Guidelines for Archaeological Work in New York City



NYC Landmarks Preservation Commission

September 2018

GUIDELINES FOR ARCHAEOLOGICAL WORK IN NEW YORK CITY WRITTEN BY
Amanda Sutphin, H. Arthur Bankoff,
Jessica Striebel MacLean, & Carol S. Weed

EDITED BY
Lisa Kersavage, John Weiss, & Eileen Salzig

GRAPHIC DESIGN BY
Open

LANDMARKS PRESERVATION COMMISSION
Sarah Carroll, Executive Director
Lisa Kersavage, Director of Special Projects
& Strategic Planning
Mark Silberman, Counsel
Kate Lemos McHale, Director of Research
Jared Knowles, Director of Preservation
Amanda Sutphin, Director of Archaeology

Cover:
Artifacts from the South Ferry Project in the collections of the NYC Archaeological Repository.



Pearlware platter from the South Ferry Project in the collections of the NYC Archaeological Repository.

Table of Contents

While the New York City Landmarks Preservation Commission (LPC) encourages agencies and archaeological consultants to read these entire Guidelines, the dots below (and in the **bottom right corner of every page**) indicate which sections may be of particular interest to which group.

		page	city agencies/ applicants	archaeological consultants
A	**Introduction**	7	●	●
A.1	Purpose of the Guidelines	8	●	●
A.2	Brief Overview of NYC Archaeological Process	10	●	
A.3	NYC LPC and Archaeology	11	●	
A.4	Laws and Regulations that Necessitate Archaeological Review	12	●	
A.5	Communication with Stakeholders	15	●	
A.6	As-of-Right	16	●	●
B	**Archaeological Review Process**	17	●	●
B.1	Determination of Significance for All Review Types	19	●	●
B.2	Request for Archaeological Review	23	●	
B.3	Hiring and Managing Consulting Archaeologists	25	●	
B.4	Documentary Study	26	●	
B.5	Identification and Evaluation Field Investigations	28	●	
B.6	Treatment of Significant Sites	29	●	
B.7	Project Closure	31	●	

C	**Step-by-Step Guide to Archaeological Methods and Procedures**	32	●	●
C.1	Work Plan	33	●	●
C.2	Documentary Study	37		●
C.3	Identification and Evaluative Testing Investigations	39		●
C.4	Archaeological Monitoring	44	●	●
C.5	Mitigation	46		●
C.6	Archaeological Features	49	●	●
C.7	Field Forms and Logs	54		●
C.8	Archaeological Collections	57		●
C.9	Site-Specific Reports and Other Plans	64		●
C.10	Project Closure (Records, Archive, and Curation)	68		●
D	**Burials and Human Remains: Detailed Discovery Procedures**	69	●	●
D.1	Identified Potential for Human Remains in a Project Area	70	●	●
D.2	Unanticipated Discovery of Human Remains	73	●	
E	**Sharing Archaeological Information with the Public**	74	●	●
E.1	Reporting Archaeological Information in Public Forums	75	●	●
E.2	Archaeological Questions about Current Projects	76	●	

Index	78	●	●
Appendix A: Glossary of Terms	79	●	
Appendix B: Archaeological Team Qualifications	85	●	
Appendix C: Archaeological Investigations Applicant and Consultant Checklist	92	●	●
Appendix D: Developing a Resource Estimate Checklist	97	●	●
Appendix E: Documentary Study Sources	100		●
Appendix F: Examples of Field Forms	110		●
Appendix G: Examples of Report Graphics	114		●
Appendix H: NYC Archaeological Repository: The Nan A. Rothschild Research Center Curation Guidelines	121	●	●
Appendix I: Contact Information	138	●	●

Introduction



Covered vessel from the Van Cortlandt Excavations in the collections of the NYC Archaeological Repository.

Because of their irreplaceable nature and historic value, archaeological resources are protected by city, state, and federal laws. Section A of the Guidelines provides a brief overview of the archaeological process in New York City, and outlines the laws and regulations affecting such work.

A.1

Purpose of the Guidelines

Archaeology is the systematic investigation of material remains from the human past. In New York City, archaeologists study remnants of human activity—structures, **artifacts**, and other remains—which are often buried under subsequent layers of development. Their study can illuminate and augment the information already available through historical documents. Archaeology can also be the only source of knowledge about the era before European contact and the largely undocumented lives of women, children, immigrants, and the poor.

In certain situations, government agencies, individuals, or other entities are required by law to identify **archaeological resources**, assess their significance, and avoid or mitigate the potential damage a project may do to these resources through redesign or **archaeological excavation**.

The Guidelines for Archaeological Work in New York City is designed and intended to help and inform city agencies and their archaeological consultants who are asking the New York City Landmarks Preservation Commission (LPC) to review archaeological work.[1] The Guidelines have five sections, A through E, which describe the various steps involved in archaeological investigation, analysis, and, where necessary, excavation, curation, and storage. To facilitate the use of the Guidelines by a wider audience, terms that may not be familiar are noted in **bold red** and defined in the glossary

(Appendix A). Hyperlinks to sources that provide additional information are also embedded throughout the text.

Sections A and B provide an overview of why and how the **archaeological review** process occurs and will likely be of greatest interest to city agencies. Section C provides a detailed overview of the archaeological work expected and will likely be referenced by archaeological consultants. Sections D and E are for all readers and, with the exception of the glossary, the appendices have sections for both city agencies and archaeological consultants.

Brief Overview of New York City Archaeological Process

Archaeological work is needed when a project that is subject to the regulations noted in Section A.4 involves ground disturbance. In most cases a **lead agency** is responsible for ensuring that these legal obligations are met, and LPC reviews projects to assist the lead agency in meeting its obligations (Section A.4). In some cases an **applicant** may also be responsible for completing the needed archaeology under the direction of the lead agency and LPC.

As a rule, archaeology is completed sequentially. First, the lead agency contacts LPC for an initial review to determine if there is potential for the proposed project to impact potentially **significant archaeological resources**.

If so, LPC recommends that documentary analysis be completed to determine a project area's potential to contain undisturbed and significant archaeological resources (Section B.4). If the research indicates that such potential exists, field investigation then occurs to confirm whether, in fact, resources exist (Section B.5). If the **site** contains significant archaeological resources (Section B.1), **mitigation** steps may then be designed and undertaken (Section B.6).

Mitigation means that impacts to the resources are avoided either by redesigning the project to avoid disturbing some or all of the resources, or by archaeologically excavating, studying, curating, and storing the resources and sharing what has been learned with the public and the research community. An archaeological report is completed after each step, which documents the work completed and what was learned. Once approved, these reports are posted on LPC's website—www.nyc.gov/landmarks—and are available to the public; reports for sites where looting may occur, however, may not be posted until the site is secured. Consultation with and involvement of stakeholders such as Native American Tribes (**Indian Nations**) or descendant communities and their representatives may be part of the process (Section A.5). Finally, a long-term curation plan must be created for significant archaeological collections that are created through the process (Section C.8). Communication between the lead agency, the archaeological consultant, and LPC throughout is crucial to the smooth completion of the process.

New York City Landmarks Preservation Commission and Archaeology

LPC is the largest municipal preservation agency in the nation. It is responsible for identifying and protecting New York City's architecturally, historically, and culturally significant buildings and sites. The agency accomplishes these goals by designating **historic resources** and regulating work that affects those resources. There are more than 36,000 **landmarked** buildings and sites in New York City.

The members of the LPC Archaeology Department are professional archaeologists who oversee archaeological review within New York City. The department also manages the NYC Archaeological Repository: The Nan A. Rothschild Research Center, which curates the city's archaeological collections and makes them accessible to scholars and to the public through www.nyc.gov/archaeology (see Appendix H).

Under the Landmarks Law, archaeological review may be required in designated parks and where archaeological resources are part of the reason for LPC **designation**, but this is relatively rare. More commonly, archaeological review is mandated by other city, state, and federal laws through a broad environmental review requirement or, in other instances, through more specific regulations such as the State Historic Preservation Law or the Federal Archaeological Resources Protection Act of 1979. Except in situations where LPC acts as the regulating agency by reviewing work on LPC-designated property, LPC assists other agencies in meeting their obligations to identify and minimize impacts to archaeological resources that may arise from their projects in New York City.

A.4

Laws and Regulations that Necessitate Archaeological Review

There are a variety of laws in place that can make archaeological investigation a requirement. The most common of these laws are briefly discussed below. LPC uses the same archaeological review process for all projects. If questions arise as to which laws are applicable for specific projects, LPC should be consulted.

A.4.1

Landmarks Review



The African Burial Ground and the Commons Historic District as shown in the mid-18th century. (The Maerschalck Plan, 1755. I.N. Phelps Stokes, vol. 1, pl. 34).[8]

LPC was established by the Landmarks Law of 1965,[2] found at NY Administrative Code Sections 25-301 through 25-322. Although there are more than 140 historic districts in the city, the African Burial Ground and the Commons Historic District is the only LPC-designated archaeological historic district, and LPC regulates all subsurface work that occurs within this district. LPC also regulates subsurface work for projects requiring in-ground construction at other landmarked sites, including parks, burial grounds, and cemeteries. These Guidelines *must* be adhered to for projects reviewed under this law. For more information about the Landmarks Review process, please see the LPC Permit Application Guide.

A.4.2

City Environmental Quality Review

The City Environmental Quality Review (CEQR), Executive Order No. 91 of 1977, requires city agencies to assess, disclose, and mitigate the environmental impacts, including impacts to historic, architectural, and archaeological resources, of projects that require certain discretionary actions. Rezonings, variances, and city funding are examples of such discretionary actions. The CEQR Technical Manual (2014)[3] delineates the procedure for CEQR review and requires city agencies involved in discretionary actions to consult LPC on impacts to historic, architectural, and archaeological resources.

A.4.3

New York State Laws

Like CEQR, the State Environmental Quality Review Act (SEQRA) (ECL 8-0101 et seq.) of 1975[4] requires that all state and local governmental agencies assess the environmental effects—including impacts to historic, architectural, and archaeological resources—of certain discretionary actions. These actions include, but are not limited to, those using state funds, those being conducted at the request of a state or

local government, or those being performed on state lands.[5]

The State Historic Preservation Act of 1980, Article 14 (codified under 9 NYCRR Parts 426, 427, and 426), provides considerations for historic properties to be listed on the State Register of Historic Places and a summary of state agency activities that affect historic and cultural properties. Of note is Section 427.8, Public Access to Information, which specifically precludes the distribution to the public of archaeological site location information. However, this prohibition is not applicable in New York City as LPC cannot withhold archaeological site location data except under extraordinary circumstances (see Section E.1 for further information).

These projects are reviewed by the **New York State Office of Parks, Recreation and Historic Preservation (OPRHP)**, **State Historic Preservation Office (NY SHPO)**, and often involve LPC as the local **expert agency**.

A.4.4
Federal Laws

Federal agencies—and the projects they are involved with—must comply with a variety of laws designed to analyze and mitigate potential effects to archaeological resources. Compliance with these laws is triggered when federal monies, permits, or discretionary approvals are required for project implementation, even if it is in the city. The federal laws that may be applicable to projects in the city include, but are not limited to, the following:

- National Historic Preservation Act of 1966 (NHPA), as amended, and its Section 106 implementing regulations (including 36 CFR Parts 60, 61, 79, and 800). Section 106 requires that federal agencies, and those requesting a federal permit or receiving federal money, consider the effect of any undertaking on significant historic resources. For more information about the Section 106 process, see the Advisory Council on Historic Preservation's guide: www.achp.gov/work106.html).

- National Environmental Policy Act of 1969 (NEPA) Section 102(2)(c) requires federal agencies, as well as projects receiving federal funding, to consider the environmental impacts, including impacts to archaeological resources, of their proposed projects and to consider alternatives.

- US DOT Act of 1966, Section 4(f) of the Department of Transportation Act of 1966, applies to road, bridge, and other transportation projects. Like NEPA, it requires an analysis of impacts of the work on a variety of public resources, including parks, wildlife and waterfowl refuges, and historic and archaeological sites.

- Archaeology and Historic Preservation Act of 1974 (54 USC Section 312501-312508 and implementing regulations 36 CFR Parts 68, 79, and Guidelines for Archaeology and Historic Preservation Standards; and Guidelines 48 Federal Register 44716 [September 29, 1983]) provides for the preservation of historical and archaeological data which may otherwise be destroyed or irreparably lost due to a federal action.

- Archaeological Resource Protection Act of 1979 (ARPA), 434 CFR Part 7—Protection of Archaeological Resources: Uniform Regulations, prohibits unauthorized excavation of archaeological resources on federal or Native American tribal land and establishes standards for permitted excavation. ARPA also requires that federal agencies inventory the archaeological sites on their lands.

- Abandoned Shipwreck Act of 1987 (43 USC 2010-2106) establishes federal ownership over most abandoned shipwrecks in the waters of the United States (three nautical miles from

the U.S. coastline and navigable inland waters). It also affirms the authority of the individual states, territories, and Tribes to claim and manage abandoned shipwrecks on state and territorial submerged lands.

- Native American Grave and Repatriation Act of 1990 (25 USC Sections 4001-3013, 43 CFR Part 10, and 25 CFR Section 262.8) (NAGPRA) provides a process for museums and federal agencies to return certain **Native American cultural items**, including **human remains**, funerary objects, sacred objects, or objects of cultural patrimony. In practice, for projects being undertaken within New York City today, consultation with Indian Nations must occur for any projects on federal land or tribal land (see Section A.5.1).

- American Indian Religious Freedom Action (42 USC Section 1996, 25 CFR Section 262.7, 43 CFR Sections 7.32 and 7.7) requires federal agencies to consult with with Native American groups, including Tribes, Alaska Natives, and Native Hawaiians, concerning actions on sacred sites or affecting access to sacred sites. The sacred sites do not have to be defined as eligible in the National Register of Historic Places (HRHP).

Federal projects are reviewed by the NY SHPO and may also be reviewed by the Advisory Council on Historic Preservation if they elect to be involved. LPC is often involved as the local expert agency.

A.4.5
Overlapping Regulatory Jurisdictions (city/state, city/federal, city/state/federal)

Some projects may be subject to the Landmarks Law, CEQR, state, and/or federal review. In these cases, agencies are required to adhere to all applicable laws, which may require coordinating with other government agencies. Lead agencies are welcome to consult LPC about how they should proceed.

A.5

Communication with Stakeholders

Project stakeholders are individuals, groups, and communities that are likely to be affected by proposed projects. Environmental review laws (such as CEQR, SEQRA, and NEPA) require a public process and communication with relevant stakeholders. LPC applies these policies and procedures to projects being reviewed solely under the Landmarks Law as well. With respect to potential impacts to archaeological resources, it is important to identify and communicate with **descendants** related to the resources in order to identify appropriate mitigation measures (see Section B.5).

A.5.1 Indian Nation Consultation

Consultation with Indian Nations is mandated under a variety of federal laws, including Section 106 of the National Historic Preservation Act, and is the responsibility of the federal agency involved. The New York State Department of Environmental Conservation (DEC) requires consultation with Indian Nations under their policy statement entitled "CP-42/Contact, Cooperation, and Consultation with Indian Nations."[6] Consultation is recommended for city and state projects with the potential to impact Native American sites. LPC and NY SHPO should be contacted for guidance about how the involved agency should proceed. It is particularly important that consultation occur when a documentary study has identified a site that has the potential to contain Native American cultural items. The federal and state-recognized Indian Nations who hold heritage interest in New York City are the Delaware Nation, Delaware Tribe of Indians, Shinnecock Nation, Stockbridge-Munsee Community Band of Mohicans, and Unkechaug Nation (State of New York recognized).

A.5.2 Descendant Community Consultation

For any project involving burial grounds, burials, or **traditional cultural properties**, a good faith effort must be made to identify the appropriate descendant entity.[7] This may include a biological relative or a responsible entity such as a religious organization or successor organization (in the case of a former graveyard). The entity(ies) should be consulted about disposition and treatment of the human remains. In the city, descendant groups who have been consulted on projects in the past have included descendant communities (as was the case for the African Burial Ground), descendant churches, and people whose ancestors were interred in family burial grounds. For more information, see Sections C.6 and D.



Windsor brushed ceramic, dating from about 1,200 to 1,400 years ago, in the collections of the NYC Archaeological Repository.

As-of-Right Projects

Aside from projects involving designated parks and sites designated by LPC in part for their archaeology, archaeological review is generally restricted to projects subject to environmental review and other laws previously discussed. Projects that are "as of right," meaning the project complies with all applicable zoning regulations and does not require discretionary action by a government agency and is not receiving government funding, do not usually trigger an obligation to conduct environmental review (and therefore archaeological review).

If archaeological resources are discovered in an as-of-right project the landowner is encouraged to contact LPC, who will assist to the extent possible. It should be noted that in most cases, what happens to the archaeological resources will be at the landowner's discretion. However, *human remains are an exception. If human remains are found, specific steps and notifications must be followed. Please see Section D for a full explanation.*

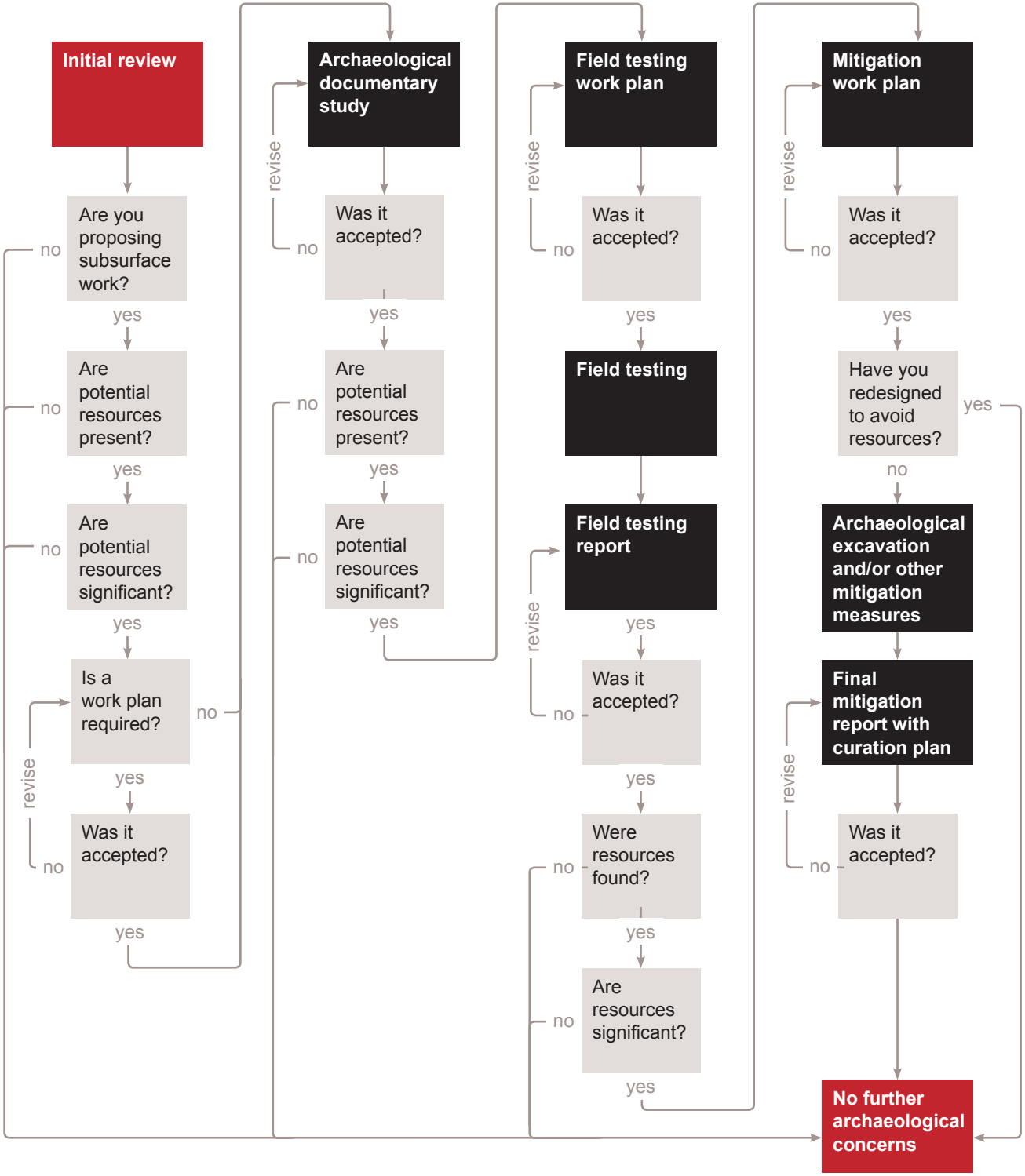
Archaeological Review Process



Storage jar from the Van Cortlandt excavations in the collections of the NYC Archaeological Repository.

FIGURE B-1

Steps/Phases of Archaeological Work



While the need to undertake archaeological work may arise in different contexts and under different laws, LPC uses the same review process regardless of what may have triggered the requirement for archaeological work.

The archaeological review progresses sequentially, with each step building on the results of the previous stage of investigation. Section B gives a brief outline of this process, beginning with a discussion about significance.

More complete and detailed instructions are found in Section C. For answers to specific questions about the process, please contact LPC.

Determination of Significance for All Review Types

Archaeological resources are significant if they provide new insight about the past and answer important research questions. The actual significance of an archaeological site cannot be known until the site is archaeologically investigated. Until then, archaeologists can only assess its potential significance. LPC decides whether to require further archaeological work—archaeological documentary studies, field investigation, and mitigation. As the stages of archaeological review proceed, the criteria change from potential significance to an assessment of actual significance that is based upon what resources are discovered at a specific site and what is revealed by the **archaeological analysis**.

The actual significance of an archaeological site is dependent on three factors:

1. Can data recovered from the site be used to address and advance research issues that provide new insight about the past?

2. Does the site retain **integrity**, as determined by its conditions?

3. Does the site meet one or more of the eligibility criteria?

The following criteria have been adopted by LPC to evaluate whether sites are eligible for inclusion

on the **National Register of Historic Places** and also the New York State Register of Historic Places. These criteria also serve as LPC's basis for determining archaeological significance. To meet this standard for significance, resources must:

a. Be associated with events that have made a significant contribution to the broad patterns of history; and/or

b. Be associated with the lives of persons significant in the past; and/or

c. Embody distinctive characteristics of a type, period, or method of construction or that represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; and/or

d. Have yielded or have the potential to yield information important in prehistory or history.

Archaeological significance is most often determined by criterion D, but may also be defined by criteria A, B, and C. The most significant resources are those that reveal something that materially adds to the knowledge of a particular time or place. The extent to which the site has such potential determines the amount of archaeological work LPC will deem necessary for a project.

Note that for state and federal projects, NY SHPO determines whether a site meets the criteria to be considered eligible for inclusion in the State and National Registers of Historic Places. However, all reviewing agencies, including LPC, use the framework of the National Register of Historic Places in making determinations.

While the criteria values and integrity measures are the same for the city, state, and federal determinations of eligibility, there are slight nuances to each process. Consultation with LPC and/or NY SHPO is encouraged if questions exist about the criteria values and integrity measures and their applicability to a particular archaeological site.



Late 18th-century ship found at the World Trade Center Site in 2010 by AKRF. Photograph by Fred Conrad, New York Times.

TABLE B-1

Significance Criteria and Conditions

This table lists the criteria values, conditions, and considerations for determination of significance/eligibility for historic properties, including archaeological sites.

Criteria Values, Integrity Measures, and Special Considerations	Title and Definition	Applicability to an Archaeological Site
Values	**A**. Be associated with events that have made a significant contribution to the broad patterns of history	Applicable
	B. Be associated with the lives of persons significant in the past	Applicable but rarely used
	C. Embody distinctive characteristics that possess high artistic value and/or are representative of a type, period, method of construction, work of a master, or a significant and distinguishable entity whose components may lack individual distinction	Applicable but rarely used
	D. Have yielded, or have the potential to yield, information important in prehistory or history	Applicable, most commonly used for archeological sites
Integrity Measures	**Location** is the place where the historic property was constructed or the place where the historic event occurred. The location of a property, together with its setting, is important in recapturing a sense of history.	Applicable
	Setting is the physical environment of an historic property. Setting refers to the character of the place in which the property played its historical role.	Applicable
	Design is the combination of elements that create the form, plan, space, structure, and style of a property.	Applicable but difficult to apply without features present
	Materials are the physical elements that were combined or deposited during a particular period of time and in a particular patter or configuration to form an historic property.	Applicable

	Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.	Applicable
	Feeling is a property's (site's) expression of the aesthetic or historic sense of a particular period of time.	Applicable but often very difficult to document
	Association is a direct link between an important historic event or person and an historic property.	Applicable but often difficult to document
Special Considerations	**A property less than 50 years old** if it is of exceptional importance	Not applicable
	Religious properties (cemeteries, birthplaces or graves of historical figures, properties that are primarily religious in nature)	Applicable, particularly if the cemetery is no longer used
	A building or structure removed from its original location (significant primarily for its architectural value or if the surviving structure is associated with an historic person or event)	Not applicable
	A birthplace or grave of an historical figure of outstanding importance if no other appropriate site or building directly associated with his/her productive life exists	Applicable but very rare
	A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from associations with historic events	Applicable, particularly if associated with historic events
	A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived	Not applicable
	A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance	Not applicable

Source: National Park Service. 1997. "How to Apply the National Register Criteria for Evaluation," *National Register Bulletin*. U.S. Department of the Interior, NPS Cultural Resources.

Request for Archaeological Review

It is not necessary to hire an archaeological consultant for this initial step. LPC's staff archaeologists will determine whether archaeology will be required, based on information submitted to the agency. To assist in this review, the lead agency, the applicant, or their consultants must submit the following information:

- Project address, including block and lot numbers;
- Clear plans of the area that will be affected, showing existing and proposed conditions;
- Photos of the site showing existing conditions;
- Map of the relevant area;
- Project identification number (CEQR #, SEQRA #, etc.);
- Description of the project that clearly describes all proposed subsurface work. If there is no subsurface work this should be clearly stated in the application;
- Timeframe of the project.

A critical fact for archaeological review purposes is whether the proposed work will involve subsurface disturbance. If it will not, the archaeological review process ends and LPC will issue findings noting that there are no further concerns for archaeological resources related to the project. However, as LPC also reviews potential impacts to architectural resources, even if there are no archaeological concerns LPC may continue to review the project. In addition, as LPC considers the potential impacts of specific projects, LPC must review and approve new projects that may be proposed for the same site.

If the proposed action will cause subsurface disturbance, including upon any areas of direct construction impact, staging areas, utility lines, etc. (sometimes called the Area of Potential Effects [APE]), the LPC Archaeology Department will determine whether there could be potential archaeological resources that may be affected. This is done by reviewing maps that trace the land use and development of that particular parcel. LPC also refers to the findings from relevant archaeological projects and sensitivity maps which represent cumulative information about specific sites and indicate areas with high potential for archaeological resources of specific time periods. If LPC archaeologists find that the subsurface disturbance may have an impact upon potentially significant archaeological resources, the project is flagged for further study. If not, the review process ends and LPC issues findings which note that there are no further concerns for archaeological resources related to the project. This LPC review usually takes less than two weeks. When initially reviewing a project, LPC assigns a project unique identification number (PUID), which is the number noted in the file name, below the signature, on all project findings (e.g., for File Name 33304_ALS_05032018.doc, the PUID is 33304 and the last numbers refer to the date of issue). It is helpful to refer to this number in all related future correspondence with LPC.

