation or construction, crack monitors will be installed over each crack and monitored on a weekly basis until the Inspecting Engineer deems the cracks to be stable.

9. All substantive requirements of the New York City Building Code applicable to construction activities, protection of adjacent structures (including party wall exposure) and utilities, and specific sections dealing with excavation and foundation operations will be met or exceeded. Construction of the Proposed Action will be performed in a safe manner with controlled inspections as required by the New York City Department of Buildings. Inspections will include but will not be limited to structural stability and foundation concrete. The Inspecting Engineer is required to be present during these and other operations to monitor the construction progress and conformance with contract documents.

Taken cumulatively, there would likely not be any adverse impacts to historic resources adjacent to the Project Site. Taken cumulatively, it is not expected that there would be any significant adverse impact on historic resources.

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EXCERPTS FROM CHAPTER 22 "MITIGATION MEASURES "OF THE FGEIS

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22.2. HISTORIC RESOURCES

22.2.1 ARCHEOLOGICAL RESOURCES

Three areas of the Project Site were found to be potentially sensitive for historic period archaeological resources, as described in Chapter 5, "Historic Resources." The northeast and southeast corners of the WTC Site as well as the portion of the Southern Site between Route 9A and Washington Streets may be sensitive for historic period archaeological resources, including shaft features (such as privies, cisterns, wells, and cesspools) predating the 1850s as well as wharf and/or cribbing features. To avoid or reduce to the extent practicable potential impacts on these resources, the Proposed Action would include a Phase IB investigation. On the Southern Site, the Phase IB investigations would consist of archaeological monitoring during construction. These commitments would also be included in the Programmatic Agreement described in section 22.2.2.

22.2.2 HISTORIC RESOURCES

As noted in Chapter 5, "Historic Resources," the Proposed Action could have an adverse effect on a number of the remaining remnants on the World Trade Center that contribute to the WTC Site's historic significance. In order to minimize or mitigate any such effects, LMDC has proposed to enter into a Programmatic Agreement with the New York State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation that would include specific commitments with respect to the treatment or removal of such remnants and procedures for consultation with SHPO and those consulting parties who participated in the Section 106 process referred to in Chapter 5. A draft of the proposed Programmatic Agreement is included in Appendix K-7.

* * * * *

Exhibit F

Additional Remnants on WTC Site

1. Slab and column remnants of below grade parking garage at northwest corner of WTC Site with smoke scars or other visible evidence of the September 11 attacks.

2. Portions of former stairway and escalator support at Greenwich and Vesey Streets.

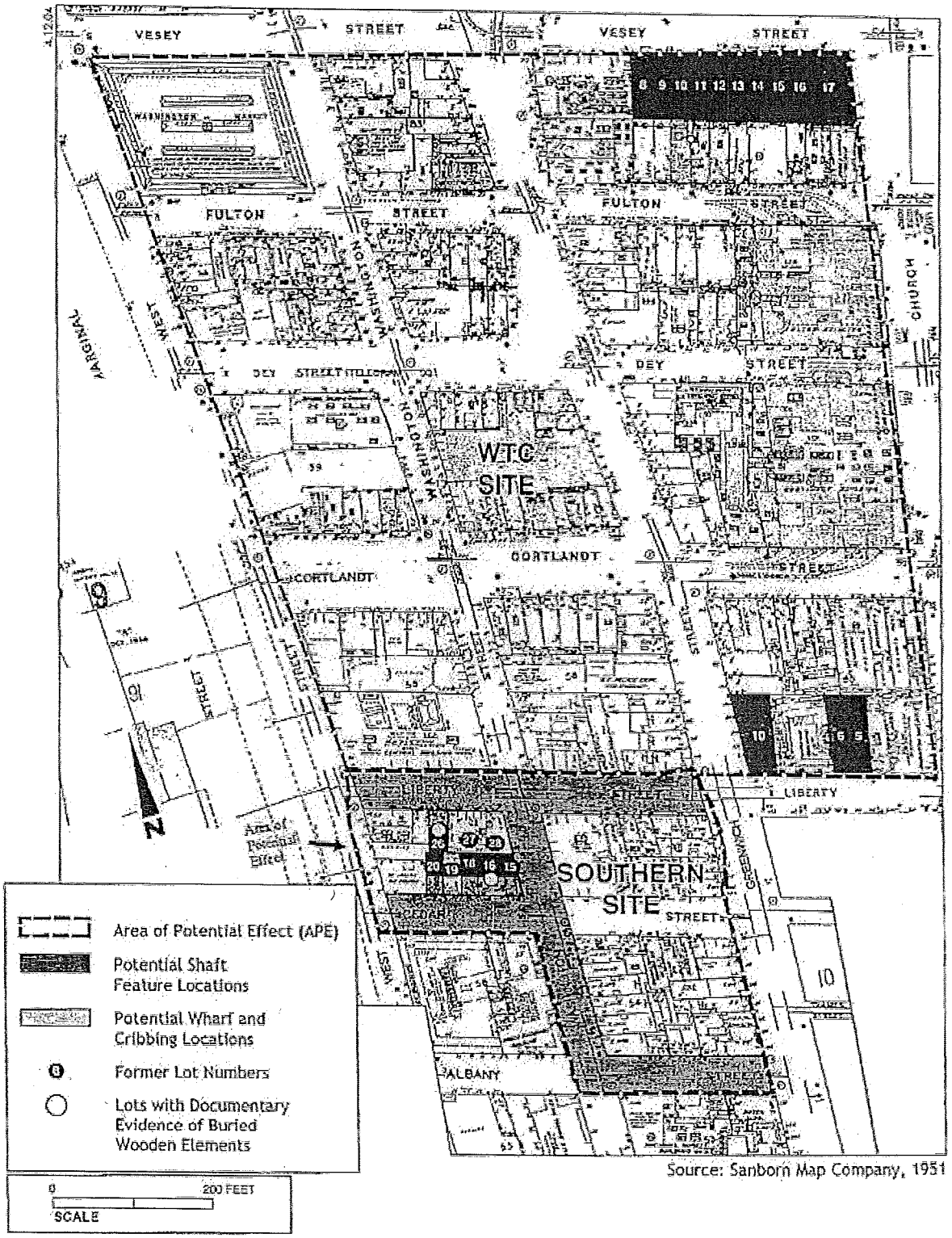
3. Steel column and crossbeam mounted on a concrete pedestal.

4. Visible temporary tie-back caps.

5. Remnants of Hudson & Manhattan Tubes and Terminal.

Areas of Potential Archeological Sensitivity

Exhibit G



Source: Sanborn Map Company, 1951

EXHIBIT H

THE PORT AUTHORITY OF NY & NJ

225 PARK AVENUE SOUTH
NEW YORK, NY 10003
(212) 435-7000

VIA HAND DELIVERY

April 21, 2004

Lower Manhattan Development Corporation
One Liberty Plaza – 20th Floor
New York, New York 10038
Attn.: Kevin Rampe - President

Re: World Trade Center Memorial and Redevelopment Plan

Dear Mr. Rampe:

Thank you for providing the Port Authority, as owner of the World Trade Center Site and a consulting party, with a copy of that certain draft agreement (the "Programmatic Agreement"), entitled "*World Trade Center Memorial and Redevelopment Plan Programmatic Agreement*", to be entered into by the Advisory Council on Historic Preservation, the New York State Historic Preservation Officer and the Lower Manhattan Development Corporation ("LMDC").

This letter will serve to confirm that the Port Authority will consult with the LMDC to assure that all artifacts from the WTC Site that are in the Port Authority's custody and control and are located at Hangar 17, John F. Kennedy International Airport ("WTC Artifacts"), will be safeguarded as appropriate pending the final disposition of the WTC Artifacts in accordance with the rights of the respective owners thereof, and thereafter, subject to future agreements or arrangements, the Port Authority will transfer any remaining WTC Artifacts to LMDC, its designee or other appropriate entities for safekeeping or other appropriate disposition. Additionally, the Port Authority (1) has provided LMDC with an inventory listing of the current WTC Artifacts, (2) will provide LMDC with a copy of a complete inventory listing of all WTC Artifacts as of July 1, 2004, and (3) will periodically update this listing if and when additional artifacts from the WTC Site come into the Port Authority's custody and control and are located at Hangar 17, John F. Kennedy International Airport.

Very truly yours,

A. Paul Blanco
Chief, Regional & Economic Development

EXHIBIT G

Consulting Parties

Alliance for Downtown New York, Inc.

American Institute of Architects - NY Chapter

American Planning Association - NY Metro Chapter

Architectural League of New York

Association for a Better New York

Battery Park City Authority

BCRE – 90 West Street Corp.

BPC United

Cantor Fitzgerald Relief Fund

Community Board 1 - Landmarks Committee

Community Board 1 - WTC Redevelopment Committee

Coalition of 9/11 Families

Coalition to Save West Street

Con Edison

Families of September 11th

Federal Highway Administration – United States Dept. of Transportation

Give Your Voice

Governor George Pataki – State of New York

Greek Orthodox in America (St. Nicholas)

Historic Districts Council

Hudson River Park Trust

Imagine New York

Lower Manhattan Cultural Council

Lower Manhattan Development Corporation

Lower Manhattan Emergency Preservation Fund (LMEPF)

Manhattan Borough President

MTA - New York City Transit Authority

Municipal Art Society

National Trust for Historic Preservation

New York City – Office of Mayor Bloomberg

New York City Art Commission

New York City Council – Office of Councilman Alan Gerson

New York City Department of City Planning

New York City Department of Transportation

New York City Fire Department

New York City Landmarks Preservation Commission

New York Historical Society

New York Landmarks Conservancy

New York New Visions

New York State Assembly, Office of Assemblyman Sheldon Silver

New York State Senate, Office of Senator Martin Connor

New York State Department of Transportation

Pace University – Center for Downtown NY

Partnership for New York City

Preservation League of New York State

R.dot (Rebuild Downtown Our Town)

Regional Plan Association/Civic Alliance

September `s Mission

Shinnecock Nation Cultural Center & Museum

Silverstein Properties, Inc.

Skyscraper Safety Campaign

St. Paul's Church

Team Twin Towers

Tribeca Organization

Tribeca Partnership

U.S. Department of Housing and Urban Development

U.S. General Services Administration, Northeast Division

U.S. Congress – Office of Gerry Nadler

U.S. Congress – Office of Carolyn Maloney

U.S. Congress – Office of Christopher Shays

U.S. Senate – Office of John Corzine

Van Alen Institute

Verizon Communications

Voices of September 11th

Wall Street Rising

World Monuments Fund

WTC Families for a Proper Burial

WTC Residents Coalition

WTC Survivors' Network

EXHIBIT H

EXHIBIT H

Schedule of Photographic Documentation

Context views from adjacent building (2-3) (overall)

West portion of the WTC site (1-2) (General)

East portion of the WTC site (1-2) (General)

Stabilized south wall and slurry walls remnant (3-4) (General & detail)

West Slurry wall (1-2) (General)

Vehicular entrance ramps (1-2) (General)

North and South piers (1-2) (details)

Cooling water pipes (1-2) (details)

Tiebacks (1-2) (details)

Southern projection (4) (general & detail)

Northern projection (1-2) (part of the parking deck)

PATH tunnel access (4) (general & detail)

Hudson Tubes (4)

Tower Footprints (6) (Typical views)

Plaza and subway access from Vesey Street (3-4)

Passageway to NYCT E subway station (3-4)

Remnants of Hudson Terminal and the H&M Railroad (8)

Steel in the form of a cross (1)

EXHIBIT I

EXHIBIT I

Unanticipated Archaeological Discovery Plan

Per Stipulation V. A of this Agreement if unanticipated archeological resources are discovered:

A. The Chief Engineer of the PANYNJ ("Engineer") will direct the contractor to flag or fence off the archaeological discovery location and direct the contractor to take measures to ensure site security. Any discovery made on a weekend will be protected until all appropriate parties are notified of the discovery. The Contractor will not restart work in the area of the identified archaeological resource until the process set forth below is followed and the Engineer has granted clearance.

B. The Engineer will engage the services of a Qualified Archaeologist (QA) who meets the Secretary of Interior's professional qualifications (48 FR 44716) and who will undertake a site visit or otherwise coordinate an on-site archaeological consultation. The QA will indicate the location and date of the discovery on the project plans. If the identified archaeological resource is determined to be isolated or completely disturbed by prior construction activities after notification and consultation per C., then the QA will advise the Engineer to resume construction activities.

C. PANYNJ will notify FTA, SHPO and Consulting Parties of the archaeological discovery. The notification will either explain why the QA believes the identified archaeological resource is not significant and request SHPO concurrence for construction to proceed, or describe a proposed scope of work for evaluating the significance of the identified archaeological resource and evaluating project effects.

D. If the SHPO determines that further archaeological investigation is necessary, the Engineer will direct the QA to begin a more detailed assessment of the identified archaeological resource's significance and the potential project effects.

E. The QA will conduct a Phase II Site Evaluation to determine if the archaeological resource possesses depositional integrity and may be eligible for listing on the National Register of Historic Places (NRHP). Archaeological sites can be determined eligible for inclusion in the NRHP, but individual artifacts may not. The QA will expose the archaeological resource (using hand tools), draw a plan view of the resource, photograph it, collect any archaeological material in association with the archaeological resource, section the resource (if appropriate), remove any large elements of the feature and draw the nearest soil profile (information will include Munsell soil color, matrix and a brief description of any associated artifacts). The Contractor, under the direction of the QA, in consultation with the Engineer, will assist the QA with the removal of any large elements of the archaeological feature by providing the lifting capabilities of heavy machinery only. All other archaeological investigations will be conducted by the QA using hand tools. All hand-excavated soils associated with this phase of work will be screened for archaeological resources. It is anticipated that the continued evaluation of the archaeological resource would require up to 16 hours beyond the initial minimum 30 minutes to inspect the resource.

F. At the conclusion of the evaluation of the archaeological resource (Phase II Site Evaluation), the QA will make a recommendation as to whether the archaeological resource is eligible for inclusion on the NRHP. If the identified archaeological resource appears to be eligible for inclusion on the NRHP, the QA will prepare and PANYNJ will submit documentation of this finding to SHPO and FTA for their review of the determination as part of a data recovery plan, to be developed by the QA as outlined below. PANYNJ will also notify the Consulting Parties via the Project Website of this finding. If the FTA, in consultation with SHPO, determines that the identified archaeological resource is not eligible for listing on the NRHP, the Engineer will direct the Contractor to resume work.

G. The data recovery plan will balance the Project (engineering, environmental and economic) and historic preservation concerns, while addressing specific research questions. All data recovery plans and documentation will adhere to the standards established by the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716). The data recovery plan will contain, at a minimum: a description of the archaeological resource including the resource's composition (stone, wood, metal, etc.), location within the area of excavation and known extent (both vertical and horizontal); photographs and profile drawings of the archaeological resource; research questions that recovery of information from archaeological resource can address.

H. The QA will prepare the data recovery plan for the identified archaeological resource within two business days following the completion of the Phase II Site Evaluation for the specific archaeological resource. PANYNJ will consult with SHPO to ensure the data recovery plan provides adequate mitigation for Project effects to the archaeological resource and provides sufficient documentation of the archaeological resource's NRHP-eligibility. The data recovery plan will be posted on the Project website for the information of Consulting Parties and the public. The Consulting Parties will be informed of the availability of the plan by electronic notification as the plan is posted on the Project website. SHPO will provide its comments on the data recovery plan within two business days upon receipt of the data recovery plan. If SHPO does not concur within two business days, the PANYNJ will assume SHPO concurs with the data recovery plan and will proceed with implementation of the plan. If SHPO should not concur with the data recovery plan, PANYNJ will follow the dispute resolution process outlined in Stipulation X of this Agreement. If SHPO responds within two business days with comments that require revising the data recovery plan, the PANYNJ will revise the data recovery plan to incorporate the received comments and resubmit the revised data recovery plan to SHPO for concurrence within two business days.

I. Data recovery of the identified archaeological resource will commence once SHPO has concurred with the data recovery plan. Data recovery of the identified archaeological resource may take up to a maximum of three business days, depending upon the horizontal and vertical extent of the NRHP-eligible archaeological resource.

J. At the completion of data recovery, the QA will inform the Engineer that construction may continue at the location of the mitigated archaeological resource.

EXHIBIT J

EXHIBIT J

CONTACT INFORMATION

For purposes of notices and consulting pursuant to this Agreement, the following addresses and contact information should be used for the following agencies:

FTA
Bernard Cohen
Director, Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green, Rm. 436
New York, NY 10004-1415
Tel.: 212-668-1770
Fax: 212-668-2505

NYS SHPO
Ruth Pierpont
Director
New York State Office of Parks, Recreation, and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island
P.O. Box 189
Waterford, NY 12188-0189
Tel.: 518-237-8643, ext.3269
Fax: 518-233-9049

PANYNJ
Kenneth J. Ringler, Jr. , Executive Director
Port Authority of NY & NJ
225 Park Avenue South
New York, NY 10003
Tel. 212-435-7271
Fax. 212-435-6670

ADVISORY COUNCIL ON HISTORIC PRESERVATION
John M. Fowler, Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW #809
Washington, D.C. 20004
Tel. 202-606-8503
Fax. 202-606-8647

Appendix B-3: **Phase 1A Archaeological Assessment: World Trade Center Property**

HISTORICAL PERSPECTIVES INC.

PHASE IA ARCHAEOLOGICAL ASSESSMENT

WORLD TRADE CENTER PROPERTY
BOUNDED BY CHURCH, VESEY, LIBERTY AND WEST STREETS

NEW YORK, NEW YORK

PHASE IA ARCHAEOLOGICAL ASSESSMENT

WORLD TRADE CENTER PROPERTY, BLOCK 58, LOT 1
BOUNDED BY CHURCH, VESEY, LIBERTY, AND WEST STREETS
NEW YORK, NEW YORK

Prepared For:

AKRF, Inc.
117 East 29th Street
New York, NY 10016

Prepared By:

Historical Perspectives, Inc.
P.O. Box 3037
Westport, CT 06880

Primary Author: Julie Abell Horn, M.A., R.P.A.

October 2003

October 8, 2003

EXECUTIVE SUMMARY

The Lower Manhattan Development Corporation (LMDC) proposes to undertake, in cooperation with the United States Department of Housing and Urban Development and the Port Authority of New York and New Jersey, a World Trade Center Memorial and Redevelopment Plan (the Proposed Action) that includes construction of a World Trade Center Memorial and memorial-related improvements, as well as commercial, retail, museum and cultural facilities, new open space areas, new street configurations, and certain infrastructure improvements at the World Trade Center Site (WTC Site) and the Adjacent Sites including the two city blocks south of the WTC Site and portions of Liberty and Washington Streets (collectively the Southern Site) and possibly below grade portions of Site 26 in Battery Park City.

LMDC is conducting a coordinated environmental review pursuant to the National Environmental Policy Act (NEPA) and the New York State Environmental Quality Review Act (SEQRA). LMDC is preparing a Generic Environmental Impact Statement. This archaeological study was prepared as part of the environmental review process and to satisfy the requirements of Section 106 of the National Historic Preservation Act, and complies with the standards of the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) (New York Archaeological Council 1994) and the guidelines of the New York City Landmarks Preservation Commission (LPC) (CEQR 2001; LPC 2002). This report focuses on the WTC Site; a separate study was prepared for the Southern Site.

The WTC Site is known as Block 58, Lot 1, and bounded by Church Street on the east, Vesey Street on the north, Liberty Street on the south, and West Street on the west. All of the buildings formerly on the site were destroyed during a terrorist attack on September 11, 2001, and subsequently, most of the remains of these buildings have been demolished and removed.

This Phase IA assessment describes both current and pre-9/11 conditions on the project site (including soil and geological boring data), previous cultural resources investigations undertaken within and adjacent to the project site, the history of the property, and based upon the preceding sections, the site's sensitivity for the recovery of archaeological resources. The Area of Potential Effect (APE) will be referred to throughout this report, and constitutes the footprint of planned construction and disturbance on the site. Because construction plans are still being revised, the APE is considered the entire World Trade Center site.

The World Trade Center APE consists of two distinct areas: the portion of the property east of Greenwich Street, which originally was located on firm land above the Hudson River shoreline, and the area west of Greenwich Street, which was once under the waters of the Hudson River. All of the area west of Greenwich Street and large portions of the area east of Greenwich Street have been significantly disturbed by construction and excavation activities, precluding the recovery of any potential archaeological resources in these areas. Ruling out these portions of the APE, the following report concentrates

chiefly on those remaining sections that may still have the potential for archaeological resources. These are the southern part of the block once bounded by Liberty, Church, Greenwich, and Cortlandt Streets (former Block 60); and the northern part of the block once bounded by Vesey, Church, Greenwich, and Fulton Streets (former Block 85).

There is little likelihood that precontact archaeological resources have survived within the World Trade Center APE. Within the portion of the APE west of Greenwich Street, the lowest level that precontact deposits could have survived under the river-deposited silts is about 40 feet below grade. The "bathtub" excavation extends to a depth of about 70 feet below grade, ensuring that any potential precontact resources have been removed. East of Greenwich Street, within the two areas of the APE outside the former World Trade Center footprint along Liberty and Vesey Streets, the likelihood is also low that precontact archaeological resources have survived. Here, it is probable that original precontact occupation surfaces have been destroyed by basement construction in these areas.

Potential shaft features predating the 1850s may survive under former basements along areas north of Liberty Street, between Church and Greenwich Street, and south of Vesey Street, between Church and Greenwich Street. Where former basements were 10 feet below grade or less, there is a good likelihood for preservation of shaft features; the project team has assigned these lots a high archaeological sensitivity. Lots with former basements 20 feet or more below grade have a much lesser likelihood of shaft feature preservation, and are assigned a low archaeological sensitivity.

Based on these conclusions, further archaeological consideration in the form of Phase IB archaeological field testing is recommended for former lots assigned a high sensitivity within the two areas of the APE considered potentially sensitive. Those lots assigned a low sensitivity require no further archaeological investigations.

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1. *Jersey City and Brooklyn Quadrangles, New Jersey and New York.* United States Geological Survey, 1976 and 1979.

2. World Trade Center APE. Sanborn 2001.

3. Ancient Sea Levels along the Hudson River with Potential Archaeological Sites. HCI 1983.

4. *New Yorke.* Miller 1696.

5. *A Plan of the City of New York from an actual Survey Made by James Lyne.* Bradford 1731.

6. *A Plan of the City of New York from an actual Survey Anno Domini – M,DCC,IV.* Maerschalck 1755.

7. *Map To His Excellency Sr. Henry Moore. Bart...This Plan of the City of New York, is Most Humbly Inscribed...* Ratzen 1776.

8. *Directory Plan of 1789.* McComb 1789.

9. *A New & Accurate Plan of the City of New York in the State of New York in North America.* Taylor-Roberts 1797.

10. *Topographical Map of the City and County of New-York, and the Adjacent Country.* Colton 1836.

11. *Plan Map of the City of New-York Extending Northward to Fiftieth Street.* Dripps 1852.

12. *Maps of the City of New York.* Perris 1857-62.

13. *Insurance Maps of the City of New York: Borough of Manhattan.* Sanborn 1884.

14. *Insurance Maps of the City of New York: Borough of Manhattan.* Sanborn 1922.

15. *Insurance Maps of the City of New York: Borough of Manhattan.* Sanborn 1951.

16. *Insurance Maps of the City of New York: Borough of Manhattan.* Sanborn 2001.

17. World Trade Center APE with archaeological sensitivity areas. Sanborn 1951.

PHOTOGRAPHS

1. Excavated "bathtub" area west of Greenwich Street, looking southwest. Covered I.R.T. subway along Greenwich Street in foreground. West Street in background.

2. Excavated "bathtub" area west of Greenwich Street, looking northeast. Vesey Street in background.

3. Covered I.R.T. subway line along Greenwich Street, dividing east and west halves of APE, looking south. Liberty Street in far background.

4. Former H & M Terminal train tubes, later converted to truck ramps, looking east. Church Street in background.

5. Footprint of WTC Building 4, looking southeast. Intersection of Liberty and Church Streets in background.

6. Footprint of WTC Building 5, looking northeast. Concrete wall is northern extent of building. Intersection of Vesey and Church Streets in background.

7. Area south of WTC Building 4 (at level where trailer is located), looking south. Liberty Street in background.

8. Area south of WTC Building 4, looking west. West Street in far background.

9. Area north of WTC Building 5, looking north (at level where cars are parked). Vesey Street in background.

10. Area north of WTC Building 5 (where majority of cars are parked), looking east. Intersection of Vesey and Church Streets in background.

I. INTRODUCTION

The Lower Manhattan Development Corporation (LMDC) proposes to undertake, in cooperation with the United States Department of Housing and Urban Development and the Port Authority of New York and New Jersey, a World Trade Center Memorial and Redevelopment Plan (the Proposed Action) that includes construction of a World Trade Center Memorial and memorial-related improvements, as well as commercial, retail, museum and cultural facilities, new open space areas, new street configurations, and certain infrastructure improvements at the World Trade Center Site (WTC Site) and the Adjacent Sites including the two city blocks south of the WTC Site and portions of Liberty and Washington Streets (collectively the Southern Site) and possibly below grade portions of Site 26 in Battery Park City.

LMDC is conducting a coordinated environmental review pursuant to the National Environmental Policy Act (NEPA) and the New York State Environmental Quality Review Act (SEQRA). LMDC is preparing a Generic Environmental Impact Statement. This archaeological study was prepared as part of the environmental review process and to satisfy the requirements of Section 106 of the National Historic Preservation Act, and complies with the standards of the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) (New York Archaeological Council 1994) and the guidelines of the New York City Landmarks Preservation Commission (LPC) (CEQR 2001; LPC 2002). This report focuses on the WTC Site; a separate study was prepared for the Southern Site.

The WTC Site is known as Block 58, Lot 1, and bounded by Church Street on the east, Vesey Street on the north, Liberty Street on the south, and West Street on the west. All of the buildings formerly on the site were destroyed during a terrorist attack on September 11, 2001, and subsequently, most of the remains of these buildings have been demolished and removed.

This Phase IA assessment will describe both current and pre-9/11 conditions on the project site (including soil and geological boring data), previous cultural resources investigations undertaken within and adjacent to the project site, the history of the property, and based upon the preceding sections, the site's sensitivity for the recovery of archaeological resources. The Area of Potential Effect (APE) will be referred to throughout this report, and constitutes the footprint of planned construction and disturbance on the site. Because construction plans are still being revised, the APE is considered the entire World Trade Center site.

The World Trade Center APE consists of two distinct areas: the portion of the property located between Church Street and Greenwich Street, which originally was located on firm land above the Hudson River shoreline, and the area from Greenwich Street to West Street, which was once under the waters of the Hudson River. From the outset of this investigation, it was understood by the project team that the area from Greenwich Street to West Street, which was filled during the eighteenth and nineteenth centuries, has been significantly disturbed, first by excavation of the I.R.T. subway line along Greenwich

Street, and later for excavation of the 70-foot deep slurry wall (known as "the bathtub") that surrounded the twin towers complex. As will be described in detail, the excavation in these areas has extended well below the depth that any potential surviving archaeological resources could remain. Additionally, the portion of the site east of Greenwich Street that formerly contained the Hudson and Manhattan (H & M) Church Street Terminal (from Cortlandt to Fulton Streets), and later the World Trade Center complex itself (which rested on the old H & M foundations and extended north from Fulton Street and south from Cortlandt Street), has also been disturbed to a significant depth, precluding recovery of archaeological resources. Ruling out these portions of the APE, the following report concentrates chiefly on those remaining sections that may still have the potential for archaeological resources. These are the southern part of the block once bounded by Liberty, Church, Greenwich, and Cortlandt Streets (former Block 60); and the northern part of the block once bounded by Vesey, Church, Greenwich, and Fulton Streets (former Block 85). These two areas are shown on Figure 2.

The HPI project team consisted of Julie Abell Horn, M.A., R.P.A., who conducted the majority of the project research and wrote this report; Cece Saunders, M.A., R.P.A., who accompanied Ms. Horn on the site walkover, and Christine Flaherty, M.A., who collected the historic maps and prepared the graphics. Betsy Kearns and Faline Fox provided editorial and interpretive assistance.

II. METHODOLOGY

Preparation of this archaeological study involved using documentary, cartographic, and archival resources. Repositories visited (either in person or by using their on-line electronic resources) or contacted included the New York City Register; the New York City Municipal Archives; the New York City Department of Buildings; the New York City Department of Design and Construction; the New York Public Library; the Columbia University library; the LPC; and the NYSOPRHP. AKRF provided current site data and various maps.

A site walkover was undertaken on September 8, 2003 by Julie Abell Horn and Cece Saunders of HPI and Anne Locke of AKRF. Conditions were sunny and dry. The team made notes and took photographs of buildings, structures, and existing ground conditions.

III. ENVIRONMENTAL/PHYSICAL SETTING

As described above, prior to landfilling in the eighteenth and early nineteenth centuries, the portion of the World Trade Center APE east of Greenwich Street was on firm ground, whereas the area west of Greenwich Street was under water. Soil borings within and adjacent to the APE, conducted at various times during the twentieth century (most in the late 1960s and early 1970s, prior to construction of the former World Trade Center, the Westside Highway, and adjacent Battery Park City), are useful in reconstructing the past landforms and specific subsurface conditions on the site.

The foundation bedrock, which extends across the entire APE, is composed of a metamorphic rock known as the Manhattan formation. East of Greenwich Street, bedrock ranged from about 45-80 feet below sea level; bedrock was deepest between Cortlandt and Fulton Streets (70-80 feet), and shallowest at Liberty Street (45 feet). West of Greenwich Street, bedrock depths ranged from 45-70 feet below sea level, again with the shallowest area near Liberty Street (Moran et al. 1970).

Soil stratigraphy above the bedrock varied depending on location throughout the APE. In many soil borings, a stratum of decomposed rock, gravel, or boulders was found directly above the bedrock, ranging from 5-25 feet in thickness. In other locations, the rock layer was absent. In areas originally east of the Hudson River, a thick stratum of silt and sand (ranging from about 40-50 feet in thickness) was documented above the decomposed rock or bedrock. Above the silt and sand, there generally was a top layer, described variously as a mixture of sand, silt, and gravel, or decomposed rock, and in a few instances, fill material. This uppermost stratum ranged from 10-20 feet in thickness (Rock Data Map, Sheet 3).

Portions of the APE once under the Hudson River had bedrock or decomposed rock overlain by a thinner layer of coarse sand, 5-10 feet in thickness (which was the original glacially-deposited land surface prior to flooding of the Hudson River channel), then capped by a layer of silt, or "river mud" that accumulated on the river bottom over thousands of years (and ranged from 7-30 feet thick). The uppermost layer was historic fill, bringing the area up to its current elevation. In some instances, the fill material contained notations of wood, timbers, or cribbing, suggesting former wharf or bulkhead construction (Rock Data Map, Sheet 3).

Before landfilling occurred, all portions of the APE west of Greenwich Street were at about sea level, with Greenwich Street marking the approximate edge of the former shoreline. Historic filling, undertaken as the shoreline was moved west (and described in Section IV), raised these areas up to their twentieth century elevations. Sanborn maps indicate elevations above sea level of all intersections. Prior to construction of the former World Trade Center, these elevations within the APE were as follows:

Street intersection	Elevation
Church and Liberty	21
Church and Cortlandt	22

Street intersection	Elevation
Church and Dey	23
Church and Fulton	23
Church and Vesey	25
Greenwich and Liberty	11
Greenwich and Cortlandt	11
Greenwich and Dey	11
Greenwich and Fulton	9
Greenwich and Vesey	7
Washington and Liberty	5
Washington and Cortlandt	5
Washington and Dey	6
Washington and Fulton	5
Washington and Vesey	5
West and Liberty	4
West and Cortlandt	3
West and Dey	3
West and Fulton	3
West and Vesey	3

Dr. Dennis Weiss of City College has conducted research on reconstructing Paleo-shorelines in the metropolitan New York area. While working with Ed Rutsch on the Westway project (which later became the Route 9A project) he proposed that 6,000 years ago there was a cove at the intersection of West and Vesey Streets. It would now be about 30' below current sea level. He indicated a possible bay from Cedar Street to north of the World Trade Center, and an irregular shoreline forming a spit of land near Vesey Street, at about 40 feet below sea level (HCI 1983:57). The configuration of these drowned shoreline features is shown in Figure 3. Construction of the slurry wall surrounding the former twin towers complex (bounded by Liberty, West, Greenwich, and Vesey) necessitated excavation to a depth of 70 feet below street grade, a depth that far exceeds the Paleo shoreline location in this area (Port Authority 2003).

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Site File Search Results

Research conducted at the NYSOPRHP, the LPC, and the library of HPI revealed one archaeological resource within the project APE, and a number of archaeological sites within a one-mile radius of the APE. Table 1, below, summarizes these resources. Those sites with NYSM or NYSOPRHP numbers are listed first; the remaining sites have been reported to the LPC and do not have site numbers.

The single archaeological resource documented within the APE was remains of a wooden ship dating to the Dutch period of occupation, and thought to be remains of the *Tyjger*, a vessel that burned and was abandoned along the shoreline in 1613. It was found during excavation for the I.R.T. subway line along Greenwich Street (at Dey Street) in 1916, and

documented by amateur historian James Kelly, who was a supervisor on the subway project. The ship, which consisted of a burned keelson and three rib frames, was found beneath about 9 feet of fill and 11 feet of river silt. Archaeologists Ralph Solecki and Bert Salwen returned to the area in 1967, when the World Trade Center was being built, and attempted to find the rest of the ship, which was thought to lie west of the I.R.T. line. Unfortunately, their efforts were unsuccessful, and the remains of the *Tyjger* were never found (Solecki 1974).

The remaining archaeological sites recorded within a one-mile radius of the APE are concentrated in the Financial District, the area within and surrounding the South Street Seaport, and the City Hall Park and Foley Square areas. Although researchers have undertaken a number of archaeological assessments in close proximity to the APE, such as the Westside Highway project (HCI 1983), the Route 9A project (Hartgen and HPI 1990), the 7 World Trade Center Project (Cobbs et al. 2002), and the AT&T building project (Greenhouse Consultants, Inc. 1985), these studies did not entail any archaeological testing, and therefore no sites were recorded. For that reason, these investigations are not included in the table, below. Sites that fall within larger historic districts (HD), either state or locally designated, are indicated.

Table 1: Archaeological sites within a one-mile radius of the APE

Site Number	**Site Name**	**Location**	**Time Period**	**Remarks**
NYSM 4059	Shell Point	Near Canal St.	Unknown Precontact	
NYSM 4060	N/A	Lower East side vicinity	Unknown Precontact	
A06101.000531	Clasons Point	Battery Park	Woodland	
A06101.007671	576 Broome St.	Above Canal St.	Unknown historic	Site form missing
A06101.001285	Washington Street Urban Renewal Site	Tribeca	Early nineteenth century	
A06101.001304	City Hall Park	City Hall Park	Eighteenth century	Part of Commons and African Burial Ground HD
A06101.000604	209 Water Street	South Street Seaport Area	c. 1775-1800	Within South Street Seaport HD
A06101.000623	Telco Block	South Street Seaport Area	c. 1740-1775	Within South Street Seaport HD
A06101.001283	Barclay's Bank	Financial District	1750s-1820s	
A06101.001284	Assay Site	Financial District	Revolutionary era	

Site Number	Site Name	Location	Time Period	Remarks
A06101.001272	64 Pearl Street	Financial District	Late 17th century	
A06101.001282	Broad Street Plaza	Financial District	17th century-modern	
A06101.001271	175 Water Street	Near South Street Seaport	c. 1740-1780	
A06101.006763	Schermerhorn Row	South Street Seaport Area	1780-1810	
	Tyjger	Greenwich and Dey Streets	1613	Within project area
	7 Hanover Square	Financial District	Late 17th century	
	Old Slip and Cruger's Wharf	Financial District	1690-1800	
	Stadt Huys Site	Financial District	17th-19th centuries	
	Foley Square	North of City Hall Park	19th century	
	African Burial Ground	North of City Hall Park	18th-19th century	Within the Commons and African Burial Ground HD

B. Site History

1. Precontact Period

Indian settlement near fresh-water rivers and salt bays is known both from early documents and archaeological research conducted over the past 100 years. For this assessment, it is necessary to establish whether the World Trade Center site would have been attractive to the Native American population, and if so, what kind of sites might be expected.

To understand how Native Americans exploited different environmental niches over time, researchers typically separate the prehistory into time periods according to their distinct cultural differences. Archaeologists divide the Native American period into three sub-periods: the Paleo-Indian, the Archaic, and the Woodland, which are further divided as shown below:

PERIOD	YEARS BEFORE PRESENT (BP)
Paleo-Indian	13,000 – 10,000
Early Archaic	10,000 – 8,000

PERIOD	YEARS BEFORE PRESENT (BP)
Middle Archaic	8,000 - 6,000
Late Archaic	6,000 - 3,700
Terminal Archaic	3,700 – 2,700
Early Woodland	2,700 - 2,000
Middle Woodland	2,000 – 1,200
Late Woodland	1,200 – 300

Paleo-Indian Period

The sea level was notably lower during this period, so many sites that were once on well-drained land near the ancient coast are now submerged, and sites that later became swamps could have been dry land. Leonard Eisenberg's research has indicated that three types of terrain were preferred for Paleo-Indian sites (Eisenberg 1978):

- lowland waterside camps near coniferous swamps and near larger rivers;
- upland bluff camps in the areas where deciduous trees dominated;
- ridge-top camps, also where deciduous trees dominated.

Eisenberg notes that the waterside settlements he studied were situated on locally well-drained soils (Eisenberg 1978). Archaeo-exploitation of upland zones was limited primarily to the Late Archaic Period and after, whereas Connecticut River Valley research indicates Paleo- Indian exploitation of the upland zone ridge terraces overlooking water courses (Gorman 1983:18-22). Paleo-Indian sites are scarce in the Northeast. More scientifically documented field excavations of this period would greatly aid our understanding of southern New York's past.

Archaic Period

The sea level began to rise during the Archaic Period, as the glacier melted and receded. In the coastal and tidewater area of New York, the Archaic Stage (ca. 9,000 years ago) is "represented by numerous, small, nearly always multi-component sites, variously situated on tidal inlets, coves and bays, particularly at the heads of the latter, and on fresh-water ponds on Long Island, Shelter island, Manhattan Island, Fisher's Island, and Staten Island and along the lower Hudson River on terraces and knolls, at various elevations having no consistent relationship to the particular cultural complex" (Ritchie 1980:143). These people were primarily hunters and gatherers, with recent indications of more permanent settlements.

Woodland Period

By the time of the Woodland Stage (c. 3,000 years ago) the sea level and exposed coastal regions were, in most respects, as they appear today. The archaeological evidence from Woodland Stage sites indicates a strong preference for large scale habitation sites to be within proximity to a major fresh water source (e.g., a river, a lake, an extensive wetland), and smaller scale extractive-functioning sites to be situated at other resource centers (e.g., quarrying sites, butchering stations, and shell gathering localities). The production of pottery and the use of the bow and arrow began in this period, as did the practice of agriculture.

Contact Period

This final period, after the arrival of the first Europeans, is characterized as a period of decline for the Native Americans. Their pattern of hunting was disrupted by the spread of settlement, many died from diseases to which they had no resistance, and there were wars, which drove them out of their homelands. As a result, a few fled to eastern Long Island while many others went west.

2. Historic Period

Prior to 1700, the large majority of the World Trade Center APE was either undeveloped farmland or under water, with the future line of Greenwich Street marking the approximate shoreline. The block between Fulton and Vesey Streets originally was part of an early seventeenth century Dutch farm grant to the "Bouwery of the West India Company" and known by various other names through the early eighteenth century. This land eventually became the property of Trinity Church (Stokes 1967, Vol. VI:79-80). The blocks between Liberty and Fulton Streets were part of the Jan Jansen Damen farm, also conveyed in the early seventeenth century, and later subdivided and sold to different buyers (Stokes 1967, Vol. VI:86). Although these farms had various structures on them, none are documented within the APE.

The first map that illustrates the APE in any detail (most maps before 1700 showed only the southern tip of Manhattan) is the Miller Plan, made in 1696 (Figure 4). Here, the first known structures are depicted – a house and windmill belonging to Peter Mesier on the west side of what would become Church Street, between Liberty and Cortlandt. The windmill was constructed at some point between 1682-1686, and demolished in 1788 (Stokes 1967, Vol. III:961). No other structures are shown within the APE.

By the turn of the eighteenth century, landfilling along the Hudson River shore had begun. Generally, early travelers had found the East River a better and safer harbor as the high bluffs and jagged edges of the Hudson River thwarted docking. However, the Hudson River did prove vital in linking northern territories to the growing village on Manhattan. Toward that end, between 1699 and 1701 several entrepreneurs filled and built docks on the three blocks between Cedar and Cortlandt Streets and Greenwich Street and Washington Street (Buttenwieser 1987:32). These docks are visible on the

Lyne-Bradford Plan, published in 1731 (Figure 5). The dock between Liberty and Cortlandt Street was called Thurman's Slip (HCI 1983:240). This map also reveals additional development along the north side of Liberty Street (then called Crown Street), and the road leading to the windmill.

The year before the Lyne-Bradford Plan was published, the Montgomery Charter was established, extending land ownership privileges an additional two blocks beyond the low water mark into the Hudson River. The charter included a provision for creating three streets – Greenwich, Washington and West – parallel to the river (Hoag 1905:32). The Maerschalck Plan, made in 1755, shows the continued outward spread of the waterfront, as well as additional development within the APE (Figure 6). By the 1740s, a slip had been built near Liberty Street (Valentine 1855:584), and Dey's Dock was built in 1743, just south of Dey Street (HCI 1983:240).

Activity along the Hudson River waterfront within the APE accelerated in 1764, when regular ferry service began between Paulus Hook, Jersey City and Mesier's Slip (at Cortlandt and the future intersection of Washington Street). King's Wharf was built between Cortlandt and Dey Streets by 1767, and by 1775, the city's dock, known as Corporation Dock, had been constructed at Fulton and Greenwich Streets, and received passengers from the new Hoboken Ferry (HCI 1983:240). The Ratzen Plan, published in 1776, illustrates the location of King's Wharf and an adjacent arsenal, as well as the ferry service route to Paulus Hook (Figure 7). It also shows that by this time, a portion of Greenwich Street had opened within the APE.

In 1789, the city's directory included a map for the first time, showing points of interest (Figure 8). Within the World Trade Center APE, the map indicates the location of the Bear Market, established in 1771 on Greenwich Street between Fulton and Vesey Streets (Stokes 1967, Vol. III:958). It also shows that Washington Street had been constructed within the APE. In the years following the Revolutionary War, an attempt was made to urge the construction of the street along the Hudson River originally provided for in the 1730 charter. In 1795 the Common Council again passed an ordinance creating West Street, a 70 foot wide outer street, demarcating the western boundary of the city. The proposed creation of West Street was intended to compel landowners to pursue landfilling where they were granted water rights. The Taylor-Roberts Plan of 1797 illustrates the pace of progress along the shoreline (Figure 9). In 1804 the Common Council increased the distance from Washington to West Street from 160 feet to 200 feet, lengthening the developed blocks between them by 40 feet (HCI 1983:153).

Construction of West Street was a slow process, occurring over the approximate 15-year stretch from 1817-1831 (HCI 1983:162). The City continued to pass ordinances during this period to impel development. In 1825, the Common Council passed an ordinance demanding the creation of West Street and filling of water lots. In 1828 the Council further requested that West Street be extended to cross the slip at Washington Market between Fulton and Vesey Streets (HCI 1983:161). Although the Common Council was relentless in their pursuit to assure the complete construction of West Street, filling and development was slow. Land reclamation and filling along the Hudson River waterfront

was pursued by either allowing unstructured harbor silts and river accretion to build up, or by placing fill in engineered retaining devices (Geismar 1983:672). In lower Manhattan, ships were sometimes deliberately sunk as cribbing to help stabilize fill (Berger 1983:9). After wharves and piers were built, derelict ships were sunk adjacent to them, and together these features contributed to and operated to retain fill.

Wooden cofferdams, wharves, and bulkheads were built as fill retaining devices, framed with hewn logs, filled with loose stone, and covered with earth (Geismar 1983:30). Timber grillage was commonly used as cribbing, a practice first employed in Europe. Colonists continued to use this method, as both the Dutch and English had previously, aided by the ample supply of wood in the region. To retain fill, quays were first built by driving a row of wooden piles into the river with diagonal braces bolted to the inside, forming the face work. Earth and fill was then placed in the vacant area behind the piles, and was then planked over to form a roadway level with adjacent streets (Geismar 1983:31). Wooden jetties were similarly built. Once the economic value of clean fill generated from building excavations was realized, this was no longer used as fill. Instead, wharves and piers were frequently used as dumping boards, where garbage was collected and pushed overboard into scows or directly into the river. Rubbish, ballast, and street trash pushed the shoreline further west. The 1836 Colton topographical map illustrates the configuration of West Street after years of landfilling (Figure 10).

The rapidly growing west side supported many successful business ventures. One of these was the Washington Market, also known as both the Bear and Oswego Markets. As described above, the market was established in 1771 on landfill between Fulton and Vesey streets, and Washington and West Streets, with the APE (HCI 1983:369). By 1800 the city purchased water grants between Vesey and Fulton Streets, formerly belonging to Mayor Varick, and piers were lengthened and the slips between them filled to expand the profitable Washington Market. After burning down, the market was rebuilt in 1812 on the same site. Just to the west were the Corporation Docks, built in 1817. These docks ran within several feet of the west side of the market and intruded into the path of West Street (De Voe 1867:427).

The pace of development within the APE is visible on several mid-nineteenth century maps. The Dripps 1852 map illustrates that by this time, all the streetfronts within the APE had been solidly filled with buildings (Figure 11). Labeled structures include a variety of banks, hotels, and markets, including the Washington Market, which endured until ca. 1960. The Perris 1857-62 maps show additional detail of the APE, indicating that the blocks had been nearly completely built up by this period (Figure 12). Of note, Church Street had not yet been extended from Fulton to Liberty Streets by this time. It was ordered cut through the APE in 1873 (Stokes 1967, Vol. V:1953).

By the 1850s, the APE had been supplied with piped city water, allowing residents to discontinue their reliance on public and private wells and cisterns for their water supply. The build out of lots within the APE shown on the Dripps and Perris maps is partially related to the introduction of piped water: private wells and cisterns were located in

backyard areas of lots; once they were no longer necessary, they could be covered over and the yard areas used for additional building space.

Sanborn Insurance maps depict the APE from the late nineteenth century through the mid-twentieth century (1894, 1923, and 1951). Figures 13, 14, and 15 illustrate the continued development within the APE during this period, with the blocks completely covered by multiple-story buildings containing various businesses. An early twentieth century construction milestone within the APE was the Hudson and Manhattan Railroad, which after emerging from a tunnel under the Hudson River, had subsurface lines running under Cortlandt and Fulton Streets to its Church Street Terminal, on the blocks bounded by Cortlandt, Church, Fulton, and Greenwich Streets. Above the terminal were the Cortlandt and Fulton Buildings, each 21 stories tall. The complex was built in 1907 (Sanborn 1923). Nearby, the I.R.T. subway was built under Greenwich Street, opening in 1918.

The World Trade Center complex, which encompassed 16 acres on newly designated "Superblock" 58 (and which required demapping the interior streets between the twelve original blocks), broke ground in 1966 and was completed in 1973 (Figure 16). Its construction necessitated demolishing all of the standing structures on the property. The area east of Greenwich Street, originally under the Hudson River before landfilling, was excavated down to bedrock (at about 70 feet below grade) and a slurry foundation wall was built around this area to keep out water. This portion of the site supported the twin towers, each 110 stories high, and seven underground levels. The area east of Greenwich Street was not excavated as deeply; it had four basement levels.

Following the terrorist attacks on September 11, 2001, all of the buildings in the World Trade Center APE were destroyed, and subsequently, debris from these structures was removed from the site. The area within the "bathtub" foundation, west of Greenwich Street, has been reexcavated. Portions of the site east of Greenwich Street have also been excavated, although the lower levels of the former H & M terminal are extant, and have not been removed.

3. Disturbance Record

The large majority of the World Trade Center APE has had significant subgrade disturbance to the original and historically created topography. The area west of Greenwich Street (the "bathtub") is disturbed down to bedrock (Photographs 1 and 2). The line of Greenwich Street has been disturbed by construction of the I.R.T. subway line (Photograph 3). Excavation for the H & M Terminal also has disturbed the area between Greenwich, Church, Cortlandt, and Dey Streets (Photograph 4). Last, construction of World Trade Center Building 4, south of the former H & M Terminal, has disturbed the area south of Cortlandt Street, and construction of World Trade Center Building 5, north of the former H & M Terminal, has disturbed the area north of Fulton Street (Photographs 5 and 6).

Discounting these portions of the APE that have been impacted by construction, there are only two remaining sections on Block 58 that may not be extensively disturbed. These are the areas north of Liberty Street, between Church and Greenwich Street (the area south of World Trade Center Building 4; Photographs 7 and 8); and south of Vesey Street, between Church and Greenwich Street (the area north of World Trade Center Building 5; Photographs 9 and 10). Both areas were outside the former World Trade Center construction footprint, although within the APE. Each of these areas will be subjected to future subsurface impacts as part of the reconstruction project.

In order to determine whether previous excavation had disturbed these two areas prior to the World Trade Center construction, building records (block and lot folders) were examined at the Municipal Archives for these lots. Frequently, these records document former depths of basements and foundations.

Liberty Street

The portion of the APE along Liberty Street encompassed Lots 1-10 on former Block 60. Lot 1 was at the Church Street intersection and Lot 10 was at the Greenwich Street intersection. Basement depths were available for several of these lots; where data were unavailable an estimate was made of former basement depths based on height and age of similar buildings that did have this information. Usually, nineteenth-century buildings up to 5-6 stories high had basements of about 10 feet in depth, whereas twentieth century buildings and/or buildings more than 10 stories high had deeper basements, usually at least 20 feet below grade.

Lot number	**Depth of Basement**
1 (includes former Lots 2 and 3)	24 feet below grade
4	22 feet below grade
5	13 feet below grade
6	10 feet below grade
7-9	Data unavailable, but building was 18 stories tall; assume basement at least 20 feet below grade
10	Data unavailable, but building was one story tall; assume basement no more than 10 feet below grade

Vesey Street

The portion of the APE along Vesey Street encompassed Lots 6-17 on former Block 85. Lot 6 was at the Greenwich Street intersection and Lot 17 was at the Church Street intersection. Basement depths were available for several of these lots. Again, where data were unavailable an estimate was made of former basement depths based on height and age of similar buildings that did have this information.

Lot number	Depth of Basement
6 (includes former Lot 7)	Data unavailable, but building was 12 stories tall; assume basement at least 20 feet below grade
8	10 feet below grade
9	10 feet below grade
10	Data unavailable, but building was 5 stories tall; assume basement depth ca. 10 feet below grade
11	Data unavailable, but building was 3 stories tall; assume basement depth no more than 10 feet below grade
12	Data unavailable, but building was 5 stories tall; assume basement depth ca. 10 feet below grade
13	Data unavailable, but building was 6 stories tall; assume basement depth ca. 10 feet below grade
14 (includes former Lot 15)	Data unavailable, but building was 5 stories tall; assume basement depth ca. 10 feet below grade
16	Data unavailable, but building was 5 stories tall; assume basement depth ca. 10 feet below grade
17	Data unavailable, but building was 2 stories tall; assume basement depth ca. 10 feet below grade

Sidewalks

On both Liberty and Vesey Streets, the building line for the former World Trade Center complex was pushed back approximately 40 feet from the original sidewalk boundaries in order to create extra lanes of traffic, which were separated from the main roadways by concrete islands. These traffic lanes were carved out of areas once supporting the street-fronting parts of the structures listed above. The sidewalks that bordered the former World Trade Center plaza also fell within the area once supporting the structures, above. According to utility data provided by the Port Authority, the original (pre-World Trade Center) sidewalk locations contain various subsurface conduits, to a depth of about five feet below grade, although the sidewalk areas surrounding the World Trade Center complex footprint are relatively free of subsurface utilities (Port Authority 2003).

4. Precontact Archaeological Sensitivity

There is little likelihood that precontact archaeological resources have survived within the World Trade Center APE. Within the portion of the APE west of Greenwich Street, the lowest level that precontact deposits could have survived under the river-deposited silts is about 40 feet below grade. The "bathtub" excavation extends to a depth of about 70 feet below grade, ensuring that any potential precontact resources have been removed. East of Greenwich Street, within the two areas of the APE outside the former World Trade Center footprint along Liberty and Vesey Streets, the likelihood is also low that precontact archaeological resources have survived. Here, it is probable that original

precontact occupation surfaces have been destroyed by basement construction in these areas.

Finally, under the original sidewalks abutting Liberty and Vesey Streets, which contain active utilities, searching for precontact resources would be extremely difficult. In addition, any area tested would be highly confined by these same utilities, prohibiting excavations to the depth necessary to explore potential precontact strata.

5. Historical Archaeological Sensitivity

The two areas of the APE that were not extensively disturbed as part of the World Trade Center construction, east of Greenwich Street along the north side of Liberty Street and the south side of Vesey Street, have the potential to contain historical archaeological resources associated with occupation of the blocks from the late 1600s through the 1850s, when the area was supplied with public piped water and sewers. Prior to the nineteenth century, when build out occurred on these blocks, properties would have had open yard areas where shaft features such as privies, cisterns, wells, and cesspools would have been located. Historical archaeological resources related to dwellings are often preserved in these features. The survival of these resources will depend on the extent to which former basements disturbed these former yard areas, and the depth to which these shaft features were excavated.

The potential depth of shaft features throughout Manhattan is varied, and depends, in part, on the subsurface conditions at the time they were excavated. Wells would have been excavated at least as deep as the water table, and possibly deeper to access potable water. For example, once the water from the Collect Pond in Lower Manhattan was no longer potable, having been declared "stagnant and mephitic" in 1796, deeper wells were dug throughout the city to access clean water (Kieran 1982:31). At Bleecker Street near Broadway, in 1832 a well was bored to a depth of 448', of which 400' was through solid rock (Ibid.). However, this was not the typical depth for wells hand excavated in backyards throughout the city prior to the availability of high pressure steam engines (ca.1815) which allowed for deep drilling. These would typically have extended through soil to the water table, at whatever depth that was encountered, and possibly deeper to access better water.

The anticipated depth of privies is also difficult to estimate, given that subsurface conditions such as soil permeability and the number of households served would have affected the size and depth of vaults. Geismar notes that a possible privy identified at 17 State Street extended 13' below the grade that existed at the time it was constructed, and that this depth coincided with the depth of a privy excavated at the Augustine Heerman warehouse site on the block bounded by Whitehall, Broad, Bridge, and Pearl Streets, also in Lower Manhattan (Geismar 1986:44). As noted above, by 1823 they were required to be at least five feet deep (Goldman 1988:45).

In areas along Liberty and Vesey Street where basements were 10 feet below grade or less, there is a reasonable likelihood that the lower reaches of early shaft features may be

extant under the former cellar floors. Where former basements were 20 feet or greater, this probability decreases. The historic level of the water table (which presumably would dictate the minimum depth of wells) along Liberty and Vesey Streets east of Greenwich Street is unknown, but Port Authority engineers are assuming it was at about sea level, or zero elevation. If the historic water table was at or just below sea level, wells would need to have been excavated a minimum of 15-25 feet below grade, depending on the location (see Section III for street intersection elevations).

V. CONCLUSIONS AND RECOMMENDATIONS

A. Precontact Period Resources

As the preceding sections have described, any precontact archaeological resources that may have once existed within the World Trade Center APE have almost certainly been either removed or destroyed by excavation and/or construction activities.

No archaeological field testing is recommended for precontact resources.

B. Historic Period Resources

Potential shaft features predating the 1850s may survive under former basements along areas north of Liberty Street, between Church and Greenwich Street, and south of Vesey Street, between Church and Greenwich Street. Where former basements were 10 feet below grade or less, there is a good likelihood for preservation of shaft features; the project team has assigned these lots a high archaeological sensitivity. Lots with former basements 20 feet or more below grade have a much lesser likelihood of shaft feature preservation, and are assigned a low archaeological sensitivity. The sensitivity rankings are summarized below, based on data presented in Section IV.

Liberty Street Lots (Former Block 60)

Lot number	Archaeological Sensitivity
1-3	Low
4	Low
5	High
6	High
7-9	Low
10	High

Vesey Street Lots (Former Block 85)

Lot number	Archaeological Sensitivity
6-7	Low
8	High
9	High
10	High
11	High
12	High

Lot number	Archaeological Sensitivity
13	High
14-15	High
16	High
17	High

Identifying and examining buried features associated with seventeenth through mid-nineteenth century occupation of these lots may reflect the daily activities of the residents and provide insight into cultural behavior. Shaft features were usually filled and capped, providing stratified deposits within the feature. Because of the unique depth of these resources, the lowest levels are rarely disturbed even if the feature becomes truncated by subsequent historical activity. The deepest layers often act as a time capsule, preserving historical artifacts within the enclosed environment.

If undisturbed deposits of cultural material from the historic development of the World Trade Center APE do still exist, they may have the potential to provide meaningful information regarding the lives of the people who lived there. When recovered from their original context and in association with a specific historical occupation, historical deposits can provide a wealth of information about consumption patterns, consumer choice, gender relations, ethnicity, economic status, and other important issues.

Based on these conclusions, the following recommendations are offered for the two areas of the APE considered potentially sensitive. No additional archaeological investigations are recommended for those former lots whose basements were 20 feet or more below grade, and assigned a low archaeological sensitivity. However, further archaeological consideration in the form of Phase IB archaeological field testing is recommended for former lots with basements 10 feet below grade or less, and assigned a high sensitivity. Figure 17 illustrates those former lots assigned a high sensitivity, where Phase IB testing is recommended.

All Phase IB archaeological testing should be conducted according to applicable archaeological standards (New York Archaeological Council 1994; LPC 2002), and in consultation with the NYSOPRHP and the LPC. RPA-certified professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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FIGURES

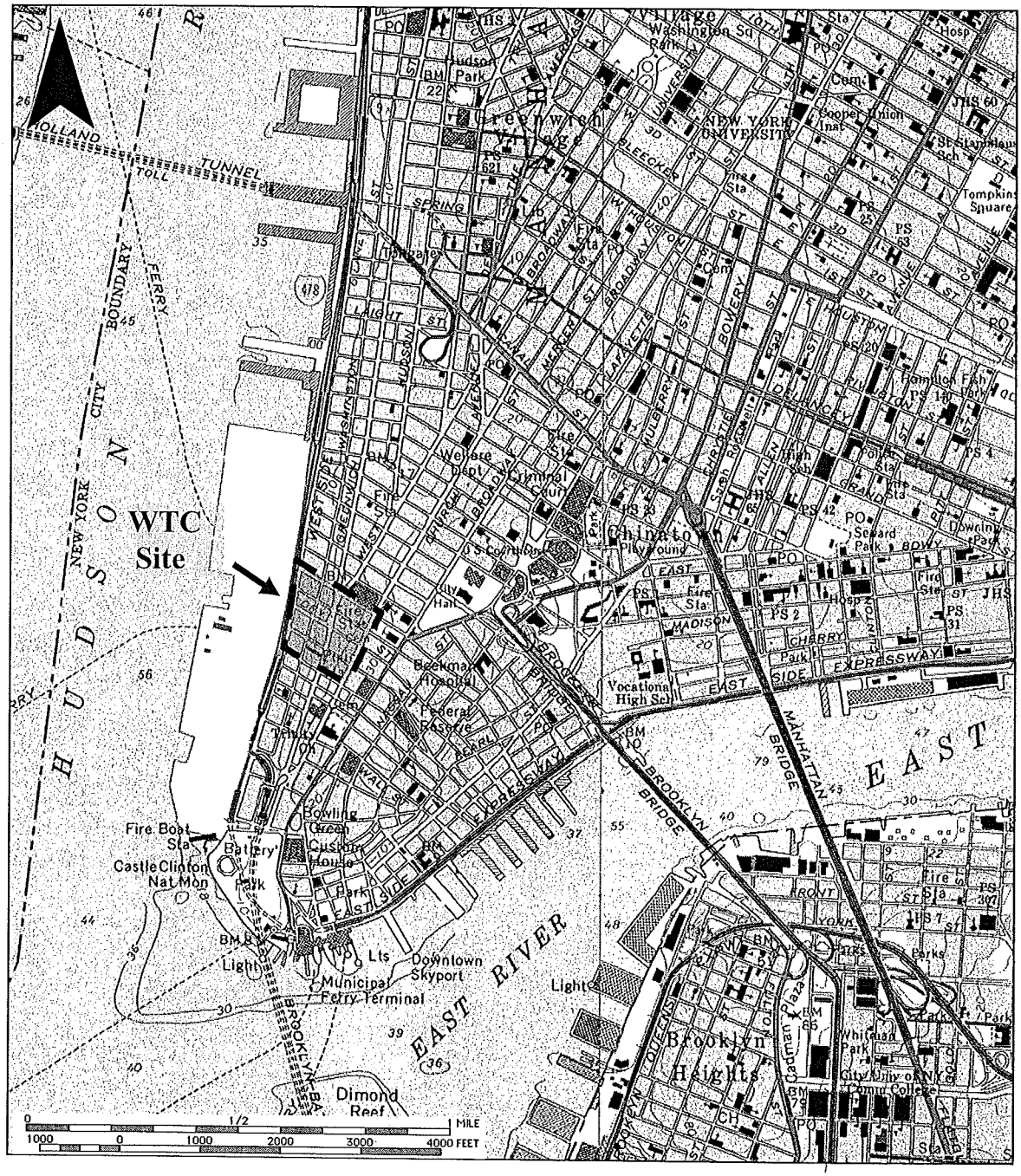


FIGURE 1

USGS Jersey City, NJ and Brooklyn, NY Quadrangles, 1976 and 1995.

World Trade Center Project Site.

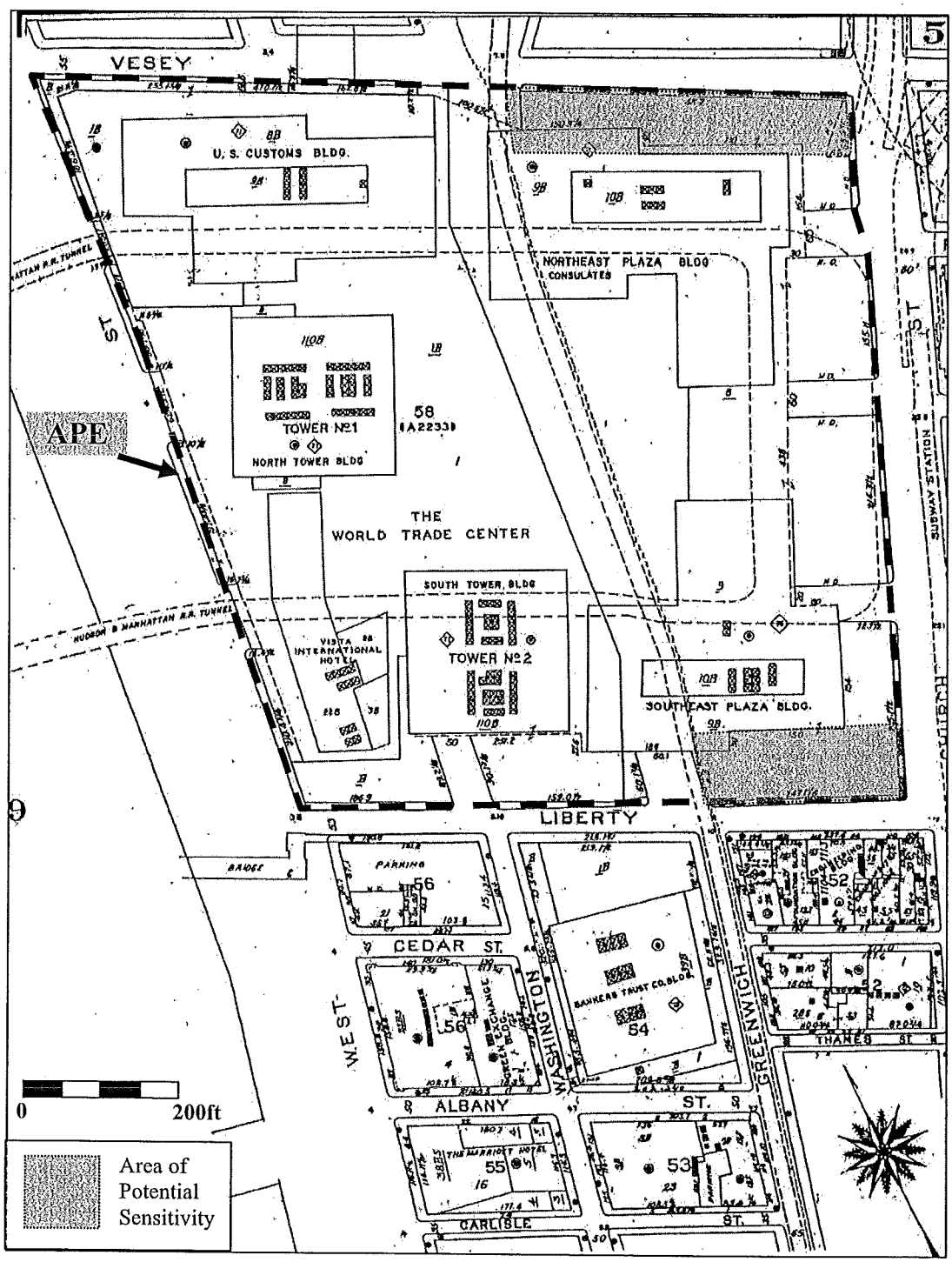


FIGURE 2

World Trade Center APE.
Sanborn 2001.

World Trade Center Project Site.

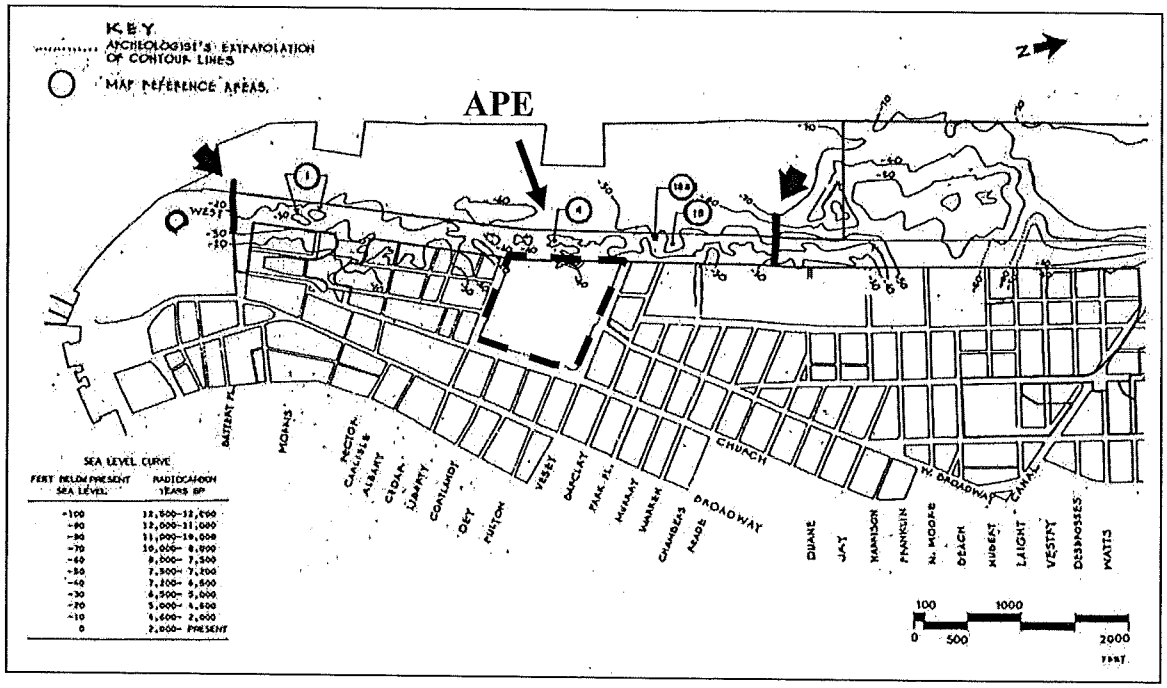


FIGURE 3

Ancient Sea Levels along the Hudson River with Potential Archaeological Sites.
HCI 1983, Figure 4, p. 48.

World Trade Center Project Site.

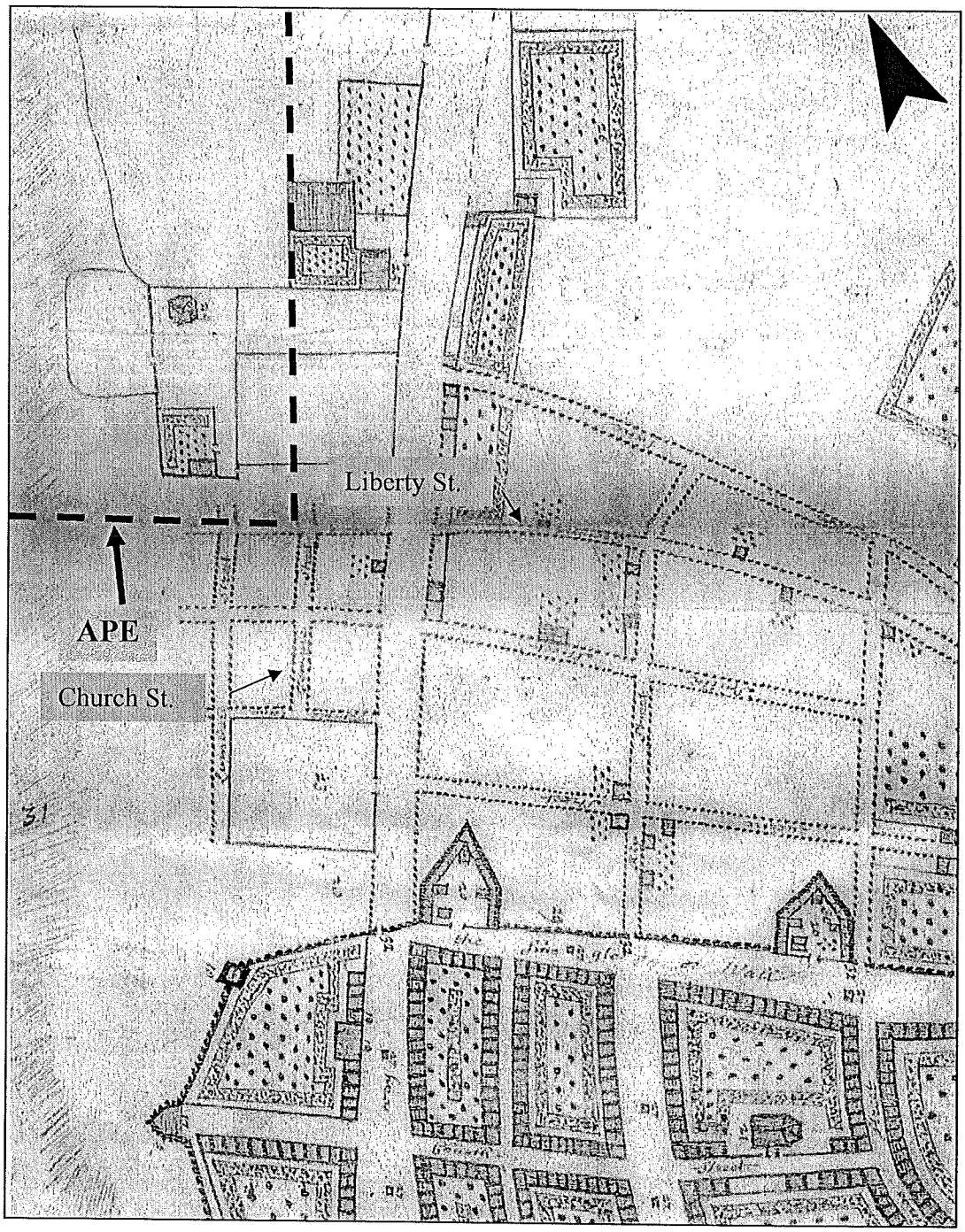


FIGURE 4

New Yorke.
Miller 1696.

World Trade Center Project Site.

Approximate Scale: 1 inch= 400 feet

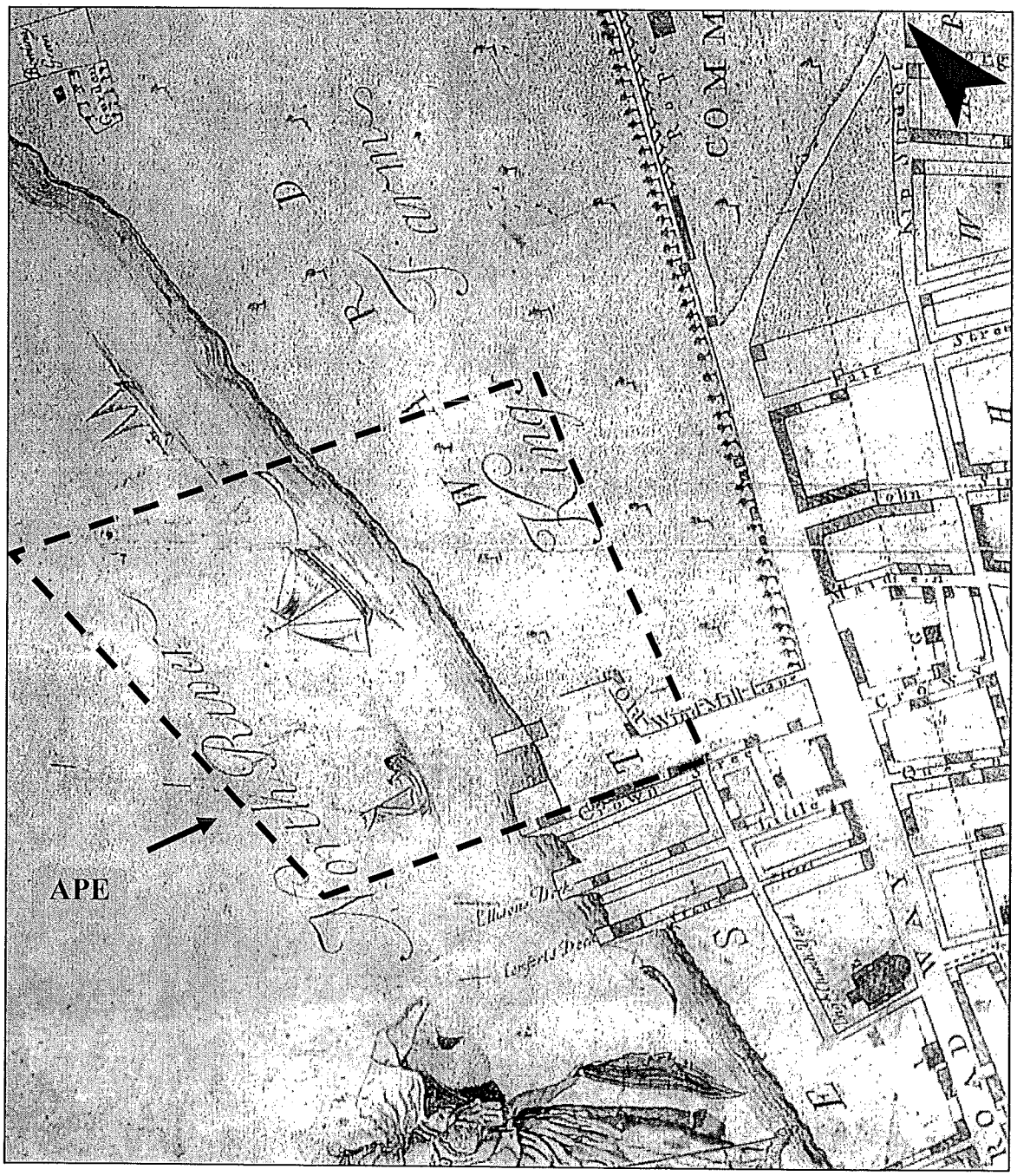


FIGURE 5

A Plan of the City of New York from an actual Survey Made by James Lyne. Bradford 1731.

World Trade Center Project Site.

Approximate Scale: 1 inch= 250 feet

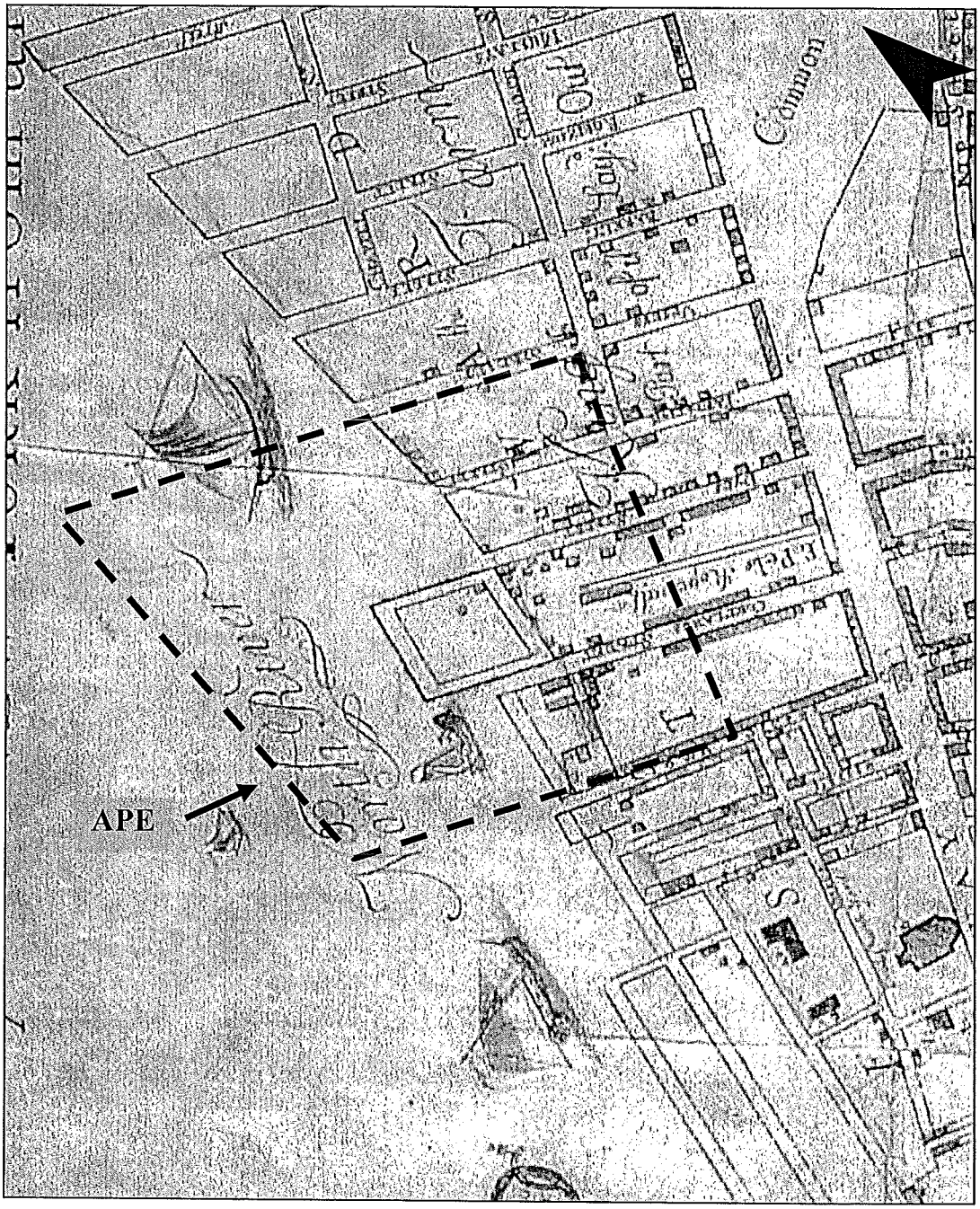


FIGURE 6

A Plan of the City of New York from an actual Survey Anno Domini – M,DCC,IV.
Maerschalk 1755.