It is highly recommended that LPC be consulted as early as possible in the review process so projects may be appropriately scheduled and budgeted.

B.2.1

Restrictive Declarations

Under CEQR, there are instances when applicants and lead agencies may elect to use a **restrictive declaration** to address identified archaeological issues after the environmental review process has been successfully concluded. A restrictive declaration is a legal agreement that may be used with lead agency (such as the Board of Standards and Appeals or the Department of City Planning) approval for some projects. It specifies that archaeological work will occur once the applicant's project has been approved—but before it may proceed. The archaeological work is overseen by LPC; such agreements mandate that the applicant may not apply for Department of Buildings permits, including certificates of occupancy, until LPC has issued the documents specified in the agreement after the successful completion of archaeological work. LPC may be contacted for sample restrictive declarations.

Hiring and Managing Consulting Archaeologists

If LPC review determines that archaeological work is needed, the agency or applicant needs to hire a **principal investigator (PI)** to do this work. The professional archaeologists, specifically including the PI, the field director, and the laboratory director (roles that in some cases may all be undertaken by the same person) must be qualified under the Secretary of the Interior Standards and must abide by the ethical standards outlined by the Register of Professional Archaeologists as described in Appendix B. In addition, any needed subconsultants must meet the relevant qualifications for their specialties, also as noted in Appendix B. **LPC will not accept work plans nor approve work conducted by people who do not meet the professional standards outlined by the Secretary of the Interior.**

On archaeological projects, the lead archaeologist is referred to as the PI.[9] The PI plays a critical role throughout the archaeological review process. Therefore, lead agencies and contractors should carefully select the PI and their team. The PI is responsible for consulting with the lead agency and with LPC, although some lead agencies may direct the PI to directly submit all work to them.

LPC maintains a list of archaeological consultants who have both requested to be on the list and meet the criteria noted in Appendix B; LPC will share this list.[10] Archaeological consultants with multiple documented failures to submit a comprehensive, well-justified work plan and appropriate deliverables in a timely fashion, including final reports and project closure documentation, will be reported to the New York City Mayor's Office of Contracting. This may result in a possible caution being placed in the city's contracting system, making it problematic for the vendor to obtain future contracts with the city. For more information about this process, please contact the Mayor's Office of Contracting.

To ensure that the process is accurate and efficient and in order for the PI to make informed recommendations, the applicant must provide the PI with sufficient information about the proposed project and its location. To this end, LPC has developed Appendix C, a checklist that provides applicants with the information necessary for each step in the process.

LPC has also developed a checklist to assist PIs and applicants in developing appropriate resource estimates for archaeological work—from documentary studies through project closure (see Appendix D). Since there is considerable variability in what constitutes mitigation, LPC will meet with the PI, lead agency, and applicant to discuss specific mitigation plans and the resource estimate.

Finally, applicants, particularly government agencies, sometimes issue a Request for Proposal (RFP) to individual PIs or PIs associated with consulting firms. Ideally, this RFP is advertised or submitted to a list of qualified vendors. The RFP should be accompanied by location maps and proposed project plans. It describes the proposed project, stipulates the times for pre-submission meetings, response-to-RFP submission date, proposed project schedule, other agencies involved in the project, and sometimes the agency representative. The RFP is usually accompanied by standard stipulations issued by the agency. An agency RFP may also cite a "not-to-exceed cost" for labor and direct expenses. Even if no formal RFP is issued, LPC recommends that other applicants provide the information noted above in order to evaluate an archaeological consultant's proposal.

Documentary Study



Smoking pipe found in Washington Square Park, from the collections of the NYC Archaeological Repository.

If LPC determines that archaeological work is necessary, a **documentary study** is required. As with every subsequent step, this work must be done by a qualified PI and their team—under contract to the applicant. A documentary study is similar, but not identical, to the state and federal **Phase IA** study (see Section C.2 for more information). LPC may request that a work plan for the documentary study be submitted to LPC for approval before work may proceed for some projects, such as LPC-designated sites and sites that have been identified as having the potential to contain human remains. In the city, Washington Square Park is an example of one such location that contains remnants of a late-18th and early-19th-century potter's field.[11]

The work plan, also sometimes called a **scope of work** (SOW), is a statement of anticipated archaeological work. It outlines the steps to be taken to determine and document the significance of the site. A work plan specifies all work tasks needed to complete a particular phase of work (such as a documentary study, field investigation, or mitigation) and typically includes budgets and schedules for a particular project.

The work plan for the documentary study should include basic information about the applicant, project location, the array of permits and other approvals being sought by the applicant, and the archaeological team's supervisors and subconsultants. The work plan identifies sources that will be used to document prior uses and the existing conditions of the project location. It spells out the objectives of the **research design**,[12] specifies the methods that will be used to address the research design, and includes a resource estimate and assumptions statement (see Section C.1). It also notes how, if necessary, a consultation plan will be developed. The consultation plan identifies who should be consulted so the lead agency may initiate consultation before any in-ground work proceeds. The work plan will include the schedule for research and report submission to LPC.

All documentary study investigations should include a field visit to the project location. The field visit should be (1) conducted with landowner permission; (2) done in acceptable weather conditions (90 percent or greater of the surface is visible and not covered in snow, ice, leaves, dense growth, or garbage) if possible; and (3) result in photographs that accurately depict the existing conditions of the project location. The photographs should be taken on location rather than through fence mesh or otherwise outside of the project location. LPC should be notified if these conditions cannot be met.

The documentary study methods expected by LPC are presented in Section C.2.

Once the research has been completed, the PI

prepares a report and submits it for LPC approval. The report concludes that either (1) there are no data to support the presence of archaeological materials or sites that have the potential to be significant within the project location; (2) archaeological materials or sites that have the potential to be significant may be present; or (3) archaeological sites that have the potential to be significant are present.

Identification and Evaluation Field Investigations

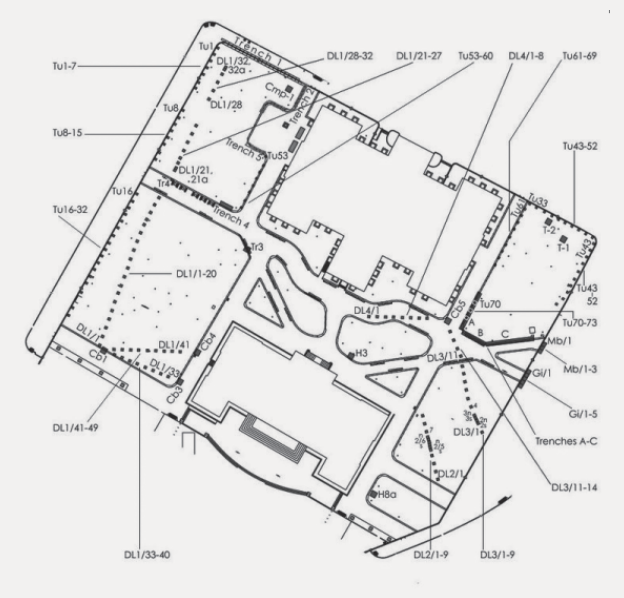
This investigation is conducted to confirm the presence or absence of archaeological materials and to provide data for evaluating the integrity and significance of the site. In the state and federal systems it is often completed in two phases: **Phase IB** and **Phase II**. Given the complexity of completing fieldwork in New York City and the unusual wealth of documentation, these phases are usually—but not in all cases—combined into one step.

This investigation must be initiated by a new work plan that must explicitly describe the methodology that will be used to determine whether resources are present, intact, and significant. The work plan must be developed by a qualified archaeologist. Although continuity is always preferred, the PI or firm need not be the same one that completed the documentary study.

The work plan for this stage must include a research design consistent with the scope of the proposed work. The sampling strategy used to investigate the project area must be appropriate for the dimensions of the project and defined in the work plan. PIs may wish to consult LPC about sample percentages. Once LPC approves the work plan, the archaeological fieldwork may begin. It must be noted that given that the work plan focuses on the potential of the site—and what may actually be found may be very different—it is important that the PI consult with LPC and their client as soon as possible when alterations to the work plan are apparent so all parties may agree with the needed next steps.

In rare instances, at the end of documentary study it may be clear that an area of archaeological significance is present in the project area. This is most common when the sites are cemeteries or individual graves. In such cases, the project may proceed directly to mitigation with the approval of LPC.

At the end of the field investigation phase, a report detailing the findings must be submitted to LPC for approval (see Section C).



Excavation plan (north arrow and scale omitted from the original figure), Brooklyn College Archaeological Research Center, History and Archaeology of City Hall Park, New York, 2008.

Treatment of Significant Sites

At the end of the preceding steps, the archaeological consultant will make a recommendation about the eligibility and significance of the site. If LPC concurs that the site is significant, then mitigation is needed. The first step is the development of an avoidance, minimization, and mitigation plan and the second is the implementation of the plan. If LPC does not concur then no further archaeological work is required.

B.6.1 Mitigation Options

The preferred option for all sites, and most especially for burial grounds, is that the project avoid impacting the identified archaeological site. If this is not possible, the next best option is to minimize the project's impact on the site; if that is not feasible, then the project planners proceed as noted below. The initial step in this phase is to analyze what is possible for the particular project and to create a mitigation plan that details this analysis with specific recommendations for the project.

The plan should clearly explain if it is possible to avoid impacting the site and, if not, clearly explain why. For projects where avoidance may be possible, each viable option should be outlined, including the impact to the project goals, schedule, and resource estimate versus full archaeological data recovery.

Minimization refers to shifting project elements outside of an archaeological site's horizontal and vertical footprints. Additional archaeological testing may be needed if the new redesign may impact areas that previously had not been tested. An example of minimization is relocating the proposed project's infrastructure, such as utilities, outside of the site area but allowing minimal surface impacts from shallow root plantings.

Both avoidance and minimization plans have been implemented at various locales in the city, especially in parks. Examples include Washington Square Park, which was subject to three episodes of investigation,[13,14] and Queens County Farm Museum, where an intact 19th-century cistern was identified and the project was redesigned to avoid the feature.[15]

Finally, **data recovery** (often excavation of large portions of a site) is conducted only when avoidance or minimization options cannot be implemented. Data recovery is sometimes referred to as Phase III in the state and federal systems. As data recovery is usually costly and time intensive, it is especially imperative that the work be well planned to target those areas of the site that are known to contain information that can advance knowledge of previously undocumented lifeways—and that adequate time is allocated for the the work.

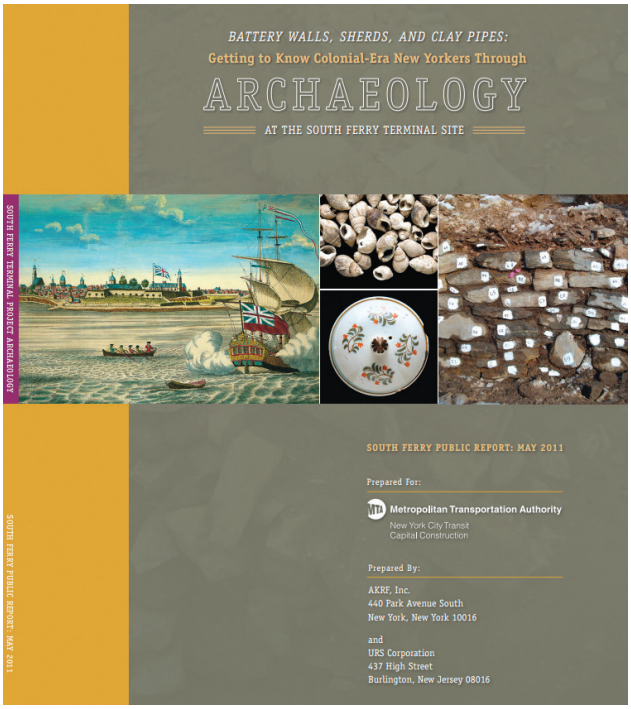


City Hall Park fence redesigned to avoid impacting archaeological resources in 1999. Photograph by LPC.

B.6.2
Mitigation

Multiple mitigation options exist if a significant site will be impacted by proposed construction. All of the options must both acquire new information about the past and convey that understanding to the research community and the public. Options include, but are not limited to, additional or complete excavation of a site, specialized artifact treatments and analyses, detailed documentary research, exhibition (either physical or digital), and/or videos or other forms of visual documentation like 3-dimensional scanning. (See Section C.5 for more information.)

LPC recommends that agencies and applicants review existing mitigation reports to more fully understand the likely complexity of a data recovery investigation. These reports may be found on LPC's website.



Archaeological report created for the public by AKRF and URS Corporation as a mitigation measure in the South Ferry Project, 2011.

Project Closure

A project closes when LPC, in concert with the lead agency, determines that the impact of the project on the archaeological resource has been properly addressed. This occurs once the final report has been approved by LPC and the archaeological collection, including artifacts and associated records, are curated with an acceptable repository or returned to the landowner. In the latter case, a copy of the archive record, including the project photographs and maps, should be given to LPC (see Section C.10). It should be noted that further archaeology may still be needed at the site such as if there is an unanticipated discoveries plan (UDP) in effect. If the PI does not complete this step of the project in a timely fashion, it may result in a possible caution being placed in the city's contracting system, making it problematic for the vendor to obtain future contracts with the city. For more information about this process, please contact the Mayor's Office of Contracting.

Step-by-Step Guide to Archaeological Methods and Procedures



Perfume bottle from the Van Cortlandt Excavations in the collections of the NYC Archaeological Repository.

Section C provides detailed information on the methods and procedures for archaeological work in New York City required for all projects. It complements Section B, which gives an overview of the process. The archaeological work may, and often will, exceed this guidance as dictated by the research requirements of specific sites. However, the PI may not implement a change or addition without first consulting LPC.

C.1

Work Plan

Section B outlined the steps that may be implemented during the course of an archaeological assessment. Each step includes the development of a work plan with an associated research design. Work plans are designed specifically for particular projects; what is outlined here are minimum guidelines. Communication with LPC is always advised to resolve particular issues. See Section B.3 for a discussion on when work plans are needed for documentary studies.

Complete work plans should include seven sections: *Introduction, Environmental and Historical Context, Research Design, Project Methods, Project Management, Project Timeline and Resource Estimate, and Project Communication*. If excavations proposed in the work plan will exceed 4 feet (1.22 meters) in depth, the plan should cite the name of the Health and Safety Plan (HASP) that will be in effect when archaeologists are on site.

Introduction

The introduction should include the following information:

- Project name, street address, borough/block/lot, and LPC PUID (if assigned);
- Applicant name and contact information;
- Lead agency and secondary agencies, including contact person and the permits and approvals being sought (may be presented as a table);
- Names of the archaeological PI, field director, laboratory director, and subconsultants who are conducting specialized analyses (e.g., pollen, phytolith, soils/sediments [hereafter "soils"],

carbon 14 [C^{14}]) or services (mechanical equipment company, geophysical provider, etc.). If not known, indicate position to be filled;

- Proposed project schedule. If actual dates are not available, this should be noted and explained.

Each subsequent work plan submitted to LPC for later phases of work must note any changes to the above information.



The historical context section should note if a project contains a designated New York City landmark, such as the Dyckman Farmhouse. Photograph by LPC.

Environmental and Historical Context

The second section of the work plan, environmental and historical context, includes a summary of the site's location, geology, environment, development history, and history of archaeological studies of the site and adjacent areas. In instances where the project is located in undeveloped or partially built settings, it should include a description of the project setting based on historic maps and other available data such as borings. It should note the project's landform, the distance to potable water source(s) on the earliest historic map that contains stream/river information, and any bedrock-based lithic resources on site or immediately adjacent to it. The historical context part of the discussion should focus on changes to the built environment on the site through time. Both the environmental and historical context sections should address the potential for deeply buried culture-bearing deposits to be present within the APE. The historical context also should note if the project location is within an historic district, contains a designated New York City landmark, is on the State and/or National Register of Historic Places or has been determined to be eligible for listing, and if it historically contained a cemetery or otherwise may have the potential to contain human remains. In addition, this section must incorporate all previous archaeological investigations conducted on (or near) the property, even if such studies did not result in a final report.

Research Design

The work plan's third section, environmental and historical context, sets the stage for the initial research design. A research design is defined by the National Park Service as "a vehicle for integrating the various activities performed during the identification process and for linking those activities directly to the goals and the historic context(s) for which those goals were defined. The research design stipulates the logical integration of historic context(s) and field and laboratory methodology."[16] More simply, it is a systematic planning of archaeological research. This includes the formulation of a strategy to resolve a particular research question as determined by the identified potential archaeological resources that may be impacted by the proposed project. The strategy includes the collection and recording of evidence, the processing of these data, and the publication of the research. In particular, the research design should reference the reasons why specific material types, such as fire cracked rock or brick fragments, might be sampled both in the field and in the laboratory. In other instances, the research design questions might only be answered if specialized treatment, like residue analyses, are conducted. In this case, the subsequent project methods section must specify how artifacts that will

be subjected to residue analysis are processed, stored, and curated.

LPC can assist PIs with the research design. In the documentary study, the research design is focused on determining if the project location may retain archaeological materials or features. A research issue at this level of investigation, for example, may ask what archaeological resources may be present if there are standing structures at the site today. A field testing research design might build upon those findings and note that one corner of the site may not have been developed after the 18th century and focus testing in that area.

Project Methods

The fourth section of the work plan, project methods, details the documentary sources that will be used and, for projects with field components, the field and laboratory methods and procedures that will be engaged. The field methods section needs to distinguish between invasive and non-invasive (e.g., geophysical) methods that will be employed and how these techniques will be mapped. The field and laboratory methods should clearly state the following: the permanent datum that will be used (every effort should be made to use the North American Datum 1983—NAV83 with a vertical datum of NAVD88, as both New York State and New York City have adopted them as their standards[17]), the measurement system being used (English is the preferred city standard for all geographic measurement), and how excavation photographs will be documented in the field (menu boards, chalkboards, or other).

Also, in some cases **archaeological field testing**—that is, the identification of archaeological resources—may proceed directly to the next phase of fieldwork, documenting the extent and integrity of the archaeological resources. In such cases, the work plan must fully detail all of the work that will be done for each step so the project may proceed to the next phase while still in the field after a Letter from the Field has been submitted. For example, should the research be focused upon a mid-19th-century cistern and its contents and the testing finds a cistern and the top artifacts are mid-19th century, this plan would include the ensuing **excavation plan**. It should include the proposed sampling methodology and analyses that would be done. **The Letter from the Field must be submitted to and accepted by LPC BEFORE any further work at the site may proceed.**

Project Management

The fifth section of a work plan is project management. The management plan confirms that the landowner has granted permission to conduct field investigations on the site and notes where any archaeological artifacts should be curated during the project duration. It also recommends where artifacts may go once the project has been completed (see Section C.10).

Project Timeline and Resource Estimate

The sixth section of the work plan is focused on the anticipated duration of archaeological work and an estimate of what resources may be needed to complete the work. The purpose of this section is to ensure that there is a realistic budget that corresponds with the required tasks outlined in the work plan. LPC does not need to see dollar amounts, and the work plan will not be posted on LPC's website.

Appendix D, the resource estimate checklist, is designed to assist with the preparation of the project timeline and resource estimate. The checklist, or equivalent, should be used to identify the tasks to be completed and provide an estimate of the staffing, any other resources that will be needed, and how much time will be needed. It should also convey the underlying project assumptions such as the number of features and artifacts that may be found that, if exceeded, would affect the timeline. The staffing estimate should summarize the number of supervisory, field, and laboratory personnel proposed (a person can hold more than one position) as they

relate to the work tasks discussed in the plan. This section should note the amount of time (days, weeks, months) that will be needed to complete work tasks. They may be presented in a range (e.g., 1–5 days, 4–20 hours) or more precisely (e.g., 8 hours). It should also include any resources that will need to be procured, such as equipment and materials like archival packing materials.

This should all be submitted to the best of the archaeological consultant's ability, depending on their experience and the results of other projects. Unforeseen delays should be explained, and consultation with LPC is expected.

Project Communication

The seventh section is the communication plan, which must detail how and when the PI will communicate with LPC and the other involved agencies about the project status and preliminary findings. This is especially essential given that what is found during testing may be very different than what is anticipated; having a clear communication plan can ensure that the consultation process is as efficient as possible. This plan should also address how, and if, information about the work will be communicated to the public, via social media, and to the press.

Documentary Study

If the initial LPC review determines that the project has the potential to impact potentially significant archaeological resources, an archaeological consultant must be engaged by the applicant to research and write a documentary study (see Appendix B for needed consultant credentials). The purpose of the study is to determine whether intact archaeological resources might exist on the site and what they may tell about the past. The study findings provide a basis for deciding whether archaeological fieldwork is needed.

It should be noted that within New York City, historical documentation is abundant and accessible while field testing (excavation and non-invasive geophysical) can be expensive and complex. It is therefore expected that documentary studies must be robust. This helps to ensure that field testing only occurs when needed. **The documentary study must:**

- Document the site's development history;
- Assess whether the site has been so disturbed in the past that it no longer has potential to yield archaeological resources;
- Assess the probability that potential archaeological resources will be disturbed by the proposed project;
- Explain why further archaeological work should, or should not, be required.

To accomplish these goals, the archaeological consultant must identify and research all reasonably available documentary and archaeological evidence. The documentary study must include discussion of the possible significance of the potential resources as defined by Section B.1. The study should also include sensitivity maps showing which areas of the project site, according to the research, are most likely to contain archaeological resources. If a project area has previously undergone sensitivity assessment, the research design should specify the basis for assessing the accuracy of the sensitivity assignment methods.

The sources to be consulted depend upon the prior uses of the project site and what LPC has noted in its initial findings. However, they generally include primary sources, such as:

- Map showing project location and planned construction work so potential impacts may be estimated (NYCityMap, Google Maps, and Sanborn are all acceptable base maps);
- Records of prior archaeological investigations of the project site or nearby archaeological sites;
- Archaeological reports from sites in the vicinity;
- Historical maps and atlases (e.g., Robinson 1885);
- Building records to determine basement depths of buildings on the site;
- Publications on local history;
- Public utilities installation records to document initial connections;
- Soil borings and Rock data;
- Archaeological sensitivity maps;

- Census records;
- Conveyance records;
- Tax assessment records;
- Deeds and titles;
- Street directories;
- Historical diaries;
- Oral history, including interviews with people knowledgeable about local history;
- Historical photographs;
- Church records, especially burial records;
- Wills and probates;
- Other sources (e.g., newspaper articles, guide books, historical postcards).



The documentary study should include primary sources such as historic maps. (Ratzer Plan, 1776, from the collection of the Library of Congress.)[27]

The documentary report should explain the research methodology used in determining which sources to consult. For example, title searches are not as important for a site that has never been developed as for a site that has been. Appendix E provides many resource locations but is not an exclusive list, so projects may need to consult additional sources.

The documentary report must cite all sources consulted and include images of any pertinent documents that are difficult to find, such as rare maps, wills, or diaries (unless the materials cannot be copied because of permissions issues. If that is the case, it should be noted in the text). Finally, the report may not rely on sources such as Wikipedia or auction websites because they are neither primary sources nor peer reviewed. If there is specific research value in doing so, it should be explicitly defined in the report.

The applicant must ensure that the documentary study is submitted to LPC for review. LPC may ask that additional work be done before the study can be accepted. It should be noted that studies that only provide a few historic maps or standard boiler plate that may be relevant to any site within this region, or are in other ways materially inadequate, will not be accepted. Additionally, developers and applicants sometimes ask archaeological consultants to complete "due diligence" reports that outline potential historic resource issues for sites they are considering developing. While useful, these reports are not documentary studies and will not be accepted as such. Once LPC accepts the study, it may find that no additional archaeology is needed or it may stipulate that archaeological field testing occur. LPC review generally takes two weeks. Sample documentary studies are available on LPC's website here. It is recommended that anyone that is new to the process should review recent studies to better understand what is expected. Occasionally LPC will request that a supplementary documentary study be prepared, such as in cases where the initial study was completed years before or where additional research is needed on a specific topic. In such cases, LPC will outline for the lead agency what is needed.

C.3

Identification and Evaluative Testing Investigations

The documentary study reports on the potential for a site to contain significant archaeological resources. This potential can only be confirmed through subsurface investigation to confirm what is actually beneath the surface of the site and documenting the presence or absence of archaeological materials.

It also provides data for evaluating the integrity and significance of the site. The methods presented below are given in the order in which they are usually completed.

C.3.1

Landowner Permission

As briefly noted in Section C.1, the work plan should include written landowner permission to work on their site, which also notes who will have custody of any artifacts during the life of the project.

C.3.2

Horizontal and Vertical Controls (Permanent Datums)

Accurately recording the location of archaeological sites and features is critically important, both for the analysis phase of a specific project and for future researchers and project managers. Therefore, PIs must locate their discoveries relative to a permanent datum. Every effort should be made to use the North American Datum 1983—NAV83 with a vertical datum of NAVD88. These are accepted as standards by both New York State and the City of New York.[18] The locations of all invasive excavations and non-invasive procedures, site boundaries, and features must be tied to the permanent datum. It is insufficient for archaeological reports to simply present depths as "below ground surface"; instead, the permanent datum must be referenced. Issues with datum placement and availability of information about NAV83/NAVD88 or extenuating circumstances should be communicated to LPC for approval.