World Trade Center Project Site.

Approximate Scale: 1 inch= 250 feet

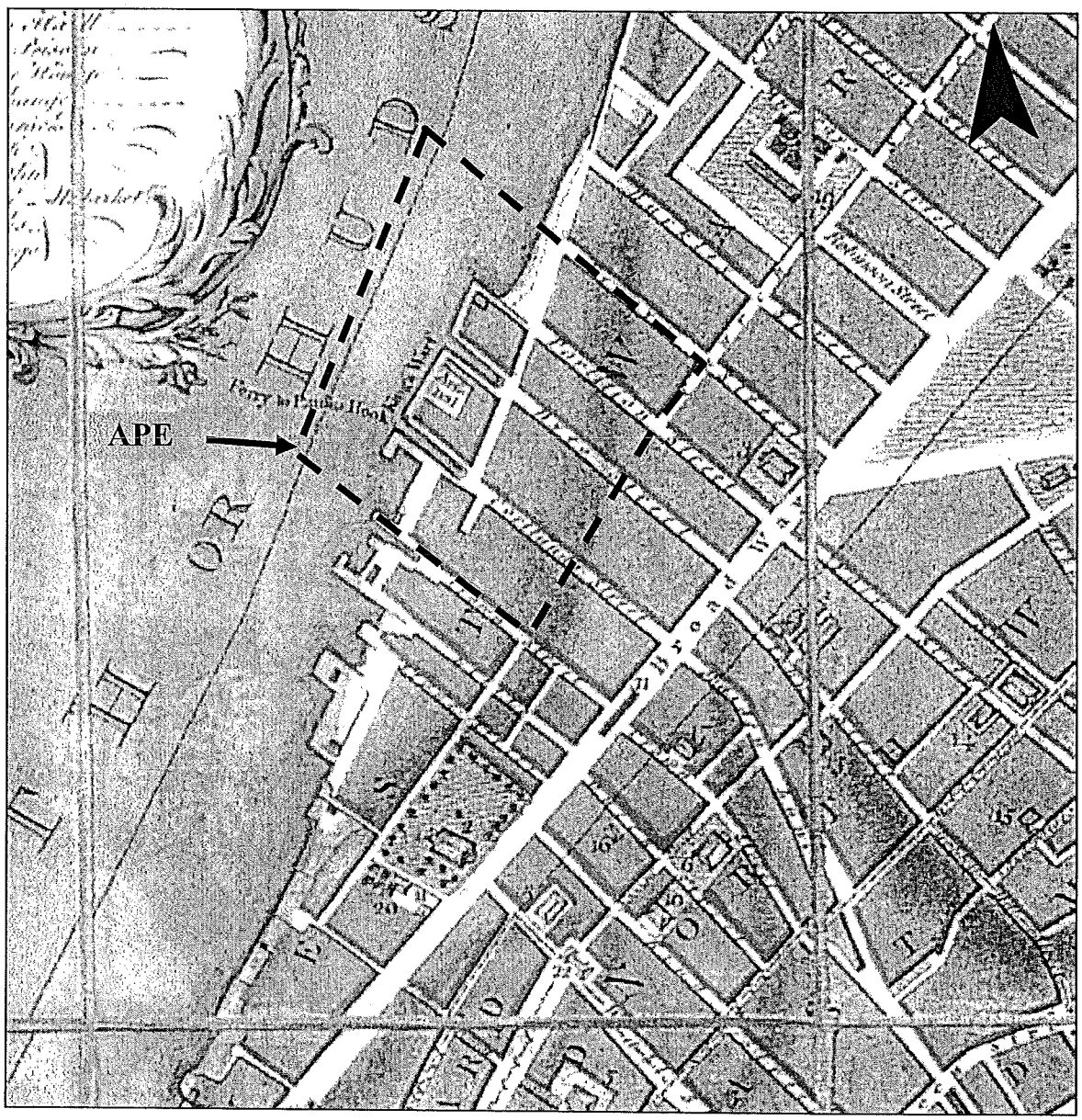


FIGURE 7

To His Excellency Sr. Henry Moore, Bart...This Plan of the City of New York, Is Most Humbly Inscribed.
Ratzen 1776.

World Trade Center Project Site.

Approximate Scale: 1 inch= 400 feet

FIGURE 8

The New-York Directory and Register for the Year 1789.
McComb 1789.

World Trade Center Project Site.

Approximate Scale: 1 inch= 500 feet

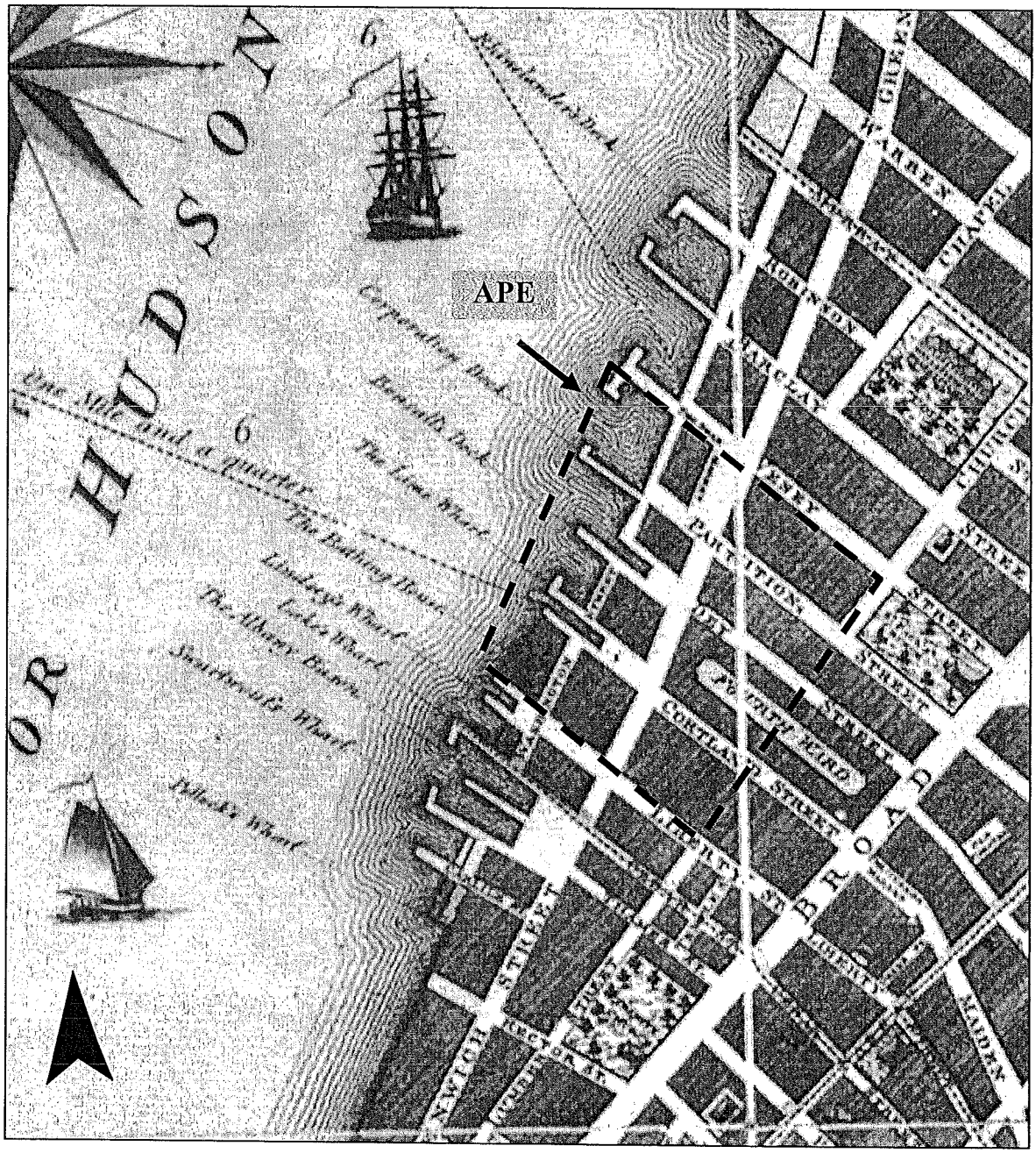


FIGURE 9

A New & Accurate Plan of the City of New York in the State of New York in North America.
Taylor-Roberts 1797.

World Trade Center Project Site.

Approximate Scale: 1 inch= 400 feet

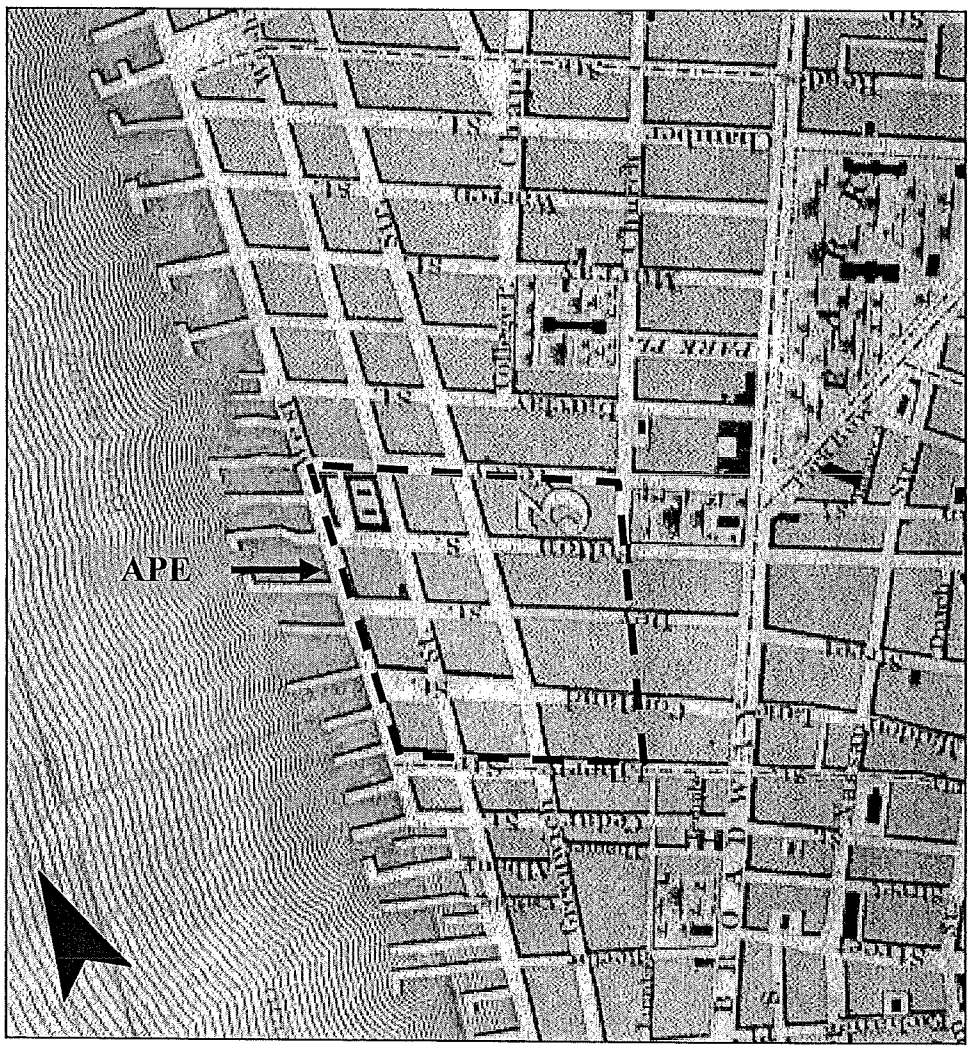


FIGURE 10

Topographical Map of the City and County of New-York, and the Adjacent Country.
Colton 1836.

World Trade Center Project Site.

Approximate Scale: 1 inch= 600 feet

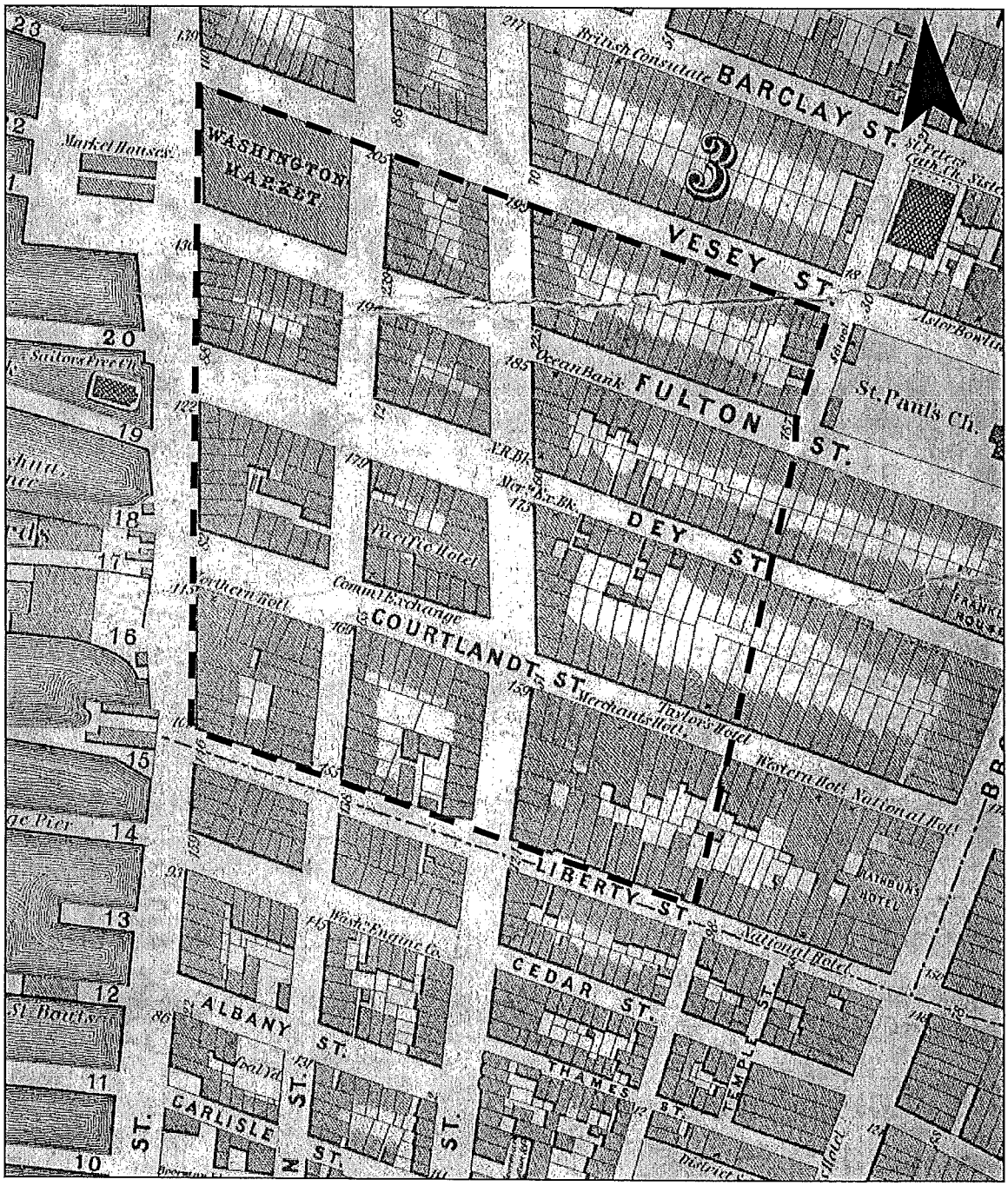


FIGURE 11

Map of the City of New York Extending Northward to 50th Street.
Dripps 1852.

World Trade Center Project Site.

Approximate Scale: 1inch= 200 feet

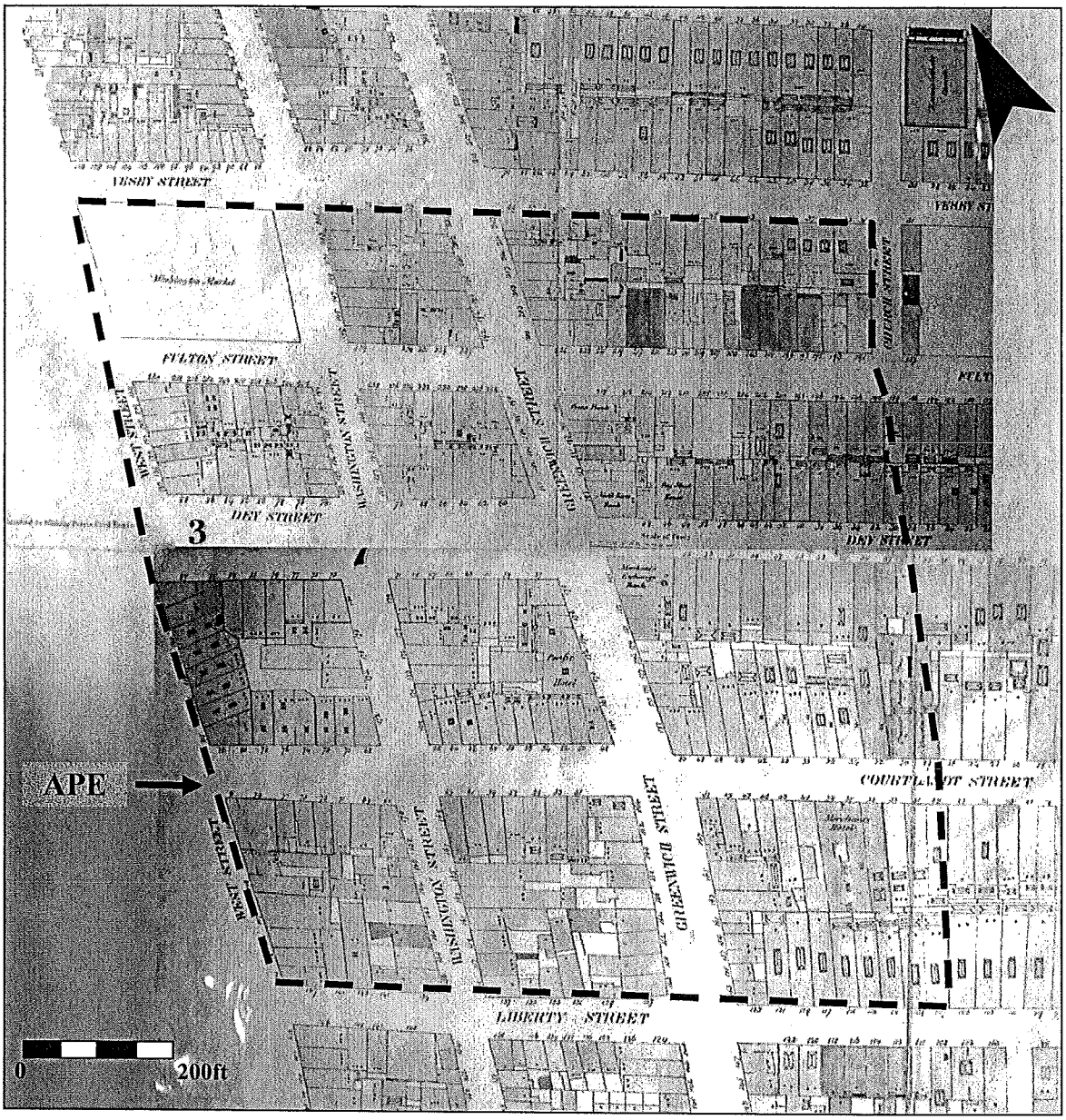


FIGURE 12

Maps of the City of New York.
Perris 1857-62.

World Trade Center Project Site.

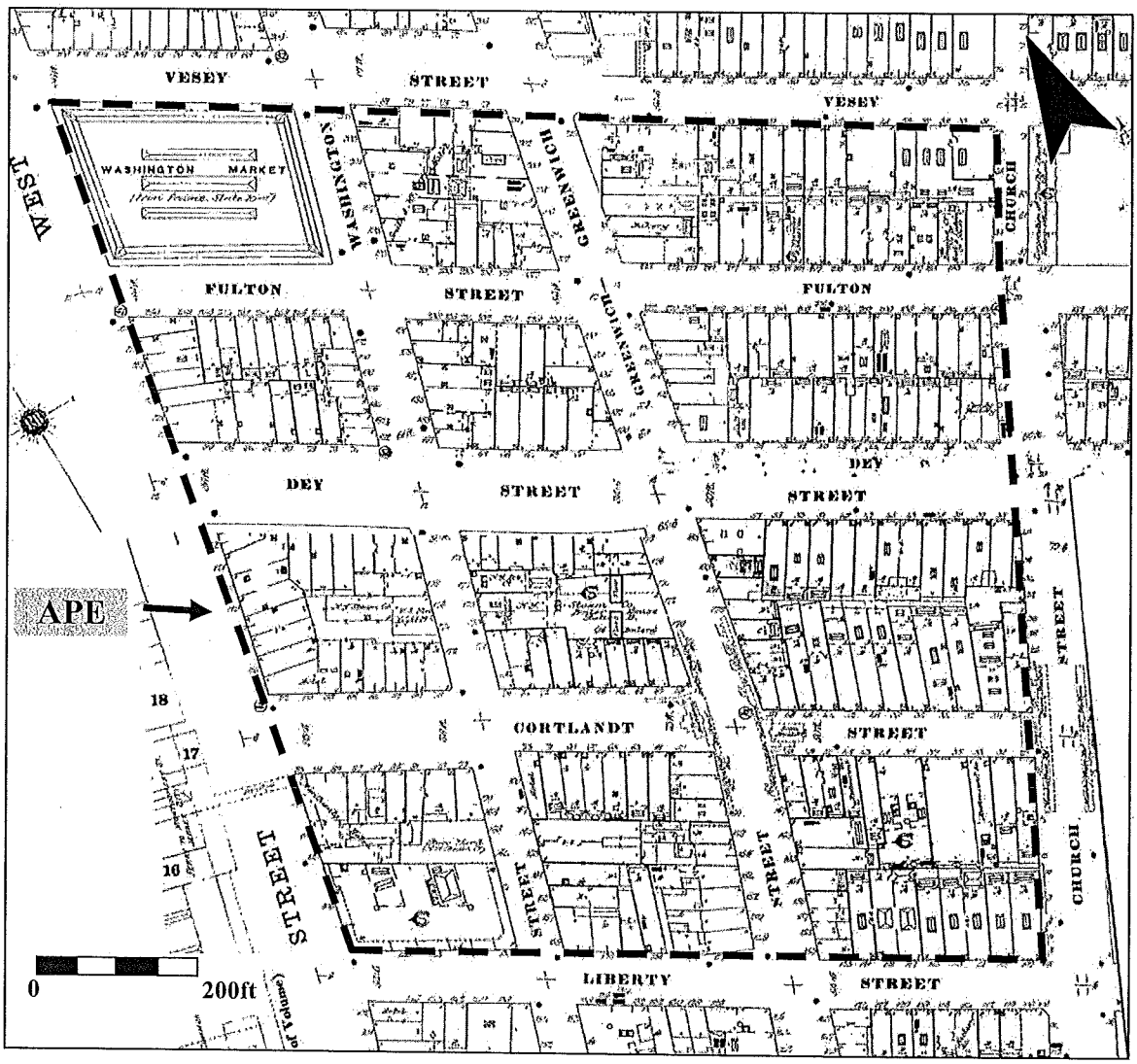


FIGURE 13

Insurance Maps.
Sanborn 1894.

World Trade Center Project Site.

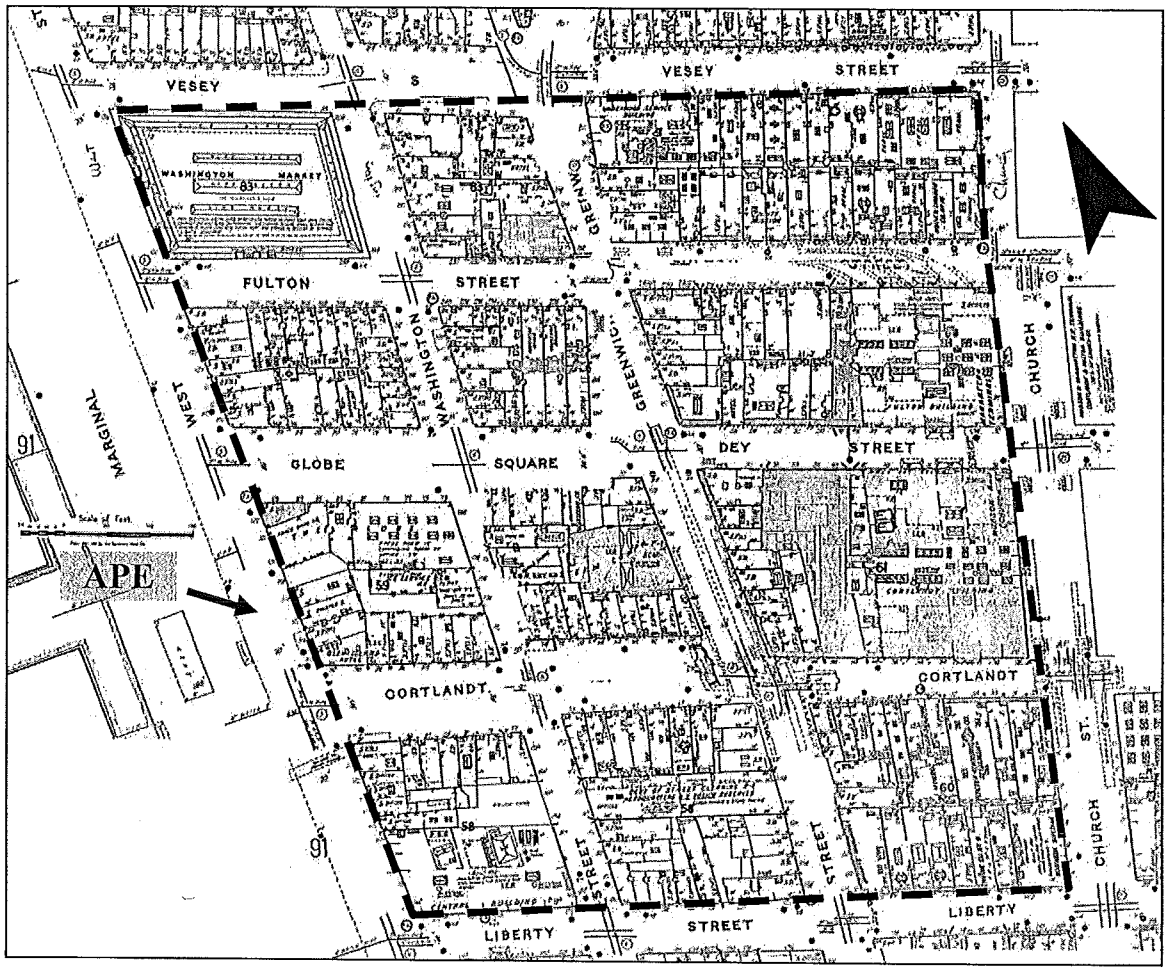


FIGURE 14

Insurance Maps.
Sanborn 1923.

World Trade Center Project Site.

FIGURE 15

Insurance Maps.
Sanborn 1951.

World Trade Center Project Site.

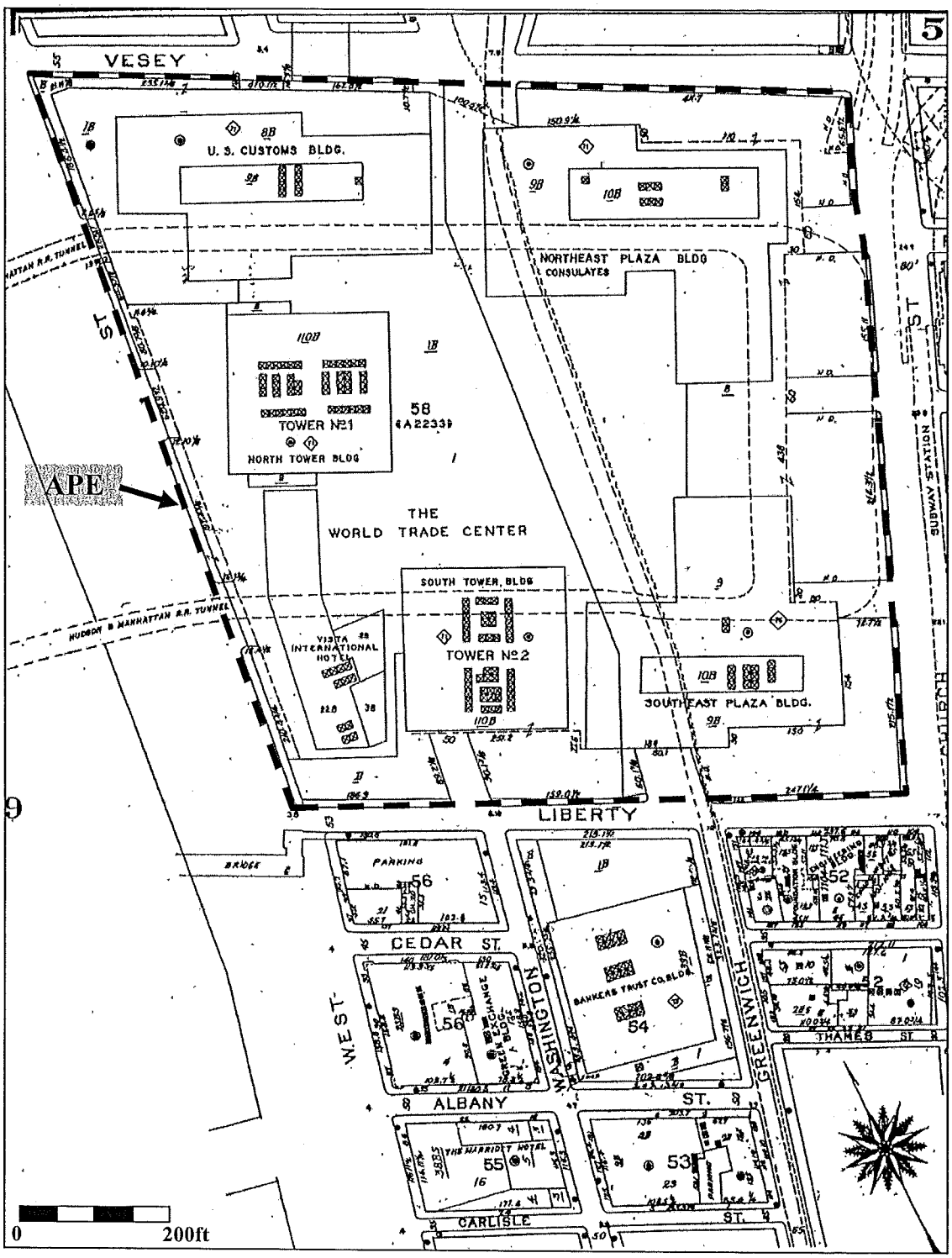


FIGURE 16

Insurance Maps.
Sanborn 2001.

World Trade Center Project Site.

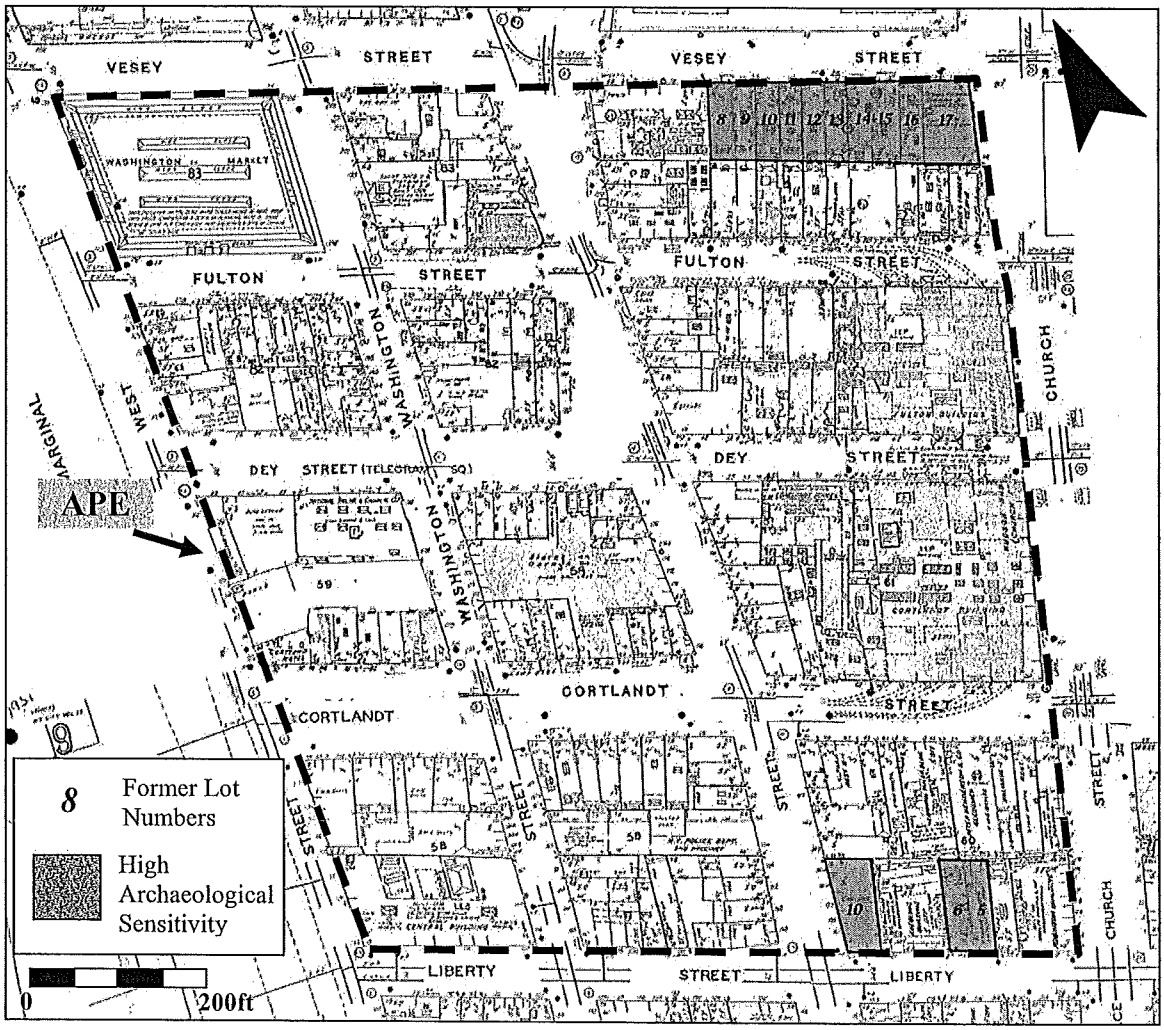
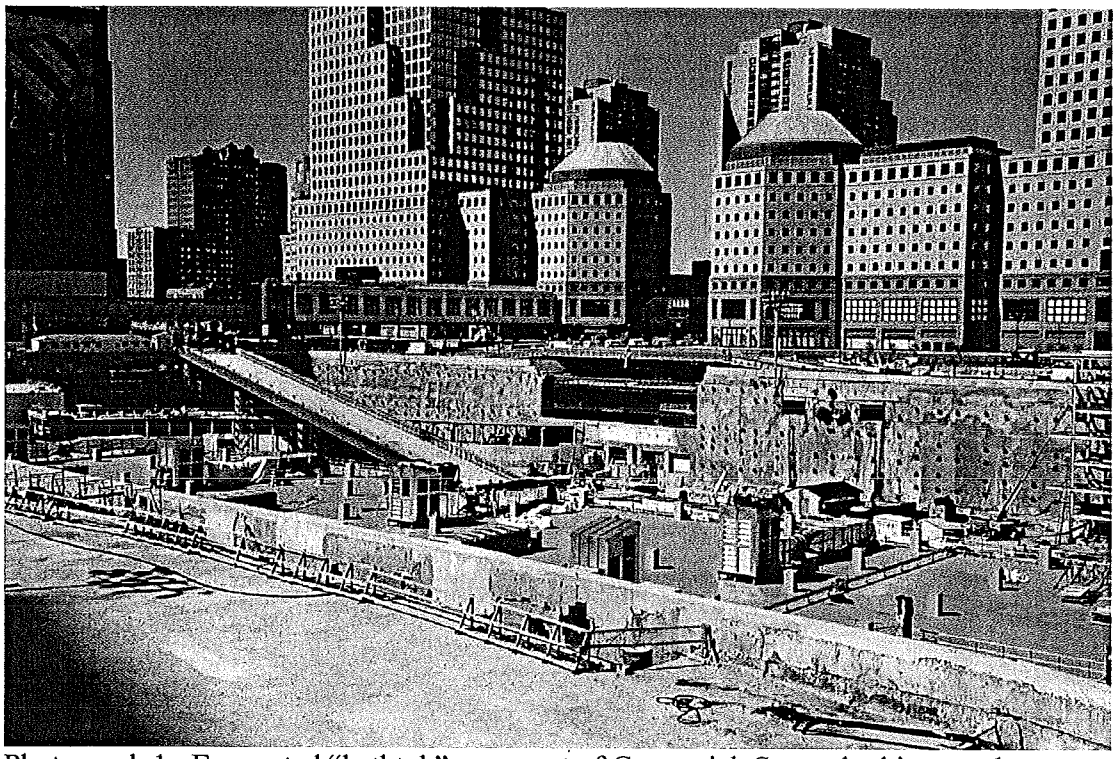


FIGURE 17

Area of Proposed Archaeological Sensitivity.
World Trade Center Project Site.
Sanborn 1951.

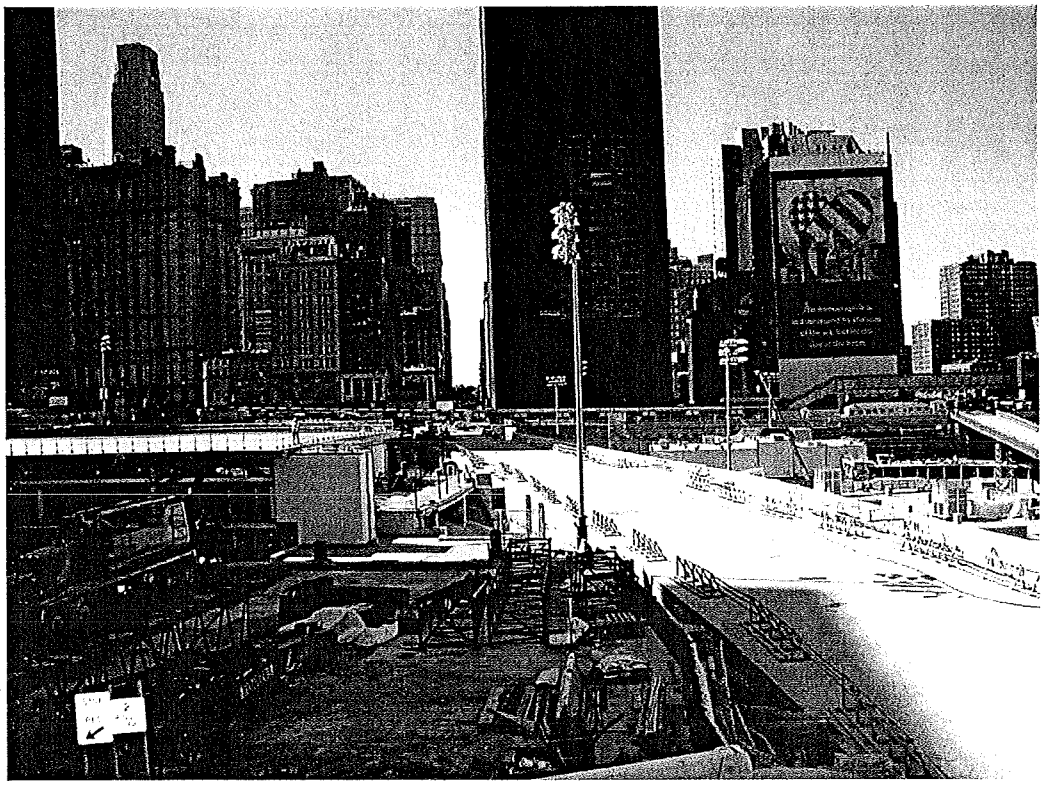
PHOTOGRAPHS

October 8, 2003

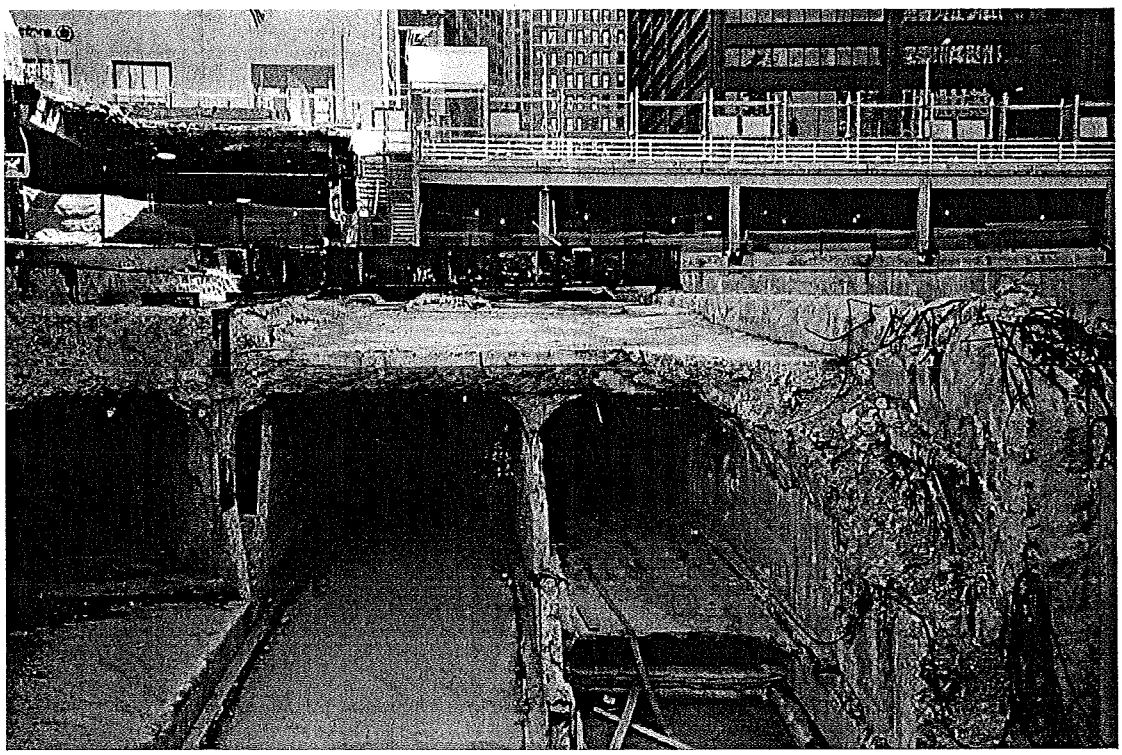


Photograph 1: Excavated "bathtub" area west of Greenwich Street, looking southwest. Covered I.R.T. subway along Greenwich Street in foreground. West Street in background.

Photograph 2: Excavated "bathtub" area west of Greenwich Street, looking northeast. Vesey Street in background.



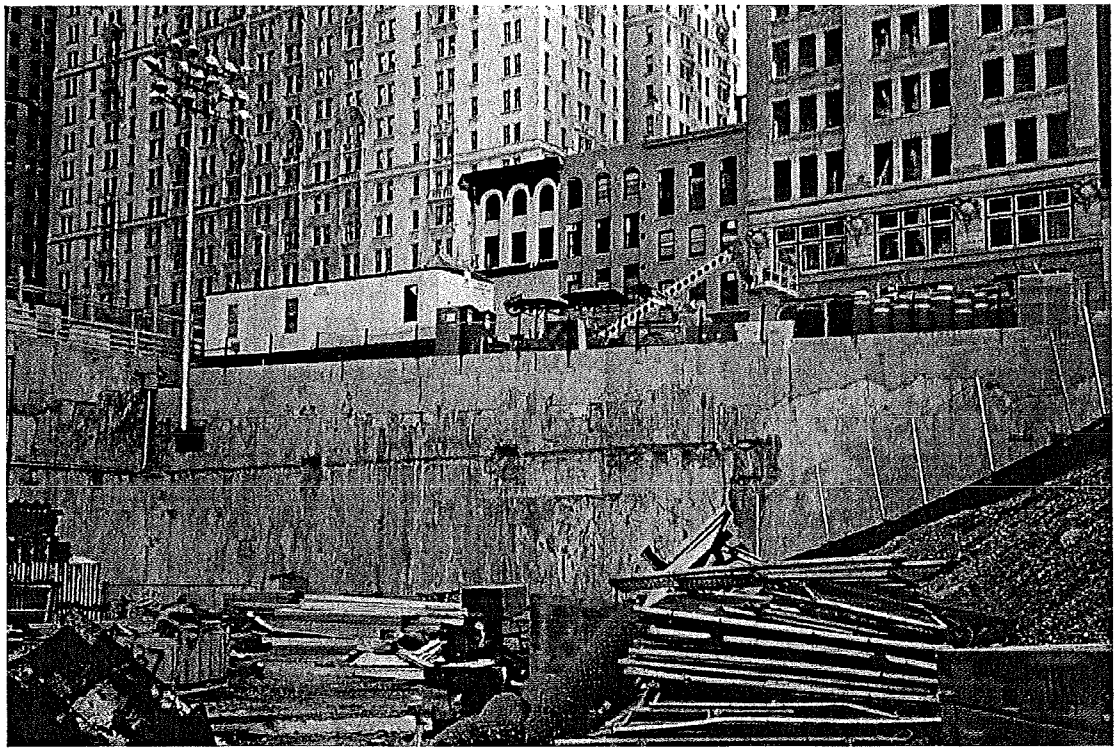
Photograph 3: Covered I.R.T. subway line along Greenwich Street, dividing east and west halves of APE, looking south. Liberty Street in far background.



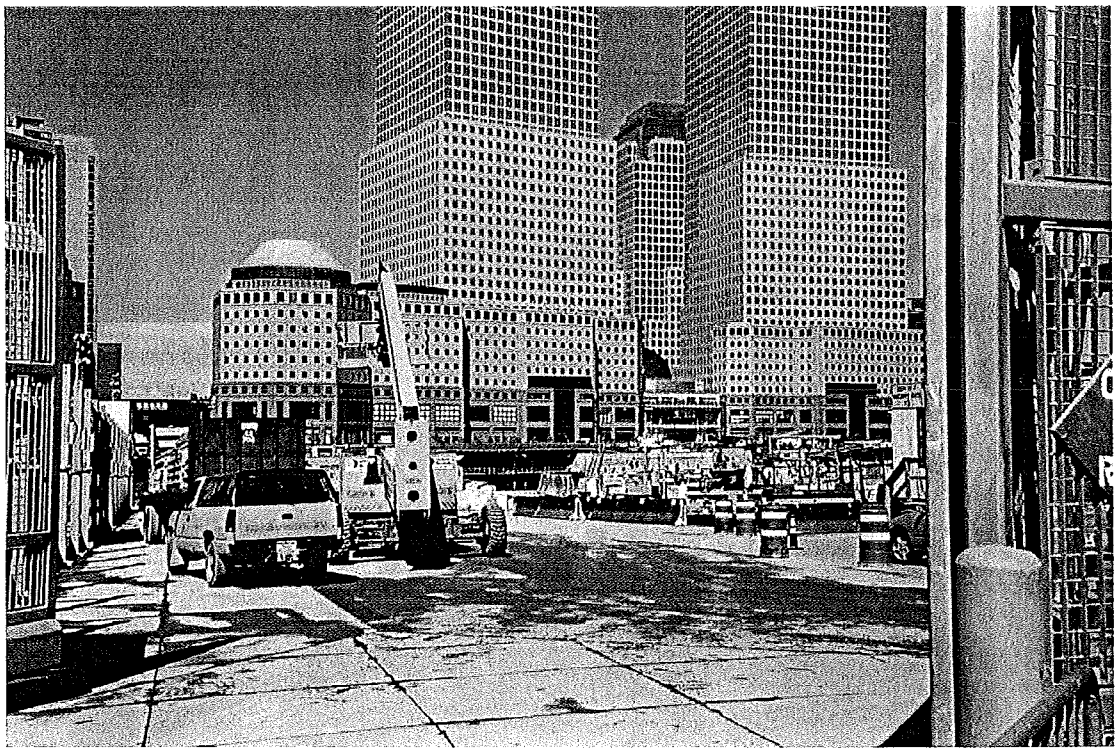
Photograph 4: Former H & M Terminal train tubes, later converted to truck ramps, looking east. Church Street in background.

Photograph 5: Footprint of WTC Building 4, looking southeast. Intersection of Liberty and Church Streets in background.

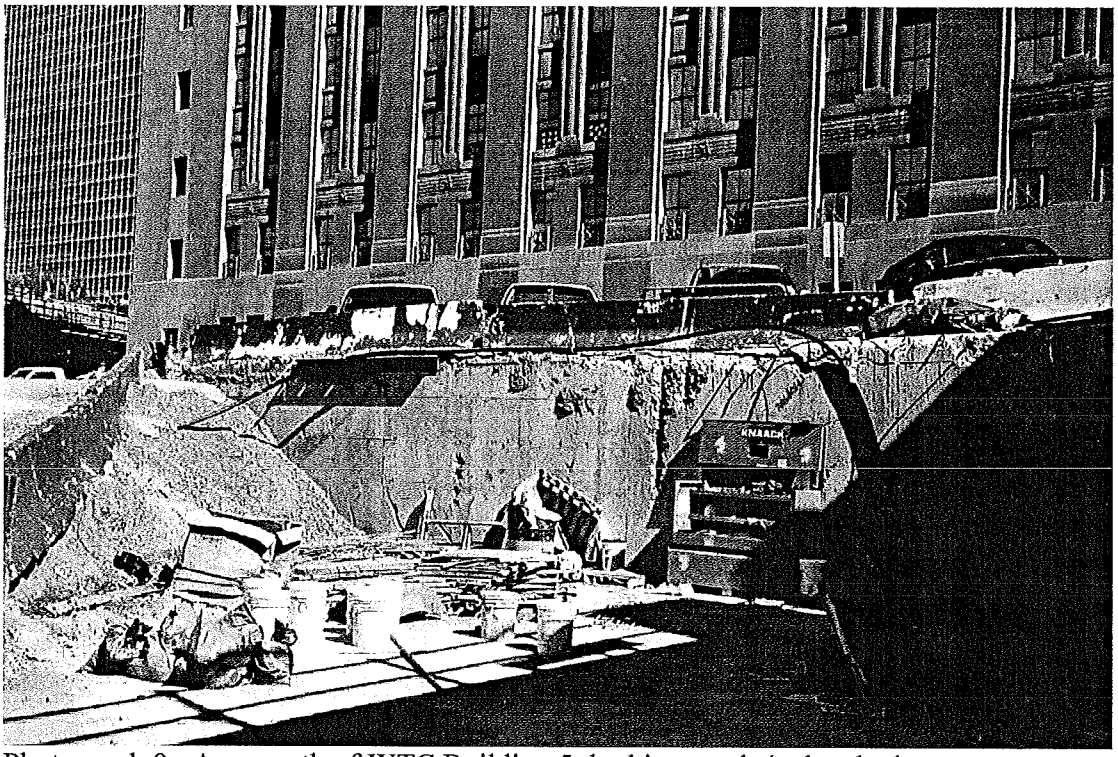
Photograph 6: Footprint of WTC Building 5, looking northeast. Concrete wall is northern extent of building. Intersection of Vesey and Church Streets in background.



Photograph 7: Area south of WTC Building 4 (at level where trailer is located), looking south. Liberty Street in background.



Photograph 8: Area south of WTC Building 4, looking west. West Street in far background.



Photograph 9: Area north of WTC Building 5, looking north (at level where cars are parked). Vesey Street in background.

Photograph 10: Area north of WTC Building 5 (where majority of cars are parked), looking east. Intersection of Vesey and Church Streets in background.

Appendix B-4: **Topic Intensive Archaeological Study: World Trade Center Property**

HISTORICAL PERSPECTIVES INC.

TOPIC INTENSIVE ARCHAEOLOGICAL STUDY

WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PROJECT SITE, BLOCK 58, LOT 1 BOUNDED BY CHURCH, VESEY, LIBERTY AND WEST STREETS

NEW YORK, NEW YORK

TOPIC INTENSIVE ARCHAEOLOGICAL STUDY

WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PROJECT SITE, BLOCK 58, LOT 1 BOUNDED BY CHURCH, VESEY, LIBERTY, AND WEST STREETS NEW YORK, NEW YORK

Prepared For:

AKRF, Inc.
117 East 29th Street
New York, NY 10016

Prepared By:

Historical Perspectives, Inc.
P.O. Box 3037
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Tina Fortugno, M.A.

March 2004

EXECUTIVE SUMMARY

The Lower Manhattan Development Corporation (LMDC) proposes to undertake, in cooperation with the United States Department of Housing and Urban Development and the Port Authority of New York and New Jersey, a World Trade Center Memorial and Redevelopment Plan (the Proposed Action). The project calls for the construction of a World Trade Center Memorial and memorial-related improvements, as well as commercial, retail, museum and cultural facilities, new open space areas, new street configurations, and certain infrastructure improvements at the World Trade Center Site (WTC Site) and the Adjacent Sites including the two city blocks south of the WTC Site and portions of Liberty and Washington Streets (collectively the Southern Site) and possibly below grade portions of Site 26 in Battery Park City.

LMDC is conducting a coordinated environmental review pursuant to the National Environmental Policy Act (NEPA) and the New York State Environmental Quality Review Act (SEQRA). LMDC is preparing a Generic Environmental Impact Statement. In November 2003, Historical Perspectives, Inc. completed a Phase IA archaeological assessment for the WTC Site as part of the environmental review process and to satisfy the requirements of Section 106 of the National Historic Preservation Act. The study was intended to comply with the standards of the New York State Historic Preservation Office (SHPO) (New York Archaeological Council 1994) and the guidelines of the New York City Landmarks Preservation Commission (LPC) (CEQR 2001; LPC 2002). The Phase IA report focused on the WTC Site; a separate study was prepared for the Southern Site.

The WTC Site is known as Block 58, Lot 1, and bounded by Church Street on the east, Vesey Street on the north, Liberty Street on the south, and West Street on the west . All of the buildings formerly on the site were destroyed during terrorist attacks on September 11, 2001, and subsequently, most of the remains of these buildings have been demolished and removed. The Area of Potential Effect (APE), as defined by the Phase IA study, constitutes the footprint of planned construction and disturbance on the site. Because construction plans are still being revised, the APE is considered the entire WTC site.

The Phase IA study divided the WTC APE into of two distinct areas: the portion of the property east of Greenwich Street, which originally was located on firm land above the Hudson River shoreline, and the area west of Greenwich Street, which was once under the waters of the Hudson River. All of the area west of Greenwich Street and large portions of the area east of Greenwich Street have been significantly disturbed by construction and excavation activities, precluding the recovery of any potential archaeological resources in these areas. Due to this obvious disturbance, the Phase IA report concentrated chiefly on those remaining sections that may still have the potential for archaeological resources. These are the southern part of the block once bounded by Liberty, Church, Greenwich, and Cortlandt Streets (former Block 60); and the northern part of the block once bounded by Vesey, Church, Greenwich, and Fulton Streets (former Block 85).

The Phase IA archaeological assessment concluded that there was little likelihood that precontact archaeological resources have survived within the WTC APE east of Greenwich Street, within the two areas of the APE not subjected to excavation as part of the former WTC construction, along Liberty and Vesey Streets. Here, it is probable that original precontact occupation surfaces have been destroyed by former basement construction.

However, the Phase IA archaeological assessment concluded that potential shaft features predating the 1850s (when public water and sewer services became available in this neighborhood) may survive under former basements along areas north of Liberty Street, between Church and Greenwich Streets, and south of Vesey Street, between Church and Greenwich Street. Where former basements were 10 feet below grade or less, there is a good likelihood for preservation of shaft features; the project team assigned these lots a high archaeological sensitivity. Lots with former basements 20 feet or more below grade have a much lesser likelihood of shaft feature preservation, and were assigned a low archaeological sensitivity. Based on these conclusions, Phase IB archaeological field testing was recommended for former lots assigned a high sensitivity within the two areas of the APE considered potentially sensitive. Three lots were given a high sensitivity along Liberty Street (former Lots 5, 6, and 10) and 10 lots were assigned a high sensitivity along Vesey Street (former Lots 8-17). No further archaeological investigations were recommended for those lots assigned a low sensitivity.

The Phase IA archaeological assessment was submitted to the SHPO and the LPC for review. The LPC response, dated December 17, 2003, indicated that additional research was necessary on the lots considered potentially sensitive prior to the agency's review of the Phase IA report. Specifically, the LPC indicated that occupational histories of each lot flagged as highly sensitive would need to be generated. These histories would include review of primary source documents such as conveyance records, tax assessments, censuses, and city directories. Dates of installation for public utilities also would need to be documented. The LPC recently has established thresholds that must be met before a historic lot is to be carried forward for further testing, such as (1) direct association between a specific occupant and a lot over time and (2) lot residency for more than five years prior to the introduction of public utilities.

Archival research conducted for the present Topic Intensive Study concluded that all of the lots recommended as archaeologically sensitive by the Phase IA archaeological assessment had two or more occupancies spanning at least five years (and in most cases, many more years) before the introduction of the first public utilities in 1842. Furthermore, several of the lots on Block 85 also had five-year plus occupancies that extended beyond 1842. On Block 60, the first occupants were identified beginning in the 1790s, and on Block 85, the first occupants were identified beginning in the 1750s. Thus, all eleven of the historic lots appear to retain archaeological sensitivity and are recommended for archaeological field testing.

All archaeological field testing should be conducted according to applicable archaeological standards (New York Archaeological Council 1994; LPC 2002), and in

consultation with the SHPO and the LPC. RPA-certified professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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APPENDIX

FIGURES

1. *Jersey City and Brooklyn Quadrangles, New Jersey and New York.* United States Geological Survey, 1976 and 1979.

2. World Trade Center APE. Sanborn 2001.

3. World Trade Center APE with archaeological sensitivity areas. Sanborn 1951.

I. INTRODUCTION

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The Phase IA archaeological assessment was submitted to the SHPO and the LPC for review. The LPC response, dated December 17, 2003, indicated that additional research was necessary on the lots considered potentially sensitive prior to the agency's review of the Phase IA report. Specifically, the LPC indicated that occupational histories of each lot flagged as highly sensitive would need to be generated. These histories would include review of primary source documents such as conveyance records, tax assessments, censuses, and city directories. Dates of installation for public utilities also would need to be documented. The LPC recently has established thresholds that must be met before a historic lot is to be carried forward for further testing, such as (1) direct association between a specific occupant and a lot over time and (2) lot residency for more than five years prior to the introduction of public utilities. The following Topic Intensive Archaeological Study presents the results of this research.

The HPI project team consisted of Julie Abell Horn, M.A., R.P.A., Nancy Dickinson, Sara Mascia, Ph.D., R.P.A., and Tina Fortugno, M.A., who together conducted the majority of the project research and wrote this report; Betsy Kearns, M.A., R.P.A. who assisted with the research; and Cece Saunders, M.A., R.P.A., who oversaw the research process and provided editorial and interpretive assistance. Christine Flaherty, M.A. prepared the graphics.

II. METHODOLOGY

Preparation of this topic intensive archaeological study involved using documentary, cartographic, and archival resources. Repositories visited (either in person or by using their on-line electronic resources) or contacted included the New York City Register; the Municipal Archives of New York City; the New York Public Library; the New-York Historical Society; the Trinity Church Archives, and the New York Genealogical and Biographical Society.

The following specific resources were consulted:

- Deeds, leases, and other conveyances, available at the City Register and the New York Genealogical and Biographical Society. Summaries of additional transactions were reviewed using tract reports at the Municipal Archives of New York City and in I.N. Phelps Stokes' *The Iconography of Manhattan Island* (1967).

- Leases, indentures, and other documents (for the period of time that portions of the APE were owned by Trinity Church), available at the Trinity Church Archives. Additional information on leases and indentures made by the church was taken from Nan Rothschild's *New York City Neighborhoods: The 18th Century* (1990) and Elizabeth Blackmar's *Manhattan For Rent: 1785-1850* (1989).

  Specific primary sources consulted at the Trinity Church Archives included:

  - 1700-1800s Register of Lots with New Numbers
  - 1750-1766 Original Leases, pages 1-315 [all that are available]
  - 1769-1835 Register of Lots
  - 1767-1794 Rent Roll
  - 1775 Observation on Church Grounds
  - 1781 Observation on Church Grounds
  - 1782 Trinity Church Rent Roll
  - 1784-1826 Sale of Lots
  - 1794 Register of Lots
  - to 1805 Register of Lots (5)
  - to 1815 Register of Lots (5)
  - 1834-1836 Expiration of Leases – Church Farm
  - n.d. Rents of Church Ground
  - n.d. Block 85, Division 1, Block 1 map [includes present tax lot number]
  - n.d. Index of Lessees (Old) (18th/early 19th) [book/page locations unknown]

- Assessment of Real Estate Records (also referred to as tax assessment records), available on microfilm at the Municipal Archives of New York City. Records that list specific house numbers begin in 1807. Earlier records only list properties

by street for this neighborhood, and were of limited utility. Personal taxes, filed in tandem with the real estate taxes, indicate those individuals or businesses that were also occupying the properties.

- New York City Jury Census records for 1816, available on microfilm at the Municipal Archives of New York City. Other New York City Jury Censuses from 1819 and 1821 did not include this ward and so were not consulted.

- Federal Census records (for 1790, 1800, 1810, 1820, 1830, 1840, and 1850) available on microfilm and electronically at the New York Public Library.

- New York City Directories, available on microfiche at the New York Public Library. These directories were reviewed beginning in about 1790; earlier directories do not specify house numbers for this neighborhood and were of limited utility. Of particular value were two "reverse directories," where occupants were identified by location, rather than by name. These directories were published in 1812 and 1851. Because numerous city directories were reviewed for this study, they will be cited as "New York City Directory" with the year. The two exceptions are the reverse directories, which will be cited as Elliot 1812 and Doggett 1851, to distinguish them from the other sources.

- A collection entitled "Surveys of Streets (1780-1800)" that details owners and occupants of certain streets in lower Manhattan, including the APE, available at the New-York Historical Society. Stokes (1967) refers to this collection as part of the "Holden Sale." It has since been reclassified under its current name.

- *Annual Reports of the Croton Aqueduct Department*, available at various repositories (HPI has excerpts on file at its offices), which document dates of installation for sewers in Manhattan. Dates for installation of Croton water pipes within the APE were taken from *Map of the Croton Water Pipes with the Stop Cocks* (made in ca. 1842), on file at the New-York Historical Society and reprinted in *Manhattan in Maps* (Cohen and Augustyn 1997:119).

Additionally, comparative archaeological studies from New York City and other urban locations were reviewed in order to place the results in their proper context.

III. RESULTS

A. Block 60 Early History

Beginning with the European occupation, the project area was farmland and remained so into the at least the 1680s. In the 1620s and 1630s, the Dutch West India Company encouraged the settlement of New Amsterdam by offering leases and land grants for "bouweries", and Jan Jansen Damen was granted property in the project area in 1644 (R.D. Map 351, Plate 1; Tract Report 935; Stokes 1967, Vol. VI:86).

Some time after Damen's grant, but before 1686, land on the southern half of Block 60 was conveyed to William Dyre and his wife, Mary Dyre (Liber 13, 1686:202 in Tract Report 934; Stokes 1967, Vol. VI:86). A conveyance from 1686 identifies the Dyres as the grantors and Thomas Lloyd as the grantee (Ibid.). Thomas Lloyd's tract of land abutted Peter Mesier's land, which included the northern portion of Block 60 (Tract Report 941). The conveyance to Thomas Lloyd listed his northern boundary as "...beginning at the corner of the way or passage which leads to the mill of Peter Jansen Mesier, and so going south...." (Liber 13, 1686:202 in Tract Report 935). The way or passage noted appears to be the "Old Wind Mill Lane" on the Lyne-Bradford Plan of 1731 (Cohen and Augustyn 1997:55). Thus, Thomas Lloyd held roughly the southern half of Block 60, while Peter Mesier held roughly the northern half. Of note, Peter Mesier's windmill, which has been identified by LPC as a potentially sensitive archaeological resource within former Block 60, appears to be north of the Liberty Street lots addressed here (LPC 1982:Appendix 9). The windmill is depicted on several early historic maps (Miller 1696; Lyne-Bradford 1731).

In 1692 Crown Street (now Liberty Street), the southern boundary of Block 60, was laid out (Stokes 1967, Vol. VI:592). Crown Street appeared on the Miller Plan, which was drawn from memory in 1696 and depicted 1695 colonial New York (Cohen and Augustyn 1997:52-53). Of note, two structures and a garden are depicted on this map near the southeastern end of what would become Block 60, although it is unclear who occupied this plot, or whether there was any overlap with the current Liberty Street lots. Considering the Miller Plan was drawn from memory and not using a ground survey, the exact location of this small plot is probably not precise.

It is not known when Block 60 was first divided into city lots, but there are conveyances referred to for "not-lotted" parcels on Block 60 as early as 1706 (Liber 26, 1707:204). After Thomas Lloyd's death (late of Philadelphia [Liber 23, 1699:126]), his tract of land may have been divided when his daughter, Elizabeth, appeared as grantor and quit claimed to John Rodman and William Huddleston, grantees, five parcels of land that included the project area (Liber 23, 1698:125 in Tract Report 934). It is likely that after these conveyances, the first structures were built along the north side of Crown (Liberty) Street. The Lyne-Bradford map of 1731 clearly depicts several buildings within the Liberty Street portion of the APE, although their exact locations, sizes, and functions are unclear. Similarly, the occupants of these properties are unknown.

Of note, a map accompanying a predictive model generated by LPC identifies a potentially sensitive archaeological resource on Block 60 beginning in this period, Livingston's Sugar House, located at 28-36 Liberty Street from 1754-1840 (LPC 1982:Appendix 10). However, this map appears to be in error, as both the address on Liberty Street and other archival records place the sugar house more than two blocks to the east of Block 60, on the south side of Liberty Street, east of Nassau Street (Stokes 1967, Vol. III:963).

Determining the owners of the Liberty Street lots during the remainder of the eighteenth century, much less the names of those who lived and/or worked on the parcels, has been limited by the breaks in the records for the chain of title and the absence of a series of city directories that cover this neighborhood, particularly for the seventeenth and the first half of eighteenth centuries.[1] After Elizabeth Lloyd's 1698 conveyances, the earliest transactions gleaned from available records at the City Register indicate that Lot 5 was conveyed sometime before 1786; Lot 6, before 1792; and Lot 10, before 1768.

The 13 conveyances for the "not lotted" parcels on Block 60 for the time period between 1686 and 1773 are difficult to match up with later city lots, yet there may be a connection between

> *all that certain dwelling house and parcell of land...bounded East by land now or late of Stephen Richard; North by land now or late of Peter Jansen Masier; West by land now or late of John Hutchins; South by Crown Street...* (Liber 35, 1759:293)

and Lot 10. The 1759 indenture lists James Wells of the City of New York, "Corderwainer," and his wife, Ann, as the grantors to David Allgeo of the City of New York, Merchant. Allgeo paid £1010, current New York money, for the lot, which was 50x110 feet, all English measure. The lot dimensions work well with the size of Block 60's Lot 10. This 1759 transaction appears to precede the 1768 conveyance, the result of David Algeo's will being filed, in which Lot 10 was granted to his grandsons, David and William Algeo. It is risky to connect any other of the "not lotted" parcels with Block 60's Lots 5, 6, and 10, especially since there are no city directories that can place a particular name on a specific lot between the late seventeenth century and the late eighteenth century.

B. Block 60 Individual Lot Histories

The following section details the specific histories of the three lots (Lots 5, 6, and 10) along Liberty Street recommended as archaeologically sensitive in the Phase IA study (Abell Horn 2003). Tables for each lot summarizing deed, tax, census, and city directory data are included in Appendix 1. Those individuals or businesses that occupied the lots are shown in boldface type. The lot histories were researched from the time of their

[1] According to the City Register's Grantor/Grantee Index for Block 60 there are no Instruments of Record for the years 1654-1685; 1687-1698; 1701-1706; 1708-1717; 1719-1759; 1761-1763; 1765-1772; and 1774-1783.

initial use and/or development to the approximate years when public water and sewers became available, which marks the end of the period when shaft features (such as wells, cisterns, and privies) are expected to have been in use on the properties, according to LPC. The entire block was supplied with piped Croton water by 1842 (Cohen and Augustyn 1997:119). Sewers were installed under Liberty Street in 1845 and under Greenwich Street in 1853 (Croton Aqueduct Department 1857:121, 123).

Lot 5

Historic Lot 5 was located on the northern side of Liberty Street. The Lot measured 25 feet 3⅞ inches wide and was roughly 100 feet 4 inches deep. From its first development, Lot 5 was known as 113 Liberty Street.

Although Lot 5 was included in various land transactions, and was identified as a city lot by the eighteenth century, available archival records do not indicate names of any tenants or occupants until the early 1800s, when the first residents were noted for the property. In 1807, the first year tax records were filed that specifically listed the Lot 5 address (113 Liberty Street), John Boorman was listed as the occupant. Boorman apparently only stayed on the lot for two years; however, the next known occupant, John Labaugh, lived on Lot 5 from 1810 through 1823 (Assessed Valuation of Real Estate). Labaugh was a stonecutter and a fireman; his household included four additional white males and four white females during the 1810s (NYC Jury Census 1816; Federal Census 1820). After Labaugh vacated the property, it was occupied for three years by a J. Smith, from 1826-1828 (Assessed Valuation of Real Estate).

Through most of the 1820s, the occupants of Lot 5 all had been renters; however, the second long-term occupant of Lot 5 was also its owner. Gurdon Buck acquired Lot 5 in 1820, and by 1829, had moved onto the property (Liber 148, 1820:65; Assessed Valuation of Real Estate). Buck was a merchant who worked on South Street. His business was listed for a time as "Gurdon Buck and Son" (New York City Directories 1830-1841). The Lot 5 property appears to have been used by Buck and his family (the 1820 Federal Census indicated his household contained three additional white males and seven white females) as their residence through 1840 (New York City Directories 1830-1841). The last year Buck was noted on Lot 5, two other merchants were listed in the tax records as living there as well (Assessed Valuation of Real Estate).

By 1841, Buck and his family appear to have vacated Lot 5. A chancery court case, in which Buck was a defendant, seems to have stripped him of his property in 1844, when the title of the lot went to a new owner (Liber 445, 1844:478). From the 1840s onward, the lot seems to have been home to a variety of short-term tenants, generally with at least two households occupying the lot at a time. The last recorded occupants, from 1850, may also have been conducting a mercantile business on the property (Assessed Valuation of Real Estate; New York City Directories 1841-1855).

Lot 6

Historic Lot 6 was located on the northern side of Liberty Street. The Lot measured 25 feet three inches wide and was 100 feet 7 inches deep. From its first development, Lot 6 was known as 115 Liberty Street.

Lot 6 also was lotted by the eighteenth century, and an 1807 deed indicates it had been conveyed to John Peers at an unknown date, although the actual conveyance could not be located (Liber 76, 1807:239). By at least 1792, the property was owned by John Gosman, but it does not appear he lived on the property, and no other tenants could be found in archival records for this period (Survey of Streets 1780-1800, Folder 34).

The first documented resident on Lot 6 was Joshua Horten Megie, a cartman, who was noted at 115 Liberty Street by 1798, and continued to be listed (sometimes as Joshua McGee or Harlan Megie) on the property until 1808 (New York City Directories 1798-1808). Several other people were listed at the address in addition to Megie during this span, although none stayed for more than two years. During the 1810s, the property was home to a series of short-term occupants, again with none staying more than two years (New York City Directories 1810-1820).

In 1821, John Gelston moved onto Lot 6, and stayed there through 1828 (Assessed Valuation of Real Estate). Although his occupation is unknown, it is likely Gelston was a merchant, as his business address was on Broad Street, where a number of other stores and businesses were located during this period (New York City Directories 1821-1829). Gelston used the Lot 6 property as his residence; no other people were listed in the tax records during Gelston's stay on the lot, suggesting that he and his family were the sole occupants (Assessed Valuation of Real Estate).

After John Gelston moved from Lot 6, Joseph Otis occupied the property from 1829-1831 (Assessed Valuation of Real Estate). Like Gelston, Otis may have been a merchant, as his business address was on South Street, another mercantile center at the time (New York City Directories 1829-1831). Otis also used the property as his residence, and no other occupants were noted during his stay (Assessed Valuation of Real Estate).

During the 1830s through the 1850s, Lot 6 was home to a variety of tenants, but only a few of them could be documented in archival records. Based upon the few names that could be located, it appears the lot supported several families at any given time, and by the 1850s, possibly several businesses as well (Assessed Valuation of Real Estate; Federal Census 1850; Doggett 1851). During the entirety of the Lot 6 occupational history, records indicate that the owners of the lot never lived on the property (Assessed Valuation of Real Estate).

Lot 10

Historic Lot 10 was located at the northeast corner of Greenwich and Liberty Streets. The Lot measured 36 feet 8 inches on the south (Liberty Street) and 50 feet on the north;

it was 102 feet 11 inches deep along Greenwich Street. From the 1790s-1820, the Lot was known as 135-139 Greenwich Street, after which it became 147-151 Greenwich Street.

Lot 10 was conveyed in several transactions during the eighteenth century, although it is unclear if any of the owners lived on the property. The lot was divided into two parcels, though: the northern section measured 25 feet north-south and the southern section measured 81 feet north-south. By 1792, a deed from George Lindsay, a stonecutter, to Robert Hunter, a merchant, notes that southern section of the property had a dwelling house located on it, indicating that this end of the lot had been occupied by someone prior to this date, albeit of unknown identity (Liber 48, 1792:12).

Despite purchasing the southern portion of Lot 10 in 1792, the Hunter family did not move onto the lot until about 1799 (New York City Directories 1797-1799). By this time, the lot was divided into three separate addresses: 135, 137, and 139 Greenwich Street. From 1799-1806, the Hunter family (now consisting of George Hunter, John Hunter, and Ruth Hunter, Robert's widow) occupied 135 and 137 Greenwich Street, the southern two addresses, while renters occupied 139 Greenwich Street, which was the northernmost address (New York City Directories 1799-1806). From 1798-1800, Thomas Meeks, listed first as a mason and then as a grocer, was the tenant at 139 Greenwich Street (New York City Directories 1798-1800). From 1805-1813, Thomas Brown, another grocer, and his family rented 139 Greenwich Street. One family member, Mary Brown, was a mantua maker.

The Hunter family vacated the southern two addresses of Lot 10 after 1806 (New York City Directories 1805-1806; Assessed Valuation of Real Estate). From 1807-1812, these houses were occupied by a variety of tenants, with 135 Greenwich Street possibly containing a boarding house (tax records indicate a Widow McKenzie paid the real estate taxes for the address but did not live there, yet a number of unrelated men were living on the property) (Assessed Valuation of Real Estate). From 1808-1812, a single tenant, Gabriel V. Ludlow, a counsellor, occupied the middle address on the lot (New York City Directories 1808-1812; Assessed Valuation of Real Estate).

In 1811, Robert Hunter, Jr. moved back to his family's property on Lot 10. He is listed in 1811, and continuing through 1817, first as the occupant of 135 Greenwich Street (the southernmost address), and then 137 Greenwich Street, the middle address on the lot (Assessed Valuation of Real Estate). In 1812, Robert Hunter's widow Ruth, who since leaving the property had remarried (and then likely was widowed again), moved back onto Lot 10 as well. Through 1824, Ruth Broome was listed as the owner and occupant of 135 Greenwich Street (after 1821 renumbered 147 Greenwich Street), the southernmost of the three addresses on the lot. From 1810-1815, Francis Sennes, a fruiter, was also listed at 135 Greenwich Street (Sennes had actually moved onto the property prior to the return of the Hunters) (New York City Directories 1810-1815; Assessed Valuation of Real Estate).

After 1824, although the Hunters continued to own the southern portion of Lot 10, none of them lived there. Rather, the houses on the lot were rented to a variety of tenants, few of whom could be traced in the archival records for more than a year or two at a stretch. Meanwhile, the northern portion of the lot had been acquired by the Gill family by at least 1817 (although no conveyance could be found to document the transaction), and also continued to be rented out to mostly unknown tenants (Assessed Valuation of Real Estate). In 1835, the Hunters appear to have lost ownership of their holdings on Lot 10, due to debts incurred by the husband of one of the Hunter daughters, and the property was then managed by various agents (Liber 340, 1835:34, 36). In 1845, Theophilus A. Gill acquired the last of the Lot 10 holdings once controlled by the Hunters, so that he now owned the entire lot (Liber 457, 1845:129).

Tenancy for Lot 10 is unclear after the 1820s, when the Hunter family moved from the lot. Few occupants could be found in the archival records, although it appears that the property was in fact occupied, perhaps in part by businesses rather than residents, which might explain part of the difficulty in locating names. The 1850 federal census and the 1851 reverse city directory (Doggett 1851) both indicate that the lot was occupied by a number of residents and businesses, although tracing these names backward in time revealed that most of them only occupied the property for very short terms.

C. Block 85 Early History

Beginning with the European occupation, the project area was farmland and remained so until the 1750s. In the 1620s and 1630s, the Dutch West India Company encouraged the settlement of Manhattan by offering leases and land grants for "bouweries" (R.D. Map 351). Upon the shift from the colonial town's name of New Amsterdam to that of New York, the English Crown, who had purchased the bouwery, renamed it the King's Farm, and then the Queen's Farm upon the ascension of Anne to the throne (Schine 2002). In 1697, the Crown leased the King's Farm to Trinity Church (Stokes 1967, Vol. VI:79-80; Schine 2002:4; R.D. Map 353). In 1705, Queen Anne gave the Queen's Farm to Trinity Church, renaming it the Church Farm. Block 85 lay entirely within the Church Farm (Block Indices of Reindexed Conveyances 1917).

The ten lots on the Vesey Street side of Block 85 within the APE were in the southern part of Trinity Church's Church Farm. Vesey Street, named after the first Rector of Trinity Church, appears first on Maerschalck's Plan of 1754 (Cohen and Augustyn 1997:65). According to Gwynedd Cannan, Archivist at Trinity Church Archives, the earliest leases available (1750) for the blocked and lotted Trinity Church Farm parcels on Vesey Street corroborate the map evidence. These original leases were for up to 21 years in length. In the block to the east across the street from the Vesey Street lots, St. Paul's Chapel was erected in 1764. It makes sense that the residences and work places on Vesey Street would have preceded the building of the chapel and burial ground.

Trinity Church owned the Vesey Street lots on Block 85 from 1705 until at least 1815, and perhaps some lots until 1904. During that time Trinity Church was the lessor of the lots to various people for anywhere from a 10-year to a 99-year lease. The lessees had

several options. They could live and work on their lot(s). In many cases, they could sublet their lot(s). They could also relinquish their lot(s) before the end of the lease (and Trinity Church would then lease the lot(s) to another person). They could lose their lease(s) should they be in arrears for their annual rent due each March 25 (and Trinity Church would again lease the lot(s) to another person). Thus, within any lease there may have been several different surnames identified with the lot(s).

According to the available land records, for the 100 years between 1750 and 1850, the ten lots on Vesey Street within the APE appear to have served as a way for either Trinity Church, artisans and craftsmen, including women (see Lots 13 and 14) as well as gentlemen and merchants to participate as lessors or lessees, rather than as grantors and grantees, in a growing real estate market, as a way to accumulate capital and credit.