C.3.3

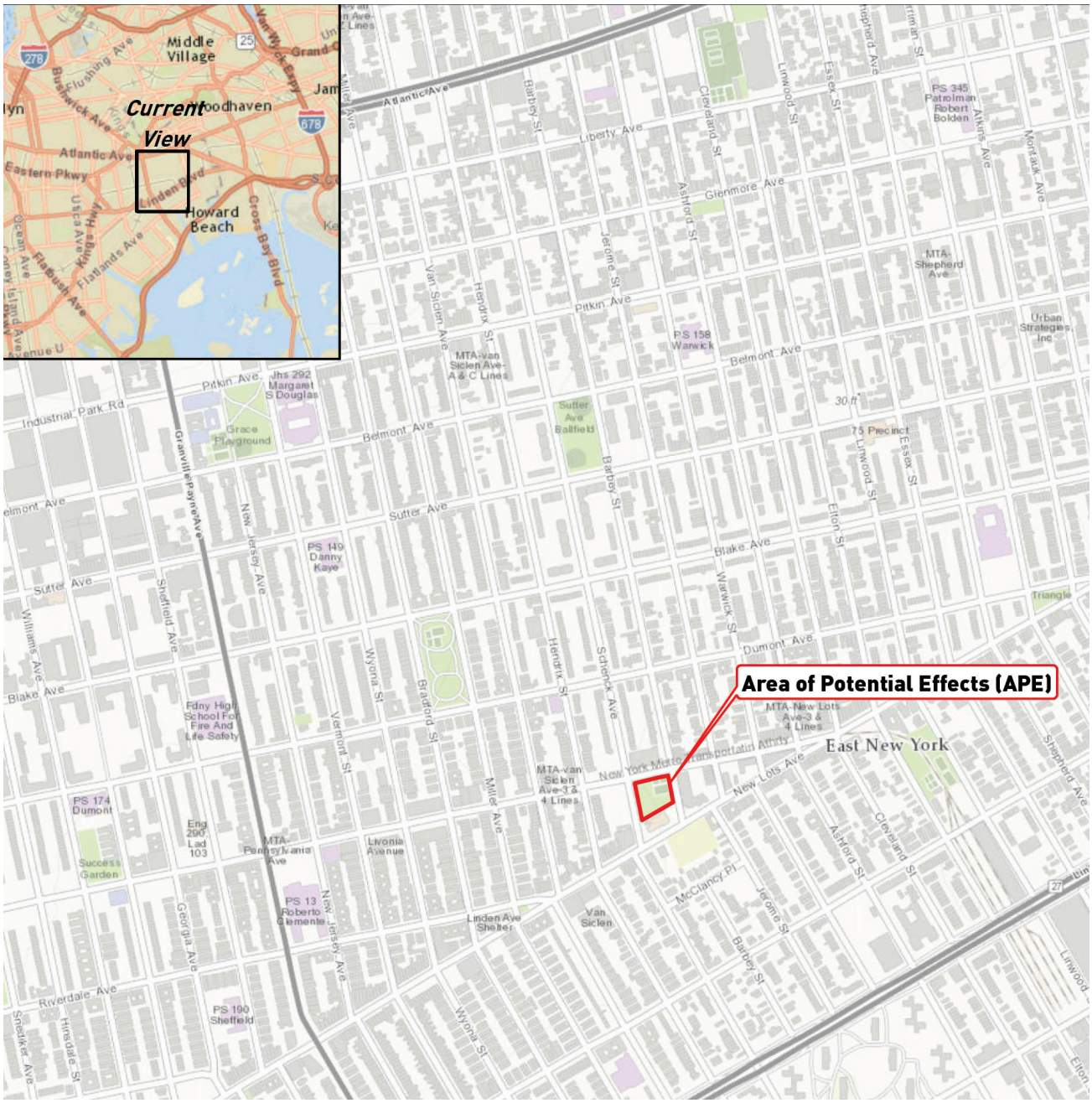
Project Mapping

Each site-specific investigation must include, at a minimum, the following figures:

- Project location map (USGS or NYCityMap base: http://maps.nyc.gov/doitt/nycitymap/);
- Archaeological field testing and archaeological excavation maps showing the location of all shovel tests and excavation units, surface survey transects (pedestrian and geophysical), and cultural features (e.g., structures, fences, manholes, buildings, garden beds, access paths or roads, and other surface features). A photograph key should be included on the maps;
- Representative soil profiles;
- Feature plan and sections for all cultural and natural features identified during excavation;
- It is preferred that PIs use GIS (**Geographic Information System**) for mapping and to record the geographic data associated with their projects.

All figures must include a scale, north arrow, and map legend.

All maps, with the exception of the project location maps, should be based on scaled field maps. The field measurement data can be obtained using triangulation, line-level, transit, or electronic Global Positioning System (GPS). If GPS-based systems are used, the accuracy must be within 3 feet (1 meter). If a plan or profile is a sketch, it should be clearly named as such.



Example of a project location plan, Hartgen Archaeological Associates Inc, Phase 1A for Schenck Playground, African Burial Ground Square, Brooklyn, 2016 (north arrow and scale on original map).

C.3.4

Surface Survey

Surface survey is done to record artifact clusters and features that are visible from the surface that may indicate the presence of archaeological resources. Because much of New York City has been intensively developed, these methods are much less commonly utilized than in other areas of New York State. If a surface survey is appropriate for a site, there are three types of surveys that may be conducted: a reconnaissance/judgmental survey, a systematic surface survey, or a geophysical survey.

Reconnaissance/Judgmental Survey

The purpose of this survey type is to identify the existing conditions of the project location and to determine, based on historic maps and building plans, the degrees of surface and subsurface disturbance. A reconnaissance/judgmental survey may be appropriate for confirming the locations of wetlands, quarries, structures, roads, or fence lines that may have been delimited in the documentary study. The work plan should identify all project areas that will be surveyed and provide photographic documentation of those locations.

Systematic Surface Survey

The purpose of this survey type is to identify the existing conditions of the project location and the degrees of surface and subsurface disturbance across the entire site. This survey is conducted by field crew members who are spaced at standard intervals from one another. The project's dimensions must dictate the sampling intervals. While standard practice in New York State is a maximum transect interval of 50 feet (15 meters), for most sites in New York City a much narrower interval, such as 15 feet (3 meters), should be used. The work plan should delineate and justify the proposed interval.



Survey, Dr. Joan Geimar, Phase 1 Archaeological Survey Report, Fairview Park, Charleston, Staten Island, 2016.

Geophysical Survey

This type of survey uses less invasive methods, such as ground penetrating radar, magnetic gradiometer, and multiplexed earth resistance meter,[19] to estimate what is below the surface. It can be helpful for sites where excavation is not optimal, such as potential burial ground sites where resources should be protected in place. While these technologies are quickly evolving, to date the results have been largely uninformative within New York City. If these methods are chosen the work plan must specify instrument type, test intervals, data analysis method, report specifications, and the operator(s) qualifications. The work plan should also state whether and how the results of this testing would be physically tested (sometimes called "ground truthing"). It should be noted, however, that if this methodology is used at burial ground locations, no further testing should occur without LPC and lead agency approval. The preference for potential burial sites is to accept the survey findings and redesign the project to avoid impacting areas identified as potentially containing burials.

C.3.5

Subsurface Investigation

Subsurface investigation includes shovel tests, hand-excavated units, mechanical stripping with handwork, geo-probes and other deep testing, and ground-truthing subsurface anomalies found during geophysical work. What follows is meant to detail methods of site investigation in ideal and usual cases. The peculiar circumstances of each site should be noted in the work plan. The archaeological consultant, based on field conditions, should consult with LPC if deviation from the approved work plan is necessary and appropriate. All excavations must be backfilled after recordation unless the HASP or competent person(s) states otherwise. Such exceptions must be noted in the work plan before fieldwork.

Shovel Tests

Shovel tests are used to evaluate a large area relatively quickly, must measure at least 16 inches (ca. 40 centimeters) in diameter or width, and be large enough to document the soil/sediment profile. The depth should be great enough to document a formal **soil horizon** change (i.e., B/C interface) or, in the case of a sediment stratigraphy, a depositional transition (i.e., from an occupation to geological level). The stratigraphic nomenclature utilized for study should be identified in the methods section of both the work plan and the ensuing report. All soil/sediment from the shovel test should be screened by arbitrary 4-inch (10 centimeter) levels or stratigraphic horizon through quarter-inch (0.5 centimeter) hardware screen mesh unless otherwise defined in the work plan. All artifacts recovered in the screen or shovel test should be bagged by arbitrary level or stratigraphic horizon. The shovel test profile must be documented using Munsell color terminology and standard soils descriptors with corresponding bracketing depths. The depth is based on the permanent datum height and each shovel test surface elevation is determined relative to the permanent datum. It is not necessary to photograph each profile. However, it is necessary to either make a scaled profile drawing or to enter the soils data into a table format for each shovel test. All shovel tests must be backfilled.

Unit Excavation

Unit excavation, conducted by hand, excavates larger areas than shovel testing and provides a larger sample of the archaeological record at a given site. It determines the presence/absence of artifact-bearing soils/sediments. Units, blocks, and trenches that are 4 feet (1.22 meters) deep or deeper must have a means of safe access and egress specified in the project's HASP (see the Occupational Safety and Health Administration [OSHA] Fact Sheet). If block units or trenches are 5 feet (1.5 meters) deep or deeper, then shoring or some other protective system must be specified in the HASP. For units, blocks, and trenches less than 5 feet deep, an OSHA-certified competent person may determine that a protective system is not needed but a safe means of egress still must be in place. A HASP should be part of any project involving excavation, especially if deep excavations are anticipated; however, LPC will not review them (see Section C.10 for discussion of HASP).

All soils from the potentially sensitive and significant contexts should be screened by arbitrary 4-inch (10 centimeter) levels or stratigraphic horizon through quarter-inch (0.5 centimeter) hardware screen mesh. All artifacts recovered in the screen or unit must be bagged by arbitrary level or stratigraphic horizon. The unit profile must be documented using Munsell color terminology and standard soils descriptors with corresponding bracketing depths. The width of the profile must correspond to the longest wall of the unit and to a right-angle wall. If there is significant difference between the soils profiles of the two longest walls then both should be mapped. The depth control should be set to the permanent datum height based on NAVD88 and each unit surface elevation will be determined relative to

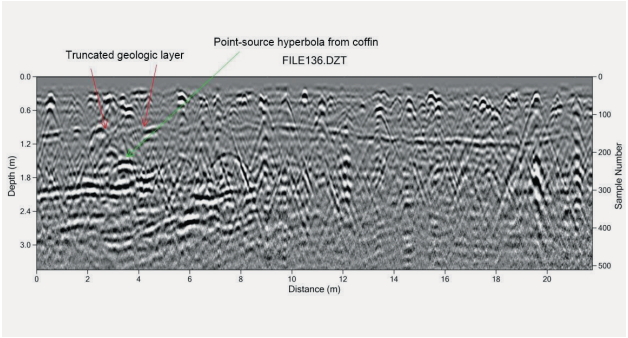
the permanent datum based on the North American Datum 1983—NAV83 (see Section C.3.2). If the long walls exceed 6½ feet (2 meters) in length, then a surface elevation should be taken every 6½ feet (2 meters) along the length. It is not necessary to photograph each profile. However, it is necessary to either make a scaled profile drawing or to enter the soils data into a table format for each unit, recording soils data every 20 inches (50 centimeters) along the profile length. All units must be backfilled.

Mechanical Stripping

Mechanical stripping is appropriate in situations where there is potential to find historic features such as privies, cisterns, or foundations—like under a parking lot or in a backyard of an historic structure. The work plan should indicate whether the contractor will provide the operator and equipment. Mechanical stripping should be conducted by an experienced operator that removes the pavement or other impervious surface and any modern **fill** to the depth of archaeological sensitivity. If soils stains are exposed, it is best that they be investigated through hand excavation.

Ground-truthing Subsurface Anomalies

Subsurface anomalies are identified through geophysical testing methods such as ground penetrating radar (see description in Section C.3.4). To determine whether anomalies indicate the presence of archaeological resources, physical tests must be conducted. The testing should consist of exposing the anomalies through hand stripping or a unit sized to encompass the entire anomaly. Once the depth of the anomaly has been reached, it should not be sectioned until its plan has been documented. No more than half of an anomaly should be exposed initially to determine if it contains internal stratification.



Example of ground-penetrating radar findings, Dr. Jessica S. MacLean, Hunts Point Burial Ground, Drake Park, Bronx, New York Report, 2017.

Deep Testing

Deep testing is likely more common in New York City than in other parts of the region. These excavations are often planned to confirm suspected or documented archaeological deposits or result when unanticipated discoveries are made during construction phases. In either case, deep testing requires special considerations in order to maintain safe conditions during excavation and subsequent archaeological investigation. Work plans proposing deep testing methods must ensure that there is a HASP and, if needed, a plan for shoring and dewatering. In addition, the work plan should account for how the excavation is sheltered and how the site is kept secure at all times. Finally, if the PI does not have prior relevant experience, their team should include an OSHA-competent person with deep testing experience. The team also should include a geoarchaeologist or geomorphologist with deep profile recordation experience, particularly with shoring or protective devices in place. Recent examples of deep testing include the excavation in which sections of a ship were found at the World Trade Center site in 2010 and 2011[20] and the Riverside Project, excavated in 2014.[21]

Archaeological Monitoring

Archaeological monitoring is done in an archaeologically sensitive area or in a location with known archaeological deposits to prevent disturbance to these deposits during construction or post-construction restoration activities. Monitoring is used in cases where a possibility exists that the excavation might uncover archaeological resources but there is no satisfactory way to sample the site, and, consequently, no valid way to determine where the resources may be. For example, if a new sewer line is to be built under an existing streetbed in an area known to contain archaeological resources and advance fieldwork is not possible, the construction project would be monitored since there is no way to test the project site before the construction work begins. In very sensitive areas such as those that once contained burials, monitoring may be used as a further step after field testing to ensure that archaeological resources are not destroyed by construction. Monitoring is not identification, evaluative testing, or mitigation.

As in mechanical testing described above, construction machinery may be employed in the excavation being monitored. However, in archaeological monitoring, no separate test units are excavated by the archaeologist. Rather, the archaeologist closely observes and samples the earth from the construction-related excavation of sensitive areas while work is in progress. The earth and the excavation area are scrutinized for signs of archaeological features and artifacts. If resources are encountered, the PI must stop the work and consult with LPC to determine whether further field testing and/or mitigation are necessary.

Archaeological monitoring is not a standard investigation method because it can potentially allow resources to be disturbed by the construction project before the PI can ascertain what resources may be present—and their significance. Therefore, the archaeological consultant must submit a written work plan for LPC approval that justifies the use of monitoring over other possible field testing techniques.

The monitoring work plan must include:

- Rationale for and the purpose of monitoring;
- Methodology to be used;
- Sample fraction to be screened in sensitive/non-sensitive areas;
- Criteria by which the PI will decide when construction must be halted and further archaeological work be done;
- How and when LPC will be notified about the status of the project and consulted about discoveries;
- Construction plans (including the existing HASP).

Approval will be given only if the proposed monitoring is the only appropriate strategy. LPC may require additional protocols for specific aspects of the monitoring. Finally, it must be noted that in some cases the lead agency may not allow the PIs to direct the work of construction workers. In these cases, it is especially important that the plan include very clear communication protocols and a decision-making hierarchy to which all parties agree.

C.4.1
Monitoring Costs

The cost of archaeological services for monitoring must take into consideration the time and the professional services required. Monitoring takes as long as the construction excavation of the archaeologically sensitive portions of the project site and the time needed to analyze and document the project findings as well. Depending on site size, it may take a day to several months. The PI must professionally document all archaeological work done at the site and use the same care for recovered artifacts that would be used for any other project. In addition, the site must be protected from looters.

C.4.2
Monitoring Reports

The PI will submit a monitoring report for LPC approval. The report must fully document the monitoring and analysis of the artifacts and should recommend whether additional work is necessary.

An End of Field Letter may take the place of a monitoring report if results of the monitoring unambiguously support further archaeological investigations, and time or budgetary constraints strongly support proceeding directly to another investigative phase. This letter is essentially an abbreviated report. LPC must approve the Letter from the Field before further work occurs at the site.



Photograph of 2010 monitoring during excavation of the World Trade Center Vehicular Security Center Project. Photograph by AKRF, courtesy of LMDC.

C.5

Mitigation

The purpose of this phase is to mitigate the loss of significant archaeological resources. Mitigation is required when a documentary study has indicated that a project may place potentially significant resources at risk and field investigation (excavation and/or geophysical) has confirmed that the resources are present, intact, and significant (see CEQR Technical Manual, Chapter 9, Section 500). Mitigation may be done in multiple ways, including: (1) avoidance and minimization, for example, using redesign or infill; (2) archaeological excavation; (3) methods to increase knowledge about the past, such as specialized artifact treatments and analyses; (4) sharing the findings with the public (see the methods noted in Section C.5.3); and (5) a combination of these.

C.5.1

Avoidance and Minimization

Avoidance and minimization is the preferred method of archaeological mitigation, especially on public property. This mitigation may necessitate the project's redesign so it will not disturb, or will minimize the disturbance of, the archaeological resources. Examples of redesign include modifying the placement of projected utility lines, moving a subsidiary structure such as a garage from one side of the lot to another (thus avoiding the archaeological remains), and redesigning the structure (e.g., changing from an excavated foundation to a slab construction).

To avoid and minimize impacts, LPC must be informed in writing that a project is being redesigned, and be sent detailed plans and a description of the proposed changes. After reviewing the mitigation proposal, LPC may approve it or may require further revision. The archaeological review process is complete once the redesign plans are approved.

Another method of mitigation is to preserve archaeological resources by covering them with additional earth. This rarely used option succeeds only at a site where the additional deposits of earth, and consequent additional height above grade, will not cause architectural or construction problems. It may be feasible to fill areas where proposed landscaping may impact archaeological resources, such as when planting trees. In this case, additional soil or fill can raise the ground level so that the holes for planting do not disturb the archaeological resources beneath them.

C.5.2

Archaeological Excavation

When avoidance of significant archaeological resources is not an option, a data recovery program through excavation may be an appropriate mitigation. The purpose of archaeological excavation is to preserve the significant information that the project area contains by removing artifacts and other materials containing this information from the ground. A complete work plan with detailed research methodology, including the research design, must be prepared based on the results of the field testing and the documentation discovered during the investigation. In addition to the analysis proposed through the research design, it must include the collection and specialized analysis of paleoenvironmental data sets (e.g., faunal remains, macrobotanicals, pollen cores, phytolith samples, dendrochrological cores, absolute dating samples such as C^{14}) to understand past environmental

conditions across the city. The work plan must be submitted to LPC for review and approval before excavation may commence.

The excavation work plan must include:

- The research design, which should be informed by the **archaeological documentary study**, field testing findings, and consultation results;
- The research questions;
- Description of and justification for chosen field methods, including excavation and non-invasive procedures;
- Maps detailing the proposed work locations;
- Detailed post-excavation analysis and reporting plans (including sampling for artifacts, etc.);
- Work schedule, including estimate of when final report will be completed;
- Detailed resource estimate checklist to ensure that all the needed work is included in the project scope;
- Senior staff resumes, including all specialists, unless already on file with LPC;
- Conservation protocol;
- Temporary and proposed permanent curation plans;
- Public outreach protocol, including social media campaign and how PIs will respond to curious bystanders;
- Provisions for a safety/security plan, especially when open excavation is proposed. In addition, this plan should note which steps are to be taken to prevent looting, which may require fully fencing the site and/or stationing security guards at the site;
- Engineered plan for shoring, dewatering, and maintenance of conditions during excavation.

This plan must address block closure if construction is not going to proceed immediately after archaeological work is complete.

LPC will not approve a scope that lacks sufficient detail, especially with respect to the research design and its implementation.



New Utrecht Reformed Church Excavation, 2002. Photograph by Dr. H. Arthur Bankoff.

C.5.3
Sharing the Findings with the Public

The mitigation plan should ensure that project findings will be shared with the public. Below are some examples of how findings have been shared with the public:

- A report or article that is designed for the general public, in addition to the final report noted in Section C.8.4;
- An exhibition that highlights some of what was learned, either virtually or in reality;
- A social media campaign to share what was uncovered, such as photographs of some of the features and artifacts found with an explanation of what they reveal about the past (see Section

E.1 for social media statement);

- Lesson plans to highlight aspects of local history that were uncovered or provide information about the different scientific methodologies used in the project (it is recommended that the applicant work with teachers in creating lesson plans);

- Videos detailing important findings;

- 3-D recordation.

In addition, as the goal of all scholarship is to build upon what has come before, project findings should be shared with the professional community through scholarly publication and/or at professional conferences.

Finally, mitigation options are not limited to reports. If a PI is proposing an alternative mitigation deliverable such as a video or educational package, for example, then it should be outlined in detail in the avoidance, minimization, and mitigation plan when submitted to LPC, the lead agency, and the applicable consulting parties.

C.6

Archaeological Features

This section describes typical archaeological features, defined as non-movable elements of an archaeological site, in New York City. Work plans should describe the issues specific to the individual site. Contractors, as well as archaeological consultants, must communicate any changes in the project to LPC.

C.6.1 Native American Features

Archaeological features predating European activities and presumed to be Native American in origin include hearths and fire pits, roasting spits, bell-shaped and cylindrical storage pits, cache pits, stone piles, postmolds, fence or stockade lines, wall trenches, weirs, and burial features including primary and secondary interment types. If consultation with Indian Nation(s) is being conducted for the project, LPC recommends that the PI contact the lead agency to arrange consultation about the classification of any feature and its cultural name.

The PI should plan to retain at least a quarter of the feature contents for specialized sampling. The amount of soil to be retained is specified in the work plan and confirmed by the applicable specialized analyst and in consultation with the lead agency, the cultural resources review agencies (LPC and/or NY SHPO), and the consulting Indian Nation(s).

Any feature that is excavated should be quartered or halved first and the sectioned profile drawn. One half of the section should be screened through standard quarter-inch hardware mesh. The remaining half of the section should be screened through a graduated sieve set per the specialized analysts' specifications. The remaining half of the feature should or should not be excavated, depending on the research design. As with other aspects of archaeological investigation, a sample of feature types may be sufficient to address pertinent research questions. The exception to this protocol is when there are burials. If multiple burials are present and protection in place is not possible, then consultation with the lead agency, the cultural resource review agencies, and the Indian Nations is required to determine how to proceed.



Old Place Neck Site in Staten Island. Excavations by Public Archaeology Laboratory. Photograph by LPC.

All features should be drawn and photographed in plan at surface, after sectioning, and again when full excavation is complete. If the feature floor is sampled or sectioned, that stage of investigation should be photo-documented and mapped. Each photograph should include a north arrow, English scale, and site/locational data (see Section C.7.1).

C.6.2

Historical Features

This section provides descriptions of the most common historical features and best practices regarding these types of resources. It is by no means an exhaustive list and LPC may be consulted about best practices for other types of resources.

Landfill/Made Land

The physical land of New York City has greatly changed since the founding of New Amsterdam and it is, in fact, debatable as to whether any part of the city has not been altered. Parts of the city's topography have been lowered from what they once were, many parts have been filled to increase the ground surface, and still others have been created from areas that were once river, marsh, or stream. It is very important that the documentary study note this evolution for its specific project site.

Project sites within land areas that were created in the historical era have the potential to contain both the structures that were used to create the new land and, depending upon when the land was created, to contain artifacts that reflect household and industrial waste. The structures should be documented, noting how they were constructed, what they were made of, and their dimensions (care should be taken in removing structures as they may still control water flow). The research design should note how the site is to be tested, sampled, and recorded, and how the water will be controlled as the excavation proceeds. In some areas, such as in Lower Manhattan, testing may have to wait until construction begins so the water encountered may be adequately controlled since the volume may be too great to pump.

Discrete Dumping Episodes Associated with Industry or Trade

Industry and trade have been important components of the city's development since its inception. Upon occasion, areas of discrete dumping are discovered which can provide important information about the associated trade or industry. These features may be found in landfill as well as adjacent to their work areas. The documentary study should consider the potential for this dumping if areas of trade or industry are identified within the project area. The research design should note how these resources may relate to the design and how they are to be tested and sampled, since such areas can contain thousands of artifacts. It is also recommended that the PIs consult with LPC to refine the sampling plan once the extent of the discovery is understood.

Foundations



19th-century brick structure, City Hall Park. Photograph by Chester Higgins, 2011.

One important aspect of urban archaeology is documenting the evolution of how sites have been used through time. Locating the foundations of earlier structures provides important information about this process as they document the location and materials of past structures. In addition, PIs may

uncover what is known as "builder's trenches," which represent the soils that were removed in order to construct the foundation and its structure. Such trenches may contain artifacts associated with the construction, including tools and builder's personal possessions such as pipes, bottles, and food remains. The research design must carefully consider how to test and sample these features.

Cisterns

Accessing potable water was a major issue until relatively recently in the city's history. Before water was supplied by the city, individual property owners were responsible for securing their own water. They would commonly use cisterns—subsurface tanks of water built of stone or brick that were almost always placed directly behind the rear building facade. Once properties connected to public water (provided by the city through pipes that connected into individual properties), the cisterns were usually filled with household rubbish, which, when archaeologically excavated, can reveal a great deal about the people who lived there.

The most common archaeological testing method for finding cisterns, if they are not visible from the surface, is to excavate a trench behind the length of the historic facade that is at least 5 feet wide and deep enough to reach sterile soil. Mechanical testing is often employed as cisterns are unlikely to be impacted by careful mechanical scraping. It should be noted that it is very common for rear extensions to be built over cisterns, so PIs should research the history of the building to see if extensions have been added. If the structure is still standing, it may be possible to tell by visually studying the rear facade from the exterior and from the basement. The presence of an extension does not necessarily mean that the cistern is no longer present. It does mean that the testing location should be placed behind the rear facade of the original structure and not behind the location of the extension or the cistern will likely be missed. The work plan must note how the cistern will be excavated and sampled. As a general matter, no less than a quarter of the cistern may be sampled and the actual structure of the cistern, as well as its sampled contents, must be carefully documented.

Privy

Today New York City provides sewer service for most of the city. Before the sewer system was created, individual property owners were responsible for their own waste removal. Most homeowners used privies, sometimes referred to as outhouses, which were almost always constructed at the property's rear lot line with a subsurface portion made of stone or brick. Once the public sewer system was introduced, disused privies were often filled with household waste, which, when archaeologically excavated, can reveal a great deal about the people who lived there.

The most common archaeological testing method to find privies that are not visible from the surface is to excavate a trench along the length of the rear lot line that is at least 5 feet wide. Mechanical testing is often employed as privies are unlikely to be impacted by careful mechanical scraping. The work plan must note how the privy will be sampled, which relates to the overarching research design. As a general rule, no less than a quarter of the privy may be sampled and the actual structure, as well as the sampled contents, must be carefully documented. In addition, the work should include careful sampling to identify data such as botanical specimens and parasites which can provide information about the local environment and health of the household.

Wells

Accessing potable water was a major issue until relatively recently in the city's history. As noted above, many property owners used cisterns to store their water. In addition, many owners used wells on their property to access water, especially in rural areas. However, in more densely developed areas like Lower Manhattan, in the 17th and 18th centuries there were public wells located within sidewalks which may still be found within modern streets or

sidewalks. However, as many streets within the city have been widened since that time, these public wells can sometimes be found truncated underneath modern building foundations. This potential should be noted in the documentary study and the work plan should include this part of the site in the testing plan. The construction methods of the well are important to document, in addition to its ultimate depth which can provide important information about changing water levels through the development of the city. In addition, public wells may contain artifacts that can provide information about neighborhoods. They may also provide information about adjacent private households. The archaeological excavation of a well must be carefully considered. Such excavation is often planned with the advice of structural engineers, since how to proceed is often predicated on the well's structural condition and site conditions.



18th-century well with later drains, City Hall Park. Photograph by Chester Higgins, 2011.

C.6.3

Burials and Human Remains

Finding burials during excavation in New York City is not unusual. The Landmarks Preservation Commission maintains an internal survey of locations likely to contain burials which the agency consults when determining **archaeological potential**. However, there is no way to account for every potential burial site. Section D provides detailed procedures necessary for burial sites. There are multiple types of burial sites, as follows:

Cemeteries with Above Ground Markers

Cemeteries or burial grounds with above ground markers like gravestones are often cared for by cemetery associations and religious groups. Work in these sites should be as minimal as possible and careful protocols should be developed in the work plan that address what to do with any graves, vaults, or remains that may be found. Also, it should be noted that in historic cemeteries the placement of grave markers is not always a reliable indicator of where the associated grave may be. Historic burials tended to be buried at much shallower depths than expected.

Historical Locations of Burial Grounds

These are sites that are known to have once been cemeteries or burial grounds but are no longer visibly so. The question is what happened to the associated human remains. Were they disinterred? If so, were all the remains removed? It should be noted that it is not uncommon for fragmentary remains or some burials to remain after disinterment has occurred. Therefore, in-depth research is needed to shed light on what happened in the past and testing will likely be needed to see what may still be at the site. Every effort should be made to identify the appropriate descendant population or, in the case of religious organizations, who the successor group may be. After consultation, the work plan should present detailed plans about what to do with any remains that are found.

Small Family Burial Grounds

These sites may never have been documented. They are most often found either during archaeological fieldwork, when looking for other types of resources,

or during construction. Upon discovery, every effort should be made to learn as much as possible about the history of the site and to identify the appropriate descendant population or, in the case of religious organizations, who the successor group may be.

Pre-Contact Native American Graves

The area that is now New York City has been inhabited for at least 14,000 years. Burials are considered sacred by many Indian Nations and consultation with appropriate Indian Nations is important. How this consultation occurs depends upon what regulations the project must meet. If it is a federal project, then the involved federal agency must consult with the Indian Nation(s). If it is a DEC project, then the DEC will consult with the Indian Nation(s). If it is a state project, then NY SHPO should be consulted about how to proceed. And finally, if the project is a city project, then LPC should be consulted about how to proceed with the consultation.

Landfilling

At times, human remains that were interred in one location have been moved to another and used in landfilling. This practice occurred in the past and if remains are found, the PI should conduct research to see what, if anything may be learned. If nothing can be learned then the PI should consult with LPC about next steps.

C.7

Field Forms and Logs

It is imperative that archaeological projects maintain well-organized, accessible, transparent records both to ensure the success of the project and so that future researchers may use the data that has been collected. While the final archaeological reports will detail a project's significant findings, the full records of the project must be kept as delineated below. These Guidelines provide example forms in Appendix F.

C.7.1 Photographs and Photographic Logs

Photographs

Photographs must be taken of each phase of work, including the initial site inspection, archaeological fieldwork, specialized analysis, and artifact photos. Photographs should conform to the guidance provided in the Federal Agencies Digital Guidelines Initiative, September 2016.

As noted earlier, field photographs of excavations and profiles must have a mug board, menu board, chalk board, or other means of identification in the photograph, along with a north arrow and scale.

All fieldwork projects must have at least one overview photograph of the site being tested in order to record the setting and field conditions.

Photographs of appropriate excavation unit walls and floors, as well as cultural features, must be recorded in the field. The photographs must include a menu board, when appropriate, that contains, at a minimum, the date, site name, excavation unit, project name or identifier, and object being recorded. Photographs must also include a scale and north arrow.



Stadt Huys Project brick well with mug board and scale. Photograph from the Stadt Huys Project directed by Dr. Nan A. Rothschild and Dr. Diana diZerega Wall, 1980.

Photographs of specialized analysis must be clearly labeled and provide a description of what is being shown, as well as any locational information, as appropriate.

Some artifacts must be photographed front and back to show details, forms, and marks. These include any artifacts highlighted in reports that are

Revolutionary War period or older, or those that are diagnostic, such as ones that include complete maker's marks. In addition, any archaeological assemblages that are determined to be significant should be photographed in a group to showcase the range of artifacts from the assemblage.

Photographic Logs

The field or lab director must maintain photographic digital logs that record the following information:

- Image name;
- Site name;
- Location depicted in the photograph, including direction;
- Date the image is taken;
- Name of the photographer;
- Description of what is depicted;
- Original photo and any post-processing modification.

Please see Appendix F for an example.

C.7.2
Unit and Feature Logs

Units and **Features** must be well documented so it is clear where work occurred and what was discovered. Examples of clear documentation may be found in Appendix G. This documentation includes:

Field Illustrations

Field illustrations must reliably record items such as stratigraphy, artifacts, features, etc., in a precise manner that provides location information about the excavation units. These illustrations must also provide compass orientation and scale. Munsell soil color designations must be used for all soil colors in illustrations.

Field Notebooks or Field Sheets

Information may be recorded digitally or on paper. It should include the following: all locational information about the work, including datum number or location; the opening and closing elevations; descriptions of what was found, including the soils; who was doing the work; what sampling decisions were made; whether any special samples were taken, such as pollen cores, and the precise location they were taken from; any pertinent weather information; any associated catalog numbers; and finally, they should describe preliminary findings. If paper documents are used, they must be scanned before being submitted at the end of the project.

Unit and Feature Logs

The field director will keep a running inventory of all units and features that record site name; trench number if relevant; datum number or location; unit and feature numbers; locational information, including opening and closing depths; associated catalog numbers if any; and a description.

Project Maps

During the fieldwork phases, sufficient information should be recorded so that the final archaeological reports may include maps that clearly show the project boundaries, the locations of all archaeological work that occurred, locations of all significant features that were uncovered, and any standing structures. All maps must include a north arrow (preferably north is at the top of the page); a bar scale using English measurements; a title block that states the project name, location, and date of fieldwork; and a key that describes the meaning of any symbols used.

Provenience Logs

The field director will keep a running inventory of all proveniences that are assigned throughout the project, noting the identification number, the location, the starting and completion depths, the excavator, and the date of excavation. It is noted that this list may be revised during the analytic phase.

Concordance Table

After analysis, the PI will create an inventory of the features and contexts they have identified that includes the relevant catalog numbers; locational information; who completed the analysis; and a description.

C.7.3
Artifact Bag Log

It is imperative that all artifacts are accounted for as they move from the field to the laboratory and are subsequently processed. The best practice is to keep an artifact bag log that notes the bag identification number, where it came from, the date it was collected, a description of the contents, and any special cleaning or conservation note.

C.8

Archaeological Collections

An archaeological collection is more than just the objects or artifacts collected during an excavation or survey. It also includes:

- Non-cultural materials such as soil samples, faunal or floral remains, and other material-based dating samples;
- Associated records such as field records and notes, maps and historical documents, lab records, photographs, and project correspondences including permits and work plans (see Section C.10);
- Digital data such as GIS and GPS data, field and laboratory data, and databases;
- Research results or interpretive documents such as site reports, Letters from the Field, or exhibit files.

Managing the artifacts and associated specimens and records includes careful implementation of the following steps:

1. Outlining the collection strategy;
2. Field artifact collection and recordation;
3. Laboratory processing, stabilization, cleaning, labeling, and packaging;
4. Artifact analysis and catalog structure.

These steps are discussed below. In the work plan that is developed for each investigation stage, the steps should be addressed under laboratory work and the methods to be used identified. It is noted that some archaeological projects may not produce any artifacts or associated samples. In this case, the archaeological collection would only consist of associated records—but how they will be managed must still be addressed.

C.8.1

Outlining the Collection Strategy

As noted above, the first step to collections management is outlining the collection strategy for spatial sampling, artifact sampling (culling, specialized sampling), and records in general. The work plan's research design will provide the basis for the spatial sampling and any sampling subsequently done for artifacts and specimens. It should be noted, however, that it is expected that if objects are not useful for research and meet at least one of the following criteria they will not be kept: lack of provenience, lack of physical integrity, or overtly redundant.

Spatial sampling is based on the amount of project space that will be excavated. As noted in Section C.3.4, the surface survey or excavation intervals should be appropriate to both the project's horizontal and vertical dimensions and the research design should note the site percentage that will be tested and why that number was chosen.

Statistical sampling can be used to direct either spatial sampling or artifact sampling. The National Park Service (NPS)[22] defines statistical sampling as "a process of selecting a representative part of a population for the purpose of determining parameters or characteristics of the whole population." While LPC must approve the plan, consultation with LPC is

encouraged during the creation of statistical sampling strategies, and especially once the excavation is underway if what is being found is very different than what was anticipated.

Selective sampling (or culling) can be employed in either the field or the laboratory for both artifacts and specimens. NPS defines culling as the "process of selecting and removing objects from a group [and] usually entails the rejection of items with no scientific or historical value to the group."[23] The work plan should detail how culling will occur for the project and, in any event, whatever may be culled should be noted in the project documentation.



Artifacts from the Battery Wall context of the South Ferry Project in the collections of the NYC Archaeological Repository.

Specialized samples include soil and organic deposits; blood and other residues; genetic, elemental, and molecular analyses; and the materials applicable for absolute dating techniques. Proposed specialized samples must be described in the work plan. A specific statement should be made about what percentage of a specialized sample type (e.g., radiocarbon samples) would be subject to analysis as the dating method will destroy the sample. In addition, the field methodology section of the final report should clearly note the protocols used. Both the findings of specialized analyses and the significance of these findings must be summarized in the archaeological report and clearly incorporated into the report's conclusions.

C.8.2
Field Artifact Collection and Recordation

The field management of collections outlined in the laboratory section of the work plan should begin with a statement of field conditions. For example, project sites in coastal areas or in areas of historical landfill, which are common in New York City, have the potential for waterlogged deposits recovered from groundwater, brackish, or salinated environments. If such environments are anticipated or found during fieldwork, a conservator should be consulted and a conservation plan developed that is delineated in the work plan.

The field artifact collection and recordation section should focus on the method to be used to record, safely package, and transfer the artifacts, specialized samples, and records from the field to the laboratory. It is important that the chain of custody for the samples, which clearly indicates who is responsible for the samples at each step, be documented and that specific paperwork be included with the project records.

Any *in situ* conservation that takes place should be comprehensively documented at a minimum in writing and with photographs. Mitigating circumstances should also be documented. Excavated objects should be kept in bags or other appropriate containers (such as glass for residue analysis samples) with like materials to the extent possible. Improper mixing of particular artifact types can cause damage to certain materials, such as the mixing



Photograph of a late 18th-century ship found *in situ* at the World Trade Center site by AKRF. All portions of the ship were labeled so it could be fully documented and reassembled at a later date. Photograph by AKRF, courtesy of LMDC.

of stone with soft bone. Care should also be taken to protect digital, paper, photographic, and other forms of record-keeping in the field. Accurately labeled project records and field inventories are very important.

C.8.3

Laboratory Processing, Stabilization, Cleaning, Labeling, and Packaging

The goals of laboratory work are the cleaning, stabilization, labeling, cataloging, analysis, and packaging of archaeological materials to retain the research value of collections, and to prepare them, as appropriate, for safe and accessible long-term curation.[24] It is recommended that all collections being prepared for long-term storage follow the procedures outlined below. These steps are mandatory for collections that will be deposited in the NYC Archaeological Repository.

As specified in Appendix D, the PI should present an adequate detailed plan for laboratory work (stabilization, cleaning, labeling, cataloging, analysis, and packaging) and eventual curation and share it with the applicant as quickly as possible. The applicant is responsible for the cost of these procedures.

The nature and composition of what has been found will prescribe its specific handling and treatment. Stabilization and cleaning are the first steps in the laboratory. It should be noted that once the fieldwork has been completed and the full scope of the archaeological collection is understood, the collection strategy of the work plan—including what will be kept and what will be culled—may need to be amended and resubmitted to LPC for review.

Stabilization and Conservation

There is no generic prescription for stabilization and conservation of artifacts since approaches are artifact- specific. Conservation should be completed by a qualified professional conservator (see Appendix B for professional qualifications).

Archaeological stabilization and conservation differs from cleaning. It ensures that archaeological collections do not deteriorate. At the least, this work may include washing, drying, and careful storage of artifacts in a cool, dry, secure place. It should be done simultaneously with the fieldwork or within five to seven days after the excavation has begun unless specified differently in the approved work plan. Beyond this, significant artifacts should be conserved. This can include chemical and physical treatment to prevent further deterioration. For sites and/or objects that are archaeologically significant or potentially significant, the conservation should be supervised by conservators who meet the standards of the American Institute for Conservation of Historic and Artistic Works (AIC) or have comparable experience.

The conservator should prepare treatment reports that:

- Document the condition of the object before, during, and after treatment. This includes noting conservation treatment in artifact inventory;

- Properly identify the material(s) of the object, the agents of deterioration, and any other problem with the object;

- Recommend a treatment method and justify the selection of this treatment.

The PI is responsible for ensuring that the entire collection is appropriately stored in accordance with current professional standards. This responsibility commences when the finds are removed from the field and extends until the collection is placed in permanent storage. The work plan should note if a conservator will be "on call" during fieldwork in the event that their expertise is required.

The significance of artifacts in terms of curatorial priority must be determined by the PI. Artifacts that are low in curatorial priority or need minimal treatment are best treated with simple cleaning and stabilization techniques to minimize deterioration, followed by placement in a preventive conservation program, which includes appropriate storage materials, mounts, and environmental conditions.

Cleaning

To preserve information, all artifacts should be cleaned using professional standards as outlined for the particular artifact class and type. Specific material types will necessarily be wet or dry brushed. Fragile artifacts in the categories noted below may be dry brushed instead of washed. When in doubt, do not wash—and consult a specialist or a conservator. Cleaning protocols and special treatments used must be documented in the laboratory methodology section of the work plan and final report; time and funds for cleaning and possible conservation must be budgeted in advance. It is essential that artifacts be dry and stable prior to long-term storage to prevent damage from mold and other destabilizing elements.

Exceptions to cleaning are artifacts designated for special studies such as blood residue analysis or C^{14} dating. These artifacts can be curated in an unwashed state but it is important that they be well labeled, noting what they are, why they have been retained, and any special handling instructions. They should then be packaged separately from the rest of the collection. The artifact inventory should note the unwashed condition.

- Glass and ceramic artifacts should be washed or dry brushed prior to long-term storage. A soft toothbrush is recommended for all wet brushing, followed by a clean water rinse in a second wash basin;

- Artifacts uncovered in salt water contexts should be soaked to remove salts and fully dried prior to storage;

- All non-archival tape or other temporary mending aides should be removed prior to storage. Artifacts should only be mended using archival materials such as Acryloid B-72;

- Native American ceramics, chipped stone, or groundstone that may be subject to residue analysis should not be washed or dry brushed prior to examination by the analysts. If residue analysis is anticipated, the artifacts should not be stored in write-on bags. Rather, they should be stored in glass containers;

- Bone artifacts should be washed or dry brushed as stipulated by a faunal specialist or conservator;

- Metal artifacts (including nails) should be stabilized either through cleaning, soaking, or conservation and dried prior to storage;

- Leather and textile artifacts should be stabilized through conservation and prepared for long-term curation in a non-wet context;

- Soil and other environmental samples should be thoroughly dried prior to storage (if not sent for special analysis).

Labeling

The last step before analysis is labeling the artifacts

to maintain provenience control. In the work plan, the labeling methods to be used should be specified, including how catalog numbers will be assigned and all other identifying numbers such as field specimen/unit/lot/context numbers. LPC should be contacted about appropriate naming conventions for all collections that will be curated by the NYC Archaeological Repository.



Artifacts from the Stone Street Project in the collections of the NYC Archaeological Repository.

The following guidance was adopted from Maryland Historical Trust's Technical Update No. 1:[25]

- Artifacts should be marked using a clear Acryloid B-72 undercoat before marking and a topcoat of clear Acryloid B-72 applied to form a protective sandwich around the ink. A permanent archival quality ink is to be used;

- Dark artifacts should be prepared for marking with an undercoat using titanium dioxide in Acryloid B-72 or marked on an undercoat of clear Acryloid B-72 with archival-quality contrasting waterproof ink;

- Polymers such as bakelite, rubber, and plastics should not be labeled but placed in well-labeled bags with context information duplicated on a Tyvek or acid-free paper tag placed within the bag;

- Printed paper labels affixed to artifacts can be used in place of handwritten numbers. Labels should be printed on acid-free paper and affixed with a clear Acryloid B-72 undercoat and topcoat;

- Artifacts too small to be marked or impractical to mark for other reasons (such as fragility or unwashed condition) should be placed in polyethylene top closure bags 4 millimeters thick. No bag smaller than 3" × 4" should be used. Provenience information on the label should include, at a minimum, site/project name or number, catalog/context number (the identifying number based on the project's organizational methodology), and artifact type. This catalog/context identifying number should be clearly defined in the work plan. Bags with small artifacts are then placed in a general provenience bag on which full provenience information, including level/layer, excavator(s), collector(s) and date of collection is applied. It should be written in permanent black marker on the bag's exterior, and must be duplicated with permanent, fade-proof ink (such as Pigma) on an archivally stable tag, preferably Tyvek, enclosed in the bag. Exterior bags must be no smaller than 6" × 9";

- If individual classes of artifacts are present in bulk (e.g., over 200 pieces of window glass from one provenience), they do not need to be individually labeled but the bags containing the class should be fully labeled. These types of artifacts may include shell, fire cracked rock,

flakes, window glass, nails, brick, non-human bone, slag, mortar, and coal. If questions arise regarding artifact labeling, contact LPC;

- All other classes of archaeological material (e.g., processed floral and soil samples) should be appropriately labeled with provenience information. A Tyvek or acid-free paper tag, written on with permanent, fade-proof ink, must also be enclosed in the bag;

- All collections should be accompanied by a digital catalog which includes a key that clearly translates the labeling system employed to record the provenience information. This catalog is very important for future use of the collection (see Section C.8.4).

Sorting and Packaging

Archivally stable, acid-free packing materials should be used for packaging all objects. To improve the accessibility of the collection in storage and minimize the impact of harmful microenvironments generated by different material types, it is recommended that, once labeled, all artifacts be sorted and bagged by material type.

The following guidance has been adapted from Maryland Historical Trust's Technical Update No. 1:[23]

- Artifacts should be stored in permanently marked write-on polyethylene top closure plastic bags (minimum thickness = 4 millimeters), as feasible. Tiny or delicate objects should be stored in archivally-stable, acid-free materials with appropriate padding and protection;

- All plastic bags should be permanently labeled on the exterior and on an interior tag with appropriate provenience information. Provenience information should be written in permanent black marker on the bag's exterior;

- As noted, artifacts must be grouped and bagged by provenience and separated by material type within the provenience. Exceptions may be warranted for contexts with small artifact counts and for research, conservation, and exhibit purposes;

- Material remains, including floral and faunal samples, should be placed in sealed archival containers and permanently labeled with the provenience information. It is recommended that soil samples be stored in 16- to 24-ounce canisters, or in 6-millimeter polyethylene bags in quantities up to 24 ounces (3 cups);

- Oversized items should be stabilized, dried, and wrapped in archival material;

- Standard boxes or containers should not weigh more than 40 pounds when full.

C.8.4
Artifact Analysis and Catalog Structure

Archaeological investigation of a site includes the analysis of the finds. Analysis is the step that reveals what was actually found and whether something new has been learned about the past.

The analysis must be conducted by qualified analysts who have documented expertise. If, for example, proficiency in Native American artifacts is necessary and not within the expertise of the project team, a subconsultant should perform the requisite analysis.

The standards to be used in the material analyses should be specified in the work plan. At a minimum, the analyses should result in:

- Identification, composition, and age of material;

- Where within the site the materials were found;

- Description and discussion of typical and extraordinary finds;

- A synthesis of how these materials are relevant to the research questions and may help date a site or deposit;

- Photographs of significant artifacts with scale in the image and context information recorded in captions.

The material remains catalog has two parts: a provenience table and the object inventory, both of which should be included as appendices to applicable reports. Guidance for the development of a catalog can be found in Maryland Historical Trust's Technical Update No. 1.[26]

All material remains collected from a site should be analyzed and inventoried regardless of the project phase. An artifact cataloging template is available and must be used for collections that the NYC Archaeological Repository may curate. It is highly recommended that consultants follow the repository template (available through LPC) for cataloging artifacts for all artifact collections to maintain standardization and comparability between collections excavated within New York City. LPC should be consulted with any questions.

Site-Specific Reports and Other Plans

Project and site-specific report types include documentary studies, identification surveys, and evaluative testing, as well as mitigation reports (both technical and popular editions). All three report types should include the sections outlined in Table C.9-1 below, as applicable.

TABLE C.9-1
Report Contents

Section	Documentary Study	Identification Survey and Evaluative Testing	Mitigation Technical Report	Mitigation Popular Report
Title Page	●	●	●	●
Table of Contents	●	●	●	
Abstract (non-technical summary of a project and its findings) and/ or Executive Summary (technical, including important research finds)	●	●	●	
Introduction (including administrative detail)	●	●	●	●

Synthesis of previous work	●	●	●	
Context and research design	●	● updated	● updated	
Project methods (including historic research sources, field methods, and laboratory methods)	●	●	●	●
Documentary research results	●	Not unless new work	Not unless new work	●
Field results		●	●	
Laboratory results		●	●	
Conclusions	●	●	●	
Recommendations (includes proposed next steps or, if at the end of the process, the final project closure plan)	●	●	●	
Comprehensive bibliography (including sources consulted as well as cited)	●	●	●	
Appendix A—administrative (includes: work plan with appended UDPs, HASP, engineer plan, ownership and curation forms, LPC findings)	●	Not unless new information	Not unless new information	
Appendix B—complete subconsultant reports		●	●	
Appendix C—artifact catalog		●	●	
Appendix D—project personnel, including all archaeological and subconsultant team members, noting their positions and a summary of their credentials; full resumes should not be included	●	●	●	●

Any report, with the exception of mitigation reports, should be submitted to LPC for approval within 90 days of the completion of fieldwork unless an alternate submission schedule was proposed in the work plan. Mitigation technical and popular reports should be submitted with 18 months of the completion of fieldwork. The agency and/or archaeological contractor should consult LPC if they are unable to meet this deadline when any issues emerge.

The report should fully document either the potential archaeological significance of what was revealed in the documentary study or, for evaluative testing and mitigation reports, the significance that the archaeological research yielded. The latter reports must contain complete descriptions of the field and laboratory results. The results should be integrated into conclusions that address the research design issues. All reports should include photographs of the site; a scaled map of the site showing where fieldwork occurred; profiles of excavation trenches; top plans of excavation trenches and features; the artifact catalog; photographs of the significant artifacts; a detailed bibliography of works consulted; as well as all the sections listed above. Figures and photographs should be either embedded within the text or at the end of chapter. Multiple page tables, such as an artifact catalog, should be made into an appendix. All other tables should be embedded in the text. All reports should include an abstract or executive summary that describes the findings of the archaeological work in easy-to-understand language. Mitigation and field testing summaries should include a brief overview of the important features/ deposits that were excavated, including why they are important. The summaries should also note if there is an associated archaeological collection and, if so, note its size and where it is located (if known).

Approval of a final report takes LPC approximately ten business days. Once the report is accepted, one bound copy and a PDF of the entire document must be submitted to LPC for the agency archives and for posting on the agency website. Any report that has been accepted by LPC is a public document and may be viewed on-line or at the agency by appointment. However, it should be noted that for sites where subsequent looting is a concern, LPC will discuss the issue with the landowner and may choose to wait to post reports until there is no further concern.

In addition to work plans and the avoidance, minimization, and mitigation plans previously described, the other report or plan types that may be needed include an End of Field Letter, an unanticipated discovery plan, and a health and safety plan if deep or mechanical excavations are proposed. Examples of these items are available from LPC upon request; the contents of each are described below

End of Field Letter

An End of Field Letter (EOF) contains the following sections:

- Introduction presenting administrative detail;
- Project methods (only those used to date);
- Field and laboratory results (work areas dealt with to date);
- Synthesis of all results and analysis to date;
- Recommendation for the next investigatory step and its work plan (if not already submitted with a previous work plan. If a work plan has been submitted, the existing work plan must be updated to include new finds.)

The End of Field Letter is authored by the archaeological PI. It is supported by a map that shows the location of all investigated locations, representative profiles(s), and photographs illustrating existing conditions and representative excavation types. A preliminary artifact catalog should also be provided.

Unanticipated Discovery Plan

The unanticipated discovery plan (UDP) is developed by the PI in concert with the landowner and construction team to outline what is to be done if archaeological resources are discovered during construction work. It is typically used for sites or portions of sites where LPC has found that there is some potential for archaeological resources to be found but not sufficiently enough to require that a PI be present during construction. A UDP usually includes an introduction with administrative detail; a training schedule for non-archaeologists involved with UDP field actions; two sections with steps enumerating what actions must be conducted in the event of (a) the discovery of unanticipated cultural materials (including non-grave features) or (b) **primary burials**/human fragments; and the notification list with signature lines, which is often signed by the agencies and contractors.

Health and Safety Plan

The health and safety plan is usually developed using the consulting company's generic safety plan. The project-specific safety plan, however, must be specific to the project location and to the methods outlined in the work plans developed for the archaeological investigation. These plans are not reviewed by LPC.

C.10

Project Closure (Records, Archive, and Curation)

A project closes when LPC, in concert with the lead agency, determines that the impact of the project on the archaeological resource has been properly addressed. This occurs once the final report has been approved by LPC and the archaeological collection, including artifacts and associated records, are curated with an acceptable **repository** or returned to the landowner. The associated records include field records, maps and historical documents, lab records, photographs, project correspondence, exhibit materials, and other unique materials specific to the project. These documents are important to the archaeological record and for long-term preservation of collections, and are a vital resource for future researchers working with archived materials.

As archaeological investigations proceed through multiple stages, it is paramount that associated project records are generated with the understanding that they have the potential to become a part of the permanent record. This is especially important if different consultants work on different phases of the same archaeological site so there will be continuity of the archaeological record. To ensure the most complete preservation for the future, all mitigation reports and records should be submitted on acid-free paper, and all digital files submitted in readily available formats. The mitigation work plan should note what documents will be maintained (Section C.7 lists required documentation for all). In addition, all mitigation project records and packaging must contain permanent labels which identify, at a minimum, the project name, site number, and date of preparation. Labels should be written directly on the records or sleeves, as appropriate.

C.10.1 Permanent Curation

The NYC Archaeological Repository is managed by the Archaeology Department of LPC and was opened in 2014 to curate significant archaeological collections that were excavated by archaeologists on city-owned land. Appendix H provides more information about the repository's requirements. For significant projects that do not meet the NYC Archaeological Repository criteria, the New York State Museum may accept the associated collection for curation. The Museum curates collections from all parts of the state, including New York City. If the Museum declines a collection, then additional discussion should be held with LPC as to other options. LPC may accept curation of a collection with an historical society, university, or school but these options must be reviewed on a case-by-case basis. In all cases, LPC should be notified in writing about where the collection will be sent.

Burials and Human Remains: Detailed Discovery Procedures



Likely shroud pins from the Tweed Courthouse Excavations in the collections of the NYC Archaeological Repository.

Human remains should be treated with great care and respect. When human remains are encountered during archaeological projects, it is often as primary burials or as fragmentary remains. Section D.1 discusses LPC protocols for the treatment of human remains found during archaeological investigations. Section D.2 addresses the treatment of human remains found unexpectedly.

Identified Potential for Human Remains in a Project Area

Whenever human remains are encountered in New York City, work must cease in the area and the New York Police Department (NYPD) immediately notified at 911. The Office of Chief Medical Examiner (OCME) must also be contacted at 212-447-2030 (ask for the Forensic Anthropology Unit). If OCME determines the discovery is of forensic interest, then they will direct all next steps. Further work cannot occur until OCME provides direction. LPC must be alerted to any discoveries on projects under its review at 212-669-7817 (see Section C.6.3). In addition, should human remains need to be disinterred, reinterred, or moved within New York City, the Department of Health (DOH) must issue a permit which may only be secured by a licensed funeral director.

Whenever proposed work is due to occur in an area that is identified as having the potential to contain human remains, LPC should be contacted as early as possible in the planning stages so that the appropriate project-specific archaeological methods and protocol governing the work can be developed. Projects requiring federal or state review must contact NY SHPO. In general, NY SHPO should also be contacted for questions about the Native American Graves Protection and Repatriation Act.

The documentary research should have indicated if a project has the potential to contain human remains **AND** identified the appropriate descendant

group(s), including Indian Nations, descendant churches, families, etc. Once identification has been made, the applicant needs to consult with the descendant group(s) about the proposed work, what to do with any remains that may be found at the time of discovery, and what should ultimately be done with the remains.

D.1.1
Personnel Qualifications

A qualified archaeologist must be present for all phases of excavation in an area that may contain human remains. Areas with potential for graves must be hand-excavated by the qualified archaeological staff. During subsequent site preparation, construction, and post-construction restoration any work within an area that may contain human remains should be monitored by a qualified archaeologist.