HPI is confident that, by and large, the original 1750s and 1760s leaseholders were the occupants of the ten Vesey Street lots within the APE during the period 1750-1766, and in some cases perhaps longer. A house carpenter, a gardener, a silversmith, a "free negro woman," and another woman were among the original leaseholders of the Vesey Street Church Farm lots. Both Blackmar (1989) and Wilentz (1984) discuss the advantages of lot leasing for artisans, craftsmen, and women.

According to the original indentures, these leaseholders maintained their lots during the 1750-1766 time period without having other people as sub-lessees. Of the ten lots involved, all but one lot (Lot 15, see table) was leased to only one leaseholder during the 1750-1766 time period. John Hendrick Gauthor stayed the leaseholder of Lot 15 for two years of his 21-year lease, after which David Brewer had a 17-year lease for Lot 15. So far as can be determined, during the 1750-1766 time period there was a stable occupancy in terms of leaseholders for the Vesey Street lots in the APE.

The conservative date of 1766 is used as the end date for these initial leases, instead of the 1771 or 1775 date (which would represent the full term of the leases), because the records for Trinity Church's Church Farm original leases end in 1766. Other information concerning leases derives from rent rolls, auction sales, and the like, but not from the indentures themselves. During the 1750-1766 time period, all but three leaseholders were identified with their leased lot(s) for more than five years, as shown in the following table.

Lot	Occupant[2]	Occupation	Lease length	Years on the lot[3]
8	Johannes Ackerman		21	7 (1759-1766)
9	David Brewer	house carpenter	21	7 (1759-1766)
10	Jacobus Ver Veelen		21	7 (1759-1766)
11	John Bradburn		21	8 (1758-1766)
12	Jacobus Ver Veelen		21	8 (1758-1766)
13	Catherine Miller	free negro woman	11	5 (1761-1766)
14	Catherine Francis		21	8 (1758-1766
15	John Hendrick Gauthor		21	2 (1760-1762)
15	David Brewer	house carpenter	17	4 (1762-1766)

[2] This information is derived from the extant three volumes of Trinity Church's original leases, 1750-1766.
[3] The conservative end date of 1766 is given because the original leases available end in 1766.

Lot	Occupant[2]	Occupation	Lease length	Years on the lot[3]
16	Godfrey Wall	gardner	21	**16** (1750-1766)
17	Godfrey Wall	gardner	21	**16** (1750-1766)
18	George Young	silversmith	21	**16** (1750-1766)

During the period that Trinity Church owned the Church Farm lots, two rough time periods are evident in which lessees tended to sublease their lots. From 1750 to 1766, and probably to the end of several of the 21-year leases in 1771, lessee-occupants appear to have periodically subleased the lots. Three of these instances are shown in the above table. The second period began in the early 1780s and continued to 1836 and, in some cases, to 1904. In this period the lessees acted as absentee landlords (although technically they were lessees themselves) who subleased the lots they had, in turn, leased from Trinity Church.

In the following individual lot histories, the records at the Trinity Church Archives serve as the primary documents for the first period (1750-1766). City directories, which began in 1786, serve to document the people who lived and worked on the Vesey Street lots on Block 85, all within the WTC APE during the second period (1780-1850).

D. Block 85 Individual Lot Histories

The following section details the specific histories of the ten lots (Lots 8-17) along Vesey Street recommended as archaeologically sensitive in the Phase IA study (Abell Horn 2003). Of note, an eleventh lot (Lot 18) is also included here, as the western portion of it now is included in modern Lot 17. Tables for each lot summarizing deed, tax, census, and city directory data are included in Appendix 1. Those individuals or businesses that occupied the lots are shown in boldface type. The lot histories were researched from the time of their initial use and/or development to the approximate years when public water and sewers became available, which marks the end of the period when shaft features (such as wells, cisterns, and privies) are expected to have been in use on the properties, according to LPC. The entire block was supplied with piped Croton water by 1842 (Cohen and Augustyn 1997:119). Sewers were installed under Vesey Street in 1854 (Croton Aqueduct Department 1857:128).

Lot 8

Historic Lot 8 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 49. The lot measured roughly 25 feet on the north (Vesey Street) and on the south; it was approximately 81 feet 3 inches deep. From 1800 until the mid-1810s, Lot 8 was known as 53 Vesey Street, after which it became 55 Vesey Street.

In 1759 Johannes Ackerman's name appeared on an indenture with a 21-year lease. Ackerman was probably on the lot for no more than 16 years. In 1775 he was no longer there, and between 1775 and 1781, the lot was vacant. Between that time and 1792, there were three sets of lessees for Lot 8. In 1792 Simon Van Antwerp's name appeared on an indenture with a 21-year lease, which, if he were to have remained the lessee, he would have been on the Trinity Church Rent Roll until 1813. This was not the case. Between

1792 and 1805, three different men were lessees of Lot 8, and in 1805 L. Lispenard was given a 99-year lease. These multiple leases for the same lot suggest that there were a series of absentee landlords. None of these people appeared to have been occupying the lot.

After Johannes Ackerman's initial lease of Lot 8, the property seems to have been vacant for periods during the 1780s and 1790s, despite the notation of lessees, and then a series of short-term tenants appear to have occupied the property during the late eighteenth century. These included George Sutton, a broker, in 1794; Thomas Greswold, a distiller, in 1795-1796; and Amelia Holden, who had a boarding house, in 1800 (New York City Directories 1794-1801). After the turn of the nineteenth century, other short-term tenants included John Dover in 1808; Benjamin and Henry Stagg in 1809; and Jothan Smith, Samuel Gruman, and Thomas Jones in 1810. Jothan Smith stayed on the lot until 1812; the others were only documented for one year (Assessed Valuation of Real Estate).

Beginning in 1812, the first occupant to remain more than two years appeared on the property. Andrew Raymond, an attorney, leased the lot from Trinity Church in this year, and maintained a household on the property (which included another white male and two white females) through 1817 (Liber 313, 1812:395; Assessed Valuation of Real Estate; NYC Jury Census 1816; Elliot 1812). After Raymond's departure, William Dodge, a coal merchant, lived on the lot for three years, from 1818-1820 (Assessed Valuation of Real Estate; New York City Directories 1818-1820). Dodge's household included nine white males, five white females, and one female slave (Federal Census 1820).

In 1823, the firm of John Connor and Jacob Van Winkle, auctioneers, began occupying Lot 8 (Assessed Valuation of Real Estate). Connor and Van Winkle had received a lease of the property from Trinity Church in 1812, but may have assigned this lease to Raymond instead. Neither Connor nor Van Winkle lived on Lot 8 (as opposed to Raymond and Dodge, who did), but rather ran part of their auctioneering business on the property. The two men are listed variously as having their business at this address from 1823-1834, but also appear to have maintained another business addresses at 63 Vesey Street, four doors to the west, near the corner of Greenwich Street.

In 1834, Connor and Van Winkle assigned their lease of Lot 8 to John Morrison, who in turn assigned it to Leonard Gordon, a cordials distiller (Liber 313, 1834:395; Liber 313, 1834:397). From 1834 through 1855 (the last year that was researched for this property), Lot 8 was occupied by Leonard Gordon, and later Philip Gordon, who were listed variously as distillers, cordials distillers, and manufacturers of cordials and syrups (lemon and raspberry syrups, specifically) (New York City Directories 1834-1855). Neither of the Gordons lived on the property, but rather appear to have used the lot strictly for business.

Lot 9

Historic Lot 9 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 48. The lot measured roughly 24 feet 8 inches on the north

(Vesey Street) and on the south; it was approximately 81 feet 5 inches deep. From its first development until the mid-1810s, Lot 9 was known as 51 Vesey Street, after which it became 53 Vesey Street.

In 1759 house carpenter David Brewer's name appeared on an indenture with a 21-year lease. Brewer was probably on the lot for no more than 16 years. In 1775 he was no longer there, and between 1775 and 1781, the lot was vacant. Meanwhile, in 1773 Thomas Lincoln appears to have received a 63-year lease from Trinity Church for Lots 8-12 (the expiration date is noted in the records, although the original lease is not). It is unclear how long Lincoln actually kept this lease. By 1787, there were two new lessees for Lot 9. One, Cornelius Ray, had probably bought the lease at auction, with the intention to lease it to others, paying rent to Trinity Church while receiving rent from another lessee, William McKenny.

It becomes confusing when, in 1792, in the City Register conveyances, Gabriel Verplanck Ludlow, a Gentleman (and Trinity Church Vestryman [1771-1784]) was the grantor to Cornelius Ray, the grantee, for a conveyance of "two certain Lots of Ground", that is, Lots 9 and 10 on Block 85 (Liber 47, 1792:459). Yet Trinity Church records indicate that the church continued to lease the lot, first in 1796 with a ten-year lease, then again in 1810 with a 99-year lease. The 1796 lessee, John Griswold, had a ten-year lease for all the lots facing Vesey Street in the APE (Lots 8 through 17). The 99-year lessees, Lispenard and Stewart, had 99-year leases for Lots 9 through 12.

Land conveyances for 1833 in the City Register list the executors of Cornelius Ray as the grantor to the grantee, John C. Morrison. Again, Trinity Church continued to lease the lot, at least until 1836 when Thomas Lincoln's lease expired. Lincoln's leases expired in 1836 for Lots 8 through 12. These multiple leases for the same lot suggest that there were a series of absentee landlords. None of the lessees could be confirmed as occupying the lot.

After David Brewer's initial lease of Lot 9, the property seems to have been vacant for periods during the 1780s and 1790s (one leaseholder, William McKenny, may have briefly lived on the property in 1787, although this could not be confirmed). The first known occupants of Lot 9 appeared in 1795. These were John Hallam, a saddler, and John Haswell, a carman, both of whom appear to have only stayed on the lot for that year (New York City Directories 1795). From 1796-1798, Mrs. Eleanor Ray (perhaps a relative of leaseholder Cornelius Ray) was listed as the occupant of the property (New York City Directories 1796-1798). In the final few years of the eighteenth century, the occupancy of the lot is unclear.

In 1800, however, the first slightly longer-term resident moved onto Lot 9. This was Samuel Moore, who appears to have run a boarding house on the lot through 1806. A number of other residents were listed in the 1800 Federal Census, including Isaac Johnson and James Moncriesse, both ship carpenters (New York City Directories 1800). After Moore's tenancy, Benjamin Gilmore, a merchant, was noted on the property for 1807 and 1808 (Assessed Valuation of Real Estate).

In 1809, Joseph Burjeau moved onto Lot 9, and stayed until 1820 (Assessed Valuation of Real Estate; Federal Census 1810, 1820; NYC Jury Census 1816; New York City Directories 1809-1820). At least for a time, Burjeau was listed as a member of the military. His household included another white male and two white females in 1810, and a third white female by 1816. During his occupation of Lot 9, there were usually two other households sharing the property, although none (except William Shaw, from 1820-1824) stayed for more than two or three years at a stretch (Assessed Valuation of Real Estate; New York City Directories 1809-1820; Federal Census 1820).

Once Joseph Burjeau moved from Lot 9 in 1820, occupancy of the property becomes less clear. Through 1830, a series of tenants continued to live on the lot, although again none stayed for more than a few years. During the 1830s and 1840s, no occupants could be located for the lot. It is possible that during this time the property shifted from being strictly a residence to the location of businesses, which are more difficult to trace in archival records. By 1850, the lot was home to Charles Lalin, who in that year is listed as having a boarding house and in 1851 was noted as running a porter house (New York City Directories 1850; Doggett 1851). Henry Ludwig briefly operated a printing business on the lot as well (Doggett 1851). Of note, during the entire history of Lot 9, Charles Lalin was the only confirmed occupant who also was a leaseholder or owner. All the other occupants on the property were renters.

Lot 10

Historic Lot 10 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 47. The lot measured roughly 25 feet 2 inches on the north (Vesey Street) and on the south; it was approximately 81 feet 4 inches deep. From the 1790s until the mid-1810s, Lot 10 was known as 49 Vesey Street, after which it became 51 Vesey Street.

In 1759 house carpenter Jacobus Ver Veelen's name appeared on an indenture with a 21-year lease. The previous year he had also leased Lot 12 for 21 years. Ver Veelen was probably on the Lot 10 for no more than 16 years. In 1775 he was no longer there, and between 1775 and 1781, the lot was vacant. Several years earlier, though (in 1773) Thomas Lincoln appears to have received a 63-year lease from Trinity Church for Lots 8-12 (the expiration date is noted in the records, although the original lease is not). It is unclear how long Lincoln actually kept this lease. In 1782 W. Wighton was on Lot 10 without a lease. As was the case for Lot 9, by 1787, there were two lessees for Lot 10. Similar to Lot 9, Cornelius Ray had probably bought the lease at auction, with the intention to lease it to others, paying rent to Trinity Church while receiving rent from another lessee, William McKenny, who was given a 30-year lease.

Like Lot 9, Lot 10 was included in the 1792 conveyance of Gabriel Verplanck Ludlow to Cornelius Ray (Liber 47, 1792:459). Again, though, Trinity Church records indicate that the church continued to lease the lot(s), first in 1796 with a ten-year lease (John Griswold, as above), then again in 1810 with the 99-year lease to Lispenard and Stewart.

Trinity Church continued to lease the lot, at least until 1836 when Thomas Lincoln's lease expired. These multiple leases for the same lot suggest that there were a series of absentee landlords. None of the lessees could be confirmed as occupying the lot.

After Jacobus Verveelen's initial lease of Lot 10, the property seems to have been vacant for periods during the 1780s and 1790s (one leaseholder, William McKenny, may have briefly lived on the property in 1787, although this could not be confirmed). By 1799, city directories indicate one or two year long occupants for Lot 10, including merchant Isaac Riley, Isaac Jones, Isaac and Catharine Cox, and several women from the Beekman family (New York City Directories 1799-1800). The Widow Nicholson was listed as an occupant in 1807 (Assessed Valuation of Real Estate).

From 1808-1810, Peter and Robert Ludlow occupied the property. The 1810 Federal Census indicated this household included eight white males, three white females, and one slave. Henry King, a merchant, occupied the property from 1812-1817; his household included two white males, six white females, and two female slaves (Assessed Valuation of Real Estate; NYC Jury Census 1816; New York City Directories 1812-1817).

Following Henry King, the property was occupied for short periods by Henry Lott (1818-1819), Sarah Gunn (who had a boarding house in 1820), M. Deposway (1821-1822), Michael and P. Dykers (1824-1827), Mrs. Crygier (1830), and Lewis Forman (1830-1831) (Assessed Valuation of Real Estate; Federal Census 1820; New York City Directories 1818-1831).

In 1833, the Executors of Cornelius Ray, the original leaseholder of the property, conveyed Lot 10 to druggist John C. Morrison (Liber 298, 1833:155). Morrison in turn conveyed this land to William Post, a business partner (Liber 312, 1834:374). In 1840, Post turned over the lot to trustees for several of the former firm's children, including William Post, Jr., Christian Morrison, and Sarah Morrison (Liber 407, 1840:530). By 1837, however, Christian Morrison, who now worked in his father's drug business, had begun to live on Lot 10. Christian Morrison kept his residence on Lot 10 through 1851 (Assessed Valuation of Real Estate; New York City Directories 1837-1850; Doggett 1851). In 1850, his household included himself (then 40 years old) his wife, three children, and three unrelated females (Federal Census 1850). No residents could be traced for Lot 10 after Christian Morrison's departure in 1851.

Lot 11

Historic Lot 11 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 46. The lot measured roughly 24 feet 11 inches on the north (Vesey Street) and on the south; it was approximately 81 feet 3½ inches deep. From the 1790s until the mid-1810s, Lot 11 was known as 47 Vesey Street, after which it became 49 Vesey Street.

In 1758 house carpenter John Bradburn's name appeared on an indenture with a 21-year lease. Bradburn was probably on the lot for no more than 17 years. In 1775 he was no

longer there, and between 1775 and 1781, the lot was vacant. In 1773 Thomas Lincoln appears to have received a 63-year lease from Trinity Church for Lots 8-12 (the expiration date is noted in the records, although the original lease is not). It is unclear how long Lincoln actually kept this lease. In 1782 W. Wighton was on Lot 11 as well as on Lots 10 and 9, without a lease for any of the lots.

In 1787, John Sullivan seems to have bought a lease at auction, with the intention to lease it to others, paying rent to Trinity Church while receiving rent from another lessee, Richard Westervelt, who was given a 21-year lease by Trinity Church in 1788. The notation "46R" in the 1787 A.L. Bleecker auction listings suggests that there may have been a front and a rear lot division not only for Lot 11, but also for four other Church Farm lots that fronted on the south side of Vesey Street (Church Farm Lots 46-45, 42-40; Block 85's Lots 11-12, 15-17). The 1796 lessee of Lot 11, John Griswold, had a ten-year lease for all the lots facing Vesey Street in the APE (Lots 8 through17).

Westervelt's 21-year lease for Lot 11 expired in 1809, and in 1810 Trinity Church gave a 99-year lease to Lispenard and Stewart, who had 99-year leases for Lots 9 through 12. Meanwhile, Thomas Lincoln's lease from Trinity Church for same Lot 11 expired in 1836. It is unclear whether the overlapping leases, at least between 1810 and 1836, were for the entire lot or for front and rear portions of Lot 11. These multiple leases for the same lot suggest that there were a series of absentee landlords.

Following John Bradburn's initial lease, Lot 11 was likely vacant for periods during the 1770s through the 1790s. None of the later leaseholders from these decades could be confirmed as living on the property, although it is possible that there was some short-term occupation by some of them.

The next known residents on Lot 11 were Silas and George Talbot, who were recorded on the property from 1800-1813 (New York City Directories 1800-1813; Assessed Valuation of Real Estate; Elliot 1812; Federal Census 1800, 1810). Silas, who lived on the lot from 1800-1801, was the Captain of the *U.S.S. Constitution*. His household included two white males, two white females, one free black, and one slave (Federal Census 1800). George Talbot, recorded as the head of the household from 1802-1813, was a merchant; his household included four white males, three white females, and two free blacks (Federal Census 1810).

After the Talbots left the property in 1813, Lot 11 was occupied by Isabella Steele, the widow of Robert Steele, from 1815-1822 (New York City Directories 1815-1822; Assessed Valuation of Real Estate; Federal Census 1820; NYC Jury Census 1816). Mrs. Steele headed a household consisting primarily of women and girls (in 1816 there were seven white females and one female slave; in 1820 there was one white male and seven white females [five of them were under 16]).

John P. Schermerhorn, a merchant, was the next occupant of Lot 11, residing on the property from 1823-1826 (Assessed Valuation of Real Estate; New York City Directories 1823-1826). After a one-year occupation by Henry Inman in 1827 (who as will be seen,

lived consecutively at a number of different addresses within the APE in the late 1820s), the property's longest-term occupant moved onto the lot. Frederick Pentz, the President of the Mechanics Association Bank, and his family are documented on Lot 11 from 1830-1851. In 1830, the year he first lived on the property, Pentz's household consisted of four white males, two white females, and one free black female (Federal Census 1830). Pentz could not be located in the 1840 Federal Census, but in 1850, his household included himself, 50, his wife (whose name and age are illegible), his sons Frederick Pentz, Jr., 23, a merchant; John Pentz, 35, who worked in a store; and Elizabeth Pentz, 70, presumably his mother. Frederick Pentz appears to have vacated Lot 11 after 1851, when he no longer could be traced in the archival records.

Lot 12

Historic Lot 12 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 45. The lot measured 25 feet on the north (Vesey Street) and on the south; it was approximately 81 feet 5 inches deep. From the 1790s until the mid-1810s, Lot 12 was known as 45 Vesey Street, after which it became 47 Vesey Street.

In 1758 Jacobus Ver Veelen's name appeared on an indenture with a 21-year lease. Ver Veelen was probably on Lot 12 for no more than 17 years. (He also had a 21-year lease for Lot 10, beginning in 1759.) In 1775 he was no longer on Lot 12. Between 1775 and 1781, the lot was vacant. Meanwhile, in 1773 Thomas Lincoln appears to have received a 63-year lease from Trinity Church for Lots 8-12 (the expiration date is noted in the records, although the original lease is not). It is unclear how long Lincoln actually kept this lease. In 1782 W. Wighton was on Lot 12 as well as on Lots 11 through 9, without a lease for any of the lots. He paid rent to Trinity Church for the four lots and probably leased to others at least one lot.

In 1787, John Sullivan appears to have bought a lease at auction, with the intention to lease it to others, paying rent to Trinity Church while receiving rent from another lessee, Isaac Halsey, who was given a 21-year lease by Trinity Church in 1788. Again, the notation "45R" in the 1787 A.L. Bleecker auction listings suggests that there may have been a front and a rear lot division for this lot.

According to City Register documents, in 1792 John Sullivan, a merchant, and his wife, Mary, were grantors of "certain Lotts of Ground", that is, Lots 11 and 12 to John Holdron, Gentleman (Liber 49, 1792:343-344). Nonetheless, Trinity Church continued to be the lessor not only to individuals, but also to Grace Church, endowing the fledgling church with Lot 12 (as well as Lots 14 and 17), thereby allowing Grace Church to receive the annual rent from the lot. In 1796, John Griswold obtained a ten-year lease for all the lots facing Vesey Street in the APE (Lots 8 through 17).

According to further land conveyance records at the City Register, John Holdron, who was the grantee to Lot 12 in 1792, became the grantor in 1811, even though Trinity Church had given Lispenard and Stewart a 99-year lease for this lot in 1810. Not only that, Thomas Lincoln's lease for the same Lot 12 did not expire until 1836, after which

Trinity Church does not appear in the conveyance records for Lot 12. It is unclear whether the overlapping leases, at least between 1810 and 1836, were for the entire lot or for front and rear portions of Lot 12. In any case, the multiple leases for the same lot suggest that there were a series of absentee landlords.

After Jacobus Verveelen's initial lease, Lot 12 may have been vacant for periods during the 1770s through the 1790s. None of the later leaseholders from these decades could be confirmed as living on the property, although it is probable that there was some short-term occupation by some of them.

In 1798, however, Alexander Hosack, a merchant, and his family began a long, well documented tenancy on Lot 12, which ended in 1824. Hosack was already past 60 years old when he moved onto Lot 12; his household seems to have been small (consisting of himself, at times another white male, one to three white females [depending on the year], and a slave) (Federal Census 1800, 1810, 1820; NYC Jury Census 1816). For two disparate years (1798 and 1812) William Hosack, an attorney, was also listed on the property, suggesting that for short periods at least one other member of Hosack's family stayed with him (Assessed Valuation of Real Estate; Elliot 1812; New York City Directories 1798-1822). For five years of the Hosack family residency on the lot (1817-1822), Dr. Jacob Dyckman was also listed on the property (Assessed Valuation of Real Estate). Hosack seems to have died in 1821; his family continued to live on the lot through 1824 (Assessed Valuation of Real Estate).

After the Hosack family vacated Lot 12, the property supported a series of short-term occupants, none of whom stayed for more than two or three years. Generally, these people tended both to live and work on the property. These people included Henry Inman and Thomas Cummings, portrait painters (1825-1827); William W. Scrughams (1830-1831); and John Fenniman (or Fineman) and Caesar Vanderbilt, grocers (ca. 1845-1847) (Assessed Valuation of Real Estate; Federal Census 1830; New York City Directories 1825-1847). In 1851, the last year occupants could be found for the lot, a variety of different people were documented on the property, including a wine dealer, a grocer, and a shovel maker (Doggett 1851).

Lot 13

Historic Lot 13 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 44. The lot measured roughly 24 feet 10½ inches on the north (Vesey Street) and on the south; it was approximately 81 feet 7 inches deep. From the 1790s until the mid-1810s, Lot 13 was known as 43 Vesey Street, after which it became 45 Vesey Street.

In 1761 Catherine Miller's name appeared on an indenture with an 11-year lease. She was listed as a "free negro woman." Miller was probably on this lot until 1772. In 1773 Thomas Lincoln received a 63-year lease from Trinity Church. A five-year lease was granted to George Hass in 1787, the same year that Andrew Morris bought a lease from Trinity Church at auction. The Church continued to grant seemingly overlapping 21-year

and 10-year lessees for Lot 13 in 1788 and 1796. John Griswold's 10-year leases were for Lots 8 though 17 on Block 85, which suggests that he was paying Trinity Church annually while collecting rent from some subleases on the lots. These multiple leases for the same lot suggest that there were a series of absentee landlords.

Like other lots with the Vesey Street APE, tenancy for Lot 13 is not well documented after the initial lease by Catherine Miller in the 1760s. Several leaseholders were documented during the 1780s, but it is unclear whether they actually occupied the property. None of these people could be traced in early city directories or other archival records for the period.

In the 1790s, Lot 13 housed a series of short-term occupants, including Stephen Cooper (1792), James Hepburn, a mason (1795), and Pierre Depeyster, a shipmaster (1798-1800) (Survey of Streets 1780-1800, Folders 20 and 21; New York City Directories 1791-1800).

The lot's longest-term resident first appears in the archival documents in ca. 1805. Philip Grim, a merchant, used Lot 13 as for his residence from about this year through 1820; after he died his family continued to occupy the lot through 1830 (Assessed Valuation of Real Estate; Federal Census 1810, 1820; New York City Directories 1805-1830). The Grim household at times included from five to nine white males, four to five white females, and [in 1810 and 1816] two free blacks (Federal Census 1810, 1820; NYC Jury Census 1816).

After the Grim family left Lot 13, various short-term tenants occupied the property during the 1830s. In 1840, Joseph T. Bell (who had a military store on Fulton Street) moved onto the property, and stayed there until 1849 (Assessed Valuation of Real Estate; New York City Directories 1840-1849). Following Bell's departure, however, tenancy is less clear. In 1851, Thomas H. Beale appears to have operated a cabinet shop on the property, and in 1855, the lot housed Henry Ludwig's printing establishment, which in previous years had been located on Lot 9 (Doggett 1851; New York City Directories 1854-1855).

Lot 14

Historic Lot 14 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 43. The lot measured 25 feet on the north (Vesey Street) and on the south; it was approximately 81 feet 7 inches deep. From the 1790s until the mid-1810s, Lot 14 was known as 39 or 41 Vesey Street, after which it became 43 Vesey Street.

In 1758 Catherine Francis's name appeared on an indenture with a 21-year lease. Miller was probably on this lot until 1775 when the lot was listed as vacant. The lot remained vacant into 1781. In 1782 a five-year lease was granted to George Hass (he would lease Lot 13 in 1787), two years before Henry Sharp leased Lot 14 from Trinity Church at auction. The Church continued to grant seemingly overlapping leases for Lot 14 in 1786.

In 1787 Andrew Morris, and maybe Henry Sharp, leased Lot 14 from Trinity Church at auction, or perhaps they actually bought the lot because in 1792 Andrew Morris, a tallow chandler, and Eleanor, his wife, appear as grantors in City Register records of the lot to David Pierson, a house carpenter. Nonetheless, between 1794 and 1805, Trinity Church continued to lease the lot to two separate individuals and also endow the lot to Grace Church. John Griswold's ten-year lease (1796) was for Lots 8 though 17.

In 1798 house carpenter Daniel Pierson, and his wife, Hester, were the grantors of Lot 14 to John Bard, Jr., insurance broker. The City Register conveyance detailed what was to be devised, "...Together with all the houses outhouses kitchens stores storehouses cellars vaults wells cisterns buildings improvements ways profits easements commodities conveniences advantages hereditaments and appurtenances...." (Liber 56, 1798:22)

Even though Lot 14 had been conveyed through City Register documents to Andrew Morris (no later than 1792), then to David Pierson (1792), and after that to John Bard, Jr. (1798), Trinity Church continued be a lessor of Lot 14. The church's Vestry provided a 99-year lease in 1805 to William Paulding, who also had a 99-year lease in 1805 for the contiguous Lot 15. Another lease was granted by the Vestry in 1815 (to Obadiah Holmes), with the expiration of another lease in 1834 (Nicholas Slakor). At some point around 1820, Lot 14 was devised to Philip Grim, which was then devised to Almet Reed in 1847, at which time Paulding's 99-year lease may have continued to be in effect. These multiple leases for the same lot suggest that there were a series of absentee landlords.

Early occupation of Lot 14 is unclear after Catherine Francis' initial lease. Several leaseholders were documented during the 1780s, but it is unknown whether they actually occupied the property. None of these people could be traced in early city directories or other archival records for the period.

In the 1790s, David Pierson, a house carpenter, was documented on the property from ca. 1792-1794 (Survey of Streets 1780-1800, Folders 20 and 21; New York City Directories 1792-1794). From 1796-1801, the property was occupied by John Bard, an insurance broker (New York City Directories 1796-1801; Federal Census 1800).

During the first decades of the nineteenth century, the lot continued to be occupied by a series of short-term tenants including Dr. William Barrow (1807-1809), John Keese and Rosa Keese (1810), John Blagge (1812-1813), and a number of additional people who stayed only one year each, through 1819 (Assessed Valuation of Real Estate; New York City Directories 1807-1819; Federal Census 1810; NYC Jury Census 1816). In the early 1820s, Abraham Bussing was documented on the property, from 1820-1824 (New York City Directories 1820-1824). His household included eight white males, seven white females, two free black males, and one free black female (Federal Census 1820). Occupants of the property in during the remainder of the 1820s are unknown. In 1830, Henry Inman had a one-year tenancy on the property (Federal Census 1830; New York City Directories 1830).

Unlike many other lots within the Vesey Street APE, Lot 14 had its two longer term residents in the later part of its history. The first was Dr. Grayson, who occupied the property from 1831-1845 (Assessed Valuation of Real Estate). Later, John Boyd, a liquor store proprietor, lived and worked on the lot, from 1847 through at least 1855, the final year researched for this lot (Assessed Valuation of Real Estate; Doggett 1851; New York City Directories 1831-1855).

Lot 15

Historic Lot 15 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 42. The lot measured roughly 32 feet 2 inches on the north (Vesey Street) and on the south; it was approximately 81 feet 9 inches deep. From the 1790s until the mid-1810s, Lot 15 was known as 37 Vesey Street, after which it became 41 Vesey Street.

In 1760 John Hendrick Gauthor was the lessee of Lot 15. In 1762 house carpenter David Brewer's name appeared on an indenture with a 17-year lease for the same lot. (Beginning in 1759, he also had a 21-year lease for Lot 2). During the time period 1750-1766, this is the only instance within the APE in which an original lease was terminated for one reason or another, and a subsequent leaseholder had his own indenture.

Brewer was probably on this lot until 1775, when the lot was listed as vacant. The lot remained vacant in 1781. In 1782 a 19-year lease was granted to John Besonet. Four years later James Carter had a 21-year lease for the same lot. Some time between 1786 and 1794 James Westervelt was the lessee. In succession, they either defaulted on their annual rent or else returned the lease to Trinity Church.

Meanwhile, at auction in 1787, Hubert Van Wagenen, a Gentleman, purchased a lease for "42R" (Lot 15) at A.L. Bleeker's auction. The notation may indicate that the lease was for the rear part of Lot 15 (Church Farm Lot 42). Together with Lots 16 and 17, Van Wagenen first leased the "R" sections of the lots in 1787, and then, in 1794, was granted a 21-year lease for Lots 15 through 17 while he was a Vestryman (1787-1806). This 21-year lease was filed at the City Register, one of the few eighteenth-century leases within the APE to be filed there.

Trinity Church granted further leases for Lot 15 (as many as three) between 1794 and 1805, when the Vestry granted William Paulding a 99-year lease for both Lots 15 and 14. One of the other leases was to John Griswold, who, in 1796, had a ten-year lease for all the lots in the Vesey Street APE. There was also an endowment to New Town Church. These multiple leases for the same lot suggest that there were a series of absentee landlords.

Although during the initial years of Lot 15's history, it was leased by Trinity Church for residential use, and several leaseholders have been identified, at least by the 1790s the lot use had changed. In 1792, records indicate Lot 15, along with adjacent Lots 16 and 17,

contained a "manufactory," although the kind of product the business was making is unknown (Survey of Streets 1780-1800, Folders 20 and 21). No specific individuals or businesses could be confirmed as occupying the lot during this period.

By 1803, however, the lot became part of the holdings of the New York Bread Company, which was represented by individuals David Grim, Samuel Mansfield, and Walter Bowne (Liber 63, 1803:398). The following year, when these three men sold Lot 15 to John Hyslop, a baker, a map that accompanied the conveyance indicated that the lot supported a street-fronting structure noted as a store house belonging to the New York Bread Company, and a rear stable (Liber 108, 1804:13).

It is likely that from 1804, the year Hyslop acquired the lot, through 1845, Lot 15 contained both a bakery and residential quarters. Archival records list a series of bakers living on the lot during this period. They include William Cammyer (1815-1816), William Farrow (1817-1818), John McKenzie (1818-1822), John Bruce (1823-1824), John Limberger (1825-1839), and Henry and Frederick Sparks (1840-1845) (Assessed Valuation of Real Estate; New York City Directories 1815-1845; Federal Census 1820, 1830; NYC Jury Census 1816). Of these men, McKenzie and Limberger were also owners or leaseholders of the lot (Liber 159, 1822:285; Liber 187, 1825:439). Between 1804 and 1815, the tenancy on the lot is less clear (William Sandford, a merchant, was living and working on the lot from 1810-1812 but other residents or businesses could not be located) (Assessed Valuation of Real Estate; Federal Census 1810; New York City Directories 1810-1812). In addition to the bakery and bakers' families on Lot 15, records indicate other non-bakers periodically shared space on the property as well (NYC Jury Census 1816; New York City Directories 1804-1815).

The bakery seems to have been converted into a grocery store after about 1845, when Peter Lynch, a grocer, acquired the property. Lynch's grocery and home were both listed on the property through 1855, the last year that was researched for this lot (New York City Directories 1845-1855; Doggett 1851; Assessed Valuation of Real Estate).

Lot 16

Historic Lot 16 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lot 41. The lot measured approximately 25 feet on the north (Vesey Street) and on the south; it was 81 feet 10 inches on the west, and 88 feet 9 inches on the east. From 1790 until the mid-1810s, Lot 16 was known as 35 Vesey Street, after which it became 39 Vesey Street.

In 1750 "gardner" Godfrey Wall's name appeared on an indenture with a 21-year lease. (In the same year he also had a 21-year lease for Lot 17.) Wall probably remained on Lots 16 and 17 until the lease expired in 1771. In 1771 Trinity Church leased Nicholas Slakor both Lots 16 and 17 for a term of 63 years; thus, the expiration of his lease was 1834.

Yet, Trinity Church granted two other leases between 1771 and 1787 when, at auction in 1787, Hubert Van Wagenen, a Gentleman, purchased a lease for "41R" (Lot 16, or the rear of Church Farm Lot 41). Van Wagenen first leased the "R" sections of Lots 15, 16, and 17 in 1787, and then, in 1794, was granted a 21-year lease for Lots 15 through 17 while he was a Vestryman (1787-1806). This 21-year lease was filed at the City Register, one of the few eighteenth-century leases to be filed there.

Trinity Church granted a further lease for Lot 16 between 1794 and 1805, at which time the Vestry granted Lem Wells a 99-year lease for both Lots 16 and 17. In 1796 John Griswold was the lessee of Lots 8 through 17 (all the Vesey Street lots in the APE) for a period of ten years.

Meanwhile, in 1803, filed in the City Register, William Pultney, as grantor, conveyed Lots 15 and 16 to the grantees, David Grim, Samuel Mansefield, and Walter Bowne. Except for Lem Wells's 99-year lease in 1805 and Nicholas Slakor's 63-year lease's expiration in 1834 (both noted in the Trinity Church records only), the remaining nineteenth-century conveyances for Lot 16 were grantor/grantee rather than lessor/lessee. These multiple leases for the same lots suggest that there were a series of absentee landlords.

Lot 16 was also leased by Trinity Church for residential use during its early history, and several leaseholders have been identified, but like neighboring Lots 15 and 17, this lot changed use at least by the 1790s. As described above, 1792 records indicate Lots 15, 16 and 17 contained a "manufactory," although the kind of product the business was making is unknown (Survey of Streets 1780-1800, Folders 20 and 21). One resident, Daniel Campbell, a laborer, was identified as living on the lot for 1790 only (New York City Directories 1790). No other individuals or businesses could be confirmed as occupying the lot during this period.

By 1803, the lot was also part of the holdings of the New York Bread Company (Liber 63, 1803:398). The 1804 conveyance for Lot 15 (described above) indicated that Lot 16 also contained an adjoining street-fronting store house belonging to the New York Bread Company (Liber 108, 1804:13). The company relinquished this lot in 1805 (Liber 69, 1805:117).

Use of the lot is less well known following the New York Bread Company's tenure, although it appears at least part of the lot was used for housing. A variety of residents were identified on the property for the next twenty years, although none stayed for more than two years at a stretch (Assessed Valuation of Real Estate; New York City Directories 1805-1823; Federal Census 1810, 1820; NYC Jury Census 1816).

From 1824-1835, however, the lot supported a boarding house, run by Jennet McDonald (New York City Directories 1824-1835; Federal Census 1830). After McDonald left the lot, tenancy is again unclear until 1843, when Samuel Conlan, a grocer, moved onto the property. Conlan lived and worked on the property until 1847 (New York City Directories 1843-1847). Once Conlan left the property, several short-term tenants lived

on the property, including a grocer and several bakers (New York City Directories 1848-1855; Doggett 1851).

Lot 17

Historic Lot 17 was located on the southern side of Vesey Street. It was formerly known as Trinity Church Farm Lots 39 and 40. The Lot measured roughly 42 feet 9 inches on the north (Vesey Street) and on the south; it was approximately 88 feet 6 inches deep. From the 1790s until the mid-1810s, Lot 17 was known as 31-33 Vesey Street, after which it became 35-37 Vesey Street.

In 1750 "gardner" Godfrey Wall's name appeared on an indenture with a 21-year lease. (That year he also had a 21-year lease for Lot 16.) Wall probably remained on Lots 16 and 17 (West and East) until the lease expired in 1771. In 1771 Trinity Church leased Nicholas Slakor both Lots 16 and 17 for a term of 63 years; thus, the expiration of his lease was 1834. Church records note that, in 1834, the Slakor lease had expired.

On the west side of Lot 17 (Church Farm Lot 40), Trinity Church granted another 21-year lease in 1786 to Samuel Holloway. At auction in 1787, Hubert Van Wagenen, a Gentleman, purchased a lease for "40R" (Lot 17, or the rear of Church Farm Lot 40). Van Wagenen first leased the "R" sections of Lots 15, 16, and 17 in 1787, and then, in 1794, was granted a 21-year lease for Lots 15 through 17 while he was a Vestryman (1787-1806). This 21-year lease was filed at the City Register, one of the few eighteenth-century leases to be filed there. In 1796 Trinity Church granted a further lease of ten years for Lot 17 (west side), leasing to John Griswold (he leased all the lots in the Vesey Street APE).

On the east side of Lot 17 (Church Farm Lot 39) Trinity Church granted another lease to Philip Linzie in 1782. In 1786 Trinity Church leased Lot 17 East to John V. Blarcum for 21 years. At A. L. Bleeker's auction in 1787, James Quackenbush purchased the lease for Lot 17 East. In 1794, the church made two leases for Lot 17 East, one to John Torbune; the other to John Vanderhoof. It may be that these two leases were for front and rear parts of the lot. In 1796 Trinity Church granted a further lease of ten years for Lot 17 East, leasing to John Griswold (he leased all the lots in the Vesey Street APE).

During the nineteenth century, Lot 17 was both leased to Lem Wells for 99 years and endowed Grace Church in 1805. Nicholas Slakor's 63-year lease, made in 1773, expired in 1834.

The initial use of Lot 17 was for residential leases by Trinity Church, and several leaseholders have been identified. However, as with neighboring Lots 15 and 17, this lot changed use at least by the 1790s. As described above, 1792 records indicate Lots 15, 16 and the west half of 17 contained a "manufactory," although the kind of product the business was making is unknown (Survey of Streets 1780-1800, Folders 20 and 21). One resident, Richard Moore, a cooper, was identified on the east half of Lot 17 from 1793-

1800 (Survey of Streets 1780-1800, Folders 20 and 21; New York City Directories 1793-1800).