A qualified **physical anthropologist** must be available to come to the field as needed to identify and appropriately treat any human remains that may be encountered during archaeological investigation or construction work. This individual must have a graduate degree in a relevant field and significant research experience with human remains found in archaeological contexts. LPC maintains a list of physical anthropologists which will be provided upon request. LPC will review the qualifications of any individual who is not on the list to ensure that he/she has sufficient experience. Note that there are individuals who may be qualified both as an archaeologist and a physical anthropologist. In that case, only one such professional is needed for the project. In all others, at least two professionals, a PI and a physical anthropologist, will be needed.

D.1.2
Work Plan

For projects that are identified as having the potential to contain human remains, the work plan must include the following in addition to what is noted in Section C.1. It must describe the type and extent of physical anthropological study and if any special provisions have been agreed to in consultation with the descendant community. It must also define the reporting obligations of the archaeologist and the physical anthropologist. Once any human remains have actually been found, the physical anthropologist should submit a scope for analysis to LPC that delineates the actual analysis to be completed. This analysis should, when possible, identify the minimum number of individuals the bones may represent, sex, age, cause of death, pathology, etc. LPC recommends that remains be reinterred in consultation with descendant communities and interested parties.

The work plan must also note how the project will consult with the Office of Chief Medical Examiner, Forensic Anthropology Unit (which can be reached at anthropology@ocme.nyc.gov) when human remains are found—as they must be. In general, the principal archaeologist should provide the unit with digital photographs that clearly show the discovery and include a scale, a synthesis of the history of the site, a project map showing the discovery location, and information about any related artifacts that were uncovered such as coffin nails or personal items such as buttons and jewelry. The Unit will determine what, if any, further involvement they wish to have with the project.

D.1.3
Preservation of Primary Burials in Place

As a general policy, LPC recommends that primary burials be left in place and that projects be redesigned to avoid disturbing them. The project must be planned in a manner that attempts to avoid disturbing primary burials. In the work plan, the PI must document the location of known graves, whether marked or unmarked, using such references as the plans of the cemetery, historic descriptions, photos, and other sources. In cases where documentation does not exist, remote sensing technology may be used. Mechanical stripping is strongly discouraged, as is any type of probe such as borings.

D.1.4

Disposition of Human Remains

The project's work plan must include the protocol for temporary and permanent disposition of human remains found in the course of the project. The protocol should designate how and where remains will be temporarily stored, what the consultation process with descendant communities and interested parties will be, curation plans, and plans for the permanent disposition (e.g., reburial on or off the site or permanent curation). If permanent curation is proposed then the descendant community must agree to such an option. Applicants should note that LPC will need to review and approve any proposal to put an exterior marker or memorial in a designated historic district, scenic landmark, or individual landmark.

Unanticipated Discovery of Human Remains

In the event that primary burials or fragmentary remains are found in New York City, the following actions should be taken immediately:

1. **STOP WORK at the location of the find and for a distance of 50 feet around the find.**

2. **Immediately call the New York Police Department at 911 and Office of Chief Medical Examiner at 212-227-2030** and ask the operator to direct the call to the Forensic Anthropology Unit. If the project is under the review of LPC or was reviewed by LPC, call **212-669-7817** or the LPC general number at 212-669-7855.

OCME will make a determination of forensic significance.

If disarticulated bone or human bone fragments are found after they have been excavated, secure the area and call NYPD and OCME as noted above. If the discovery is made once the remains are in the laboratory, secure the remains and contact OCME to determine next steps.

If OCME determines that the site is of forensic interest, they will direct all next steps. If they determine that it is not, then an agreement between the landowner and other interested parties should be developed. If the project location is under LPC review, LPC will assist in the development of the agreement. If it is not, LPC will offer assistance. A New York City Department of Health permit is required for the disinterment and reinterment of all human remains. DOH may be contacted at: nycdohvr@health.nyc.gov.

Sharing Archaeological Information with the Public



Onion-shaped glass wine bottle from the Stadt Huys Excavations in the collections of the NYC Archaeological Repository.

Archaeology is a topic of public interest and the ultimate goal of all projects, especially those completed by agencies, is to share what has been learned with the public. LPC provides access to archaeological reports on the agency website. However, it is important to be thoughtful about how and when to share what is being learned.

E.1

Reporting Archaeological Information in Public Forums

The work plan, which should be reviewed by both the applicant and LPC, should include a plan for how discoveries will be shared with the public. For active projects, defined here as those where archaeological work is still pending or under the review of LPC, the archaeologist should consult with LPC and **must** consult with the applicant before publicly announcing their work and finds in any public forum—including, and especially, social media and with the press. This is to ensure that the discovery is announced in a professionally appropriate manner and that the site and discovery can be protected.

Finally, archaeological site location information is often not accessible to the public if the properties occur on state land. If on state land, Section 14.08, Part 427.8 of the State Historic Preservation Act of 1980 states in part that the location of listed or significant archaeological sites can be withheld from the public unless the New York State Commissioner of Parks, Recreation, and Historic Preservation and the Commissioner of Education agrees to disclosure. Questions about when sharing information about such sites, should be directed to the NY SHPO.

Archaeological Questions about Current Projects

The public is often curious about archaeological work and asks questions about what is happening at a site. The work plan should include provisions for how these questions are to be addressed. In most cases, LPC recommends providing handouts (which should be submitted to LPC for review) that include a summary of the history of the site and what may be learned by the archaeology. However, if the site cannot be adequately protected from looters or if there is particular sensitivity, this should not be done. Rather, curious onlookers should be provided with the number of someone they can contact for project information. These plans should be noted in the work plan.

Index and Appendices



Polychrome painted pearlware punch bowl from the 7 Hanover Square Project in the collections of the NYC Archaeological Repository.

Index

Advisory Council of Historic Preservation (ACHP) 13
Archaeological monitoring 44
Archaeological review 17
As-of-right 16
Catalog 62
City Environmental Quality Review (CEQR) 12
Conservation 59, 122
Consultants, hiring 25
  qualifications 85–87
  responsibility 87–91
Consultation 15
Consulting archaeologists 25
Contacts 138–139
Curation 68, 121–137
Datums 39
Documentary study 37–38
End of Field Letter 45, 66
Features 49–53
Federal laws 13–14
Forms and logs 54–56, 110–113
Health and Safety Plan (HASP) 67
Human remains 69–73
Indian Nations 10, 14, 15
Laboratory processing 59–62
Landmarks Law 11, 12, 14
Mitigation 10, 15, 30, 46–48
National Environmental Policy Act 13
National Historic Preservation Act 13, 15
National Register of Historic Places 20
Native American Grave and Repatriation Act 14, 70
Native American Tribes 10, 14
NAV83/NAVD88 39
NYC Archaeological Repository: The Nan A. Rothschild Research Center 59, 68, 121–137
NYC Landmarks Preservation Commission 11
NY SHPO 13
New York State laws 12–13
New York State Museum 68, 122
Overview of process 10
Project closure 68
Project planning checklist 88–91
Public 74
Qualifications 85–91
Reports 64–48
Repositories 68, 100–109, 121–137
Research design 26, 28, 34
Resource estimates 35–36, 97–99
Restrictive declarations 24
Review request 23
Sampling 28, 41, 49, 50, 51, 55, 57–58
Significance 19–22, 29
State Environmental Quality Review Act (SEQRA) 12
Subsurface investigation 42–43
Survey 41–42
Unanticipated discovery plan 66–67
Urban archaeology 8
Work plans 33–36, 86
  documentary study 37–34, 100–109
  monitoring 44
  mitigation 46
  human remains 69

APPENDIX A

Glossary of Terms

Applicants: The entities seeking city action that necessitates archaeology and therefore selects archaeologists to conduct archaeological investigations. This may include agencies, developers, and/or landowners collectively called applicants.

Archaeological analysis: Scientific process of gathering data from archaeologically recovered materials.

Archaeological collection: Per the New York Archaeological Council's 1994 definition (p. 19), an archaeological collection is "Any material remains that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation, or other study."

Archaeological conservation: Scientific process of protecting archaeological materials from disintegration.

Archaeological documentary study: A study of all relevant historic documents and maps pertaining to a project site to determine whether significant archaeological resources may be present. Also referred to as Phase 1A under federal regulations.

Archaeological excavation: Scientifically controlled removal of earth by an archaeologist and/or archaeological team. This is a multi-step process that includes a scope of work, the excavation work itself, the analysis of what was found, and the creation of a final report. Also referred to as mitigation or Phase III in the federal and state systems.

Archaeological field testing: Scientific probing through borings, hand excavated trenches, mechanical excavation, or other appropriate techniques to determine the presence and integrity of archaeological resources at a project site. This multi-step process includes a scope of work, the field testing itself, the analysis of what was found, and the creation of the final report. Under federal procedures, archaeological field testing may occur in two phases: Phase 1B which tests whether archaeological resources are present and Phase II which determines the significance of those resources. In New York City these phases are generally combined into a single phase.

Archaeological monitoring: Archaeological supervision of subsurface construction work to ensure that archaeological resources are not disturbed. If such resources are encountered, the archaeologist stops construction work pending consultation with LPC to determine their significance and whether mitigation is necessary.

Archaeological potential or sensitivity: The likelihood that a location contains significant archaeological resources.

Archaeological resource: Physical remains that can reveal information about the past.

Archaeological review: A phased process of evaluating whether a proposed project may impact significant archaeological resources.

Archive record: Similar to the project record, an

archive record includes the field and laboratory forms and catalogs, the photographs, and copies of the references that are difficult to access cited in the comprehensive bibliography as permitted by any copyright concerns.

Artifacts: Any objects made, used, or modified by human action.

Data recovery: Refers to the final step/phase of archaeological investigation of a significant site.

Deep testing: Any excavation that is 4 feet (1.22 meters) deep or deeper. At this depth or greater, a safe means of access and egress using a ladder, steps, ramp, or other means of exit must be in place. The only exception is excavations made entirely into stable rock.

Descendants: May include a biological relative or a responsible entity, such as a religious organization or successor organization in the case of a former graveyard, that should be consulted for any actions that may impact burial grounds or sites with great religious or cultural significance.

Designation: New York City Landmarks Law establishes the criteria for designation of significant cultural resources. These resources include landmarks, interior landmarks, scenic landmarks, and historic districts.

Excavation plan: The work plan fieldwork section that details the excavation approach.

Expert agency: A governmental agency that specializes in a particular subject. For historic resources in New York City, LPC is the expert agency.

Feature: Features are defined as non-portable evidence of past human behavior, activity, and technology. Features may be recognized by the presence of non-portable evidence of past human activities. Common evidence of features includes soil stains of a different color or texture than the surrounding natural soils, burned earth, ash and charcoal lenses and pits, clusters of artifacts, pits, foundations and structural remains, evidence of old postholes, the presence of human or animal bone, and earthworks or embankments.

Fill: Material which is (a) either deliberately brought into a location to raise the ground level or to level irregular topography, or to make new land; (b) construction/demolition debris which serves as the basis for later construction; or (c) deposits that can form the foundation for historic archaeological sites.

Geographic Information System (GIS): GIS is a system designed to capture, analyze, manage, and present all types of geographic data. It is a database system that organizes and graphically displays spatially organized information.

Historic resources: Districts, buildings, structures, sites, and objects of historical, aesthetic, cultural, and archaeological importance, including designated resources and eligible resources.

Human remains: Physical remains of human bodies. This can include: (a) complete skeletons (burials); (b) single bones or bone fragments; and (c) other soft parts of human bodies which may (rarely) be preserved.

Indian Nations: Refers to the Native American entities recognized by the federal and state governments. Consultation with Indian Nations is conducted government to government and under the purview of the lead agency.

Integrity: The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period. (Source: https://www.nps.gov/history/local-law/arch_stnds_10.htm.)

Landmark: Any building, structure, work of art, or object that is at least 30 years old which has a special character or special historical or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the city, state, or nation, and that has been designated a landmark pursuant to the New York City Landmarks Law. Different types of landmarks are individual landmarks, historic districts, interior landmarks, and scenic landmarks.

Lead agency: The government agency responsible for performing environmental review pursuant to the City Environmental Quality Review process, the State Environmental Quality Review Act, the National Environmental Policy Act, or similar laws or regulations.

Memorandum of agreement (MOA): A written agreement between two parties outlining the responsibilities and obligations of each to complete archaeology on a project.

Mitigation: Actions which may be taken to address the proposed disturbance of significant archaeological resources. Mitigation may include redesign of the proposed construction, covering the site with a layer of fill, archaeological excavation, or a combination of the above.

National Register of Historic Places: Established by the National Historic Preservation Act of 1966, this federal register lists the nation's important historic properties.

Native American cultural items: These include human remains, funerary objects, sacred objects, and objects of cultural patrimony that may be within the project area.

New York State Office of Parks, Recreation and Historic Preservation (OPRHP), also known as the **State Historic Preservation Office (SHPO)**: The state agency responsible for identification, regulation, and oversight of significant archaeological resources on state and federally funded projects, as well as projects that require state or federal permits.

Phase IA: Defined as background research, field walkover, and sensitivity assessment. The sensitivity assessment outlines the next step(s) needed to determine if significant archaeological sites are present in the area of potential effect (APE). This term is used in state and federal guidance.

Phase IB: Systematic subsurface investigation of an APE using excavation and/or geophysical testing methods. This term is used in state and federal guidance.

Phase II: Excavation and/or geophysical investigations designed to determine if an identified archaeological site contains cultural deposits that retain integrity. This term is used in state and federal guidance.

Phase III: The treatment of a significant site by avoiding it, minimizing the project's impact to it, or mitigating the project's effect on it through further excavation, laboratory analyses, other work, or a combination of these tasks. This term is used in state and federal guidance.

Physical anthropologist: A professional who studies human evolution. On an archaeological project, physical anthropologists can identify human remains and often can determine age, sex, and the number of individuals from burials, as well as developmental anomalies, nutritional deficits, and pathologies of skeletal remains. They may also study animal remains from archaeological contexts which may reveal information about diet and seasonality.

Potential resource: An archaeological resource that may be present but has not yet been confirmed as present.

Pre-contact: "Of or relating to the period before

contact of an indigenous people with an outside culture."[28]

Prehistory, Prehistoric: Defined as "before recorded [written] history." Dongoske et al. 2000 equate it to "ancient Indian history." Prehistoric is used in the Secretary of the Interior guidelines.[29]

Primary burial: Human burials which have not been disturbed since the original interment.

Principal investigator (PI): An archaeological principal investigator is the primary individual responsible for the preparation, conduct, and administration of an archaeological project. By definition, the PI must meet the Secretary of the Interior standards for the position (see Appendix B).

Repository: The location where the archaeological collection will be permanently curated.

Research design: Systematic planning of archaeological research. This includes the formulation of a strategy to resolve a particular question, the collection and recording of evidence, the processing of these data, and the publication of the research. The National Park Service comprehensively defines a research design in https://www.nps.gov/history/local-law/arch_stnds_2.htm. That definition follows:

> **Research Design**
> Identification activities are essentially research activities for which a statement of objectives or research design should be prepared before work is performed. Within the framework of a comprehensive planning process, the research design provides a vehicle for integrating the various activities performed during the identification process and for linking those activities directly to the goals and the historical context(s) for which those goals were defined. The research design stipulates the logical integration of historical context(s) and field and laboratory methodology. Although these tasks may be performed individually, they will not contribute to the greatest extent possible in increasing information on the historical context unless they relate to the defined goals and to each other. Additionally, the research design provides a focus for the integration of interdisciplinary information. It ensures that the linkages between specialized activities are real, logical and address the defined research questions. Identification activities should be guided by the research design and the results discussed in those terms. The research design should include the following:
>
> 1. **Objectives** of the identification activities. For example: to characterize the range of historic properties in a region; to identify the number of properties associated with a context; to gather information to determine which properties in an area are significant. The statement of objectives should refer to current knowledge about the historical contexts or property types, based on background research or assessments of previous research. It should clearly define the physical extent of the area to be investigated and the amount and kinds of information to be gathered about properties in the area.
>
> 2. **Methods** to be used to obtain the information. For example: archival research or field survey. Research methods should be clearly and specifically related to research problems. Archival research or survey methods should be carefully explained so that others using the gathered information can understand how the information was obtained and what its possible limitations or biases are. The methods should be compatible with the past and present environmental character of the geographical area under study and the kinds of properties most likely to be present in the area.
>
> **The expected results** and the reason for those expectations. Expectations about the kind,

number, location, character and condition of historic properties are generally based on a combination of background research, proposed hypotheses, and analogy to the kinds of properties known to exist in areas of similar environment or history.

Resource: Anything of an archaeological nature which can be of use in reconstructing the past.

Resource estimate: An estimate comprised of units of time, personnel, and material required to conduct a task or tasks.

Restrictive declaration: A legal agreement that may be used with lead agency approval for some projects subject to CEQR. It specifies that archaeological work will occur once the applicant's project has been approved but before it may be built. The archaeological work is overseen by LPC and the agreement mandates that the applicant may not apply for Department of Buildings permits, including certificates of occupancy, until LPC has issued documents specified in the agreement.

Scope of work (SOW): A written plan detailing all work to be undertaken for a particular phase of an archaeological project. In these Guidelines the term "work plan" is preferred.

Scoping session: In cultural resources management, scoping is done under NEPA and involves determining the extent of the environmental/cultural impact of a proposed action and what can be done about that impact.[30] A scoping session may be attended by the involved agencies, the archaeologist, the applicant, other stakeholders, and the public. The attendees are specified by the lead agency.

Significant archaeological resources: Those which are determined to be important using the criteria established by the National Register as outlined in Section 2.

Site: A distinct spatial clustering of materials representing past human activity. It may also connote a project area.

Soil horizon: As defined by USDA (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) in their glossary, a soil horizon is a layer of soil having distinct characteristics produced by soil-forming processes. From the surface downward, the four most common horizons are O, A, B, and C. The O horizon is the thin layer of fresh and decaying plant residue. The A horizon is the soil horizon at or near the surface that contains both humified organic matter and mineral material. The B horizon lies between the A and the C. The B horizon typically has less humus, more prismatic or blocky structures, and is redder or browner than the A horizon. The C horizon is the most mineral of the four horizons and it may not reflect any of the characteristics of the overlying horizons. It is geologically the oldest of the four horizons.

Soils/sediments: USDA defines soil as "a natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the effects of climate and living matter acting on earthy parent material, as conditioned by relief and the passage of time." Sediment is matter (soil) that has been deposited by water (alluvial) or wind (aeolian).

Stakeholder: An individual, group, or organization that can affect or be affected by a project under review by an agency.

Traditional Cultural Property (TCP): A TCP is defined by Parker and King (1998:1) as property whose significance derives for the role it plays in a community's historically rooted beliefs, customs, and practices. Examples of TCPs include neighborhoods; natural features such as sedge fields, islands, and mountain peaks; and cemeteries in both rural and urban settings.[31,32,33,34]

Unit: An excavation usually measuring at least 20” x 20” (50 x 50 cm) in size but commonly 3.3’ x 3.3’ (1 x 1 m) square. Units are often tied to a sampling grid and the provenience uses the grid coordinate.

Work plan: A work plan, also sometimes called a scope of work, is a statement defining the archaeological tasks that will be conducted to determine if significant archaeological sites are present in a project area. A work plan specifies all work tasks needed to complete a particular phase of work (such as a documentary study, field investigation, or mitigation) and will typically include level-of-effort assumptions and timelines tied to the levels-of-effort.

APPENDIX B

Archaeological Team Qualifications

The qualifications for persons fulfilling various positions on an archaeological team are noted below. They are defined by the Secretary of Interior Guidelines and other sources. For questions concerning the qualifications of a team member, please contact the LPC Director of Archaeology.

Archaeologist, Principal Investigator

The Secretary of the Interior Guidelines[35] state that the minimum qualifications in archaeology are a graduate degree in archeology, anthropology, or a closely related field, plus:

1. At least one year of full-time professional experience or equivalent specialized training in archaeological research, administration, or management;

2. At least four months of supervised field and analytic experience in general North American archaeology; and

3. Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archaeology must have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the prehistoric period. A professional in historic archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period.

While these qualifications are applicable for an archaeologist, they do not meet all of the qualifications needed to be a PI. This individual must also be appropriately qualified, as evidenced by training, education, and/or experience, and possess demonstrable competence in archaeological theory and methods, and in collecting, handling, analyzing, evaluating, and reporting archaeological data, relative to the type and scope of the work proposed.

The person meets the following minimum qualifications (as taken from 43 CRF Subtitle A [10-1-05 Edition], Section 7.8):

a. A graduate degree in anthropology or archaeology, or equivalent training and experience;

b. The demonstrated ability to plan, equip, staff, organize, and supervise activity of the type and scope proposed;

c. The demonstrated ability to carry research to completion, as evidenced by timely completion of theses, research reports, or similar documents;

d. Completion of at least 16 months of professional experience and/or specialized training in archaeological field, laboratory, or library research, administration, or management, including at least four months experience and/or specialized training in the kind of activity the individual proposes to conduct under authority of a permit; and

e. If proposing to engage in historical archaeology, the archaeologist should have had at least one year of experience in research concerning archaeological resources of the historic

period. If proposing to engage in prehistoric archaeology, the archaeologist should have had at least one year of experience in research concerning archaeological resources of the prehistoric period.

Archaeologist, Field Director

The field director is responsible for the implementation of the field methods as outlined in the work plan and directed by the research design. If this role will not be completed by the principal archaeologist, the field director must meet the qualifying standards outlined in the Secretary of the Interior Guidelines[36] for an archaeologist, noted above.

Archaeologist, Laboratory Director

Similarly, the laboratory director must meet the standards for an archaeologist as defined in the Secretary of the Interior Guidelines. Because this archaeologist must have specialized experience in laboratory methods, procedures, and artifact classes and types, they should also have:

a. Between five and ten years of experience in directing archaeological laboratory activities, including sorting, curation, and analysis of archaeological materials;

b. Documented planning and implementing lab strategies, processing, and cataloging artifact collections;

c. Documented experience with prehistoric and historic material culture identification and analysis from the Northeast region (including New York and New Jersey); and

d. Familiarity with New York City curation standards.

Conservator

A conservator provides specialized experience in preventive conservation and treatment of collections. Typically conservators have graduated from a recognized conservation training program. At the entry level, conservators will have both academic training and considerable experience in either a broad range of conservation issues or a narrowly focused group of materials. A conservator at a minimum should hold an M.A./M.S. in materials conservation, archaeology, or arts conservation.

Ethnobotanist (also Paleoethnobotanist, Archaeobotanist)

A paleoethnobotanist is responsible for analyzing and reporting plant remains recovered from archaeological sites and artifacts recovered in archaeological contexts. The analyst should input into the project's research design and provide conclusions concerning the archaeological significance of the paleoethnobotanical remains. At a minimum, the analyst should have a master's degree in either biology or archaeology. The project ethnobotanist should have documented experience with archaeological settings and materials and have documented their analysis results in professional reports.

Ethnographer

The NPS National Register Bulletin Guidelines for Evaluating and Documenting Traditional Cultural Properties[37] provides the qualifications of an ethnographer. An ethnographer assists in the identification and evaluation of cultural properties identified by specific human communities. In order to perform their work, an ethnographer is expected to have appropriate language skills (though they do not need to be a native speaker), and interview and recording skills. In addition, the ethnographer is expected to be able to reach meaningful conclusions concerning cultural behaviors and their associated

physical environment. It is expected that the ethnographer will hold a master's in anthropology, folklore/folklife, or related social science.

Geomorphologist/Geoarchaeologist

This specialist looks at the connection between the earth sciences and the archaeological record. The task is to examine why, how, and when cultural deposits are associated with natural landscapes. At a minimum, a geomorphologist/geoarchaeologist must have a master's degree or Ph.D. in geomorphology, geology, hydrology, or related field of study and five to ten years of practical experience with the identification and documentation of soils stratigraphy containing archaeological materials and features.

The named geomorphologist/geoarchaeologist also must have practical experience with the safety standards needed to implement deep testing in fill, alluvial, and colluvial depositional environments.

Palynologist

Palynologists investigate the composition, structure or history of pollen or spores through the collection, examination, measurement, or classification of samples collected from archaeological and other contexts. At a minimum, the palynologist should have a master's degree in either biology or archaeology. The project palynologist will have documented experience with archaeological materials that they have documented in professional reports.

Physical Anthropologist/Bioarchaeologist

A professional who studies human evolution. On an archaeological project, physical anthropologists and bioarchaeologists can identify human skeletal remains and often can determine age, sex, and the number of individuals from burials, as well as developmental anomalies, nutritional deficits, and pathologies of skeletal remains. They may also study animal remains from archaeological contexts which may reveal information about diet and seasonality.

A physical anthropologist/bioarchaeologist must have a master's degree or Ph.D. with an emphasis in physical anthropology, archaeology, or skeletal biology. Areas of specialization may include forensic anthropology science, human osteology, and zooarchaeology with emphasis in physical anthropology, physical anthropology, or biology with an emphasis on faunal remains and skeletal structures. The person must have a minimum of five years of experience with analysis of the identication and evaluation of human remains and skeletal materials and/or animal remains and skeletal materials. A person with a specialty in only animal materials is not qualified to evaluate human remains.

The physical anthropologist/bioarchaeologist must also have documented experience with the preparation of analysis and analytical results suitable for inclusion in an archaeological report that has a public audience.

Zooarchaeologist

A zooarchaeologist is an archaeologist with cross-training in biology. An advanced degree in either archaeology or biology is required. The zooarchaeologist focuses on animals remains (including bone, shell, fur, and DNA) and what this evidence indicates about past human activity or environments. The project zooarchaeologist will have documented experience with materials recovered from archaeological contexts and must have reported their finds in professional reports.

Expected Ethical Standards

Archaeologists are expected to adhere to the following ethical standards, which were created and adopted by the Register of Professional Archaeologists:[38] [29]

Code of Conduct

Archaeology is a profession, and the privilege of professional practice requires professional

morality and professional responsibility as well as professional competence on the part of each practitioner.

The Archaeologist's Responsibility to the Public

1.1 An archaeologist shall:

- recognize a commitment to represent archaeology and its research results to the public in a responsible manner;
- actively support conservation of the archaeological resource base;
- be sensitive to, and respect the legitimate concerns of, groups whose culture histories are the subjects of archaeological investigations;
- avoid and discourage exaggerated, misleading, or unwarranted statements about archaeological matters that might induce others to engage in unethical or illegal activity;
- support and comply with the terms of the UNESCO Convention on the means of prohibiting and preventing the illicit import, export, and transfer of ownership of cultural property, as adopted by the General Conference, 14 November 1970, Paris.

1.2 An archaeologist shall not:

- engage in any illegal or unethical conduct involving archaeological matters or knowingly permit the use of his/her name in support of any illegal or unethical activity involving archaeological matters;
- give a professional opinion, make a public report, or give legal testimony involving archaeological matters without being as thoroughly informed as might reasonably be expected;
- engage in conduct involving dishonesty, fraud, deceit, or misrepresentation about archaeological matters;
- undertake any research that affects the archaeological resource base for which she/he is not qualified;
- knowingly be involved in the recovery or excavation of artifacts for commercial exploitation, or knowingly be employed by or knowingly contract with an individual or entity who recovers or excavates archaeological artifacts for commercial exploitation.

The Archaeologist's Responsibility to Colleagues, Employees, and Students

2.1 An archaeologist shall:

- give appropriate credit for work done by others;
- stay informed and knowledgeable about developments in her/his field or fields of specialization;
- accurately, and without undue delay, prepare and properly disseminate a description of research done and its results;
- communicate and cooperate with colleagues having common professional interests;
- give due respect to colleagues' interests in, and rights to, information about sites, areas, collections, or data where there is a mutual active or potentially active research concern;
- know and comply with all federal, state, and local laws, ordinances, and regulations applicable to her/his archaeological research and activities;
- report knowledge of violations of this Code to proper authorities;

- honor and comply with the spirit and letter of the Register of Professional Archaeologist's Disciplinary Procedures.

2.2 An archaeologist shall not:

- falsely or maliciously attempt to injure the reputation of another archaeologist;
- commit plagiarism in oral or written communication;
- undertake research that affects the archaeological resource base unless reasonably prompt, appropriate analysis and reporting can be expected;
- refuse a reasonable request from a qualified colleague for research data;
- submit a false or misleading application for registration by the Register of Professional Archaeologists.

The Archaeologist's Responsibility to Employers and Clients

3.1 An archaeologist shall:

- respect the interests of her/his employer or client, so far as is consistent with the public welfare and this Code and Standards;
- refuse to comply with any request or demand of an employer or client which conflicts with the Code and Standards;
- recommend to employers or clients the employment of other archaeologists or other expert consultants upon encountering archaeological problems beyond her/his own competence;
- exercise reasonable care to prevent her/his employees, colleagues, associates, and others whose services are utilized by her/him from revealing or using confidential information. Confidential information means information of a non-archaeological nature gained in the course of employment which the employer or client has requested be held inviolate, or the disclosure of which would be embarrassing or would be likely to be detrimental to the employer or client. Information ceases to be confidential when the employer or client so indicates or when such information becomes publicly known.

3.2 An archaeologist shall not:

- reveal confidential information, unless required by law;
- use confidential information to the disadvantage of the client or employer;
- use confidential information for the advantage of herself/himself or a third person, unless the client consents after full disclosure;
- accept compensation or anything of value for recommending the employment of another archaeologist or other person, unless such compensation or thing of value is fully disclosed to the potential employer or client;
- recommend or participate in any research which does not comply with the requirements of the Standards of Research Performance.

Standards of Research Performance

The research archaeologist has a responsibility to attempt to design and conduct projects that will add to the understanding of past cultures and/or that will develop better theories, methods, or techniques for interpreting the archaeological record, while causing

minimal attrition of the archaeological resource base. In the conduct of a research project, the following minimum standards should be followed:

The archaeologist has a responsibility to prepare adequately for any research project, whether or not in the field.

Section I
Adequate Preparation for Research Projects

The archaeologist has a responsibility to prepare adequately for any research project, whether or not in the field. The archaeologist must:

1.1 Assess the adequacy of her/his qualifications for the demands of the project, and minimize inadequacies by acquiring additional expertise, by bringing in associates with the needed qualifications, or by modifying the scope of the project;

1.2 Inform herself/himself of relevant previous research;

1.3 Develop a scientific plan of research which specifies the objectives of the project, takes into account previous relevant research, employs a suitable methodology, and provides for economical use of the resource base (whether such base consists of an excavation site or of specimens) consistent with the objectives of the project;

1.4 Ensure the availability of adequate and competent staff and support facilities to carry the project to completion, and of adequate curatorial facilities for specimens and records;

1.5 Comply with all legal requirements, including, without limitation, obtaining all necessary governmental permits and necessary permission from landowners or other persons;

1.6 Determine whether the project is likely to interfere with the program or projects of other scholars and, if there is such a likelihood, initiate negotiations to minimize such interference.

– In conducting research, the archaeologist must follow her/his scientific plan of research, except to the extent that unforeseen circumstances warrant its modification.

Section II
Integrity of Research Methodology

In conducting research, the archaeologist must follow her/his scientific plan of research, except to the extent that unforeseen circumstances warrant its modification.

Section III
Procedures for Field Survey or Excavation

Procedures for field survey or excavation must meet the following minimal standards:

3.1 If specimens are collected, a system for identifying and recording their provenience must be maintained;

3.2 Uncollected entities, such as environmental or cultural features, depositional strata, and the like, must be fully and accurately recorded by appropriate means, and their location recorded;

3.3 The methods employed in data collection must be fully and accurately described. Significant stratigraphic and/or associational relationships among artifacts, other specimens, and cultural and environmental features must also be fully and accurately recorded;

3.4 All records should be intelligible to other archaeologists. If terms lacking commonly held referents are used, they should be clearly defined;

3.5 Insofar as possible, the interests of other researchers should be considered. For example, upper levels of a site should be scientifically excavated and recorded whenever feasible, even if the focus of the project is on underlying levels.

- During accessioning, analysis, and storage of specimens and records in the laboratory, the archaeologist must take precautions to ensure that correlations between the specimens and the field records are maintained, so that provenience contextual relationships and the like are not confused or obscured;

- Specimens and research records resulting from a project must be deposited at an institution with permanent curatorial facilities, unless otherwise required by law;

- The archaeologist has responsibility for appropriate dissemination of the results of her/his research to the appropriate constituencies with reasonable dispatch.

Section IV
Maintaining Continuity of Records

During accessioning, analysis, and storage of specimens and records in the laboratory, the archaeologist must take precautions to ensure that correlations between the specimens and the field records are maintained, so that provenience contextual relationships and the like are not confused or obscured.

Section V
Specimen and Research Record Storage

Specimens and research records resulting from a project must be deposited at an institution with permanent curatorial facilities, unless otherwise required by law.

Section VI
Appropriate Dissemination of Research

The archaeologist has responsibility for appropriate dissemination of the results of her/his research to the appropriate constituencies with reasonable dispatch.

6.1 Results reviewed as significant contributions to substantive knowledge of the past or to advancements in theory, method, or technique should be disseminated to colleagues and other interested persons by appropriate means such as publications, reports at professional meetings, or letters to colleagues;

6.2 Requests from qualified colleagues for information on research results directly should be honored, if consistent with the researcher's prior rights to publication and with her/his other professional responsibilities;

6.3 Failure to complete a full scholarly report within ten years after completion of a field project shall be construed as a waiver of an archaeologist's right of primacy with respect to analysis and publication of the data. Upon expiration of such ten-year period, or at such earlier time as the archaeologist shall determine not to publish the results, such data should be made fully accessible to other archaeologists for analysis and publication;

6.4 While contractual obligations in reporting must be respected, archaeologists should not enter into a contract which prohibits the archaeologist from including her or his own interpretations or conclusions in the contractual reports, or from a continuing right to use the data after completion of the project;

6.5 Archaeologists have an obligation to accede to reasonable requests for information from the news media.

APPENDIX C

Archaeological Investigations Applicant and Consultant Checklist

This checklist is designed to help applicants provide the archaeologist with the information they need to complete their work in a timely, cost effective manner and for the consultant archaeologist to receive the information they need to work effectively. As noted repeatedly in these Guidelines, LPC expects that all archaeological principal investigators who work in the city are qualified under the Secretary of the Interior Standards and abide by the ethical standards of the Register of Professional Archaeologists. LPC also requires that a documentary study, identification and evaluation investigations, mitigation studies, and project closure activities be completed by qualified consultant archaeologists and their technical expects. Finally, LPC requires that the applicant hire qualified consultant archaeologists and their technical experts to do the work required to complete a documentary study, identification and evaluation investigations, mitigation studies, and project closure activities.

	Item		Date
What archaeological work is needed?	○	Did LPC and/or SHPO find that archaeological services are needed? If so, give agency findings to prospective archaeologists.	
	○	Do you need help submitting initial request to LPC? If yes, you can ask the archaeologist to do this.	
	○	Did LPC or NYSHPO recommend that a documentary study be completed?	
	○	Did LPC or NYSHPO recommend that you need an indentification survey?	
	○	Did LPC or NYSHPO recommend that you need evaluative testing?	
	○	Did LPC or NYSHPO recommend that you need mitigation?	
	○	Did LPC or NYSHPO recommend that you need an unanticipated discovery plan?	
	○	Did LPC or NYSHPO recommend that you need something else?	
Information you need to provide about yourself to the consulting archaeologist	○	Project landowner name, address, phone number, email	
	○	Proposal due date	
	○	Can proposal be submitted by email (Y/N) to (person, email address)? If no, provide overnight shipping address.	
	○	Applicant name, address, phone number, email	
Information you need to provide about the project to the consulting archaeologist	○	Project street address	
	○	Project borough/block/lot	
	○	Will the whole lot be developed? (Y/N)	

	○	Project maps (NYCityMap), (Bing or Google Aerial), project plan (attach)
	○	Existing condition of property (fenced, built-out, partially built-out, undeveloped, other)
	○	Project description (attach text description and 2 photos of project area)
	○	Project schedule (from RER to completion)
	○	Project funds, permits and approvals needed
Information you may need to provide to the selected consultant archaeologist	○	Permission form to work on project property
	○	Contract name, phone number, email (for entry)
	○	On-site restrictions during walkover (describe)
	○	Existing conditions plan (attached)
	○	Project sections showing depth of disturbance by project area
	○	Do you have the title chain or need the archaeologist to create?
	○	Do you have any historic maps?
	○	Prior Department of Buildings (DOB) applications
	○	Do you want to review the archaeological work before it is sent to LPC? If yes, who should it be sent to and how? How many draft and final report copies do you want?

Information you may need to provide to the selected consultant archaeologist for survey and excavation work	○	Landowner permission form (attach)
	○	Artifact curation form (attach)
	○	UDP, HASP (attached any existing)
	○	Work plan with UDP and HASP due date to LPC
	○	If different from previous, new plans and sections?
	○	Is use of mechanical equipment permitted? (Y/N)
	○	Work hours permitted by landowner (if different from daylight)
	○	Landowner restrictions (list all)
	○	Is the applicant/owner aware of any fill, waste dumps, wells, cisterns, or prior burning episodes on the property? If yes, describe and locate on map
	○	Is the applicant/owner aware of any individual burials or cemeteries on the property? If yes, describe and locate on map
Information you may need to supply to the consultant archaeologist for the mitigation phase of work	○	Landowner permission form to access property (attach)
	○	Artifact curation form (attach)
	○	Avoidance, minimization, and mitigation work plan due date to LPC
	○	Mitigation excavation plan with UDP, HASP, and engineered shoring and dewatering plan due date to LPC
	○	If different from previous, new plans and sections
	○	Is use of mechanical equipment permitted? (Y/N)
	○	Work hours permitted by landowner (if different from daylight)
	○	Landowner restrictions (list all)

Information you may need to develop with the consultant archaeologist for project closure	○	Final deed of gift for archaeological materials to curation
	○	Final curation agreement
	○	Archive record
	○	Project photographs
	○	Artifacts to repository (Shipping receipt)
	○	Artifacts to landowner (Shipping receipt)
	○	Final LPC approval

APPENDIX D

Developing a Resource Estimate Checklist

Appendix D has been prepared to assist the applicant and consultant archaeologist to develop a resource estimate for the archaeological work. Every project is different and a resource estimate for a project must consider the individual characteristics of the project and its setting.

When developing the resource estimate for an archaeological project, keep these general axioms in mind:

- If a project has a field component, the effort should be split: half for administration + work plan + fieldwork and half for laboratory work + report + project closure;
- If a project has no fieldwork component, the effort should be split: a third for administration + research, a third for report, and a third for project closure;
- Agency coordination and meetings should be part of the appropriate task (work plan, research, fieldwork, laboratory work, report, project closure);
- Subconsultant technical specialists should be listed under direct expenses unless they are on the archaeological company's permanent staff;
- Other direct expenses (travel costs, specialized equipment, etc.) should be specified as line items unless the lead agency specifies otherwise.

The following table, organized by step/phase and associated work task, is a general list of personnel and line items commonly associated with the steps/phases and tasks. It is NOT comprehensive and personnel titles may differ. In addition, all personnel may not be required and all direct expense items may not be needed.

In addition, specialists often must be sub-contracted and this should be noted in the work plan and considered when developing an estimate.

Work Phase	Personnel and Direct Expenses	Estimate
Documentary Study (including work plan, if needed, and study	Personnel: • Principal Archaeologist • Project Administrator • GIS/Graphics • Researcher	*Personnel given as units of time*
	Direct Expenses: • Research fees • Printing costs • Mailing costs	*Direct Expenses given as not-to-exceed*
Identification and Evaluative Investigations (including work plan, field work, lab work, analysis, report, and for significant projects, preparation of collection for repository)	Personnel: • Principal Archaeologist • Project Administrator • Field Director • Crew Chief • Field Technician • Field Recorder • Laboratory Director • Laboratory Technicians • Editor • GIS/Graphics • Conservator • Specialists (list as appropriate)	*Personnel given as units of time*
	Direct Expenses: • Mechanical equipment by type/time • Archival supplies • Expendable field supplies • Printing • Mailing • Travel • Collection delivery	*Direct Expenses given as not-to-exceed*

Mitigation (including work plan, field work, lab work, analysis, report, preparation of collection for repository, public programming, and any other identified mitigation measures)	Personnel: • Principal Archaeologist • Project Administrator • Field Director • Crew Chief • Field Technician • Field Recorder • Laboratory Director • Conservator • Laboratory Technicians • Researcher • Editor • GIS/Graphics • Specialists	*Personnel given as units of time*
	Direct Expenses: • Mechanical equipment by type/time • Archival supplies • Expendable field supplies • Printing • Mailing • Travel • Collection delivery	*Direct Expenses given as not-to-exceed*

Documentary Study Sources

Please note: This is not an exclusive list but has been designed to be of assistance to agencies and archaeological consultants.

Citywide Resources

Repository / Archive	Resources	On-site or Online Access
New York City Landmarks Preservation Commission (LPC) Municipal Building 1 Centre Street, 9th Floor North New York, NY 10007 212-669-7817 www1.nyc.gov/site/lpc/about/archaeology.page	Archaeological Reports	http://www1.nyc.gov/site/lpc/about/archaeology-reports.page
	Archaeological Repository	http://archaeology.cityofnewyork.us/
	Architectural Designation Reports	http://www1.nyc.gov/site/lpc/designations/designation-reports.page
	Archaeological Sensitivity Maps	On site by appointment
New York State Office of Parks, Recreation, and Historic Preservation State Historic Preservation Office Peebles Island P.O. Box 189 Waterford, NY 12188-0189 518-237-8643 https://parks.ny.gov/shpo/archeology/	Archaeological reports; maps of archaeological site locations	Online using CRIS.* Some older reports may need to be uploaded by the NY SHPO project reviewer.
	Cultural Resource Information System (CRIS)*	https://cris.parks.ny.gov/ *CRIS users must register for a NY.gov ID

New York City Department of Records and Information Services (DORIS) 31 Chambers Street New York, NY 10007 212-639-9675 www.nyc.gov/records	Records of slavery and emancipation; almshouse ledgers; records of New Amsterdam	On site and online http://www.archives.nyc/
	Tax assessments; vital records (birth, marriage, and death); court records; architectural renderings	On site and online
New York City Municipal Archives 31 Chambers Street, Suite 103 New York, NY 10007 212-788-8585 Mon–Thurs: 9 AM to 4:30 PM Fri: 9 AM to 1 PM www.nyc.gov/records	Collections guide	http://www1.nyc.gov/site/records/historical-records/guide-to-the-collections.page
	Digital gallery	http://nycma.lunaimaging.com/luna/servlet
	Genealogy sources	http://www1.nyc.gov/site/records/historical-records/genealogy.page
	Finding aids	http://www1.nyc.gov/site/records/historical-records/finding-aids.page
New York City Municipal Reference Library and Research Center 31 Chambers Street, Suite 112 New York, NY 10007 212-788-8590 Mon–Fri: 10 AM to 4:00 PM	Depository for all official reports and studies published by New York City departments, Commissions, and Repositories	On site and online https://www1.nyc.gov/site/records/about/municipal-library.page
New York City Department of Buildings 60 Hudson Street, Room 505 212-312-8500 Mon–Fri: 9 AM to 1 PM and 2 PM to 3:30 PM	20th-century building records and rolled assessment maps. The latter are self-service and not organized.	On site
New York City Department of Environmental Protection: Bureau of Water & Sewer Operations (BW & SO) Central Mapping and Records 59-17 Junction Boulevard Corona, NY 11368 718-595- 4182	Water and sewer pipe records and maps	On site

New York City Department of Design and Construction: Division of Infrastructure 30-30 Thomson Avenue, 5th Floor (use 30th Place entrance) Long Island City, NY 11101 718-391-1334 Mon–Fri: 8:30 AM to 3:30 PM	1937 WPA Soil and Rockline maps: NYC Soil Boring Database	On site by appointment
National Archives U.S. Customs House 1 Bowling Green New York, NY 10004 212-401-1620 Mon–Fri: 10 AM to 5:00 PM https://www.archives.gov/nyc	Federal court records (1685–1970s); census records; vital records; military, naturalization, passenger, and customs records; Freedmen's Bureau records; Dawes Commission records	On-site digital databases
New-York Historical Society 170 Central Park West at 77th Street New York, NY 10024 212-873-3400 www.nyhistory.org	Maps; atlases; manuscripts and print collections; newspapers; photographs; etc.	On site and online
	Research Library	http://www.nyhistory.org/library
New York Public Library: Main Reference 5th Avenue and 42nd Street New York, NY 10018 212-340-0849 https://www.nypl.org/	City directories; historical maps and atlases; photograph, print, and manuscript collections, etc.	On site and online
	NYPL Map Warper	http://maps.nypl.org/warper/
	NYPL Digital Collections	https://digitalcollections.nypl.org/
Museum of the City of New York 1220 5th Avenue at 103rd Street New York, NY 10029 212-534-1672 http://www.mcny.org/	Historical photographs; maps; print and manuscripts collection	
	Online Collections Portal	http://collections.mcny.org

Borough-specific Resources

Bronx

Repository / Archive	Resources	On-site or Online Access
Bronx City Register Office 3030 Third Avenue, Room 280 Bronx, NY 10455 Mon–Fri: 9 AM to 4:30 PM	Property records: West Bronx, 1874–1966; East Bronx, 1898–1966	On site
Bronx County Clerk 851 Grand Concourse, Room B131 Bronx, NY 10451 718-590-3646	Probate; census records, 1915 and 1925	On site
The Bronx County Historical Society (and County Archives) 3309 Bainbridge Avenue Bronx, NY 10467 718-881-8900 http://bronxhistoricalsociety.org/	Collections predominately from 1850 to present: historical photographs; city directories; deeds; family papers; business records; clippings files	On site
Bronx Topography Desk 851 Grand Concourse, Room 206 Bronx, NY 20451 Mon–Fri: 9:30 AM to 1:00 PM	Title, grade, and monument maps	On site and online http://bronxboropres.nyc.gov/topography/
Westchester County Clerk 110 Dr. MLK, Jr. Boulevard White Plains, NY 10601 914-995-3080	Land conveyances, legal records, and maps for the West Bronx, 1874–1966; East Bronx, 1898–1966	On site and online https://wro.westchesterclerk.com
Westchester County Archives 2199 Saw Mill River Road Elmsford, NY 10523 914-231-1500	Pre-1898 consolidation vital records (birth, death, and marriage); wills and probate	On site and online https://archives.westchestergov.com
Westchester County Historical Society 2199 Saw Mill River Road Elmsford, NY 10523 914-592-4323	Pre-1874/1898 consolidation: newspapers; family histories; maps; atlases; photographs	On site and online http://www.westchesterhistory.com/

Brooklyn

Repository / Archive	Resources	On-site or Online Access
Brooklyn City Register Office Kings County Municipal Building 210 Joralemon Street, 2nd Floor Brooklyn, NY 11201 718-802-3590 Mon–Fri: 9 AM to 4:30 PM	Pre-1966 conveyance records; index books for 1896–1966 records are located in the Queens Registry office; pre-1896 records are at Brooklyn Historical Society	On site
Brooklyn Topographical Bureau Office of the Borough President 209 Joralemon Street, Room 340 Brooklyn, NY 11201 718-802-3816 Mon–Fri: 9:30 AM to 11:45 PM 1 PM to 2:45 PM www.brooklyn-usa.org/topography/	Title, grade, and monument maps	On site
Brooklyn Historical Society (Originally Long Island Historical Society) 128 Pierpont Street Brooklyn, NY 11201 718-624-0890 http://www.brooklynhistory.org/ Library Hours Wed–Sat: 12 PM to 5 PM	Photographs, maps, historical atlases (1855–1929); Brooklyn land conveyance records (1699–1896); Long Island Star (1809–1863), Brooklyn Directories (1796, 1822–1913, 1933); family histories; vital statistics (transcribed, not original)	On site; admission fee
	Online Image Gallery	http://brooklynhistory.pastperfectonline.com/
Brooklyn Public Library: Central Library 10 Grand Army Plaza Brooklyn, NY 11238 718-230-2100 www.bklynlibrary.org Brooklyn Collection has separate hours from the Main Library	Historical maps; atlases; city directories; photographs; newspapers; archival manuscripts, clippings files	Online and on site; walk-ins welcome, research requests preferred
	Brooklyn Collection	www.bklynlibrary.org/brooklyncollection
	Brooklyn Daily Eagle	www.bklynlibrary.org/brooklyncollection/collections
	City Directories online	https://archive.org/details/brooklynpubliclibrary?&sort=date
	Historical Brooklyn Photographs	https://www.bklynlibrary.org/brooklyncollection/historic-photographs

Manhattan

Repository / Archive	Resources	On-site or Online Access
Manhattan City Register Office (Department of Finance) 66 John Street, 13th Floor New York, NY 10038 Mon–Fri: 8:30 AM to 4:30 PM	Pre-1966 property records: deed and title index books; deeds on microfilm	On site
	Post-1966 deeds and records	https://acrisweb.csc.nycnet/cp/
Manhattan Topographical Services 1 Centre Street, 19th Floor South New York, NY 10007 212-669-8300	Title, grade, and monument maps	On site by appointment only

Staten Island

Repository / Archive	Resources	On-site or Online Access
Office of the Richmond County Clerk 130 Stuyvesant Place, 2nd Floor Staten Island, New York 10301 718-675-7700 Mon–Fri: 9 AM to 5 PM	Pre-1966 property records	On site and online http://hosted.uslandrecords.com/cgibin/homepage?County=8007
Richmond Topography Bureau 10 Richmond Terrace, G-12 Staten Island, NY 10301 718-816-2112 Mon–Fri: 8:30 AM to 4:30 PM (closed between 1 PM and 2 PM)	Title, grade, and monument maps	On site
Staten Island Historical Society / Historic Richmond Town 441 Clarke Avenue Staten Island, NY 10306 718-351-1611 www.historicrichmondtown.org/	Photographs, maps, family papers	On site and online http://statenisland.pastperfectonline.com/
History Archives of Staten Island Museum at Snug Harbor 1000 Richmond Terrace, Building H Staten Island, NY 10301 718-483-7122 http://www.statenislandmuseum.org/collections/history-archives/		On site by appointment

Queens

Repository / Archive	Resources	On-site or Online Access
Queens City Register Office 144-06 94 Avenue Jamaica, NY 11435 Mon–Fri: 9 AM to 4:30 PM http://richmondcountyclerk.com	Pre-1966 property records and index books for Queens and Brooklyn	On site and online
Queens Topographical Bureau 120-55 Queens Boulevard Kew Gardens, NY 11424 718-286-2929 Mon–Fri: 9 AM to 12:30 PM	Title, grade, and monument maps	On site
The Queens Historical Society Kingsland Homestead 143-35 37th Avenue Flushing, NY 11354 718-939-0647 https://queenshistoricalsociety.org	Photographs, maps, atlases, family papers, genealogies, etc.	On site by appointment
Queens Library 89-11 Merrick Boulevard Queens, NY 11432 718-990-0700 www.queenslibrary.org	Historical records documenting Queens, Brooklyn, and Long Island	On site and online http://www.queenslibrary.org/research/archives

Additional Resources

American Jewish Historical Society	http://www.ajhs.org/
Ancestry (LLC)* Census; wills and probates; vital records; military; immigration and naturalization records; church records; etc	Available on site through the New York Public Library (NYPL) system: www.ancestry.com
Archdiocese of New York Archives	http://archnyarchives.org/
Avery Architectural Library at Columbia University	http://library.columbia.edu/locations/avery.html
Beyond Mannahatta: The Welikia Project	https://welikia.org/
Center for Jewish History	www.cjh.org
Congregation Shearith Israel	http://www.shearithisrael.org/history
Brooklyn Museum	www.brooklynmuseum.org
Family Search Conveyances for Kings County through 1885; New York County through 1886; Annexed District (West Bronx) 1874–1885; Richmond County through 1900; Westchester through 1901; No Queens data	https://www.familysearch.org/search/collection/2078654
Gilder Lehrman Institute of American History	https://www.gilderlehrman.org/collection
LaGuardia and Wagner Archives Includes NYCHA archives; Queens Local History; and Council of City of New York Archives	http://www.laguardiawagnerarchive.lagcc.cuny.edu/COLLECTIONS.aspx
LPC Discover NYC Landmarks Individual, interior and scenic landmarks, and historic districts	https://nyclpc.maps.arcgis.com/apps/webappviewer/index.html?id=93a88691cace4067828b1eede432022b
LPC Resource Guide to Researching Historic Buildings in NYC	http://www1.nyc.gov/assets/lpc/downloads/pdf/pubs/LPC_guide_to_researching%20(2).pdf
Lower East Side Tenement Museum	http://www.tenement.org/

New Netherland Research Center	www.nysl.nysed.gov/newnetherland/collections.htm
NYCityMap Aerial photos (1924–2012); landmarks; etc.	http://gis.nyc.gov/doitt/nycitymap/
NYC Department of Planning, PLUTO, and MapPLUTO	https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-pluto-mappluto.page
NYC Department of Finance, Borough, Block, and Lot (BBL)	https://webapps.nyc.gov/CICS/fin1/find001I
NYC Department of Finance, Digital Tax Map	http://gis.nyc.gov/taxmap/map.htm
New York City Directories Searchable PDFs	https://github.com/hadro/new-york-city-directories
NYC Oasis Map CUNY Center for Urban Research: transit; historical land use; environmental and ecological data; zoning; etc.	www.oasisnyc.net/map.aspx
NYC Parks Department Photo Archive	www.nycgovparks.org/about/photo-archive
New York County Clerk Records Case files of New York County Supreme Court; historical incorporation, condemnation, and other records; includes the Division of Ancient Records, open by appointment	www.nycourts.gov/courts/1jd/supctmanh/county_clerk_records.shtml
New York State Historical Literature	ebooks.library.cornell.edu/n/nys//
New York State Orthos Online	https://orthos.dhses.ny.gov
New York State Archives and Records Administration	http://www.archives.nysed.gov/
New York State Research Library	http://www.nysl.nysed.gov/research.htm
New York Transit Museum Online Archives	http://nytm.pastperfectonline.com/
New York University Library	https://library.nyu.edu/
OldNYC Mapping Historical Photos from NYPL, 1800–2000	www.oldnyc.org/

Old Fulton New York Post Cards	http://www.fultonhistory.com/
Old York Library at Avery Library (Seymour B. Durst)	http://library.columbia.edu/locations/avery/seymour-b-durst-old-york-library.html
Office for Metropolitan History Building Permit Database, 1900–1986	http://www.metrohistory.com/searchfront.htm
Presbyterian Historical Society and Archives	https://www.rca.org/rca-basics/archives
Reformed Dutch Church in America	https://www.history.pcusa.org
Schomburg Center for Research in Black Culture (NYPL)	https://www.nypl.org/locations/schomburg
South Street Seaport Museum	https://southstreetseaportmuseum.org/collections/collections-descriptions/
Trinity Church Wall Street Archives	www.trinitywallstreet.org/about/archives
US Geological Survey Topographic Maps	https://nationalmap.gov/historical/index.html

Examples of Field Forms

Appendix F provides examples of logs and lists that can be used to record key information about a project. Please contact LPC for templates.