By 1803, this lot was also part of the holdings of the New York Bread Company (Liber 63, 1803:401). The 1804 conveyance for Lot 15 (described above) indicated that Lot 17 also contained an adjoining street-fronting store house belonging to the New York Bread Company on its western half, and a bakery on its eastern half (Liber 108, 1804:13). In 1805, the company conveyed this lot to Frederick Depeyster (Liber 69, 105: 117).

Following the acquisition of the property by Depeyster, the lot appears to have contained a store or store house on its eastern half through 1832. The store/store house was attributed to Frederick Depeyster (1805-1808), Thomas Satterthwaite (1809-1813), and James Farquhar (1816-1832). It is unknown the types of wares being sold or stored under the Depeyster and Satterthwaite tenure on the property, but James Farquhar was consistently listed as a wine merchant (New York City Directories 1816-1832). The western half of the lot was occupied by a series of residents through about 1830, although none appeared to stay for more than two years at a stretch (New York City Directories 1810-1836; Assessed Valuation of Real Estate; Federal Census 1810, 1820, 1830; NYC Jury Census 1816).

For a period during the 1830s, tenancy on both halves of the lot is unknown, but from 1837-1848, merchant Nathaniel Paulding was recorded on the eastern half of the lot, and from 1843-1853, grocer Patrick Hogan was documented on the western half of the lot (New York City Directories 1837-1853).

Lot 18

Modern Lot 17 now includes the western portion of historic Lot 18, which was located at the southwestern corner of Vesey and Church Streets (the lots were combined when Church Street was widened in the twentieth century). Like Lot 17, historic Lot 18 formerly contained two halves, which had different occupational histories. The following chronology concentrates primarily on the west side of historic Lot 18, which was part of Trinity Church Farm Lot 38. From the 1790s until the mid-1810s, the western portion of Lot 18 was known as 29 Vesey Street, after which it became 31 Vesey Street.

In 1750 silversmith George Young's name appeared on an indenture with a 21-year lease. Young probably remained on Lot 18 until the lease expired in 1771. In 1771 Trinity Church leased Nicholas Slakor Lot 18 in addition to Lots 16 and 17 for a term of 63 years; thus, the expiration of his lease was 1834.

In 1787, A. L Bleeker's auction sold a lease for this lot, but it was noted as "sold not accounted for." The following year, Trinity Church leased Samuel Holmes Lot 18 for 21 years. By 1794, Trinity Church records note that Rob Perin had a lease for an indeterminate number of years, but in 1796 Trinity Church granted a lease of ten years for Lot 18 to John Griswold (he leased all the lots in the Vesey Street APE). In 1805, Lot 18 was endowed to Grace Church, and in 1834 Nicholas Slakor's 63-year lease expired.

Following the initial leases made by Trinity Church for this lot, a series of residents occupied the western half of Lot 18, often with several families living on the lot at any given time. After an occupation by tailor John Halliday, and later his widow Catharine, from 1795-1800, archival records indicate no residents remained on the property for more than two years in a row.

E. Summary of Archival Results

The archival research pertaining to the three historic lots on Liberty Street (former Block 60), and eleven historic lots on Vesey Street (former Block 85), outlined above, has revealed a series of occupants on each of the properties. Those occupants who were documented on the lots for two years or more are summarized in the tables, below. Where occupancy could be documented for five or more years before the introduction of piped Croton water in 1842, the data are shown in boldface type. The five-year occupancy before the introduction of public utilities is a threshold that has been established by LPC in order to evaluate potential significance of archaeological resources. The tables also indicate professions of occupants, when known, and whether the use of the lot consisted of a residence, a business, or both. If the use of the lot was unclear (particularly for early occupants), a residence was assumed.

Block 60

Lot	Years of occupation	Occupants	Residence/Business
5	**1810-1823**	**John Labaugh, stonecutter and fireman**	**Residence**
5	**1829-1840**	**Gurdon Buck, merchant**	**Residence**
6	**1798-1808**	**Joshua/Harlan Megie, cartman**	**Residence**
6	**1821-1828**	**John Gelston, merchant?**	**Residence**
6	1829-1831	Joseph Otis, merchant?	Residence
10	**1799-1806**	**Robert Hunter family**	**Residence**
10	**1810-1815**	**Francis Sennes, fruiter**	**Residence**
10	**1812-1824**	**Robert Hunter family**	**Residence**
10	1798-1800	Thomas Meeks, mason and grocer	Residence
10	**1805-1813**	**Thomas Brown, grocer**	**Residence**
10	1808-1812	Gabriel V. Ludlow, counsellor	Residence

Block 85

Lot	Years of occupation	Occupants	Residence/Business
8	**1759-1766**	**Johannes Ackerman**	**Residence**
8	**1812-1817**	**Andrew Raymond, attorney**	**Residence**
8	1818-1820	William Dodge, coal merchant	Residence
8	**1823-1834**	**Connor and Van Winkle auction house**	**Business**
8	**1834-1855+**	**Leonard and Philip Gordon distillery/manufactory**	**Business**
9	**1759-1766**	**David Brewer, house carpenter**	**Residence**
9	1796-1798	Mrs. Eleanor Ray	Residence
9	**1800-1806**	**Samuel Moore, boarding house**	**Residence and Business**

Lot	Years of occupation	Occupants	Residence/Business
9	**1809-1820**	**Joseph Burjeau, military**	**Residence**
9	1820-1824	William Shaw	Residence
10	**1759-1766**	**Jacobus Ver Veelen**	**Residence**
10	1808-1810	Peter and Robert Ludlow	Residence
10	**1812-1817**	**Henry King, merchant**	**Residence**
10	1824-1827	Michael and P. Dykers, doctor	Residence
10	**1837-1851**	**Christian Morrison, druggist**	**Residence**
11	**1758-1766**	**John Bradburn**	**Residence**
11	**1800-1813**	**Silas Talbot, ship captain** **George Talbot, merchant**	**Residence**
11	**1815-1822**	**Mrs. Steele, widow**	**Residence**
11	1823-1826	John P. Schermerhorn, merchant	Residence
11	**1830-1851**	**Frederick Pentz, bank president**	**Residence**
12	**1758-1766**	**Jacobus Ver Veelen**	**Residence**
12	**1798-1824**	**Alexander Hosack, merchant**	**Residence**
12	**1817-1822**	**Dr. Dyckman, doctor**	**Residence**
12	ca. 1845-1847	John Fenniman/Fineman, Caesar Vanderbilt, grocers	Business
13	**1761-1766**	**Catherine Miller, free negro woman**	**Residence**
13	1798-1800	Pierre Depeyster, shipmaster	Residence
13	**1805-1830**	**Philip Grim, merchant**	**Residence**
13	1840-1849	Joseph Bell, military store	Residence
14	**1758-1766**	**Catherine Francis**	**Residence**
14	1792-1794	David Pierson, house carpenter	Residence
14	**1796-1801**	**John Bard, broker**	**Residence**
14	1807-1809	William Barrow, doctor	Residence
14	1820-1824	Abraham Bussing	Residence
14	**1831-1845**	**William Grayson, doctor**	**Residence**
14	1847-1855+	John Boyd, liquors	Residence and Business
15	1760-1762	John Hendrick Gauthor	Residence
15	1762-1766	David Brewer, house carpenter	Residence
15	by 1792	Manufactory	Business
15	**by 1804-1845**	**Bakery**	**Business**
15	**1815-1845**	**A series of bakers reside on the lot**	**Residence**
15	ca. 1845-1855+	Peter Lynch, grocer	Residence and Business
16	**1750-1766**	**Godfrey Wall, gardener**	**Residence and Business(?)**
16	by 1792	Manufactory	Business
16	by 1804	Storehouses	Business
16	**1824-1835**	**Jennet McDonald, boarding house**	**Residence and Business**
16	1843-1847	Samuel Conlan, fruiter and grocer	Residence and Business
17	**1750-1766**	**Godfrey Wall, gardener**	**Residence and Business(?)**
17	**1793-1800**	**Richard Moore, cooper**	**Residence**
17	by 1804	Bakery and storehouses	Business
17	**through 1832**	**Store or storehouse continues**	**Business**
17	**1837-1848**	**Nathaniel Paulding, merchant**	**Business**
17	1843-1853	Patrick Hogan, grocer	Residence and Business
18	**1750-1766**	**George Young, silversmith**	**Residence and Business(?)**
18	**1795-1800**	**John Halliday, tailor** **Catharine Holhaday, widow**	**Residence**

F. Potential for Archaeological Resource Survival within Historic Lots

Residential Resources

In order to understand the behavior of past peoples, archaeologists rely on locating undisturbed resources that can be associated with a specific group or individual during a particular time period. Evaluating the significance of archaeological resources hinges on two factors: the integrity of the potential features, and if associations with individuals and/or groups can be documented. It is possible that the archaeological examination of these resources can reveal information pertinent to many issues that do not exist in the documentary record. Because of the somewhat elusive nature of these resources and the fact that only a limited number are likely to have survived subsequent development, it is vital that the remaining sites where potential resources may be present are studied. Therefore, the recovery of intact resources in an urban setting is very likely to yield new information pertaining to land use, settlement patters, socioeconomic status/class patterns, ethnic patter (potentially), trade and commerce patterns and consumer choice issues.

Archaeologists have found that former residential sites are often sensitive for shaft features, such as privies, wells, and cisterns. In addition, yard scatter and artifact concentrations associated with the domestic population might also yield meaningful data. In New York City and other urban locales, complete or truncated shaft features have yielded rich archaeological deposits. In some cases, subsequent construction episodes have aided the preservation process by covering over the lower sections of these deep features and sealing them below structures and fill layers.

Archaeological research conducted in New York City and other urban locales indicates that the positioning of privies, as well as other shaft features, within a residential lot had become somewhat standardized by the nineteenth century. For those lots containing only one building, privies were located at the extreme back of the lot, farthest from the residence, either in the corner or center of the lot (Cantwell and DiZerega Wall 2001:246-247). In lower income neighborhoods (typically in tenement style housing), where these lots often had two residences per lot, the privy would have been located somewhere between both residences. Some privies were intentionally excavated and the "nightsoil" removed in order to extend the period of viable usage (Roberts and Barrett 1984:108-115). In some cases, wells and cisterns no longer needed for water were used as privies or cesspools. For example, Jean Howson's research found that following the introduction of an effective water system in Manhattan, wells and rainwater cisterns were reused as privies (1994: 141-142). Cisterns were often located closer to the residence and in some cases were directly against the building itself.

Potential Depths of Shaft Features

The depth of shaft features has always been one of the reasons these resources survive subsequent development. Typically, the domestic yard feature that extends to the greatest depth is the drinking water well. The depth of a well is often contingent upon on the

depth of the water table, the type of excavation method employed, and the construction materials used. In urban locations, where potable water was at a premium, wells often extend to great depths (Garrow1999:8; Glumac et al. 1998).

Cisterns, built to hold captured rainwater, were not constructed to the same depths as wells. These features are much more common on nineteenth century urban sites than wells (Garrow 1999:12). In some cases, cisterns used by the residents of large buildings have extended to depths greater than 10 feet (e.g., Ericsson Place Site and the Long Island College Hospital Site).

Privies, like cisterns, were not typically built to extend to great depths. In urban areas, however, many have been constructed to depths greater than 10 feet. In his review of several nineteenth century privies excavated in Alexandria, Stephen Judd Shepard found several extended to depths between 10 and 26 feet deep (1987:171). In his discussion of privy "architecture" M. Jay Stottman found that in one neighborhood in urban Louisville the privies examined by archaeologists extended to depths between 11 and 22 feet below the surface (2000:50). In New York City, truncated privy shafts survived subsequent development in many locations (e.g., Sullivan Street, Five Points).

Comparative Sites

Five Points

Archaeological studies conducted in Manhattan and the outer boroughs have found that residentially related shaft features have survived behind, beneath, and adjacent to subsequent construction. One of the most important archaeological studies took place in the Five Points neighborhood. The discovery of numerous shaft features and archaeological deposits in lower Manhattan has contributed extensively to the collective understanding of one of the poorest and least documented communities in nineteenth century New York. Numerous professional papers (including a session at the 29th Annual Meeting of the Society for Historical Archaeology, Cincinnati 1996) as well as an entire issue of *Historical Archaeology* have been devoted to the archaeological discoveries made within these fourteen lots studied in lower Manhattan. Archaeologists found that the interconnectedness and subsequent development of the area actually enabled the preservation of these important archaeological sites. According to Rebecca Yamin "the Courthouse Block yielded 50 backyard features, all of which had been subsequently enclosed within later tenement walls" (2001a:2). Yamin further wrote:

> *a complex of features on Lot 6...illustrates the intensification of spatial use over time and the degradation of living conditions. Wood-lined privies...apparently served the early residents of the block. They were located well behind a house that would have faced Pearl Street...A more substantial stone-lined privy, Feature B, was constructed further back on the lot, possibly at the same time a cistern, Feature Z, was put in.*

This tenement population was served by a sewage system that virtually filled the backyard...All of these features had been filled by 1875. A William Clinton is assessed for the property in that year, its value having increased from $10,500 to $15,000, probably as a reflection of a second tenement that had been built at the back of the lot, into and over the edge of the cesspool. (2001b:10-11).

The archaeological investigations at Block 160 demonstrated that truncated features with significant archaeological deposits can be found on lots which were subsequently developed. The resulting studies conducted on the material recovered have made a significant contribution to the understanding of the history of a working class neighborhood in nineteenth century New York City.

Sullivan Street

The results of excavations within 6 lots on Sullivan Street in Greenwich Village also indicate that many nineteenth century shaft features have survived the subsequent intense development of Manhattan. Salwen and Yamin found that:

Although the nineteenth century backyard surfaces were destroyed by construction of Sullivan Street, truncated features were found on all but one of the lots. All were packed with artifactual material (1990).

During the subsurface investigations, archaeologists found a total of five privies, three cisterns, one well, and two "other" features. Each of these significant features was found in the location where Sullivan Street had cut though the former backyard. Research conducted on the site by Jean Howson also found that although there was a City policy in place that encouraged residents to connect their dwellings into the public sewer system, many continued to utilize their privies for a decade or more after the public sewer was installed (Howson 1994:142-143).

Ericsson Place

Excavations conducted by Historical Perspectives, Inc. at the Ericsson Place Site found several undocumented features in the back yards of nineteenth century residential lots.

Excavation revealed several walls and foundations-some were expected, but a few, in the rear lots of the residences along Beach Street, were undocumented. The presence of two nineteenth century cisterns indicate that backyard features relating to the adjacent residences were indeed present as predicted. The most productive area of the site had two features (the foundations of an at-grade twentieth century outbuilding and a nineteenth century cistern) and two concentrations of historic artifacts.

The large double brick cistern found in the rear lot of 126 Hudson Street was most likely introduced to the site before the late 1850s.... The cistern

may not have been in use for long and was probably filled in a single dumping episode.

Lower East Side

Excavations in two lots in the Lower East Side unexpectedly encountered a cistern and a series of drainage system features in the location of the former rear yards. The features were discovered under what had been a tailor's shop. Subsequent demolition activity had buried and sealed the features beneath three to five feet of twentieth century debris. A rectangular stone foundation wall that enclosed and post-dated the cistern was also discovered. The find "provided a unique vertically stratified record of early to mid-nineteenth century history within the Lower East side. The features dated from 1840-1867, indicating that water was not connected to residences in this area until after the Civil War "at least a decade after the documentary record has previously suggested" (Grossman 1995:2). Excavations also found a late nineteenth to early twentieth century privy feature and a mid to late nineteenth century pit feature. According to the project archaeologist, the pre-Croton Reservoir water control cistern structure was found to be totally intact and undisturbed by the subsequent 150 years of later nineteenth and twentieth century building and demolition activities at the site. No mixed late nineteenth or twentieth century materials were encountered in association with it, and no later building activities had intruded into, or disturbed, the feature in any way (Grossman 1995).

Hoyt-Schermerhorn Site

During recent archaeological excavations at the Hoyt-Schermerhorn site in Brooklyn, New York, archaeologists discovered a large privy and a small cistern (Historical Perspectives 2002).

Feature 4 (located along the back lot line)

A truncated stone-lined privy was discovered near the northeast corner of Trench B. During the mechanical removal of the fill in this location the backhoe encountered a pile of flagstones. When the area was cleared, the truncated feature was discovered at a depth of 121 cmbs.... A large domestic artifact assemblage was recovered from Feature 4. The examination of the assemblage indicates that it dates to the 1860s.

The majority of the artifacts recovered indicate that the privy was likely filled during the late 1860s. This would coincide with the introduction of public utilities (sometime prior to 1869), the demolition of the small house, and the construction of the larger tenement. (Historical Perspectives 2002:19-20)

Feature 5

Approximately 7.2 meters from the northeast corner of Trench B, excavators encountered the western 1/2 of a truncated brick cistern approximately 41 cmbs. The trench was expanded slightly to expose the entire feature.

The cistern was irregularly shaped because it had been constructed in the narrow space between the foundation of the former building on the adjacent property (Lot 54) and the property line. The body of the cistern was two bricks thick at the surface and it measured 3.4 feet (101 cm) wide (e-w) and 5.4 feet (165 cm) long (n-s).... The traditional placement of outbuildings and shaft features is usually to the rear of the house. Because of the space constrictions on urban lots, many property owners found creative ways of utilizing any space available. The cistern found in Trench B is an example of the builder's ingenuity and use of all available space... This suggests that the builder might have wanted to place this feature close to the kitchen, or just some distance away from the privy. The fact that a cistern was present, along with the many bottles of spring water, clearly indicates that the site occupants were concerned about the quality of water available to them (Historical Perspectives 2002:33-35).

As expected the privy was located at the rear of the lot, but unexpectedly, the cistern was found in a former alleyway. Although the alley was extremely narrow, measuring less than about five feet in width, prior occupants of the site utilized this space to create a shaft feature.

Long Island College Hospital Site

Three large cisterns were discovered during the excavation of several back lots at the Long Island College Hospital site in Brooklyn. The cisterns examined extended to depths greater than 10 feet below the ground surface. Two of the cisterns contained discrete deposits of late nineteenth century artifacts indicating that the interiors were filled after the introduction of public water (Historical Perspectives 1995).

In all of these cases, the assemblages found in primary and secondary fill deposits enabled archaeologists to determine complex site deposition histories. Although only a few archaeological sites were briefly mentioned in this review, additional examples of the excavation of these deeply buried resources are on file at the LPC and SHPO.

IV. CONCLUSIONS

Archival research concentrating on the specific histories of the potentially significant lots on Block 60 (Lots 5, 6, and 10) and Block 85 (Lots 8-17 and a portion of former Lot 18) has revealed a series of occupants on each lot.

- Block 60: although historic maps indicate that there were structures along the north side of Liberty (then Crown) Street at least by the 1730s (Lyne-Bradford 1731), the identity of these occupants could not be confirmed using available archival records. Extensive research found that the first occupants on Block 60 whose identities could be documented dated to the 1790s.
- Block 85: the earliest identified occupants dated to the 1750s and were associated with initial leases of the Trinity Church Farm lots, which later were renumbered and converted into city-regulated lots.

The research concentrated on the period up to about 1851 for lots on Liberty Street, and up to about 1855 for lots on Greenwich Street and Vesey Street. Public water was available on all three blocks by 1842; sewers were laid under Liberty Street in 1845, under Greenwich Street in 1853, and under Vesey Street in 1854.

The documentary record revealed that all of the lots had two or more occupancies spanning at least five years (and in most cases, many more years) before the introduction of the first public utilities in 1842. Furthermore, several of the lots on Vesey Street also had five-year plus occupancies that extended beyond 1842.

There are several patterns that become evident when comparing the occupants who stayed on the lots more than five years. The earliest occupants within the APE were on the Trinity Church Farm lots along Vesey Street. Archival research has revealed that all of the lots within the APE were occupied by leaseholders during the period from 1750-1766 (and possibly longer, into the mid-1770s), and on all but one of the lots, these occupancies lasted more than five years. The early leaseholders of the Church Farm lots were predominantly semi-skilled workers (often in the construction trades) and artisans, for whom home and work locations usually existed in separate places (Blackmar 1989; Rothschild 1990). Of the early leaseholders on Vesey Street whose occupations are listed, one was a house carpenter (he held two non-contiguous lots), one was a gardener (with two contiguous lots) and one was a silversmith. The house carpenter probably could not work from home, although the gardener with two lots may have used part of his leased property as a garden, and the silversmith may have had a home workshop. For the remainder of the early Church Farm leaseholders whose occupations are unknown, a residence, rather than a business use, is assumed.

From the mid-1770s through the early 1790s, no occupants could be identified on any of the lots within the APE. That is not to say that these lots were collectively untenanted during these years, but due to the imprecision of the archival records available for these decades (the few city directories that were published did not attach house numbers to residents in this neighborhood and the sporadic tax records that survive also do not

specify lot or house numbers, as they did in the nineteenth century), it was impossible to determine who these people might have been. Although a number of Church Farm leases exist for this period (as well as some deeds for Block 60), it seems many of the people whose names appeared on these documents acted as absentee landlords, and rented their properties out to unknown tenants.

The next set of multiple year occupants that could be confirmed for lots within the APE appeared in the mid-1790s, and often stayed through the 1810s. Residents during this period tended to hold a mix of professions. The earlier occupants (who frequently left before 1805) often worked in the maritime and construction trades, or the service industry. Professions included a cartman, a mason, a ship captain, a ship master, a house carpenter, a cooper, and a tailor. However, several merchants and other professionals (including an insurance broker and a physician) are present in this sample as well (they tended to stay in the APE past 1805); a trend that would continue into the nineteenth century. With the exception of a boarding house, which can be construed as both a residence and a business, all of the people documented for this period appeared to use the lots for their residences, and worked elsewhere.

Portions of the Vesey Street APE were also becoming associated with manufacturing and commerce at an early date. A manufactory (of unknown function) was present on Lots 15, 16, and 17 by 1792, and a bakery and associated store house were located on these same lots by 1804. Both the bakery and store house continued to be present on portions of these lots through the 1840s.

During the 1810s, most of the artisans and service people had left the APE (although there were still a few), to be replaced with merchants, grocers, and other professionals. Still, with the exception of the bakery and store house on Lots 15 and 17 during this period, the lots appeared to be used nearly exclusively as residences, and not businesses.

In the 1820s and 1830s, the residents of the lots within the APE tended to be merchants and other well-paid professionals, who worked at locations outside their homes. However, the switch of some lots to business-related ventures increased during this period; included in the sample are an auction house and later a distillery on Block 85, Lot 8, as well as the continuing use of Block 85, Lots 15 and 17 for a bakery and store house. Between these two lots, on Block 85, Lot 16, was a boarding house.

By the 1840s, two trends become evident for the APE. The first was the shift towards mixed residence and business use of the lots within the APE, or in some cases the change to strictly business use. The second was the rapid turnover of both residents and businesses on many of the lots, which made tracing occupation difficult, using available archival records during this period.

The three lots on Liberty Street and the ten lots (including a portion of an eleventh lot) on Vesey Street included in this study appear to possess potential archaeological significance. Each of the lots was occupied by a household or business for an extended period of time (ranging from 5 years to 26 years for single occupants, and from 27 years

to 38 years for the bakery, the series of bakers, and the store house occupied by different people on the same lots, before the introduction of piped water in 1842) spanning the 1750s through the 1850s. The lots were used for both residences, businesses, and a combination of residences and businesses, where the proprietor lived and worked at the same location.

Archaeological resources associated with occupations on these thirteen historic lots have the potential to answer a variety of research questions pertaining to use and occupation of home lots by different types of individuals and businesses in lower Manhattan during the second half of the eighteenth and first half of the nineteenth century.

Some research questions that could be addressed using potential archaeological resources from these lots include:

- Analysis and comparison of households from early leaseholders on Trinity Church Farm lots, spanning the 1750s-1770s. As Blackmar (1989) and Rothschild (1990) have shown, this was a geographically and occupationally distinct group, which has never been documented in the archaeological record. However, other archaeological sites dating to the Colonial era have been excavated in lower Manhattan (generally below Wall Street) and would afford ample comparative data (Cantwell and DiZerega Wall 2001).
- Analysis and comparison of households spanning the 1790s-1810s, when the neighborhood contained a mix of socioeconomic groups, including households headed by workers in the maritime and construction trades, the service industry, as well as some merchants and other professionals. The lots were occupied primarily as residences during this period.
- Analysis and comparison of households spanning the 1820s-1830s, when the socioeconomic makeup of the lots changed to include mostly merchants and well-paid professionals. Again, the lots continued to be occupied primarily as residences during these decades.
- Analysis and comparison of archaeological assemblages associated with mixed use of the lots for both residences and businesses, dating to the 1840s and early 1850s.
- Commercial and manufacturing use of certain lots, including the manufactory, bakery, storehouse, auction house, and distillery on Vesey Street.
- Overall research issues examining patterns of ethnicity, gender, social status, occupation, household makeup, and consumer choice on different lots and from different time periods. This particular neighborhood (the former West Ward, or the area north of Wall Street and west of Broadway) is severely underrepresented in the archaeological record; recovery of household and/or business related assemblages would afford the opportunity to investigate a portion of lower Manhattan that to date has been largely understudied.

Finally, comparative site research regarding the potential of archaeological resources to survive within home lots despite later construction and demolition episodes has revealed that on a number of urban archaeological sites, including those in New York City and

other East Coast locations, truncated shaft features containing sealed archaeological deposits have been recovered at significant depths below the current and/or historic ground surface. Frequently, later construction has capped these truncated features, in effect sealing them from later disturbance rather than causing it. Thus, on Blocks 60 and 85, where later nineteenth century basements were excavated over the original home lots, there is still a good likelihood that the bottom portions of these shaft features could be found beneath the later basement floors. As described in the Phase IA study, the depth of the nineteenth century basements on these lots extended 10 feet below grade or less, while the historic water table is believed to have been about 15-25 feet below grade, depending on location, leaving between 5-15 feet of space under the former basements that could contain truncated shaft features (Abell Horn 2003).

V. RECOMMENDATIONS

Based upon the conclusions presented above, the following recommendations are offered. The Phase IA study concluded that a total of three historic home lots on Liberty Street and ten historic home lots on Vesey Street should be subjected to archaeological field testing. The present Topic Intensive Archaeological Study has documented that all of these eleven lots supported a series of occupations lasting five or more years prior to the introduction of public utilities, and therefore appear to retain archaeological sensitivity. These eleven lots are recommended for archaeological field testing.

All archaeological field testing should be conducted according to applicable archaeological standards (New York Archaeological Council 1994; LPC 2002), and in consultation with the SHPO and the LPC. RPA-certified professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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1782	Trinity Church Rent Roll.
1784-1826	Sale of Lots.
1794	Register of Lots.
to 1805	Register of Lots (5).
to 1815	Register of Lots (5).
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FIGURES

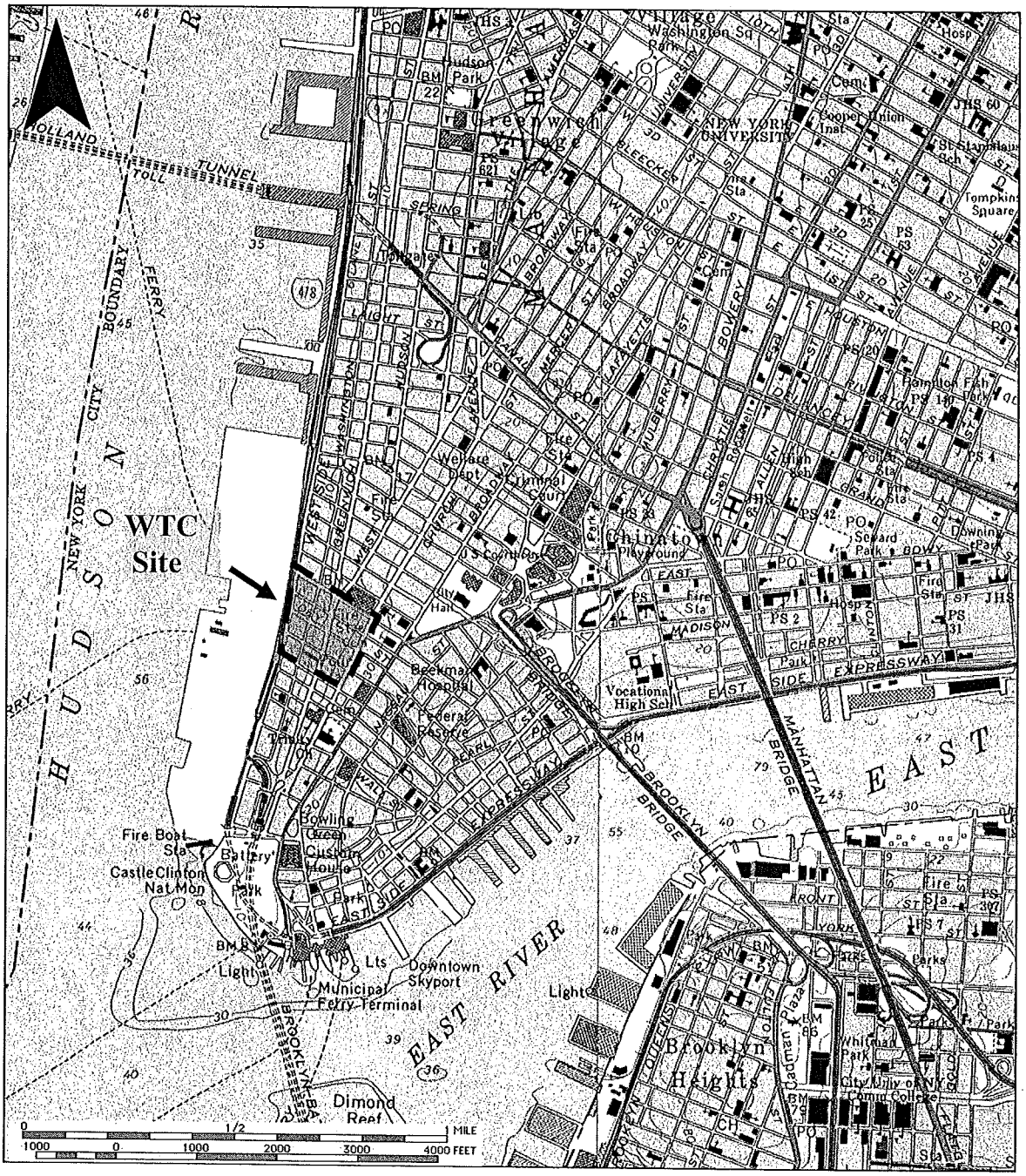


FIGURE 1

USGS Jersey City, NJ and Brooklyn, NY Quadrangles, 1976 and 1995.

World Trade Center Project Site.

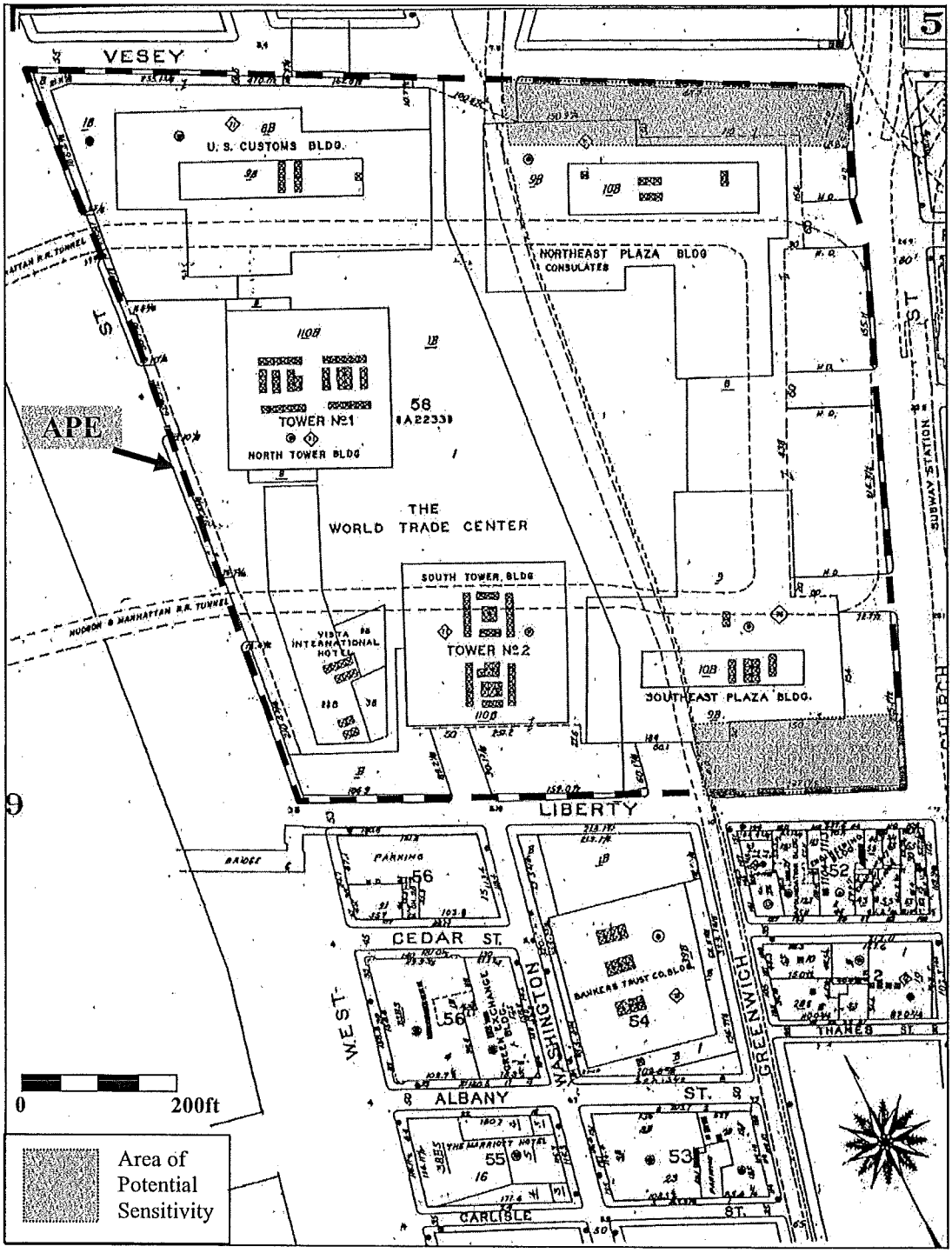


FIGURE 2

World Trade Center APE.
Sanborn 2001.

World Trade Center Project Site.

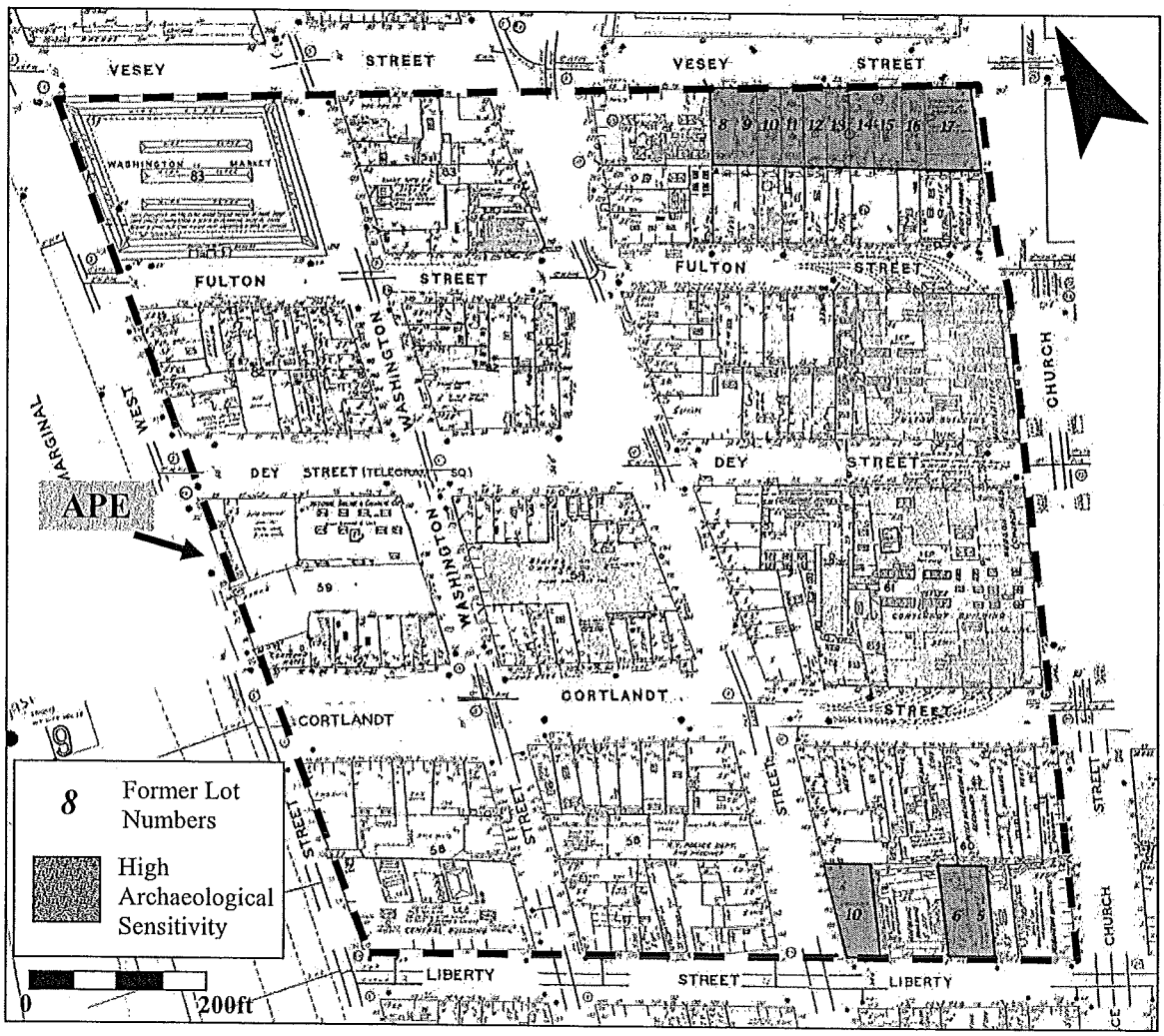


FIGURE 3

Area of Proposed Archaeological Sensitivity.
World Trade Center Project Site.
Sanborn 1951.

APPENDIX

Tables Detailing Individual Lot Histories

Block 60, Lot 5 (113 Liberty Street)

Year	Grantor	Grantee	Tax	Census	Directory
Unkn.	Lydia and John Davis	Jacob Stoutenburgh			
1786	Jacob Stoutenburgh Executors	Gulian Ver Planck			
1790				No residents identified for property	Ver Planck not on property; no other residents identified[1]
1795					Ver Planck not on property
1800				No residents identified for property	Ver Planck not on property
1806-1808					John Boorman not on property
1807			**John Boorman**		
1808			**John Booman**		
1809			John Gordon		
1810			**John Labagh**	**John Labagh (4 white males, 4 white females)**	Labagh not on property
1812			**John Labach**		**Rutgers and Seaman**
1813			**J. Labach**		
1815			**John Labach**		
1816	Gulian Ver Planck Executors	Samuel Gouverneur		**John Labach, stonecutter and fireman, 37 (5 white males, 4 white females)**	
1816	Samuel and Mary Gouverneur	William Howel			
1816	William and Harriet Howel	Joseph McKinne			
1817			**J. Labach**		
1818			**Jno. Labagh**		
1819			**Jno. Labagh**		
1820	Gideon and Margaret Pott; Joseph and Margaret McKinne	John Palmer (Master in Chancery)	John Labaugh	**John Labaugh (5 white males, 4 white females)**	
1820	John Palmer (Master in Chancery)	Gurdon Buck			
1821			John Labach		
1822			**John Labagh**		

[1] In 1792, G. V. Planck was listed as the "proprietor" (owner) for this lot, but no tenants were listed (Surveys of Streets 1780-1800, Folder 34).