Provenience Log

Example of a Field Provenience Log. Please contact LPC for a template.

Instructions

- **Project/Site #:** Use PUID # if available. If not, use consultant Project # and then field site or permanent site number;
- **Designation:** Shovel test (ST) #, Unit #, Block #, Feature #, Backhoe Trench #, Strip #, Level #, etc.;
- **Provenience:** Horizontal first (ST 4, Unit 1, N5E5), then Vertical (Level 1, 15 cm bd);
- **GPS Horizontal Datum Coordinate:** The northing and easting coordinate of the provenience datum;
- **Vertical Datum Start (bd):** The depth below datum (bd) where excavation begins;
- **Vertical Datum End (bd):** The depth below datum (bd) where excavation in the unit or level ends;
- **Date and Recorder:** Date designation is assigned along with the recorder's initials. Field recorder signs provenience list when the page is finished.

Project/Site #s	Designation and Provenience	GPS Horizontal Datum Coordinate	Vertical Datum Start (bd)	Vertical Datum End (bd)	Date and Recorder

Field Recorder signature

Date signed

Example Bag List

Please contact LPC for a template.

Instructions

- **Project/Site #:** Use PUID # if available. If not, use consultant Project # and then field site or permanent site number;
- **Field Bag #:** Sequential by project or site for artifact and specialized sample bags generated in the field;
- **Provenience:** Horizontal first (ST 4, Unit 1, N5E5), then Vertical (Level 1, 15 cm bd);
- **Bag Contents:** Bone, ceramic, chipped stone, fire cracked rock, metal, synthetic, etc.; or C^{14}, pollen, phytolith, etc.;
- **Special Treatment:** Possible notes inlude: "Do not wash," "No acid bath," "Dry brush only";
- **Date and Recorder:** Date bag contents collected and recorder's initials. Field recorder signs bag sheet when the bag list page is finished.

Project/Site #s	Field Bag Number	Provenience	Bag Contents	Special Treatment	Date and Recorder

Field Recorder signature

Date signed

Examples Photograph Log

Please contact LPC for a template.

- If this log is being used for film-based photographs, please add a column that specifies the original film type (b/w, color) and if there were any post-processing modifications to the film negative;
- **Photo #:** The number assigned by the camera or the photographer;
- **Project/Site #:** Use PUID # if available. If not, use consultant Project # and then field site or permanent site number;
- **Direction:** Direction (N, S, E, W, etc.) from camera to image;
- **Description:** What is depicted in the photograph. An example might be "Looking N at the location of Unit XYZ, which is marked by the stakes.";
- **Date of Photo:** Date photograph taken;
- **Photographer:** First initial, last name.

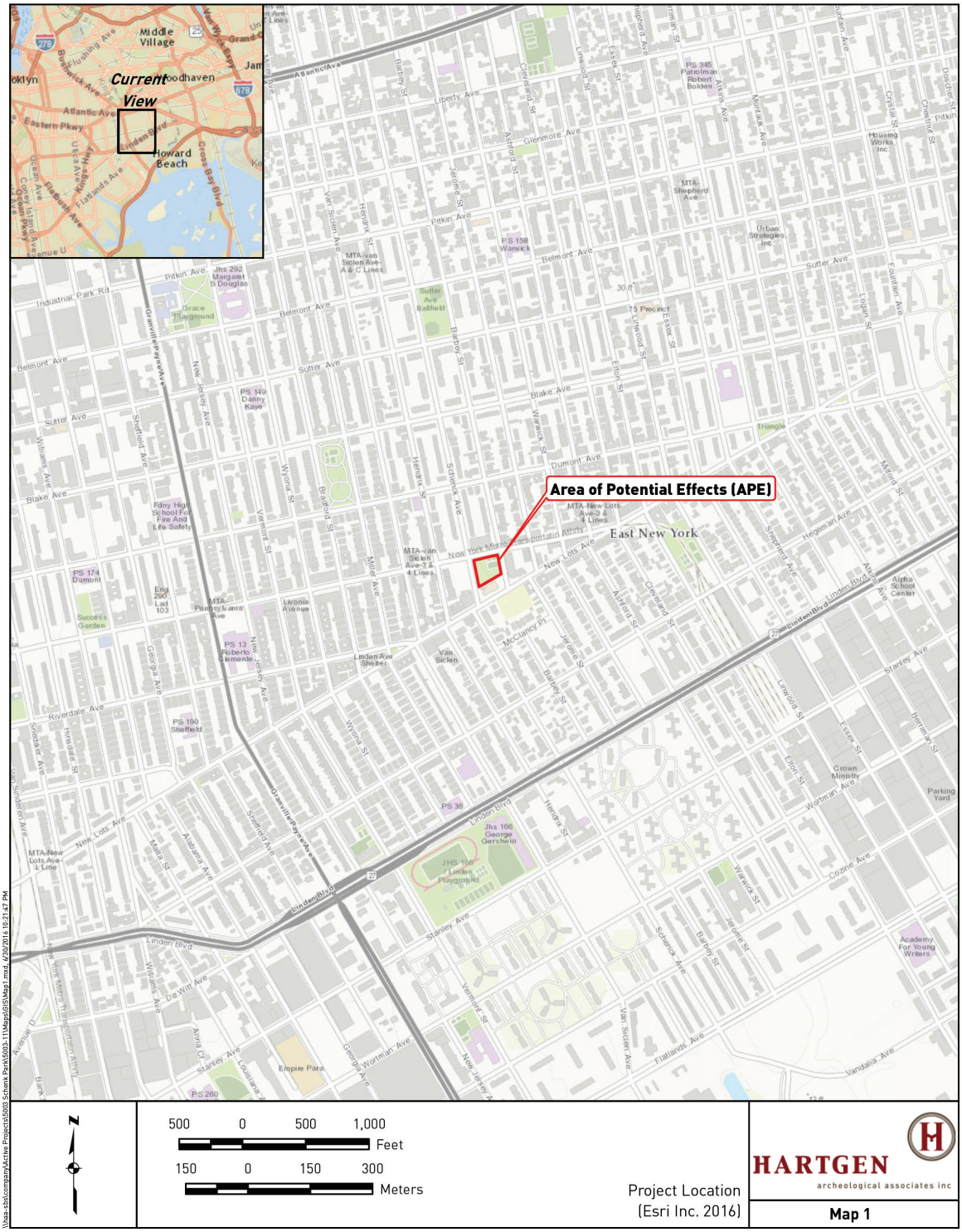
Photo #	Project/Site #s	Direction	Description	Date of Photo	Photographer

Examples of Report Graphics

The figures and photographs that are used to illustrate an archaeological report or other deliverable provide invaluable information about the project and site conditions, location, contexts, features, and stratigraphy. These sections are only useful to the reader if the authors have taken care in their layout and text. Subsequent Appendix G pages hold representative graphic examples that illustrate how this can be achieved. Additional examples may be found within the archaeological reports posted on the LPC website.

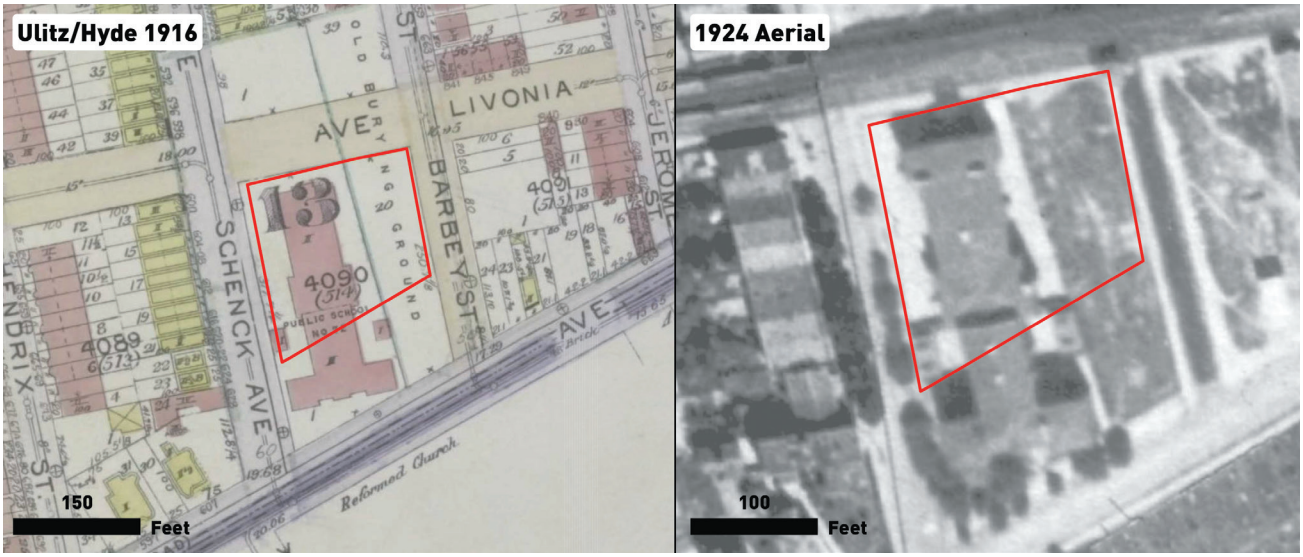
Example from: Hartgen Archaeological Associates, Inc., Phase 1A Archaeological Literature Review and Fieldwork Plan, Schenck Playground, African Burial Ground Square, Brooklyn, New York, 2016.

Schenck Playground, Brooklyn New York City Parks
Phase IA Archeological Literature Review and Fieldwork Plan



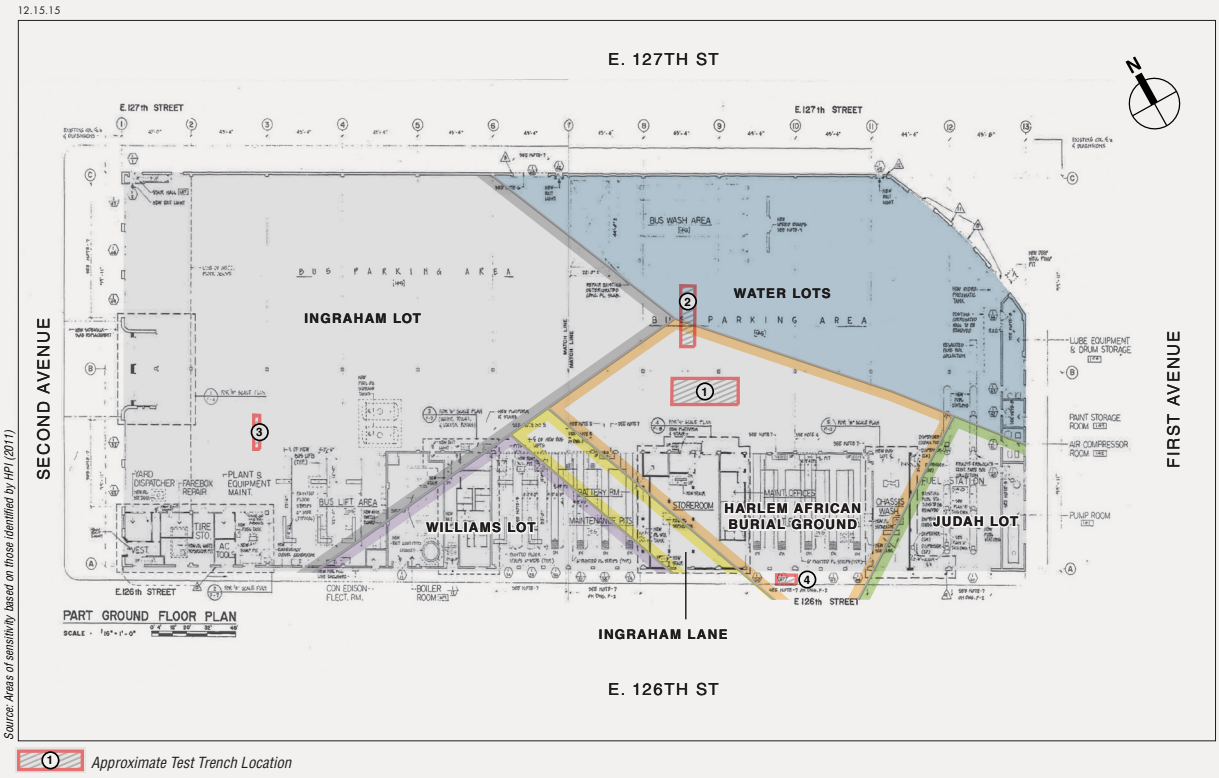
Project Location

Example from: Hartgen Archaeological Associates, Inc., Phase 1A Archaeological Literature Review and Fieldwork Plan, Schenck Playground, African Burial Ground Square, Brooklyn, New York, 2016.

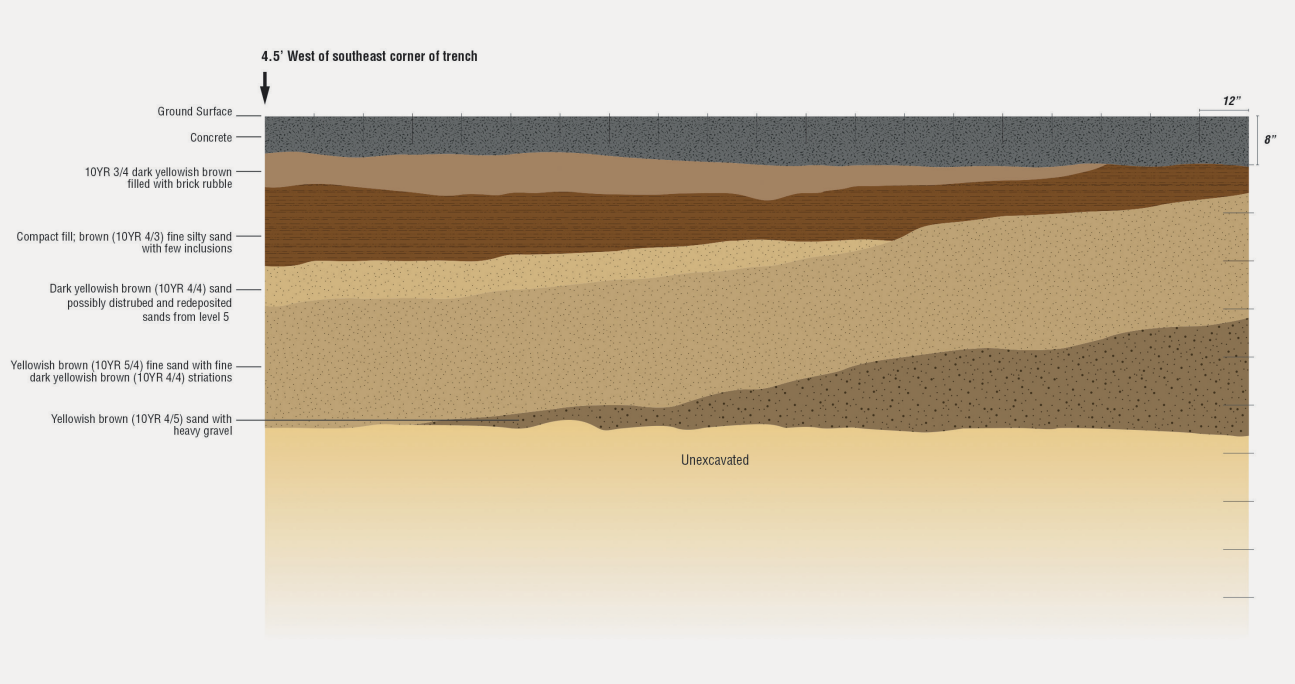


Context Information

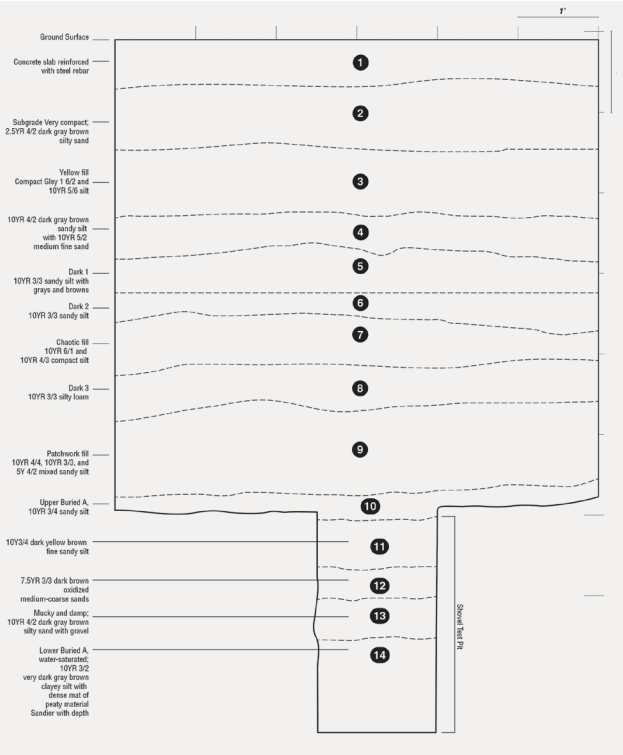
Following three examples from: AKRF, Inc., Phase 1B Archaeological Investigation, 126th Street Bus Depot, Block 1803, Lot 1, New York, New York, 2016.



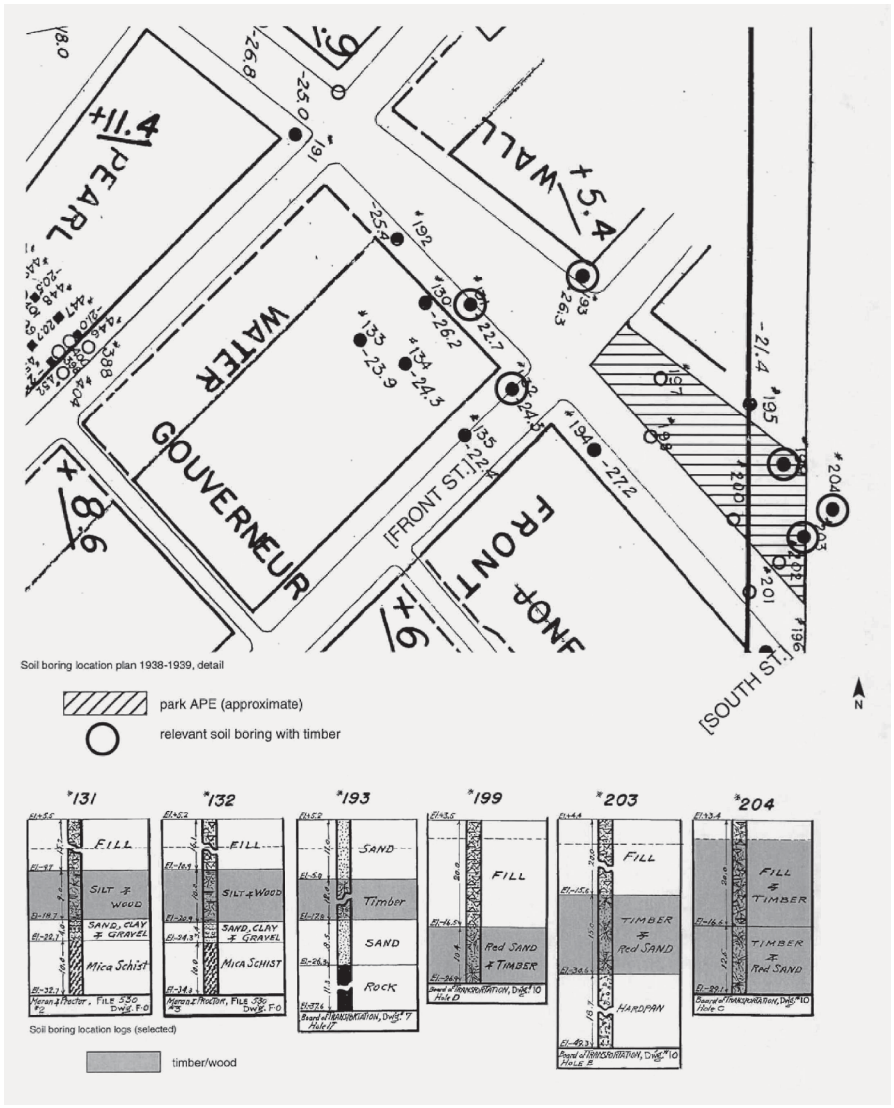
Areas of Archaeological Sensitivity



Stratigraphy (Scaled Drawing)



Stratigraphy (Scaled Drawing)



Boring Location Information for Context Discussion
Example from: Joan H. Geismar, Ph.D. LLC, Archaeological Monitoring and Assessment of Wood Timbers, Wall Street Triangle Park, New York City, 2005.



Artifacts with Scale
Example from: NYC Archaeological Repository: The Nan A. Rothschild Research Center, www.nyc.gov/archaeology. These blue and white transfer pearlware artifacts were found in Van Cortlandt Park in 1992.

NYC Archaeological Repository: The Nan A. Rothschild Research Center Curation Guidelines[39]

The NYC Archaeological Repository: The Nan A. Rothschild Research Center, 114 West 47th Street, Manhattan, was opened in 2014 to curate significant archaeological collections that have been excavated by archaeologists on city land. The artifacts come from all five boroughs and range in age from the area's earliest habitation to the early 20th century. The purpose of the Repository is to preserve the city's significant collections for study and exhibit. The Repository is open by appointment to researchers and university classes and has an associated website, www.nyc.gov/archaeology, geared toward researchers, teachers, and the public. The Repository is managed by the Archaeology Department of the Landmarks Preservation Commission.

Archaeological collections that are accepted for curation at the Repository must meet specific documentation, archival, and storage requirements and be subject to a legal agreement. City agencies intending to store an archaeological collection at the Repository must review this appendix in order to understand the requirements and contact the Repository as early in the process as possible.

Appendix H is divided into four sections:

1. Loan Agreements: pages 121–122
2. Archival Standards: pages 122–128
3. Required Documentation and Database: page 128
4. Specific Instructions for Sampling/Specific Artifact Types: pages 128–137

Loan Agreements to the NYC Archaeological Repository Policies

The NYC Archaeological Repository will store and curate significant archaeological collections that belong to the City of New York. However, the responsible agencies will continue to own the collections that are under the care of the Repository. Therefore, **LPC and the responsible agency must enter into a loan agreement for any collections that will come to the Repository before they will be accepted by the Repository. This agreement defines that the:**

- Collection will be delivered to the Repository following the standards noted;
- LPC will provide secure and appropriate care while the collection is within the Repository;
- LPC will rehouse or cull portions of the collection as needed;
- LPC will fund standard maintenance but LPC will need additional funding if **archaeological conservation** is required for portions of the collection;
- LPC will grant approval for portions of the collection to be used for exhibition and research (including destructive analyses);

- LPC may use any documentation or images of or about the collection, including on the associated LPC website;

- Agreement will set the terms for discharge of the collection should either LPC lose access to an appropriate Repository and/or LPC determine that the collection is no longer relevant to the Repository's mission.

Finally, except in exigent circumstances for stated periods of time, the Repository is not intended for the curation of human remains. The New York State Museum may accept human remains for curation but such arrangements are on a case by case basis and only with the permission of the appropriate agencies, Indian Nation, and/or descendant community. Please see Section D for information about the appropriate treatment of human remains.

Loan Agreements from the NYC Archaeological Repository Policies

The NYC Archaeological Repository will loan objects to museums and research institutions on a case by case basis. In all instances, a loan agreement is needed that defines: what is being borrowed, the purpose of the loan, how the objects will be stored and kept secure, and the length of the loan term. Except in very special cases, objects will not be loaned for periods greater than one year.

Please contact LPC for examples of such agreements.

Archival Standards

Collections submitted to the Repository must be stable and packed in archival materials for long-term storage.

Cleaning and Conservation

Prior to submission and long-term storage, artifacts will be dry and stable to prevent mold and other destabilizing elements from damaging artifacts. Fragile artifacts in the below categories must be dry brushed instead of washed. **All treatments will be documented.**

- Glass and ceramic artifacts will be washed or dry brushed prior to long-term storage:
  - Artifacts uncovered in salt water contexts will be soaked to remove salts and fully dried prior to storage;
  - All temporary mending aides must be removed prior to storage. Artifacts must only be mended using archival materials;
  - Artifacts subject to residue analyses will require special preparation and eventual storage. The treatment of these artifacts is subject to discussion with the analyst and the Repository.
- Bone artifacts will be washed or dry brushed, depending upon the analysis requirements;
- Metal artifacts (including nails) will be stabilized either through cleaning, soaking, or other conservation methods and dried prior to storage;
- Leather artifacts will be stabilized through conservation and prepared for long-term curation in a non-wet context;
- Soil and other environmental samples will be dried prior to storage.

Once dry and stable, artifacts will be placed in acid-free archival storage materials for long-term curation as follows:

Bagging Artifacts

Artifacts will be bagged in a minimum thickness of 4-millimeter acid-free write-on archival quality

plastic bags with top closure. Six millimeter or heavier weight bags will be used for heavy, large, or sharp items. Bags no smaller than 3" × 4" must be used.

- Silica gel packets will be placed inside boxes storing metal artifacts to reduce humidity as much as possible;

- Carved bone (e.g., button blanks, scrimshaw, carved decorative handles) will be stored in boxes with Art-Sorb, Gor-Tex, or equivalent material to control humidity within the storage box;

- An artifact number will be written directly on artifacts with archival quality materials. Printed paper labels can be used in the place of hand-written numbers. Labels must be printed on acid-free paper. If this is not possible, a laser printed label on an acid-free tag within its own bag must be placed inside the artifact's bag (see below for detailed labeling instructions);

- In order to prevent damage, all artifacts will be buffered inside bags with acid-free materials. Such materials will be used to prevent chipping, flaking, or damage to the edges of artifacts; prevent artifacts from scraping or rubbing against one another; or prevent mended artifacts from moving within the storage boxes. Fragile artifacts must also be secured inside bags with materials such as acid-free tissue paper, Volara, Gor-Tex, cotton twill tape, Ethylene foam or blocks, or other similar archival quality material;

- Fragile artifacts and/or samples that are easily crushed (such as botanicals) will be stored in appropriately sized acid-free plastic or archival quality board boxes to prevent damage. These cases will also be buffered with acid-free material to prevent unnecessary movement:

  – Boxed artifacts will be stored with their appropriate context group (with the exception of metal and carved bone artifacts which must be kept separate);

  – It is vital that artifacts be packed with adequate cushioning to prevent damage from other artifacts. Artifacts must not be packed so they scrape against one another; bags must not be filled to the brim (see below for detailed packing guidelines);

  – Large artifacts or mended artifacts will be bagged individually in appropriately sized bags or boxes. Secure packing will include acid-free tissue paper, Volara, cotton twill tape, Ethylene foam blocks, or other similar archival quality material.