Year	Grantor	Grantee	Tax	Census	Directory
1823			**John Labach**		
1824			John Labach		Labach not on property
1825			John Labach		
1826			Abraham Labach, **J. Smith**		
1827			Abraham Labach, **J. Smith**		
1828			Abraham Labach, **J. Smith**		
1829			**Gurdon Buck**		
1830			**Gurdon Buck**	**Gurdon Buck (4 white males, 7 white females)**	**Gurdon Buck and Son, merchants,** 68 South, **h. 113 Liberty**
1835			**Gurdon Buck**		**Gurdon Buck and Son, merchants,** 68 South, **h. 113 Liberty**
1836-1838					**Gurdon Buck and Son, merchants,** 68 South, **h. 113 Liberty**
1839					**Gurdon Buck, merchant,** 68 South, **h. 113 Liberty**
1840			Gordon Buck, **William Lathrop, Alfred Clapp (both merchants)**	Unable to find residents	**Gurdon Buck, merchant,** 68 South, **h. 113 Liberty**
1841					Buck no longer living on property
1844	Benjamin Sherman (Master in Chancery; Gurdon Buck et al. defendants)	Francis Loring			
1845			William C. Russell, **Ebenezer L. Hunt**		
1847			**Samuel F. Crafts, E.L. Hunt**		

Year	Grantor	Grantee	Tax	Census	Directory
1850			J.P. Russell, Agent; **Jacobsen, Max Mantzek**	**Isaac Jacobsen, Merchant, wife, 8 children, 7 male boarders (merchants, musicians, opera workers), 1 female boarder**	
1851					**Isaac Jacobsen, commercial merchant; Max Maretzek, manager**
1852	Trustees of Francis Loring et al.	George Adee			
1855			George Adee		George Adee not on property; Isaac Jacobsen not on property

Block 60, Lot 6 (115 Liberty Street)

Year	Grantor	Grantee	Tax	Census	Directory
Unkn.	Unknown	John Peers			
1790				Unable to find residents	
By 1792	Heir of John Peers	Robert Gosman[2]			
1798					**Joshua Horten Megie, cartman**
1800				Unable to find residents	**William Bradford, tailor; John Marrenner, hairdresser**
1805					**Joshua Megie, cartman;** Gosman not on property
1807	Robert and Joanna Gosman	John Ellis	Widow Parks, **Alexander Campbell, Barnet Tims, Joshua McGee**		
1808			**Harlan Megie, Burnit Frins(?)**		
1809			Alexander Campbell, **Thomas Boyd,** John Jabel(?) and J. Durand		

[2] Gosman acquired this lot from the heir of John Peers at least by 1792, when Gosman was listed as the lot's "proprietor." No tenants were listed for the lot at this time (Surveys of Streets 1780-1800, Folder 34).

Year	Grantor	Grantee	Tax	Census	Directory
1810			**Abraham King**	**Abraham King (2 white males, 3 white females, 1 slave);** (Rueben Knapp and one female listed next, but unclear which lot they were living on)	Rueben Knapp at 117 Liberty; Charles Bostwick not on property
1812			**Rueben Knapp, Charles Bostwick**		**Charles Bostwick;** (Rueben Knapp at 117 Liberty)
1813			**Widow Barfe(?), Robert Barfe(?)**		
1815	John Ellis Executors	David Austen	**Samuel Gannage**		
1816				**Samuel Garnage, merchant, 34 (2 white males, 3 white females); James Skinner, blacksmith, 30 (3 white males, 4 white females)**	
1817			**Joseph Bakings(?)**		
1818			Mrs. Van Alstine		
1819			Mrs. Van Alstine		
1820			Mrs. Van Alstine, **2 occupants (illegible)**	Unclear (but not John Gelston)	
1821			**John Gelston**		
1822			**John Gelston**		
1823			**John Gelston**		
1824			**John Gelston**		
1825			**John Gelston**		**John Gelston,** 11 Broad, **h. 115 Liberty**
1826			**John Gelston**		
1827			**John Gelston**		
1828			**John Gelston**		
1829			**Joseph Otis**		
1830			**Joseph Otis**	**Joseph Otis (1 white male, 4 white females)**	**Joseph Otis,** 47 South, **h. 115 Liberty**
1831			**Joseph Otis**		
1832			Elisha Cait		
1835			Eliza Cait		
1837	David and Mary Austen	William Wilmerding			
1837	Margaret Anthony, heir of John Peers	Robert Gosman			

Year	Grantor	Grantee	Tax	Census	Directory
1837	William and Joanna Wilmerding	Gurdon Buck			
1840			Gordon Buck, **Charles Van Wyck (merchant), Vanschaick**	Unable to find residents	
1841	Charles and Francis Loring, Trustees of Susannah Hammond, will of Gardiner Greene	Gurdon Buck			
1841	Gurdon Buck	Dudley Gregory			
1844	Thomas Emmet (Master in Chancery, Gurdon Buck et al. defendants)	Francis Loring			
1845			William Russell, **John Hillas, E. Caprano, Benjamin Ferris**		
1850			J.P. Russell, Agent	**Thomas Britt, porter, wife and 2 children; Albert Soren, porter, wife, 4 children, non-related female; William Swain, ship carpenter, wife, 5 children; John Hollien, saddler, wife; John Wehmer, carman, wife, 2 children; John O'Harra, porter, wife, 6 children; Patrick Moore, porter, wife, 5 children, non-related female; Henry Moore, porter, wife, 3 children; Andrew Flood, cordwainer, wife, 2 children**	
1851					**Thomas Britt; Albert Lorey, porter; Henry Moon, porter; Edward Hueguenin; William Swain, shipcarpenter; Patrick Moore, porter; J. Denys& Wim. Guggenheim, importers**
1852	Charles and Francis Loring, Trustees of Susannah Hammond, will of Gardiner Greene	Herman Le Roy Newbold			
1855			Newbold		Newbold not on property

Block 60, Lot 10 (135-139 Greenwich through mid-1820s; later 147-151 Greenwich)

Year	Grantor	Grantee	Tax	Census	Directory
1768	David Algeo's will filed	David and William Algeo, grandsons of David Algeo			
1790				Unable to find residents	
1792	David and William Algeo, heirs of David Algeo	Samuel Stillwell			
1792	Samuel and Elizabeth Stillwell	George Lindsay (south ¾ of lot)			
1792	George and Eliza Lindsay	Robert Hunter (south ¾ of lot; one house noted)[3]			
1797					No Meeks or Hunters listed on property
1798					**139 Gr.: Thomas Meeks, mason** (no Hunters listed on the property)
1799					**135 Gr.: George Hunter; 139 Gr.: Thomas Meeks, mason** (no other Hunters listed on property)
1800				**John Hunter (2 white males, 1 white female, 3 free blacks); Ruth Hunter (1 white male, 3 white females, 3 free blacks, 1 slave); Thomas Meeks (2 white males, 3 white females)**	**135 Gr.: George Hunter, John Hunter, auctioneer; 137 Gr.: Hunter, widow of Robert; Samuel Bell, accountant; 139 Gr.: Thomas Meeks, grocer** (no Browns on property)
1803					**137 Gr.: Hunter, widow of Robert**

[3] In 1792, Robert Hunter was listed as the "proprietor" of this lot, but no tenants were listed (Surveys of Streets, 1780-1800, Folders 33 and 34).

Year	Grantor	Grantee	Tax	Census	Directory
1805					**137 Gr.: Hunter, widow of Robert; 139 Gr.: Mary Brown, mantuamaker**
1806					**137 Gr.: Hunter, widow of Robert**
1807			**135 Gr.:** Widow McKenzie, **Mr. Melick, James Boyd, Mr. McDole, Mr. Sprigg, Mr. Gibben; 137 Gr.: Silvanus Miller; 139: Francis Cochran, Thomas Brown**		No Hunters on property
1808			**135 Gr:** Widow McKenzie, **P. Melick, James Boyd, John King, Stephen Baker, Benjamin Palmer, John Givent, John P. Foot, Mr. Asten; 137 Gr.: G.V. Ludlow; 139 Gr.: Thomas Brown**		
1809			**135 Gr.:** Widow Mary McKenzie, **B.P. Melick, Archibald Austin, James Boyd, James Van Vecten, Benjamin Palmer, John Given, John P. Foot, William Chapman; 137 Gr.: Gabriel V. Ludlow; 139 Gr.: Thomas Brown**		

Year	Grantor	Grantee	Tax	Census	Directory
1810			135 Gr.: Ranson Clark, Donal Malcomb; 137 Gr.: G.V. Ludlow; 139 Gr.: Thomas Brown	Ranson Clark (5 white males, 3 white females, 2 free blacks, 3 slaves); Gabriel V. Ludlow (4 white males, 4 white females, 1 slave); Thomas Brown (2 white males, 3 white females)	135 Gr.: Francis Sennes, fruiter; 137 Gr.: G.V. Ludlow, counselor; 139 Gr.: Thomas Brown, grocer
1811			135 Gr.: G.V. Ludlow, Robert Hunter, Francis Sennes; 137 Gr.: G.V. Ludlow; 139 Gr.: Thomas Brown		
1812					135 Gr.: Ruth Broome, Francis Sennes; 137 Gr.: G.V. Ludlow; 139 Gr.: Thomas Brown
1813			135 Gr.: Mrs. Broome, Francis Sennes; 137 Gr.: Jacob Valentine, Isaac Valentine; 139 Gr.: Thomas Brown		
1815			135 Gr.: Mrs. Broome, Francis Sennes; 137 Gr.: Robert Hunter; 139 Gr.: John McKenna		
1816				135 Gr.: Mrs. Broom (2 white males, 2 free blacks); 137 Gr.: Robert Hunter, 27, gentleman (1 white male, 7 white females, 1 male slave); 139 Gr.: John McKenna, 22, grocer(2 white males, 2 white females)	
1817	James Gill conveys his interest	Theophilus A. Gill (north ¼ of lot)	135 Gr.: Mrs. Broome; 137 Gr.: Robert Hunter; 139 Gr.: Gill		

Year	Grantor	Grantee	Tax	Census	Directory
1818			**135 Gr.: Mrs. Broome; 137 Gr.: John Crawford, Jno. Lantwell(?);** 139 Gr.: Theo. Gill		
1819			**135 Gr.: Mrs. Broome;** 137 Gr: Mrs. Broome; 139 Gr.: Theo. Gill		
1819-1829	Various other family members convey their interest	Theophilus A. Gill (north ¼ of lot)			
1820			**135 Gr.: Mrs. Broome;** 137 Gr: Mrs. Broome; 139 Gr.: Theo. Gill	**Mrs. Broome (3 white females, 2 free back females, 1 free black male)**	
1821			**147 Gr.: Mrs. Broome;** 149 Gr: Mrs. Broome; 151 Gr.: Theo. Gill		
1822			**147 Gr.: Mrs. Broome;** 149 Gr: Mrs. Broome; 151 Gr.: Theo. Gill		
1823			147 Gr.: Mrs. Broome; **149 Gr: Mrs. Broome;** 151 Gr.: Theo. Gill		
1824			**147 Gr.: Mrs. Broome;** 149 Gr: Mrs. Broome; 151 Gr.: Theo. Gill		

Year	Grantor	Grantee	Tax	Census	Directory
1825			147 Gr.: Mrs. Broom, **Wm. A.G. Thompson, merchant, Timothy Armsted, merchant, Mr. Scriber, broker;** 149 Gr.: Mrs. Broom; 151 Gr.: Theophilus A. Gill, **Charles A. Carpenter**		
1830			Mrs. Broom (147, 149 Gr.); T.A. Gill (151 Gr.)	Unable to find residents	Gill not on property
1835	Horatio Gates Lewis (Robert Hunter's heir's husband)	Richard Harison (attorney owed money) (interest in middle portion of lot with house); Ruth Broome, Hunter's widow (retains south portion of lot and house as dower right)	147, 149 Gr.: Mrs. Broome; 151 Gr.: Thomas A. Gill, **David Jones**		Gill not on property
1835	Richard Harison	Robert Ludlow			
1840			Philip Schuyler, agent (147, 149 Gr.); Theo. Gill (151 Gr.)	Unable to find residents	Gill not on property
1845	Philip Ruggles (Master in Chancery, Robert Ludlow et al., defendants)	Theophilus A. Gill (south ¾ of lot with 2 houses, now 147 and 149 Greenwich)	Thomas A. Gill (147 and 149 Gr. noted as "unfinished")		
1850			Theo. A. Gill, **Edw. Volger(?) (147 Gr.); Wm. Firderer (149 Gr.); Wm. McKenna (151 Gr.)**	**Charles Speroni, tailor, wife, 2 children; Mathias Bauer, confectioner, wife, 6 children, 3 non-related males; Wilhemina Kipash; John Rust, cabinet maker, wife, 2 children; Marius Roger, watch maker, wife, 2 children**	

Year	Grantor	Grantee	Tax	Census	Directory
1851					**147 Gr.: Merkle & Dung, drugs, Philip Merkle, Albert Dung, William Frank, caps; 149 Gr.: William Firderer, fancygoods, F.W.C. Ruthardt, Wm. Roche, secondhand books; 151 Gr.: John Lutz, thread & needles, Frederick Wolz, butcher, Charles Speroni, tailor, Marius Roger, watchcases, Catherine Falconer, milliner**
1855			T.A. Gill (153, 157, 161 Gr.); **M. Lederer (157 Gr.); E. Graw(?) (161 Gr.); Joseph Meyers (161 ½ Gr.)**		**Michael Lederer, clothing,** 182 and 158 Gr., **h. 157 Gr.;** no Gill, Meyers, or Graw on property

Block 85, Lot 8 (Lot 49 of Trinity Church Farm, 53 Vesey through the mid-1810s, then 55 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1759	Church	Johannes Ackerman (21-yr lease)			
1773		Thomas Lincoln (lease assumed based on later expiration data)			
1775	Church	"lease expired and vacant"			
1780		1759 lease expired			
1781	Church	"lease expired and vacant"			

Year	Grantor	Grantee	Tax	Census	Directory
1787	Church	George & Carle Pollock			
1787	Church	"T.C....tenant pays T.C."			
1787	Church	Thomas Jones (no lease)			
1790				Unable to find residents	Unable to find residents[4]
1792	Church	Simon Van Antwerp (21-yr lease)			
between 1792 and 1794	Church	George Sutton (lease)			**George Sutton, broker** (1794 only)
between 1792 and 1794	Church	Edward I. Platt			
1795					**Thomas Greswold, distiller**
1796	Church	John Griswold			**Thomas Greswold, distiller**
1800				No residents listed for this lot	**Amelia Holden, boarding house**
1805	Church	L. Lispenard (99-yr lease)			Holden not on property
post 1805		John Murray (lease)			
1807			Israel Titus		
1808			**John Dover**		
1809			Widow Ann Stagg, **Benjamin Stagg, Henry Stagg**		
1810			**Jothan Smith, Samuel Gruman**	**Jothan Smith (5 white males, 3 white females); Thomas Jones (4 white males, 1 white female)**	Jothan Smith and Samuel Gruman not on property
1812	Church	Conner & Van Winkle (42-yr lease, w/o "Covenant of Renewal")			
1812	Church	Andrew Raymond (lease)	**Jothan Smith**		**Andrew Raymond**
1813		1792 lease expiration	**Andrew Raymond**		

[4] No "proprietor" (owner) or tenant listed in 1792 (Survey of Streets 1780-1800, Folders 20, 21).

Year	Grantor	Grantee	Tax	Census	Directory
1815			**Andrew Raymond**		
1816				**Andrew Raymond, 50, attorney (2 white males, 2 white females)**	
1817			**Andrew Raymond**		
1818			**William Dodge, Jr., Jno. L. Robins**		
1819			**William Dodge, Jr., George A. Baker**		
1820			**William Dodge, Jr.**	**William Dodge (9 white males, 5 white females, 1 female slave)**	**William Dodge, coal merchant**
1822			Connor and Van Winkle		Connor and Van Winkle, auctioneers, not listed on property
1823			Connor and Van Winkle		**Jacob Van Winkle, 55 Vesey,** h. 66 Vesey
1824			Connor and Van Winkle		**Jacob Van Winkle, 55 Vesey,** h. 66 Vesey
1825			Connor and Van Winkle		**Jacob Van Winkle, 55 Vesey,** h. 66 Vesey
1826			Van Winkle and Connor		
1827	Church	Abraham Van Buskirk (lease)	Connor and Van Winkle		
1830			Connor and Van Winkle	Unclear	**John Connor, auctioneer, 55 Vesey,** h. 225 Hudson
1831			Jacob Van Winkle		
1834	John Connor and Jacob Van Winkle assign lease	John Morrison			**Jacob Van Winkle, auctioneer, 55 Vesey,** h. 305 Greenwich
1834	John C. Morrison, druggist, assigns lease	Leonard Gordon, cordial distiller			

Year	Grantor	Grantee	Tax	Census	Directory
1835			Leonard Gordon		**Leonard Gordon, cordial distiller, lemon and raspberry syrup manuf., 55 Vesey,** h. 189 Duane; Connor and Van Winkle not on property
1836	Church	Thos. Lincoln (lease expiration)			
1840			Leonard Gordon	Unable to find residents	**Leonard Gordon, cordial distiller, lemon and raspberry syrup manuf., 55 Vesey,** h. 189 Duane
1845			P. Gordon		
1850			Philip Gordon	Unable to find residents	
1851					**Philip Gordon, cordials and syrup manufactory,** house Jersey City
1855			P. Gordon		**Philip Gordon, distiller,** h. Jersey City

Block 85, Lot 9 (Lot 48 of Trinity Church Farm; 51 Vesey through mid 1810s, 53 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1759	Church	David Brewer, house carpenter (21-yr lease)			
1773		Thomas Lincoln (lease assumed based on later expiration data)			
1775	Church	"lease expired and vacant"			
1780		1759 lease expired			
1781	Church	"lease expired and vacant"			
1787	Church	William McKenny			

Year	Grantor	Grantee	Tax	Census	Directory
1787	Church	Cornelius Ray (sold at A.L. Bleeker Auction)			
1790				Unable to find residents	
1792	Gabriel Verplanck Ludlow, *Gentleman*	Cornelius Ray			
1795					**John Hallam, saddler; John Haswell, carman;** Cornelius Ray not on property
1796	Church	John Griswold (10-yr lease)			**Mrs. Eleanor Ray**
1797					**Mrs. Eleanor Ray**
1798					**Mrs. Eleanor Ray**
1799					Samuel Moore, Isaac Johnson, William Thompson and James Moncriesse not on property
1800				**Samuel Moore (6 white males, 1 white female, 1 slave); William Thompson (1 white male, 1 white female); Isaac Johnson (1 white male, 2 white females); James Moncriesse (1 white male, 2 white females)**	**Isaac Johnson, ship carpenter; James Moncreisse, ship carpenter** (William Thompson, Samuel Moore and Cornelius Ray not listed on property)
1805					**Samuel Moore, boarding house;** Joseph Burjeau and Cornelius Ray not on property
1806		1796 lease expired			**Samuel Moore, boarding house;** Benjamin Gilmore not on property
1807			**Benjamin Gilmore**		**Benjamin Gilmore, merchant;** Samuel Moore not on property

Year	Grantor	Grantee	Tax	Census	Directory
1808			Benjamin Gilmore, Samuel Gillian		
1809			Joseph Burjeau, James Moore, Joseph Miller, Benjamin Bartlett, Noah Bartlett		
1810	Church	Lispenard & Stewart (99-yr lease)	Joseph Burjeau, Wm. Angus, Mr. Coon	Joseph Berjeau (2 white males, 2 white females); William Angus (1 white male, 2 white females); Abby Lowell (2 white females); William Coon (3 white males, 1 white female)	Joseph Burjeau; Abraham Coon, hatter; Wm. Angus, carpenter
1811					
1812			Joseph Berjeau, Mr. Wells, Mr. Angus		Joseph Burjeau
1813			Joseph Burjeau, Wm. Higgins		
1815			Joseph Burjeau, John Burrows, Jr.		
1816				Joseph Berjeau, 33, artillery, (1 white male, 3 white females); John Burrows, Jr., 26, carpenter, (2 white males, 1 white female); William Buck, 29, carpenter, (2 white male)	
1817			Joseph Burjeau		
1818			Joseph Burjeau, William Nald		
1819			Joseph Burjeau		
1820			Joseph Burjeau	William Shaw (1 white male, 1 white female); Joseph Burjeau (2 white males, 3 white females); John Nald (1 white male, 3 white females); Bartholomew Martin (1 white male, 1 white female)	Bartholomew Martin, wine merchant; John, William, and Widow Catherine Nald; Burjeau and Shaw not listed on property
1821			Joseph Burjeau, Wm. Shaw		
1822			Joseph Burjeau		

Year	Grantor	Grantee	Tax	Census	Directory
1823			Cornelius Ray, **Mr. Shaw, Dominick Eggert**		
1824			Cornelius Ray, **Wm. Shaw**		
1825			Cornelius Ray, **Jared Willers, fisherman**		
1826			Cornelius Ray, **Jared Willers**		
1827			Estate of Cornelius Ray, **Jared Wilinks, Nathan Eldridge**		
1830			Estate of Cornelius Ray	**N. Eldridge (4 white males, 3 white females)**	**Nathan Eldridge, fisherman**
1831			Estate of Cornelius Ray		
1833	Executors of Cornelius Ray	John C. Morrison			
1833	John C. and Hilah Morrison	Charles Trinder			
1835			Charles Trinder		Trinder not on property
1836	Church	Thos Lincoln (lease expired)			
1840			Estate of Charles Trinder	Unable to find residents	
1845			Estate of Charles Trinder		
1849	Executors of Charles Trinder	Charles Lalin			
1850			Charles Lalin	Unable to find residents	**Charles Lalin, boarding, 53 Vesey, h. 53 Vesey**
1851					**Charles Lalin, porter house; Henry Ludwig and Co., printers**
1855			Charles Lalen		Lalin and Ludwig not on property
1909		1810 lease expired			

Block 85, Lot 10 (Lot 47 of Trinity Church Farm; 49 Vesey through mid-1810s, then 51 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			

Year	Grantor	Grantee	Tax	Census	Directory
1759	Church	Jacobus verveelen (21-yr lease)			
1773		Thomas Lincoln (lease assumed based on later expiration data)			
1775	Church	"lease expired and vacant"			
1780		1759 lease expired			
1781	Church	"lease expired and vacant"			
1782	Church	W. Wighton (no lease)			
1787	Church	William McKenny (30-yr lease)			
1787	Church	Cornelius Ray (sold at A.L. Bleeker Auction)			
1790				Unable to find residents	
1792	Church	A. Raymond (21-yr lease)			
1792	Gabriel Verplanck Ludlow, *Gentleman*	Cornelius Ray			
1796	Church	John Griswold (10-yr lease)			
1799					**Isaac Riley, merchant;** no Cox or Jones on property
1800				**Isaac Cox (2 white males, 3 white females, 3 slaves); Isaac Jones (2 white males, 2 white females, 1 slave)**	**Isaac Riley, merchant; the Misses and Miss M. Beekman; Catharine Cox**
1805					Ludlow not on property
1806		1796 lease expired			
1807			**Widow Nicholson**		
1808			**Peter Ludlow**		
1809			**Peter and Robert Ludlow**		
1810	Church	Lispenard & Stewart (99-yr lease)	**Peter and Robert Ludlow**	**Peter Ludlow (8 white males, 3 white females, 1 slave)**	
1812			**Henry King**		**Henry King**
1813		1792 lease expired	**Henry King**		
1815			Henry King		

Year	Grantor	Grantee	Tax	Census	Directory
1816				**Henry King, 30, merchant (2 white males, 6 white females, 2 female slaves)**	
1817		1787 lease expired	**Henry King**		
1818			**Henry Lott**		
1819			**Henry Lott**		
1820			Cornelius Ray	**Sarah Gunn (4 white males, 8 white females, 1 free black female)**	**Sarah Gunn, boarding house**
1822			**M. Deposway**		
1823			**M. Deposway**		
1824			Cornelius Ray, **Michael Dykers**		
1825			Cornelius Ray, **Michael Dykers**		**P. Dykers, M.D., 51 Vesey** and 80 Pearl; no Michael Dykers on property
1826			Cornelius Ray, **Michael Dykers**		**Michael Dykers; P. Dykers, M.D.**
1827			Estate of Cornelius Ray, **Michael Dykers**		
1830			Estate of Cornelius Ray, **Lewis Forman**	**Mrs. Crygier (5 white males, 6 white females, 1 free black female)**	**C. Crygier;** Forman not on property
1831			Estate of Cornelius Ray, **Lewis Forman**		
1833	Executors of Cornelius Ray	John C. Morrison			
1834	John C. and Hilah Morrison	William Post			
1835	John and Mary King	William Post, surviving partner of Post, Gerardus and John C. Morrison	John C. Morrison		No Morrisons on property
1835	Executors of Gerardus Post	William Post	John C. Morrison		
1836	Church	Thos Lincoln (lease expired)			
1837					**Christian Morrison**
1839					**Christian Morrison**
1840	William and Catherine Post	John S. Giles, Trustee for Christian B. Morrison, William Post, Jr. and Sarah Morrison	Wm. Post, **Christian Morrison, druggist**	Unable to find residents	**Christian Morrison,** 186 and 188 Greenwich, **h. 51 Vesey**

Year	Grantor	Grantee	Tax	Census	Directory
1845			Wm. Post, Trustee, **Christian Morrison**		
1850			Wm. Post and John Giles, Trustees	**Christian Morrison, 40, occupation illegible, wife, 3 children, 3 unrelated females**	
1851					**Christian Morrison**
1852					Christian Morrison not on property
1855			Wm. Post and John Giles, Trustees		Christian Morrison not on property
1909		1810 lease expired			

Block 85, Lot 11 (Lot 46 of Trinity Church Farm; 47 Vesey through mid-1810s, then 49 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1758	Church	John Bradburn (21-yr lease)			
1773		Thomas Lincoln (lease assumed based on later expiration data)			
1775	Church	"lease expired and vacant"			
1779		1758 lease expired			
1781	Church	"lease expired and vacant"			
1782	Church	G. Wighton (no lease)			
1787	Church	John Sullivan (46R) (sold at A.L. Bleeker auction)[5]			
1788	Church	Richard Westervelt (21-yr lease)			
1790				Unable to find residents	
Between 1788 and 1794	Church	Benj. Westervelt (lease)			

[5] John Sullivan was listed as the "proprietor" (owner) of this lot in 1792 (Survey of Streets 1780-1800, Folders 20, 21), along with adjacent Lot 12.

Year	Grantor	Grantee	Tax	Census	Directory
1796	Church	John Griswold (10-yr lease)			
1800				Silas Talbot (2 white males, 2 white females, 1 free black, 1 slave)	Silas Talbot, captain of the *Constitution*
1801					Silas Talbot, captain of the *Constitution*
1803					George W. Talbot, merchant
1805					George W. Talbot, merchant
1806		1796 lease expired			
1807			G.W. Talbot		
1808			G. W. Talbot		
1809		1788 lease expired	George W. Talbot		
1810	Church	Lispenard & Stewart (99-yr lease)	George Talbot	George W. Talbot (4 white males, 3 white females, 2 free blacks)	George W. Talbot, merchant
1812			John Holden, Geo. W. Talbot		George Talbot
1813			George W. Talbott		
1815			Mrs. Steal		
1816				Mrs. Steel, no age or profession given, (7 white females, 1 female slave)	
1817			Mrs. Steele		
1818			Mrs. Steele		
1819			Mrs. Steele		
1820			Mrs. Steele	Isabella Steele (1 white male, 7 white females)	Steel, widow of Robert M.
1821			Mrs. Steele		
1822			Mrs. Steele		
1823			Jno. P. Schemmerhorn		
1824			John P. Schemmerhorn		
1825			John P. Schemmerhorn		J. P. Schermerhorn, merchant
1826			John P. Schemmerhorn		J. P. Schermerhorn, merchant
1827			Thompson, Henry Inman		Henry Inman

Year	Grantor	Grantee	Tax	Census	Directory
1830			**Frederick Pince**	**Frederick Pentz (4 white males, 2 white females, 1 free black female)**	
1831			**Frederick Pense**		
1835			**Frederick Pince**		
1836	Church	Thos Lincoln (lease expired)			
1840			Frederick and **John Pentz**	Unable to find residents	
1845			**Frederick and John Pentz**		
1847			**Frederick and John Pentz**		
1850			**Frederick Pentz**	**Frederick Pentz, 50, President Mechanics Association Bank, wife; Frederick Pentz (Jr.), 23, merchant; John Pentz, 35, store; Elizabeth Pentz, 70**	
1851	Alfred Thompson, Trustee of William A. Thompson	Samuel P. Bell			**Frederick Pentz**
1855			S.P. Bell		Frederick Pentz no longer on property; Bell not on property
1909		1810 lease expired			

Block 85, Lot 12 (Lot 45 of Trinity Church Farm; 45 Vesey through mid-1810s, then 47 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1758	Church	Jacobus Ver Veelen (21-yr lease)			
1773		Thomas Lincoln (lease assumed based on later expiration data)			
1775	Church	"lease expired and vacant"			
1779		1758 lease expired			
1781	Church	"lease expired and vacant"			
1782	Church	G. Wighton (no lease)			
1787	Church	John Sulivon (45R) (sold at A.L. Bleeker auction)			

Year	Grantor	Grantee	Tax	Census	Directory
1788	Church	Isaac Halsey (21-yr lease)			
between 1788 and 1794	Church	James Lergent (?)			
1790				Unable to find residents	
1792	John Sullivan, Merchant Mary, his wife	John Holdron, Gentleman			
between 1794 and 1805	Church	John Hoes			
between 1794 and 1805	Church	Trinity Church endowed Grace Church. Grace leased out lot and used the rent (lease)			
1796	Church	John Griswold (10-yr lease)			
1797					Alexander Hosack not on property
1798					**Alexander Hosack, merchant; William Hosack, attorney**
1800				**Alexander Hosack (1 white male, 2 white females, 1 slave)**	**Alexander Hosack, merchant**
1805					**Alexander Hosack, merchant**
1806		1796 lease expired			
1807			**Alexander Husick**		
1808			**Alexander Hosack**		
1809		1788 lease expired	**Alexander Hosack**		
1810	Church	Lispenard & Stewart (99-yr lease)	**Alexander Hosack**	**Alexander Hosack (1 white male, 1 white female, 1 slave)**	**Alexander Hosack, merchant**
1811	John Holdron	Abraham Van Gelder			
1812			**Alexander Hosack**		**Alexander Hosack; William Hosack**
1813			**Alex. Hosack**		

Year	Grantor	Grantee	Tax	Census	Directory
1815			**Alex. Hosack**		
1816				**Alexander Hosack, 80, gentleman (1 white male, 1 white female, 1 female slave)**	
1817			**Alex. Hosack, Jacob Dyckman**		
1818			**Alex. Hosack, Dr. Dyckman**		
1819			**Alex. Hosack, Dr. Dyckman**		
1820			**Alexander Hosack, Dr. J. Dyckman**	**Alexander Hosack (2 white males, 3 white females, 1 male slave)**	**Alexander Hosack, merchant**
1821			Mrs. Van Gelder, **Alex. Hosack, Dr. Dyckman**		
1822			Mrs. Van Gelder, **Estate of Alex. Hosack, Dr. Dyckman**		
1823			Mrs. Van Guilder, **Estate of Alex. Hosack**		
1824			Mrs. Van Guilder, **Estate of Alex. Hosack**		
1825			**Henry Inman, Portraits**		
1826			**Henry Inman, Thos. Cummings**		**Henry Inman, portrait painter; Inman and Cummings, portrait and min. paint**
1827			**John Lamb**		**Henry Inman, portrait painter; Inman and Cummings, portrait and min. paint**
1830			**W.W. Scrughams**	**W.W. Scrughams (2 white males, 6 white females)**	
1831			**Wm. W. Schrughams**		
1835			**P. Besennard, P. Pressedder(?)**		
1836	Church	Thos Lincoln (lease expired)			
1840			Martha Wheeler	Unable to find residents	

Year	Grantor	Grantee	Tax	Census	Directory
1845			Martha Wheeler, **John Fenniman, grocer, Ceasar Vanderett**		**Jacob Fineman & Co., grocers**
1847			**John Fenniman, Caesar Vanderbilt**		
1848	James Maurice (Master in Chancery), Abraham Rose et al., defendants	Samuel Ely, Abraham Rose, Jonathan Seely			
1848	Abraham and Eliza Rose and Jonathan and Martha Seely	Samuel Ely			
1850			Dr. Samuel Ely	Unable to find residents	
1851					**Louis Schworer, wines; J.C. Pulschan, grocer; F.C. Kinney, shovel maker; W.H. Smith; James Powell; Joseph Butler**
1855			Ely and Rose		Ely and Rose not on property
1909		1810 lease expired			

Block 85, Lot 13 (Lot 44 of Trinity Church Farm; 43 Vesey through mid-1810s, then 45 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1761	Church	**Catherine Miller, " free negro woman" (11-yr lease)**			
1772		1761 lease expired			
1773	Church	Thomas Lincoln (63-yr lease)			
1782	Church	Geo Hass (5-yr lease)			
1787		1782 lease expired			
1787	Church	Andrew Morris (sold at A.L. Bleeker auction)			

Year	Grantor	Grantee	Tax	Census	Directory
1788	Church	John Horne (21-yr lease)			
1790				Unable to find residents	[6]
1795					**James Hepburn, mason**
1797					Pierre Depeyster not on property
1796	Church	John Griswold (10-yr lease)			
1798					**Pierre Depeyster, shipmaster**
1799					**Pierre Depeyster, shipmaster**
1800				**Pierre DePeyster (3 white males, 3 white females, 3 slaves)**	**Pierre Depeyster, shipmaster**
1805	Church	A.L. Stewart (99-year lease)			**Philip Grim, merchant;** Pierre Depeyster not on property
1806		1796 lease expired			
1807			**Philip Grim**		
1808			**Philip Grim**		
1809		1788 lease expired	**Philip Grim**		
1810			**Philip Grim**	**Philip Grim (5 white males, 4 white females, 2 free blacks)**	**Philip Grim, merchant**
1812			**Philip Grim**		**Philip Grim**
1813			**Philip Grim**		
1815			Philip Grim		
1816				**Philip Grim, 50, merchant (8 white males, 4 white females, 2 free black females); John Baddy, 24, sail maker and fireman (1 white male)**	
1817			**Philip Grim**		
1818			**Philip Grim**		
1819			**Philip Grim**		

[6] Stephen Cooper is listed as a tenant in 1792 (Survey of Streets, 1780-1800, Folders 20 and 21).

Year	Grantor	Grantee	Tax	Census	Directory
1820			**Philip Grim**	**Philip Grim (9 white males, 5 white females)**	**Philip Grim, merchant**, 30 Old Slip, **h. 45 Vesey**
1822			Estate of Philip Grim		
1823			**Estate of Philip Grim**		
1824			**Estate of Philip Grim**		
1825			**Estate of Philip Grim**		
1826			**Estate of Philip Grim**		
1827			**Estate of Philip Grim**		
1830			**Estate of Philip Grim**	**Mrs. Grayhorn (4 white males, 6 white females)**	No Grayhorn listed on property
1831			Estate of Philip Grim, **Henry Salisbury, Ransom Brody**		
1835			Nathaniel Bunn(?)		
1837-1839					Joseph Bell not listed on property
1840			**Joseph T. Bell,** Eliza Grim	Unable to find residents	
1845			**Joseph T. Bell**		**Joseph T. Bell,** military store, 186 Fulton, **h. 45 Vesey**
1847			**Joseph T. Bell**		
1848	Almet and Helen Reed	Thomas Cargill			
1848	Thomas and Harriet Cargill	Margaret Stephens			
1849	John J.V. Westervelt (sherrif), interest of Thomas Cargill	Almet Reed			**Joseph T. Bell,** military store, 186 Fulton, **h. 45 Vesey**
1849	Almet and Helen Reed	Thomas H. Beale			
1850	Thomas H. and Eliza Beale	John Lowerre	Thomas H. Beale	Unable to find residents	Bell not listed on property
1851					**T.H. Beal, cabinet maker**
1853	Thomas Carnley (sherrif), interest of Thomas H. Beale	Peter Lynch and George Harrison			

Year	Grantor	Grantee	Tax	Census	Directory
1855			T.H. Beal		**Henry Ludwig, printer and publisher, 45 Vesey,** h. 188 Grand; no Beal or Harrison on property; Peter Lynch listed for Lot 15
1904		1805 lease expired			

Block 85, Lot 14 (Lot 43 of Trinity Church Farm; 39 or 41 Vesey through the mid-1810s, then 43 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1758	Church	**Catherine Francis (21-yr lease)**			
1775	Church	"lease expired and vacant"			
1779		1758 lease expired			
1781	Church	"lease expired and vacant"			
1782	Church	Geo Hass (5-yr lease)			
1784	Church	Henry Sharp (sold at A.L. Bleeker auction)			
1786	Church	Joseph Devoe (21-yr lease)			
betwe en 1786 and 1794	Church	John Heron (lease)			
1787		1782 lease expired			
1787	Church	Andrew Morris (H. Sharp) (sold at A.L. Bleeker auction)			
1790				Unable to find residents	
1792	Andrew Morris, Tallow Chandler Eleanor, his wife	David Pierson, House Carpenter[7]			

[7] David Pearson is listed as a tenant on the lot in this year (Survey of Streets 1780-1800, Folders 20, 21).

Year	Grantor	Grantee	Tax	Census	Directory
1794					**David Pierson, house carpenter; James Piekton, house carpenter**
between 1794 and 1805	Church	John Heron			
between 1794 and 1805	Church	Robert Penne (lease)			
between 1794 and 1805	Church	Trinity Church endowed Grace Church. Grace leased out lot and used the rent (lease)			
1795					John Bard not listed on property
1796	Church	John Griswold (10-yr lease)			**John Bard, broker**
1797					**John Bard, broker**
1798	Daniel Pierson, House Carpenter Hester, his wife	John Bard, Jr., Insurance Broker			**John Bard, Jr.**
1800				**John Bard (2 white males, 3 white females, 1 free black)**	**John Bard;** Grim not on property
1801					**John Bard**
1804	Anne Elder	Philip Grim			
1805	Church	William Paulding (99-yr lease)			Barrow not on property
1806		1796 lease expired			Barrow not on property
1807		1786 lease expired	**William Barrow**		
1808			**Dr. William Barrow**		
1809			**Dr. William Barrow**		
1810			**John Keese**	**John Keese (4 white males, 5 white females, 2 free blacks)**	**John Keese, druggist; Rosa Keese, widow**
1812			**John Blagge, James Blagge**		**John Blagge**
1813			**John Blagge, Alex. Hamilton**		

Year	Grantor	Grantee	Tax	Census	Directory
1815			John Blagge, **Theodore V. Varick**		
1816				**John O'Dey, 30, merchant (1 white male, 6 white females, 1 male slave); Asa Worthington, 27, merchant (5 white males, 2 female slaves)**	
1817	Church	Obadiah Holmes, assignment of lease	Mrs. Blagge, **Richard Hamilton, Charles Douglas, Alex. McDonald, Edward Livingston**		
1818			Mrs. Blagge, **Jones, Robert Given**		
1819			Nathaniel Pendleton, **J. P. Schemmerhorn**		
1820			Nath. Pendleton	**Abraham Bussing (8 white males, 7 white females, 2 free black males, 1 free black female)**	**Abraham Bussing**
1822			Estate of Nathaniel Pendleton		**Abraham Bussing**
1823			Estate of Nathaniel Pendleton		**Abraham Bussing**
1824			Nathaniel Pennington		**Abraham Bussing**
1825			Nathaniel Pendleton		Abraham Bussing not on property
1826			Nathaniel Pendleton		
1827			Nathaniel Pendleton		
1830			Estate of Nathaniel Pendleton, **Henry Inman**	**Henry Inman (4 white males, 4 white females)**	**Henry Inman, portrait painter**
1831			Estate of Nathaniel Pendleton, **Dr. Grayson**		
1832			**Dr. Grayson**		
1834	Church	Nicholas Slakor (lease expired)			
1835			**Dr. Grayson**		
1840			**Dr. Grayson**	Unable to find residents	

Year	Grantor	Grantee	Tax	Census	Directory
1845			**Dr. Wm. Grayson**		
1846					Grayson not listed on property
1847	Widow (Elizabeth Grim) and heirs (Philip and Augustus Grim, Maria and Isabella Schermerhorn) of Philip Grim	Almet Reed			Grayson not listed on property
1847	John Schernerhorn, assignee of George Schermerhorn	Almet Reed	**John Boyd**		
1850			Estate of Dr. Grayson	Unable to find residents	
1851					**John Boyd, liquors**
1855			Estate of Dr. Grayson		**John Boyd, liquors, 45 Vesey, h. 45 Vesey**
1904		1805 lease expired			

Block 85, Lot 15 (Lot 42 of Trinity Church Farm; 37 Vesey through the mid-1810s, then 41 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1760	Church	John Hendrick Gauthor (21-year lease)			
1762	Church	**David Brewer, house carpenter (17-yr lease)**			
1775	Church	"lease expired and vacant"			
1781	Church	"lease expired and vacant"			
1782	Church	John Besonet (19-yr lease)			
1783		1762 lease expired			
1786	Church	James Carter (21-yr lease)			
between 1786 and 1794	Church	James Westervelt (lease)			

Year	Grantor	Grantee	Tax	Census	Directory
1787	Corporation of Trinity Church	Hubert Van Wagenen (42R) (sold at A.L. Bleeker auction)			
1790				Unable to find residents	[8]
no later than 1794	Church	Benjamin Smith (lease)			
1794	James Renwick, James Nicholson, John Murray, Jr., James Watson, Matthew Clarkson, Henry Ten Broeck, Jacob Hallett, William W. Gilbert, Nicholas Cruger	Hubert Van Wagonen, Gentleman, Vestryman 1787-1806 (21-year lease)			
between 1794 and 1805	Church	Benj Smith (lease)			
between 1794 and 1805	Church	New Town Church (lease)			
1795					Van Wagonen not on property
1796	Church	John Griswold (10-yr lease)			Van Wagonen not on property
1800				**John Mandebee(?) (1 white male, 3 white females, 2 slaves)**	
1801		1782 lease expired			
1803	William Pultney	David Grim, Samuel Mansfield, and Walter Bowne			Grim, Mansfield, and Bowne not on property
1804	David Grim, Samuel Mansfield, and Walter Bowne of the New York Bread Company	John Hyslop, baker			
1805	Church	William Paulding (99-yr lease)			Hyslop, Barrow, Depeyster, Grim not on property
1807		1786 lease expired	**James Lloyd**		Hyslop not on property
1808			John Hyslop		Hyslop not on property
1809			John Hyslop		Hyslop not on property

[8] A "manufactory" is listed for Lots 15, 16, and the west half of 17 in 1792 (Survey of Streets 1780-1800, Folders 20, 21).

Year	Grantor	Grantee	Tax	Census	Directory
1810			**Wm. Sandford**	**William Sandford (3 white males, 7 white females, 5 slaves)**	**William Sandford, merchant**
1812			John Hyslop, **Wm. Sandford, Mr. Sandford**		Sandford not on property
1813			John Hyslop		Sandford not on property
1815			John Hyslop, **William Cammyer**		
1816				**William Cammyer, 63, baker (5 white males, 5 white females); Thomas Dilks(?), 73, shoemaker (1 white male, 1 white female)**	
1817	Church	Obadiah Holmes, assignment of lease	**William Farrow**		**William Farrow, baker**
1818			John Hyslop		**William Farrow, baker**
1819			Jno. Hyslop, **John McKenzie**		**John McKenzie, baker**
1820			John Hyslop, **Jno. McKenzie**	**John McKenzie (6 white males, 4 white females)**	**John McKenzie, baker**
1821	Jeremiah Drake, Master in Chancery	John Johnston			**John McKenzie, baker**
1822	John and Margaret Johnston	Alexander McKenzie	**John McKenzie**		**John McKenzie, baker**
1823			Alex. McKenzie, **John Bruce, Edward Weir**		**John Bruce, baker; Edward Weir, tailor**
1824			Alex. McKinsey		**John Bruce, baker; Edward Weir, tailor;** McKenzie not on property
1825	Alexander and Jane McKenzie	John Limberger	John Limberger, Nathaniel Pendleton		**John Limberger, baker**
1825	John and Mary Limberger	Michael Van Beuren	John Limberger		
1826			John Limberger		
1827			John Limberger		
1830			John Limberger	**Jno. Limberger (12 white males, 6 white females)**	**John Limberger, baker**
1831			John Limberger		
1834	Church	Nicholas Slakor (lease expired)			
1835			John Limber		

Year	Grantor	Grantee	Tax	Census	Directory
1837	Michael Van Beuren	John Limberger			
1837	John and Margaret Johnston	John Limberger			
1838-1839					**John Limberger, baker**
1840			Estate of John Limberger	Unable to find residents	**Henry Sparks, baker; Sparks and Co.**
1841					**Henry Sparks, baker; Sparks and Co.**
1842					**Henry and Frederick Sparks, bakers**
1843-1844					**Samuel Conlon, fruiterer,** 39 and 74 Vesey, **grocer, 41 Vesey**
1844	Executors of John Limberger	Joseph Harrison			
1845	Joseph Harrison	Peter and Daniel Lynch	P and D Lynch, **Frederick Sparks**		**Frederick Sparks, baker**
1847	Daniel Lynch	Peter Lynch			
1848	Abraham Frazee	George Youngs, assignment of lease			
1850			Peter Lynch	Unable to find residents	
1851					**Peter Lynch, grocer**
1855			**Peter Lynch**		**Peter Lynch, grocer, 41 Vesey, h. 41 Vesey**
1904		1805 lease expired			

Block 85, Lot 16 (Lot 41 of Trinity Church Farm; 35 Vesey until mid-1810s, 39 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1750	Church	Godfrey Wall, "gardner" (21-yr lease)			
1771		1750 lease expired			
1771	Church	Nicholas Slakor (63-yr lease)			

Year	Grantor	Grantee	Tax	Census	Directory
1786	Church	Ceasar Lispinard (21-yr lease)			
between 1786 and 1794	Church	Samuel Sneeden (lease)			
1787	Corporation of Trinity Church	Hubert Van Wagenen, Vestryman 1787-1806 (41R) (sold at A.L. Bleeker auction)			
1790				Unable to find residents	**Daniel Campbell, labourer**[9]
1794	James Renwick, James Nicholson, John Murray, Jr., James Watson, Matthew Clarkson, Henry Ten Broeck, Jacob Hallett, William W. Gilbert, Nicholas Cruger	Hubert Van Wagonen, Gentleman, Vestryman 1787-1806 (21-year lease)			
1796	Church	John Griswold (10-yr lease)			
1800				**Joseph H. Aikins (2 white males, 1 white female, 1 slave); Mark Lynch (1 white male, 4 white females)**	**Joseph Aikins, shipmaster; Mark Lynch, shipmaster**
1801					**Joseph Aikins, shipmaster**
1803	William Pultney	David Grim, Samuel Mansfield, Walter Bowne			
1805	David Grim, Samuel Mansfield, Water Bowne of the New York Bread Company	Frederick DePeyster, Vestryman 1800-1812, and Philip Grim			Williams and Thorn not on property
1805	Church	Lem Well (99-yr lease)			
1806		1796 lease expired			
1807		1786 lease expired	**Richard Berrian, Charles Deboy**		
1808	Philip and Elizabeth Grim	Frederick DePeyster	**William Williams**		
1809	Frederick and Ann DePeyster	Thomas and Wilkinson Satterthwaite	Stephen Thorn, Jr.		Sands not on property

[9] A "manufactory" is listed for Lots 15, 16, and the west half of 17 in 1792 (Survey of Streets 1780-1800, Folders 20, 21).

Year	Grantor	Grantee	Tax	Census	Directory
1810			**Robert Sands**	**Robert Sands (4 white males, 4 white females, 1 free black)**	**Robert Sands**
1811	Thomas and Catharine Satterthwaite	George A. Bibby			Sands not on property
1812	Ben Ledyard (Master in Chancery), Thomas Satterthwaite et al., defendants	Frederick DePeyster	**Peter B. Van Beuren**		No listing
1813			**G. Van Buskirk, John Darby**		
1814	David Grim, Samuel Mansfield, Walter Bowne of the New York Bread Company	Stephen Thorne, Jr.			
1815	Frederick and Ann DePeyster	James Farquhar	Stephen Thorn, **Mr. Spader**		
1816	Stephen Thorne, Jr.	Hannah Gerardt		**John Gussner(?), 26, tin manufacturer and artillery (4 white males, 5 white females); William Woodruff, no age given, tailor (3 white males)**	Gussner and Woodruff not listed on property
1817			Mrs. Wardell, **Alex. Lefoy, Wm. A. Coffee (?)**		
1818			Mrs. Wardel, **Alex. Lefoy**		No Lamont or Fowler listed on property
1819			Hammell, **P.B. Lamont**		**P.B. Lamont, painter, etc.; Jane Fowler, widow**
1820			Hammell, **P.B. Lamont**	**P.B. Lamont (1 white male, 5 white females); Jane Fowler (2 white males, 3 white females)**	**P.B. Lamont, painter, etc.; Jane Fowler, widow**
1822	Hannah Geraert	William Ovington	Wm. Ovington		No Lamont, Ovington or Bodin listed on property
1823			Wm. Ovington		
1824			Wm. Ovington, **John Bodin**		**Jennet McDonald, boarding house**
1825			William Ovington		**Jennet McDonald, boarding house**
1826			William Ovington		**Jennet McDonald, boarding house**

Year	Grantor	Grantee	Tax	Census	Directory
1827			Wm. Ovington		**Jennet McDonald, boarding house**
1830	William Ovington	John Jacob Astor	William Ovington	**Mrs. McDonald (6 white males, 4 white females)**	**Jennet McDonald, boarding house**
1831	James and Elizabeth Farquhar	Henry Kneeland (trust deed)	William Ovington		**Jennet McDonald, boarding house**
1833	Henry and Margaret Kneeland	Charles Kneeland			**Jennet McDonald, boarding house**
1834	Church	Nicholas Slakor (lease expired)			McDonald not on property
1835	John Jacob Astor	John Limberger	John Limber		
1835	Ogden Haggerty and Elizabeth S. Kneeland	Charles Kneeland			
1835	Henry Kneeland	Charles Kneeland			
1840			Charles Kneeland	Unable to find residents	
1843-1844					**Samuel Conlon, fruiterer, 39** and 74 **Vesey,** grocer, 41 Vesey
1845			Charles Kneeland, **Samuel Conlan**		**Samuel Conlan, grocer**
1846-1847					**Samuel Wilson Conlan, grocer, 39 Vesey, h. 39 Vesey**
1850			Charles Kneeland	**Patrick Rohan, 53, grocery, wife; James Rohan, laborer, unrelated female; Henry Sparks, 50, baker, 2 female family members, unrelated female; 3 other males, all bakers**	
1851	Various Kneeland heirs	Benjamin M. Whitlock			**Patrick Rohen, porter house; Henry Sparkes, baker**
1855			John Jagger		
1904		1805 lease expired			

Block 85, Lot 17 (Lots 39 and 40 of Trinity Church Farm; 31-33 Vesey through the mid-1810s, then 35-37 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1750	Church	Godfrey Wall, "gardner" (21-yr lease)			
1771		1750 lease expired			
1771	Church	Nicholas Slakor (63-yr lease)			
1782	Church	Philip Linzie (lease) (east half only)			
1786	Church	Samuel Holloway (21-yr lease) (west half only), John V. Blarcum (21-yr lease) (east half only)			
1787	Corporation of Trinity Church	Hubert Van Wagenen, Vestryman 1787-1806 (40R) (sold at A.L. Bleeker auction) (west half only), James Quackenbush (sold at A.L. Bleeker auction) (east half only)			
1790				Unable to find residents	
1792	Samuel Quackenbush, shopkeeper Leah, his wife	Christian Bourdett, blacksmith (west half only)			Richard Moore not listed[10]
1793					**Richard Moore, cooper**
1794	James Renwick, James Nicholson, John Murray, Jr., James Watson, Matthew Clarkson, Henry Ten Broeck, Jacob Hallett, William W. Gilbert, Nicholas Cruger	Hubert Van Wagonen, Gentleman, Vestryman 1787-1806 (west half only) (21-year lease)			**Richard Moore, cooper**
1794	Church	John Torbune (lease) (east half only)			
1794	Church	John Vanderhoof (lease) (east half only)			

[10] A "manufactory" is listed for Lots 15, 16, and the west half of 17 in 1792, and Richard Moore is listed as a tenant on the west half of Lot 17 (Survey of Streets 1780-1800, Folders 20, 21).

Year	Grantor	Grantee	Tax	Census	Directory
1795	James and Rachel McIntosh	John Greenwood			**Richard Moore, cooper**
1796	Church	John Griswold (10-yr lease)			
1797					**Richard Moore, cooper**
1798					**Richard Moore, cooper**
1799					**Richard Moore, cooper**
1800	Christian and Closhey Bourdett	Richard Moore		**Barvit Viesse (1 white male, 2 white females, 1 slave); Richard Moore (4 white males, 3 white females, 1 slave)**	**Richard Moore, cooper; Benoit Viensse, paper ruler**
1801					**Benoit Vieusse, paper ruler;** Richard Moore not listed on property
1802	Richard and Catharine Moore	Richard Riker and Roger Strong			
1803	Richard Riker, Roger Strong, and Richard Moore	David Grim, Samuel Mansfield and Walter Bowne			
1805	Church	Trinity Church endowed Grace Church. Grace leased out lot and used the rent (lease)			No Vieusse or Roberts on property
1805	Church	Lem Wells (99-yr lease)			
1805	David Grim, Samuel Mansfield and Walter Bowne of the New York Bread Company	Frederick DePeyster and Philip Grim			
1806		1796 lease expired			
1807		1786 lease expired	Frederick DePeyster, James Bruen		
1808	Philip and Elizabeth Grim	Frederick DePeyster	Frederick Depajster **(store)**, Mrs. Inglish		John Roberts not on property
1809	Frederick and Ann DePeyster	Thomas and Wilkinson Satterthwaite	Thomas Satterthwaite **(storehouse), John Roberts**		
1810			Thomas Sutterthwaite **(storehouse), John Roberts**	**John Roberts (1 white male, 1 white female)**	**John Roberts;** Satterthwaite and Depeyster not on property

Year	Grantor	Grantee	Tax	Census	Directory
1811	Thomas and Catharine Satterthwaite	George Bibby			
1812	Ben Ledyard (Master in Chancery), Thomas Satterthwaite et al., defendants	Frederick DePayster	Thos. W. Saterthwait (**store**), Stephen Thorn, **William Williams, Mr. Claude**		**Frederick Depeyster; G. Van Buskirk**
1813			Thomas Sutterthwaite (**storehouse**), **John Brown, George Brown, Christopher Wolfe, John Gesner, Samuel Rockwell, Mr. Hood**		Satterthwaite and Depeyster not on property
1814	David Grim, Samuel Mansfield and Walter Bowne of the New York Bread Company	Stephen Thorne, Jr.			**Augustus Cortilli**
1815	Frederick and Ann DePeyster	James Farquhar	Frederick Depeyster, Stephen Thorn, **Doctor Cortilli**		**Augustus Cortilli;** Satterthwaite and Depeyster not on property
1816	Stephen Thorne, Jr.	Hannah Gerardt		**Augustus Cortilli, 40, physician (3 white males, 2 white females)**	**Augustus Cortilli**
1817			Jas. Farquar (**store**), **Newton Platt**		**James Farquhar and Sons, wine merchant**
1818			Jas. Farquar and Son (**store**), **Newton Platt**		
1819			Jas. Farquhar and Son (**store**), Mrs. Gerard, **Alex. McKay**		
1820			James Farquhar and Son (**storehouse**), Wm. Hammell, **John Cos**	**Mary Coe (2 white males, 4 white females)**	**James Farquhar, wine merchant,** home 34 Fourth; **Widow Mary Coe**
1822	Hannah Geraerdt	William Ovington	James Farquhar and Son (**store**), Wm. Ovington		
1823			James Farquhar and Son, Wm. Ovington, **Andrew Mitchell**		

Year	Grantor	Grantee	Tax	Census	Directory
1824			James Farquhar and Son, Wm. Ovington, **Andrew Mitchell**		**Farquhar and Sons, wine merchants**
1825			James Farquhar and Son (**store**), **Alex. Welsh, chairmaker**		**Farquhar and Sons, wine merchants; Alex. Welsh, chair maker,** 33 John, **h. 37 Vesey**
1826			James Farquhar and Son, **Alex. Welsh**		**Farquhar and Sons, wine merchants; Alex. Welsh, chair maker,** 33 John, **h. 37 Vesey**
1827			Estate of James Farquhar, Willam Ovington, **Jeremiah Kershaw**		**Farquhar and Sons, wine merchants;** Welsh and Kershaw not on property
1828-1829					**Farquhar and Sons, wine merchants;** Kershaw and Miller not on property
1830	William Ovington	John Jacob Astor	Estate of James Farquhar, Willam Ovington	**Mrs. Miller (9 white males, 7 white females); Mrs. Dancy (9 white males, 5 white females)**	**Farquhar and Sons, wine merchants; Isaac Miller, portrait painter**
1831	James and Elizabeth Farquhar	Henry Kneeland (trust deed)	Estate of James Farquhar, William Ovington		**Farquhar and Sons, wine merchants**
1832					**Farquhar and Sons, wine merchants**
1833	Henry and Margaret Kneeland	Charles Kneeland			Farquhar no longer listed on property
1834	Church	Nicholas Slakor lease expired			
1835	John Jacob Astor	John Limberger	William B. Astor, John Limber		
1835	Ogden Haggerty and Elizabeth S. Kneeland	Charles Kneeland			
1835	Henry Kneeland	Charles Kneeland			
1837					**Nathaniel Paulding, 35 Vesey**

Year	Grantor	Grantee	Tax	Census	Directory
1839	Executors of John Limberger	Charles Kneeland			**Nathaniel Paulding, 35 Vesey**
1840			Nathaniel Paulding, Charles Kneeland	Unable to find residents	**Nathaniel Paulding, 35 Vesey**
1843					**Patrick Hogan, liquors, 37 Vesey**
1845			Nathaniel Paulding, Charles Kneeland		**Nathaniel Paulding, 35 Vesey; Patrick Hogan, liquors, 37 Vesey**
1847			**Patrick Hogan**		**Nathaniel Paulding, 35 Vesey; Patrick Hogan, liquors, 37 Vesey**
1848					**Nathaniel Paulding, 35 Vesey; Patrick Hogan, liquors, 37 Vesey**
1850			Charles Kneeland, **Patrick Hogan**	Unable to find residents	**Patrick Hogan, liquors, 37 Vesey;** Paulding not on property
1851	Various Kneeland heirs	Benjamin M. Whitlock			**Samuel Westcott, brewer; R. Hazard, agent; A.T. Van Liew, grocer; Patrick Hogan, grocer; Samuel Bennett, agent; James Cumberland, waiter; James Sullivan**
1852-1853					**Patrick Hogan, grocer**
1855			L. and V. Kirby		Hogan no longer on property
1904		1805 lease expired			

Block 85, Lot 18 [the western portion is now part of modern Lot 17] (portions of Lot 38 of Trinity Church Farm; 29 Vesey through the mid-1810s, then 31 Vesey afterwards)

Year	Grantor	Grantee	Tax	Census	Directory
1705		Church			
1750	Church	George Young, silversmith Gardner (21-yr lease)			
1771	Church	Nicholas Slakor (63-yr lease)			
1787	Church	"Sold not accounted for"			
1788	Church	Samuel Holmes (21-yr lease)			
1790				Unable to find residents	
1794	Church	Rob Perin (lease)			
1795	James and Rachel McIntosh	John Greenwood			**John Halliday, tailor**
1796	Church	Joseph Griswold (10-yr lease)			**Widow Catherine Holhaday**
1800				**Catherine Holladay (5 white females)**	
1802	Joshua and Margaret Jones	John Greenwood			
1805	Church	Grace Church (lease)			
1807			**A. Marthy Doret**		
1810			Alex. McKenzie, **Mr. Bogle**; John Vreeland, **Wm. Clapp, Thomas Hood**	**Lewis Float (1 white male, 1 white female); Thomas Hood (1 white male, 2 white females)**	
1812			**John Adcock**		**Alex. McKensie, Chaplain widow; Benj. Elsden; James Trivett**
1813			**Francis Bamulton(?), Peter Garrison**		
1815			**Anthony Hill**		
1816				**Anthony Hill, 42, shoe maker (8 white males, 3 white females)**	
1817			John Greenwood		
1818			John Greenwood, **Benjamin Elsden**		
1819			**Mary Anderson**		

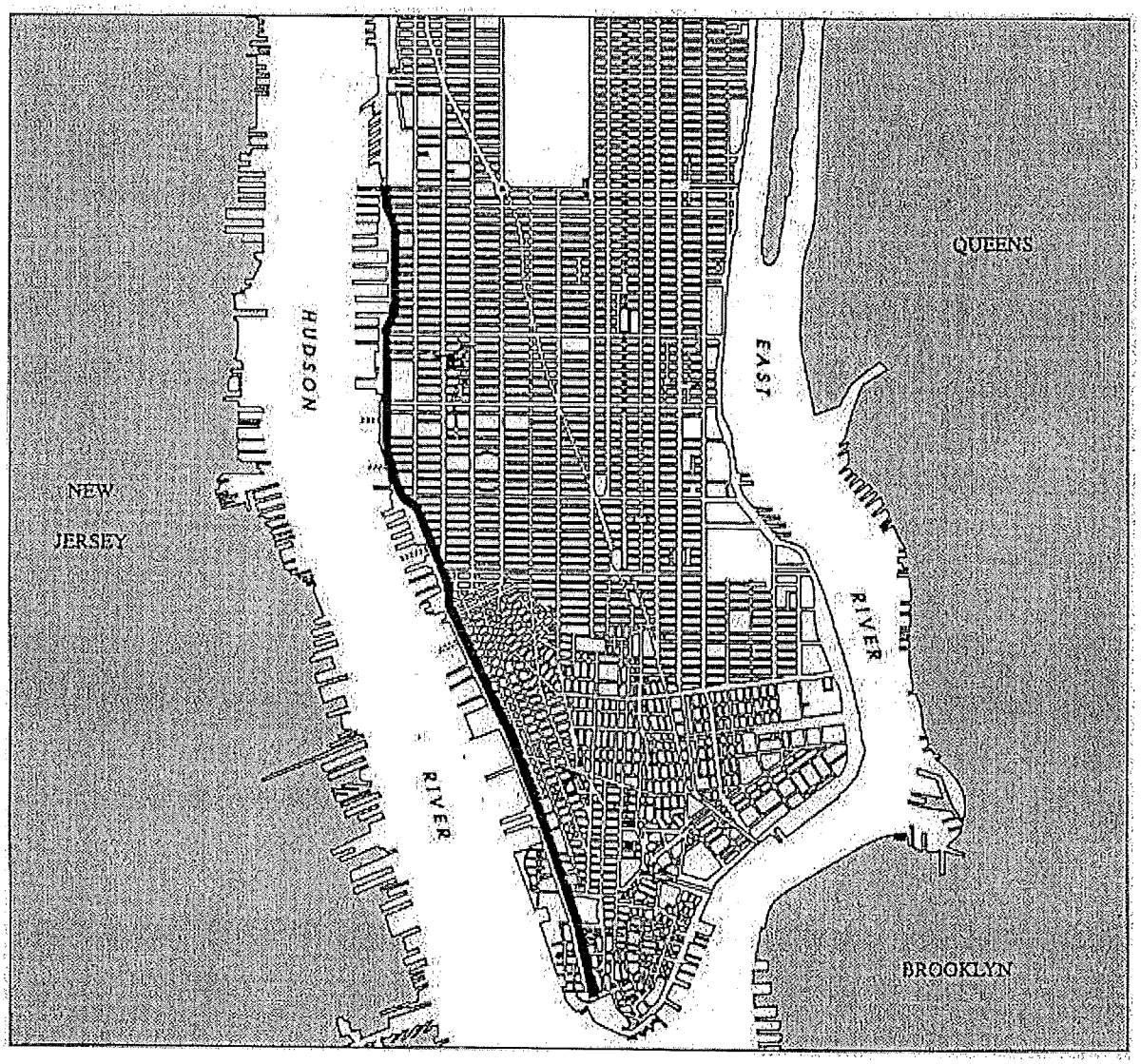
Year	Grantor	Grantee	Tax	Census	Directory
1820			None listed	Unable to find residents	Benj. Elsden, 31 Vesey; Mary Anderson, widow, washerwoman, 33 Vesey
1822			Estate of Jno. Greenwood, **Elias Shipman**		
1823			Estate of Jno. Greenwood		
1824			Estate of Jno. Greenwood		
1825			Isaac Greenwood		Greenwood not on property
1826			Isaac Greenwood		
1827			Isaac Greenwood		
1828-1829					Greenwood not on property
1830			Isaac Greenwood	**Daniel Hogan (1 white male, 3 white females); Mrs. Hassoad (6 white males, 3 white females); Mr. Barry (6 white males, 2 white females); Mr. August (2 white males, 4 white females); Jas. Smith (2 white males, 3 white females, 1 free black female); Henry Monfontaine (3 white males, 9 white females, 1 free black male); Mrs. Williamson (6 white males, 6 white males, 1 free black male, 2 free black females); William Cairns (6 white males, 7 white females); Clarke Greenwood (3 white males, 9 white females)**	**Isaac and Clarke Greenwood, dentists**
1831			Isaac Greenwood		Greenwood not on property
1832-1833					Greenwood not on property
1834	Church	Nicholas Skalor (lease expiration)			
1835			Isaac Greenwood		Greenwood not on property
1840			Isaac Greenwood	Unable to find residents	
1845	William Jones, Sheriff, interest of John S. Brown	John Brown	Isaac Greenwood		**Margaret Henderson, grocer, 31 Vesey**
1850			Isaac Greenwood	Unable to find residents	

Year	Grantor	Grantee	Tax	Census	Directory
1851					**John Higham, porter house; G.B. Louck, exchange; Elihu Ayers, oysters**
1852	Isaac Greenwood, et al.	Abel Thompson (lease)			
1855			Able Thompson		Thompson, Higham, Louck, Ayers not on property

Appendix B-5: **Route 9A Reconstruction Project: Cultural Resources Summary Report**

ROUTE 9A

RECONSTRUCTION PROJECT



CULTURAL RESOURCES SUMMARY REPORT

April 1996

ROUTE 9A
RECONSTRUCTION PROJECT

CULTURAL RESOURCES
SUMMARY REPORT

April 1996

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New York State Department of Transportation

and

Federal Highway Administration

U.S. Department of Transportation

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Bechtel Infrastructure Corporation

INTRODUCTION

This report on Cultural Resources for the Route 9A Reconstruction Project is prepared pursuant to the Programmatic Agreement (Attachment A) among the Federal Highway Administration (FHWA), the New York State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP), which was signed in March of 1994 and stipulated that the New York State Department of Transportation (NYSDOT) would provide an annual report on activities carried out under this agreement to ACHP, SHPO, and the New York City Landmarks Preservation Commission (LPC). All the reports referenced in this document have been submitted to SHPO for review and approval, and to LPC for information.

The organization of this report follows the stipulations of the Programmatic Agreement. Archeological resources are discussed first. Next, historic properties/structures in the Route 9A Corridor are discussed, followed by historic properties/structures in the Inland Study Area. The status of roadway design is described in the final section.

I. ARCHEOLOGICAL RESOURCES

A. CONTEXTUAL STUDIES

The archeological investigation followed a process developed by FHWA and NYSDOT in consultation with SHPO (letter from Julia Stokes, February 12, 1991; FEIS, p. 6-3). The process identified all potential sites, provided a methodology to focus on those sites with archeological visibility, evaluated effects and disturbance, and determined through fieldwork those eligible and extant sites where effects might be expected. It consisted of the following steps: 1) inventory of known sites; 2) historic context development (contextual studies); 3) agency review of contextual studies and recommendation of sites warranting further consideration; 4)evaluation of impacts (sites within ROW); 5) evaluation of disturbance (site-specific research); 6) agency review of disturbance assessment; 7) stage II evaluation; 8) determinations of eligibility; 9) review of mitigation plan; and 10) mitigation

The inventory identified 506 potential archeological sites* that were documented in a five-volume Archeological Assessment Report and in a Paleo Environmental Study. Identified resources were then grouped into 13 contextual categories as follows:

- Prehistoric Sites (14 sites)
- Dwellings and Tenements (6 sites)
- Energy (38 sites)
- Meat Market (23 sites)

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* In this instance, the term "site" is used to refer to an architectural footprint as well as its traditional archeological sense. As shown in the list of contextual categories, 81 of the "sites" are unassociated structures.

- Offices and Warehouses (8 sites)
- Land Transportation (17 sites)
- Unassociated Structures (81 sites)
- Lumber and Building Materials (40 sites)
- Manufacturing (27 sites)
- Services (6 sites)
- Piers, Wharves, and Pier Sheds (232 sites)
- Landfill Devices and Sunken Ships (10 sites), and
- 17th Century Foundations and Fortifications (4 sites*)

Each of the contextual studies assessed potential archeological visibility and research value for the sites in that category.

B. REVIEW AND RESULTS OF CONTEXTUAL STUDIES

SHPO reviewed and evaluated all the contextual studies and recommended that sites in six contextual categories required further consideration, if they were to be affected by the Preferred Alternative. When the Preferred Alternative was selected, sites outside the project's area of potential effect (APE) were then eliminated. The remaining sites were evaluated for disturbance and further consideration of archeological visibility and research potential. The results, by category, are summarized below (and shown in detail in Attachment B):

- 14 Prehistoric Sites (13 sites eliminated as outside APE; 1 site, the prehistoric cove, still under consideration;)
- 6 Dwellings and Tenements (5 sites eliminated, SHPO letter 8/12/92; 1 site, Mott House, still under consideration)
- 38 Energy (33 sites eliminated by SHPO 8/31/95; 4 sites eliminated, SHPO letters 8/12/92 and 6/18/93; 1 site, coal conveyor tunnel, still under consideration)
- 23 Meat Market (20 sites eliminated by SHPO 8/12/92; 1 eliminated by SHPO 6/18/93; 2 eliminated by SHPO 8/31/95)
- 8 Offices and Warehouses (8 sites eliminated by SHPO 8/12/92)
- 17 Land Transportation (17 sites eliminated by SHPO 8/12/92)
- 81 Unassociated Structures (81 sites eliminated by SHPO 6/18/93)
- 40 Lumber and Building Materials (29 sites eliminated by SHPO 4/24/91; 4 eliminated as out of APE; 7 sites eliminated by SHPO 8/31/95)
- 27 Manufacturing (3 sites eliminated by SHPO 2/19/93; 4 sites eliminated by SHPO 8/10/93; 1 site eliminated as out of APE; 18 sites eliminated by SHPO 8/31/95; 1 site, Bloomingdale Flint Glass Works, still under consideration);
- 6 Services (6 sites eliminated by SHPO 8/12/92)
- 232 Piers, Wharves, and Pier Sheds (231 sites eliminated by SHPO 8/12/92; 1 site eliminated as out of APE)
- 10 Landfill Devices and Sunken Ships (10 sites eliminated by SHPO 8/12/92), and
- 4 17th Century Foundations and Fortifications (4 sites eliminated as out of APE).

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* The FEIS listed six sites in this category, two of which were actually included in other categories: one in dwellings and tenements, and one in the pier, wharves, and piersheds.

Four sites that remain for continued evaluation of State and National Register eligibility are as follows:

- Site 135: Mott House: Additional research on the Mott House site suggests that construction activity associated with DeWitt Clinton Park, West 54th Street, and Miller Highway have totally destroyed the site and associated archeological deposits. Therefore, no Stage II archaeological investigations are recommended.
- Site 127: Prehistoric Cove: Soil borings show extensive layers of fill and disturbed soil beneath the surface. The possibility of encountering potentially significant resources is minimal. Therefore, no Stage II archeological investigations are recommended.
- Site 128: Bloomingdale Flint Glass Works: Soil borings show extensive layers of fill and disturbed soil beneath the surface. The possibility of encountering potentially significant resources is minimal. Therefore, no Stage II archeological investigations are recommended.
- Site 490: Coal conveyor tunnel: The coal conveyor tunnel was constructed in 1901 and used to transfer coal to the IRT Company (subsequently Con Edison) power plant until conversion to fuel oil in the 1960's. Although integral to supplying coal to the power house, the extant conveyor tunnel is simply a concrete shell filled with clean sand. All of the conveyor mechanisms have been removed, thus reducing its research potential for the study of coal-powered energy generation. The tunnel is well-documented and drawings exist that detail its form. Further study would not contribute to our understanding of the past technology. Therefore, no Stage II archaeological investigations are recommended. Further, the Route 9A project would not demolish or destroy the tunnel. However, a portion of it may be reused and possibly altered if the project reroutes fuel transfer lines to the Con Edison power plant.

Reports on these four potential sites are expected to be submitted to SHPO for review in spring 1996.

C. FIELD TESTING OF ASSUMPTIONS

The Programmatic Agreement (I.B.2.a., p.3) specifies that FHWA and DOT, based on the comments received from SHPO, determine the need, if any, to verify the assumptions made in the study. When the Programmatic Agreement was written, research investigations were ongoing and the extent of the available documentation for sites that might be of interest was not yet known. Also, the Preferred Alternative had not been selected. FHWA and NYSDOT have now determined that field testing to verify assumptions is not necessary based on results of the total research effort, documented prior disturbance, and the limited effects of the Preferred Alternative.

EXTENT OF DOCUMENTATION

Due to the difficulties of field testing in a heavily traveled roadway in New York City, FHWA and NYSDOT, in consultation with SHPO, agreed—early in the project planning and environmental analysis—to focus their efforts on extensive documentary research. The intent was to define potential resources and their exact physical locations as clearly as possible. In the ensuing years, further documentary research was undertaken to assess research potential, archeological visibility, and site disturbance.

The voluminous amount of documentation that was obtained and taken into consideration has, in part, led to the conclusion that field verification is not necessary. The nature and extent of documentary evidence that the Route 9A Project has accumulated imparts a high level of confidence to this conclusion. This research approach of undertaking more detailed documentation

has been used in New York City with positive results. Further, the level of documentation performed exceeds what is often required for urban sites across the country in order to eliminate the need for field investigation.

The documentary research efforts for the Route 9A project were undertaken using archives and other sources not usually considered or contacted, such as the U.S. Patent Office, the Corning Glass Museum, archives and employees of the Con Edison Company, the Earth Sciences Information Center of the U.S. Geological Survey, employees of Public Service of New Jersey, auction notes from the sales of the Commissioner of Docks, the archives of the Department of Ports and Trades, and the Avery Library and Butler Rare Book Collection at Columbia University. This has yielded extensive data not usually considered. For commercial sites, for example, company archives and papers provided information on the daily operation, eventual physical dismantling of these industries, and the sale of company properties, all of which affected archeological visibility and research potential.

DOCUMENTED PRIOR DISTURBANCE

Because the project is a major transportation corridor, it has been the site of major public works projects over the past century and a half. With this number of public works projects, much of the roadway has been disturbed, and this disturbance has been documented in the archives (including construction specifications, reports, and photographs) of government agencies.

SELECTION OF LEAST IMPACT ALTERNATIVE

The Preferred Alternative that was selected and described in the FEIS involves the least amount of construction and excavation of all the alternatives considered. It is at-grade, with no depressed roadway sections or elevated roadways. Its footprint is quite similar to the existing roadway. The project is a reconstruction, with major changes to the existing footprint occurring only in one location—the area of 23rd and 24th Streets and Thomas F. Smith Park (see Figure 1).

II. HISTORIC PROPERTIES/STRUCTURES—WITHIN THE ROUTE 9A CORRIDOR

The Programmatic Agreement stipulated that NYSDOT and FHWA, in consultation with SHPO, would determine the effects of the project on the 39 historic resources identified along the Route 9A Corridor (see Attachment C). The determination of effect was to consider visual changes, vibrations (both traffic-induced vibrations and vibrations due construction activities), access changes, noise effects, air quality, and traffic-related changes (direction of flow, level of service, National Highway System classification).

On August 10, 1994, representatives of FHWA and NYSDOT met with David Gillespie, Director of the Historic Preservation Field Services Bureau of SHPO, in the NYSDOT offices in Albany, New York. A set of Technical Drawings for the No Build Condition and the Preferred Alternative, which identified historic resources and technical analysis materials for each of the types of potential effects, were presented for SHPO review.

The consultation process continued with a field trip and meeting held on October 13, 1994, with representatives of SHPO, LPC, NYSDOT, and FHWA. The field trip included the resources along the corridor. A matrix assessing each potential type of impact for all of the 39 historic resources was presented, along with documentation for each technical analysis.

Subsequent to that meeting, SHPO (letter from David Gillespie, November 4, 1994) identified the remaining concerns. SHPO agreed that vibration levels would be monitored during construction, and that no preconstruction remedial action would be necessary. At that time, SHPO requested detailed landscape plans at the following locations along the Route 9A Corridor: Battery Park and Pier A; Piers 57, 60, and 61; USS *Intrepid*, USS *Edson*, and the Starrett Lehigh Building. The letter also noted that Battery Park had not been evaluated. NYSDOT submitted to SHPO additional material addressing these issues (letter from Robert Ronayne, February 4, 1995; letter from Robert Ronayne, March 17, 1995; and letter from Douglas Currey, August 4, 1995).

On September 6, 1995, SHPO wrote (letter from Robert D. Kuhn) that no further design consultation was necessary for the Westbeth Building, the American Seaman's Friend Society Building, and Piers 57, 60, and 61. However, SHPO requested further consultation on the proposed landscape treatments/design plans at the Starrett-Lehigh Building, the USS *Intrepid* and USS *Edson*. NYSDOT will consult with SHPO as those designs are developed, beginning in the fall of 1996.

SHPO has not responded regarding Battery Park. FHWA and NYSDOT understand this to mean that SHPO agrees that additional inventory or review of Battery Park for National Register eligibility is unwarranted.

In regard to construction vibrations along the corridor, the Route 9A Reconstruction Project's plan to address any potential impacts consists of first selecting construction methods that minimize the potential to transmit vibrations; second, providing field instrumentation to monitor historic resources along the alignment during construction; and, if necessary, modifying construction procedures to avoid exceeding allowable vibration levels. This methodology has been used successfully in past NYSDOT projects. A *Special Note: Building Condition Survey and Vibration* has been included in the Contract Bid Documents.

III. HISTORIC PROPERTIES/STRUCTURES—WITHIN THE INLAND STUDY AREA

The Programmatic Agreement stipulated that FHWA and NYSDOT, in consultation with SHPO, would identify any areas of potential effect (APEs) and any Historic Districts in the Inland Area, and assess potential effects.

At the August 10, 1994, meeting, traffic analysis results were also presented for the Inland Study area. Links that were identified as candidates for APEs were identified on a table and shown on maps. The traffic analysis results for historic districts were also presented. At the field trip/meeting on October 13, 1994, all candidate APEs were visited and material was submitted describing the general character of the area along each of the identified links (including listed or designated historic properties/structures) ; and screening thresholds for traffic changes in historic districts (including consideration of neighborhood character and economic conditions).

Due to high concentrations of known and potential historic resources, SHPO subsequently recommended (letter from David Gillespie, November 4, 1994) the following locations for monitoring of traffic-related impacts after construction:

- Chambers Street in the TriBeCa South Historic District (between Broadway and West Broadway);
- West 21st Street/Tenth Avenue, the location of the Guardian Angels Church and adjacent to the Chelsea Historic District; and