- Soil samples of up to 24 ounces will be stored in 6-millimeter acid-free archival quality plastic bags with top closure or acid-free containers. These bags or containers must be sealed so they are air tight:

  – Samples to be used for pollen/phytolith analysis must not be stored in paper, as paper may contain photoliths and will contaminate the samples;

  – Glass or other acid-free nonreactive containers are preferable for soil and environmental samples.

Packing Artifacts

- Artifacts from the same provenience/context will be bagged together. This includes faunal artifacts but excludes soil and other environmental samples, metals, and worked bone (see below):

  – Multiple bags must be used for large proveniences/contexts;

  - The smallest recorded unit will be the organizing principle for the collection. This may be a context number, catalog number, provenience number, bag number, level, etc. Whichever term is used, it must be consistent with the artifact catalog and site report.

- Within a given provenience/context, artifacts of different materials and types will be bagged separately and groups of smaller bags containing different materials will be clustered into one larger bag representing a provenience/context unit;

- Diagnostic or significant artifacts will be bagged individually. Artifacts will then be bagged in groups by type of ware, style, etc. (It is possible that one artifact of each type exists and that artifact will be bagged individually as a type.):

  - Mixed groups of ceramics will not be bagged together. If they are bulk finds, they will be separated by ware and bagged in groups;

  - Faunal bones will be sorted and packed in groups by animal and stored with their archaeological context. If large groups exist, they will be further separated by bone type (i.e., femur).

- Individual artifacts must be packed in small or appropriately sized 4-millimeter acid-free bags. If multiple artifacts will be packed in one bag, the bag must have no more than 50 fragments and must be 50 percent full at most. Bags no smaller than 3" × 4" must be used;

- Metal objects and worked bone must be kept separately as they will be stored in one area of the Repository. These objects must be placed into boxes marked metal or worked bone and organized in context order;

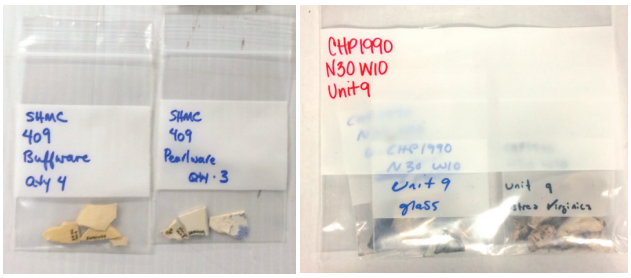
- All bags will touch the bottom of their storage box;

- Individual or groups of artifacts will then be placed in one larger exterior bag (or series of larger bags), collecting all artifacts from one provenience/context bag in one place. Exterior bags must be no smaller than 6" × 9". Bags are categorized into three groupings:

  - Interior bags, or bags that contain individual artifacts or batched artifacts that have been cataloged as one unit;

  - Mid-level bags, or bags that contain groups of interior bags which have been sorted by material, ware type, etc.;

  - Exterior context bags, or bags that contain all artifacts in mid-level bags from one context.



Example groups of bagged artifacts and artifacts placed in a larger, single-context bag.

Storage Bags Must Be Labeled as Follows

- All interior bags will be labeled in permanent marker with the site name, context/catalog number, and object/entry number. An acid-free paper label with the project name, year(s), context information (context/catalog number), object/entry number, quantity/artifact count, and artifact name (object, material, form, ware, etc.) will be placed into the interior bag with the artifact(s). See Table H-1;

- All mid-level bags will be labeled in permanent marker with the project name, provenience information (site number), context information (context/catalog number), types of artifacts (i.e., pearlware, creamware), and the range of object/entry numbers included in the bag. An acid-free paper label with the project name, provenience information (site number), and the context information (context/catalog number) will be placed into the mid-level bag with the interior bags;

- All exterior context bags will be labeled in permanent marker with project name, year(s), context information (context/catalog number), a list of the types of artifacts included in the bag, and the range of object/entry numbers included in the bag. An acid-free paper label with project name, year(s), and context information (context/catalog number) will be placed into the exterior context bag with the mid-level bags;

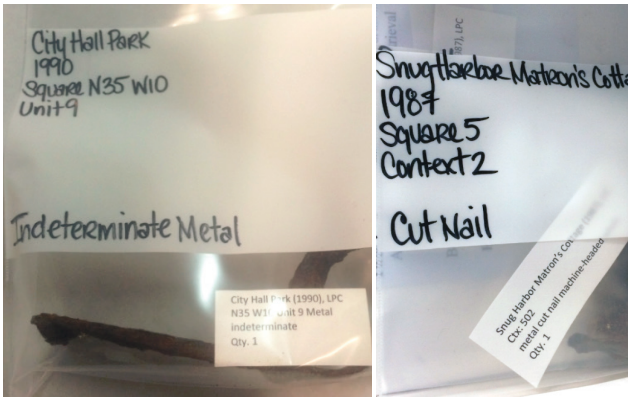
- All bags must have interior labels printed on acid-free materials;

TABLE H-1

Bag Labeling Guide

Bag Type	External Bag Label Categories (Permanent marker on write-on bag)	Internal Bag Label Categories (Acid-free paper or Tyvek label inside bag)
Interior bags (contain individual artifacts or batched artifacts cataloged as one unit)	At least the following: • Project initials (site number) • Context/catalog number • Object/entry number If room permits, include: • Artifact name (object, material, etc.)	• Project name • Year(s) • Context information (context/catalog number), object/entry number • Quantity/artifact count • Artifact name (object, material, form, ware, etc.)
Mid-level bags (contain groups of internal bags sorted by material, ware type, etc.)	• Project name (site number) • Context information (context/catalog number) • Type of artifacts (i.e., pearlware, creamware) • Range of object/entry numbers included in bag	• Project name (site number) • Context information (context/catalog number)
Exterior context bags (contain all artifacts from one context)	• Project name • Year(s) • Provenience information (site number) • Context information (context/catalog number) • List of types of artifacts included in bag • Range of object/entry numbers included in bag	• Project name • Year(s) • Provenience information (site number) • Context information (context/catalog number)

- Artifacts will be labeled individually with artifact number and provenience information. If not individually labeled, an acid-free tag will be placed inside the bag, repeating the information from the bag label (see Table H-1). Labels will be printed on archival acid-free paper or Tyvek:
  - If artifacts have been joined together across context/catalog numbers ("crossmended"), all pieces must be stored with the context that has the largest representative quantity or the largest percentage of the vessel. Bag labels will reflect additional artifacts included, and notes written on acid-free paper will be placed in bags where artifacts have been removed;
- Bags will be labeled with permanent marker or with acid-free labels attached with archival Acryloid B-72.



Example artifact bags.

Once packed, artifacts will be placed in storage boxes as follows:

- All storage bags will stand upright within their storage box and will touch the bottom of the box;
- Bags must be ordered alphanumerically from front to back, using additional space on the left side of the box for additional bags;
- Each box will include a list of artifacts or samples contained within that box. This list will correspond to the artifact list included with the site report or other analysis. Lists will be stored in acid-free bags:
  - If artifacts have been removed for conservation, exhibition, or other reasons, notes will be made on the artifact list, in the database and a tag placed inside the box where the artifact belongs.



Example storage box with bags, each standing upright, packed from front to back. To the right is a sample "context bag" with artifacts grouped in smaller bags inside, and a sheet containing a list of all artifacts stored in this box.

Box Preparation

Artifacts will be packed in standard-size, acid-free archival quality boxes:

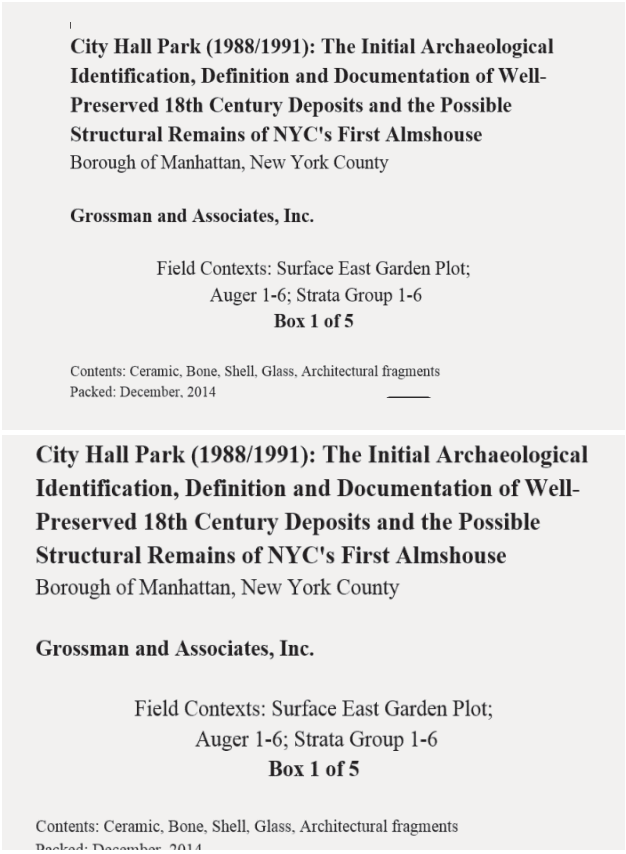
- 12"W × 15"L × 10"H (banker box) for artifacts, except metal and carved bone artifacts;
- 6"W × 15"L × 10"H for soil samples or heavy artifacts such as bricks;
- 6¾"W × 11¾"L × 4¾"H for metals and carved bone samples (boxed separately). Oversized

metals must be stored in 12”W × 15”L × 10”H banker boxes.

Each box will contain a list of artifacts stored inside.

Storage boxes will be labeled as follows:

- Project title, project date, company/ archaeologist, excavation unit and/or context/ catalog number, material types contained within, and box number (x of y), and packing date. Labels must be laser printed on acid-free paper;
- For banker boxes, labels will fill an 8½” x 6” space on the front of the box. For metal and carved bone boxes, labels will fill a 4” x 6” area.



Example labels for banker box-sized boxes.

A complete audit of all storage boxes is required prior to their deposit at the Repository.

Required Documentation and Database

There are three different types of documentation associated with each collection that **must be submitted for each collection**:

1. The final archaeological report that is submitted to LPC and will be available on the agency’s website;
2. Project documentation (defined and described in sections C.7– C.10);
3. Illustrated catalog. The illustrated catalog must follow the Repository’s database template and must include all artifacts and samples being stored at the Repository. Please contact LPC for the catalog template and photographic instructions.

Specific Instructions for Sampling/ Specific Artifact Types

As noted in Section C, the project research design and subsequent analysis and conclusions must inform how the significance of a site is determined, which, in turn, defines what must be retained for future research. Subject matter experts and the PI are part of this process and integral in developing the research design and project methods sections of the work plan. In particular, the research design must reference the reasons why specific material types, such as fire cracked rock or brick fragments, might be sampled both in the field and in the laboratory. In other instances, the research design questions might only be answered if specialized treatments are conducted. In this example, the subsequent project methods section of the work plan must specify how artifacts that will subjected to residue analysis are processed, stored, and curated.

Culling must occur during the fieldwork and analysis phases and anything that is not retained must be noted in the project documentation. It is expected that if objects are not useful for research and meet at least one of the following criteria they will not be kept: lack of provenience, lack of physical integrity, or overtly redundant. Furthermore, artifacts that pose a hazard to the Repository space, other artifacts, or people working in it will not be retained. However, irrespective of the research, **all projects must retain the following** (see also Table H-2):

- Rare or unique artifacts;
- Artifacts dating to and/or from contexts from the Revolutionary War period and earlier for the reason that because of their age they are rare and likely to be handmade;
- Complete or diagnostic artifacts/reconstructible or potentially reconstructible artifacts that are stable and dry prior to storage;
- Artifacts from significant contexts; sampling may be appropriate in some cases;
- All artifacts used for dating or interpretation of contexts;
- Representative samples from all closed contexts before the early 20th century.

TABLE H-2

Specific Artifact Type Considerations

(over and above what is noted prior)

Artifact Type	Specific Instructions Regarding What to Keep
Glass	Vessels with embossments, paper labels, rims, bases, and other diagnostic artifacts from significant contexts. A representative sample will be recommended in the case of large groupings of similar types.
	Vessels or sherds showing evidence of secondary use and/or range of abrasion or other wear patterns. A representative sample will be considered in the case of large groupings of similar types.
	Vessels containing residues.
Ceramics (for brick and tile, see Architectural Artifacts below)	All Native American pottery.
	Rare or unique types, forms, decoration, pastes, impressions, fingerprints, or with residues.
	Artifacts with marks, rims/bases, painted, molded, and with other diagnostic markers from significant or stratified contexts.
	Vessels or sherds showing evidence of secondary use, post-deposition change, abrasions, or other wear patterns from significant or stratified contexts.
	Representative samples will be considered for body sherds of common, mass-produced wares of identified materials, small, non-diagnostic, and unidentifiable sherds dated after the Revolutionary War period.
Smoking Pipes	All complete pipes, complete bowls, decorated or marked artifacts, and/or altered, carved, or whittled pipes or stems.
	Large stem collections from some contexts.
Lithics	Raw materials suitable for use as chipped, ground, or pecked tools and the detritus resulting from the production and rejuvenation of these tools.
	All stone with inscriptions or carved detail.

Faunal Bone (including butchered bone), **Antler**, **Horn**, and **Ivory**	Carved or decorated artifacts and waste pieces (including buttons, button blanks, needles, and other personal items).
	Food-waste bone from significant contexts. Selection and retention will take into account specific evidence of species utilization, population structure (age range, sex, distribution), animal size range, butchering or other post-mortem processes, presence/absence of rare/typical species, and evidence of injury and/or illness.
	Artifacts representing uncommon species, skeletal elements, technologies, decoration or pathology of bone; use and re-use from significant contexts.
	Organic material that will be used for C^{14} testing must be carefully packaged.
Worked Wood and other **Plant-derived Cultural Objects** (including personal and decorative items, baskets, and wood-derived textiles)	Artifacts that have been stabilized and/or conserved prior to storage in a dry (non-wet) environment. Those artifacts must include examples of patterns, forms, woodworking technologies, wood and plant species, tool marks, wicker work, treatments with dye, pigments, paint, and any other significant artifacts.
Leather Objects	Artifacts that are stable prior to storage (in a majority of cases this assumes conservation work has been performed). This includes examples of all forms: animal species and processes used; stitching, dyes, and other decorative treatments; repair or re-use; all rare or unique forms, large artifacts, fragments that are complete in one or more dimensions together with any adjacent or attached artifacts, as well as other artifacts deemed significant.
Textiles	Artifacts that have been stabilized and/or conserved prior to storage. If a large number of similar artifacts are present (e.g., within a waterlogged pit), a representative sample of form, fiber type, cloth type, weave, dyes or other treatments, and methods of stitching or fastening will be recommended.
Building Materials and **Architectural Remains** (remains from buildings, wharves, boats, and other constructed property)	Priority will be given to diagnostic artifacts used for dating groups or artifacts, contexts, buildings or that provide information about joinery and/or construction methods.
	Fragmentary artifacts that cannot be ascribed to a particular structure or site will be recommended for disposal.

Window Glass	All artifacts, or a representative sample in the case of large deposits of identical artifacts, from significant contexts. This includes fragments showing evidence of secondary use and range of abrasion or other wear patterns. If a representative sample is recommended, it will include all decorative treatments, forms, types, and materials.
Architectural and **Infrastructural Metals**	Types and materials from significant contexts.
	Representative sample of non-diagnostic nails.
Brick	Bricks dating to the Revolutionary War period and before; rare, unique, or significant bricks with at least one complete dimension from significant contexts.
	Singular examples of bricks with at least one complete dimension dating post-Revolutionary War by material, size, and decoration or other marks by context or site for stratified and intact deposits.
Tile (ceramic)	All painted and decorative forms and types dating to the Revolutionary War period and before.
	All decorative forms showing at least one complete dimension; stamped and other artifacts with special or unusual forms, features, marks, signatures (e.g., human or animal prints, graffiti, batch/tally marks, nibs, peg-holes).
	All decorated artifacts (or representative sample by fabrication/form if decoration is mechanically repeated on a large number of mass-produced tiles).
	Fragmentary forms with decoration or painted elements of indeterminate patterns. A representative sample will be considered for larger deposits.
	Artifacts with/without mortar, roofing tiles (pantiles), roof furniture (e.g., antefixes, finials, etc.). A representative sample will be considered for large deposits.
	Representative sample of plain tessellated floor tiles or undecorated fragments. Exception will be made for undecorated fragments of rare forms.
Plaster, **Mortar**, and **Stucco**	Types and materials from significant contexts.

	Painted fragments and decorative motifs, including evidence of differential fading and touching up, or artifacts showing sequences of paint layers. A representative sample will be considered for larger deposits.
	Artifacts providing evidence of non-extant walls or partitions, or imprints of adjacent structures. A representative sample will be considered for larger deposits.
Architectural Stone	Artifacts determined to be significant, provided they are analyzed and prepared for long-term retention.
Wood (including timber)	Wooden water mains that are stabilized prior to storage. However, given the special conservation and storage requirements of both wet and dry wood, the project must consult with LPC as this work proceeds.
	Artifacts identified as significant AND stabilized prior to storage—AND that have received approval from LPC for long-term storage in the Repository.
	Organic material that will be used for C^{14} testing must be carefully packaged.
Sites of Commerce and **Industry**	Project sampling will retain a cross-section of the industrial process in microcosm, as well as consider the size, scale, and intensity of the industrial process of commerce.
	The determination to retain all or a representative sample will depend on sampling strategies, the significance of the context being considered, and potential needs for destructive or other analysis in the future.
	A distinction will be made between processes involving manufacture by hand and mechanized processes involving mass-production. Products of the former will be less standardized, with implications for recording and selection strategies.
Commerce, **Merchandise**, **Workshops**, and **Historic Points of Sale** (excluding specific industrial sites below)	All artifacts (or a representative sample in the case of large quantities of mass-produced merchandise) of forms and types of merchandise from significant contexts.
	All artifacts (or a representative sample in the case of large quantities of mass-produced examples) reflecting on-site processes, including on-site manufacturing or customization, storage, and/or relating to the operation and management of an historic business from significant contexts.

Metalworking (including smelting, casting, and smithing debris)	Metal working debris (or a representative sample in the case of large quantities of mass-produced metals) from significant contexts.
	Molds and other objects providing information on form/material of mold or product, from which a product could be reconstructed or identified; artifacts reflecting different technologies used from significant contexts.
	Representative sample of all types of kiln structures (from each phase of use).
	Representative sample fuels and fuel-ash; fire cracks, collapse, blistering of glazes, and other details of significance in understanding the kiln and related processes.
Glassmaking and **Glassworking**	Representative examples of window glass, including forms and types, decorations, crown glass, and other waste pieces.
	Material related directly to the making of glass and glass objects (or a representative sample from large deposits) from significant contexts. Such examples include crucibles, moils, and tooling waste; wasters or distorted vessels; glass canes; representative samples of raw materials, furnace structures, and debris; representative samples of dribbles of molten glass; representative samples of differential weathering of glass; crucible pieces representing all materials, forms, and dimensions; solidified glass from the bottom of crucibles; cullet and all types of process waste.
	Representative samples of all types of kiln structures (from each phase of use) from significant contexts.
	Representative sample fuels and fuel ash; fire cracks, collapse, blistering of glazes; other details of significance in understanding the kiln and related processes.
Pottery Production	Material from Native American sites of pottery production and sites of production dating to the Revolutionary War period or before, owing to their scarcity.
	Wasters or any artifacts showing signs of contact with other vessels; materials, forms, finishes, and decoration, including oxidized/reduced variants; fire-bars, saggars, and kiln furniture. A representative sample will be considered for large deposits.
	Representative sample of all types of kiln structures (from each phase of use).

	Representative sample fuels and fuel-ash; fire cracks, collapse, blistering of glazes; other details of significance in understanding the kiln and related processes.
Smoking Pipe Manufacturing	All remains of smoking pipe manufacturing, including tools, kiln structures, and kiln furniture. A representative sample of wasters will be considered for large deposits.
Brick and Tile Production (kilns)	Representative sample including complete products, fire-bars, and kiln furniture or a representative sample of those complete in at least one dimension; representative samples of all materials, forms, finishes, waste pieces, imprints, and decoration, including oxidized/reduced variants from significant contexts.
	Material from sites of production dating prior to the Revolutionary War period. A representative sample will be considered for large deposits.
Chipped Stone Toolmaking (including gun flints)	Products and by-products such as projectile points, bifaces, scrapers, and unifaces; primary, secondary, and tertiary fakes; and cores.
Bone, **Antler**, **Horn**, **Shell** (wampum-making, button-making), and **Ivory Working** (not including food-related sites)	Waste pieces, raw materials, complete/incomplete products, and those that contribute to an understanding of the use of specific species or bones, tools, or techniques, or product specialization and standardization; any other significant artifacts.
	Organic material that may be used for C^{14} testing must be carefully packaged.
Fire Cracked Rock (FCR)	Rock added to Native American hearths to aid in the retention of heat. Depending on the context (feature or non-feature), the FCR can be sampled be the specification of the research design and under the supervision of the PI.
Food-Related Sites (including slaughterhouses or agricultural sites)	Representative sample or complete retention of artifacts representing both production and management of food-related sites.
	Artifacts relating to features and significant deposits.
Fuels (including plant-derived fuels: wood-derived, fossil, turf, and peat)	Used and unused fuel types (coal, cinder, charcoal, clinker, and preservable wood) for industrial or domestic purposes or from extraction (e.g., open case or shaft mining, charcoal burning), including wood and charcoal capable of providing information on species utilization from significant. A representative sample will be considered for large deposits.

Leather-working	Artifacts from significant contexts that have been stabilized prior to storage. In a majority of cases this assumes conservation work has been performed to stabilize the artifacts for long-term storage. Such artifacts may include but are not limited to off-cuts, scraps and waste-pieces for the full range of animal species, treatments, techniques and types of artifact produced at the whole site and – conservable artifacts permitting – for each phase or feature of the leather-working industry on the site. A representative sample may be considered for large deposits.
Textile Manufacturing	Preservable textiles that have been stabilized and conserved prior to storage and assemblages of related artifacts which may be diagnostic of a textile-manufacturing or other processing site (e.g., leaden cloth seals, weaving tools, plant remains from associated contexts which might provide evidence of vegetable dyes). A representative sample may be considered for large deposits.
Retention of Environmental Artifacts, Soils/Sediments, and Specimens	Priority will be given to artifacts, soils/sediments, and specimens from significant contexts.
	Consideration will made for the degree to which historic populations of flora and fauna are represented within a given assemblage of artifacts, soils, and specimens.
	The determination to retain all or a representative sample will depend on significance of the context being considered. Other factors such as analytical methods, sampling strategies used during excavation work and lab analysis, as well as the possibility of collecting future/replacement soils and specimens should also be considered, as well as potential needs for destructive or other analysis in the future.
	Labels must clearly note which samples have been analyzed and which were retained for future research.
Ecofact Faunal Artifacts (including mammal, bird, fish, reptile, and remains that are not related to foodways and cultural processes)	Assemblages and selected groups of animal remains from significant contexts.
	Total retention is recommended for animal remains from pre-contact contexts.
	Organic material that may be used for C^{14} testing should be carefully packaged.
Land Mollusks	Land mollusks from significant contexts.

	Organic material that may be used for C^{14} testing should be carefully packaged.
Marine and Freshwater Mollusks	Representative sample of left-side valves from significant contexts. Complete, left valve-only shells should be retained to a maximum of 30 shells per analytical unit to be used for future research.
	Shells with a complete dimension longer than 8 inches.
	Organic material that may be used for C^{14} testing should be carefully packaged.
Insect Remains	Analyzed insects (including eggs and pupae) extracted from soils from significant contexts.
Plant Remains including pollen, seeds, wood, and phytoliths	Plant remains that are dry, stable, and preservable for long-term storage, and from significant contexts.
Soils and Sediments	Processed soils, sorts, residues, sediments, and fractionate material (e.g., macrofossil seeds, insects, and mollusks removed from soils) stored in a maximum of 24-ounce by volume containers. Soils, sorts, residues, sediments, and fractionate material must be dry, stable, and preservable for long-term storage, and from significant contexts. Retention is subject to agreement with LPC.
	Unprocessed soils and sediments stored in a maximum of 24-ounce by volume containers. Soils and sediments must be dry, stable, and from areas that are not routinely accessible, such as old land surfaces of pre-contact date, or from significant contexts. Retention is subject to agreement with LPC.
	Sediment columns from pre-contact or significant contexts. Retention is subject to agreement with LPC.
	Labels should clearly note which samples have been analyzed and which were retained for future research.
Human Remains	Please see Section D. LPC will work with city, state, federal agencies, Indian Nations, and Descendant Communities to develop appropriate reinterment plans for any remains discovered in archaeological contexts.

APPENDIX I

Contact Information

Landmarks Preservation Commission

Archaeology Department
Landmarks Preservation Commission
1 Centre Street, 9th Floor
New York, NY 10007
Attn: Director of Archaeology
212-669-7823

NYC Archaeology Repository: The Nan A. Rothschild Research Center

NYC Archaeology Repository:
The Nan A. Rothschild Research Center
114 West 47th Street
New York, NY 10036
Attn: LPC Director of Archaeology
212-669-7823

New York State Parks, Recreation & Historic Preservation

Division for Historic Preservation
New York State Parks, Recreation
& Historic Preservation
Peebles Island State Park, P.O. Box 189
Waterford, NY 12188-0189
Attn: Historic Preservation Program—Archaeology
518-237-8643

New York City Office of Chief Medical Examiner

New York City Office of Chief Medical Examiner
520 First Avenue
New York, NY 10016
Attn: Department of Forensic Anthropology
212-227-2030; ask for the Anthropology Unit

Vital Records

Vital Records
NYC Department of Health
125 Worth Street, Room 144
New York, NY 10013
Dial 311, or if outside NYC: 212-NEW-YORK

Delaware Nation

Attn: Nekole Alligood
Director of Cultural Preservation
Delaware Nation
31064 State Highway 281
Anadarko, OK 73005
405-247-2448, ext. 1181
Email: nalligood@delawarenation.com

Jason Ross
Section 106 Manager
Delaware Nation
31064 State Highway 281
Anadarko, OK 73005
405-247-8903
Fax: 405-247-8905
Email: jross@delawarenation.com

Delaware Tribe of Indians

Attn: Susan Bachor
Delaware Tribe Historic Preservation Representative
P.O. Box 64
Pocono Lake, PA 18347
610-761-7452
Email: temple@delawaretribe.org

Shinnecock Nation

Attn: David Bunn Martine
Cultural Resource Department
Shinnecock Indian Nation
P.O. Box 5006
Southhampton, NY 11969
631-283-6143
Email: DavidMartine@shinnecock.org

Stockbridge-Munsee Community Band of Mohicans

Attn: Sherry White
Tribal Historic Preservation Officer
Stockbridge-Munsee Community Band of Mohican Indians
W13447 Camp 14 Road
Bowler, WI 54416
715-793-3970
Fax: 715-793-4437
Email: sherry.white@mohican-nsn.gov

Attn: Bonney Hartley
Tribal Historic Preservation Officer
Stockbridge-Munsee Mohican Tribal Historic Preservation
New York Office
65 1st Street
Troy, NY 12180
518-244-3164
Email: Bonney.Hartley@mohican-nsn.gov
www.mohican-nsn.gov

Unkechaug Nation

Attn: Chief Harry Wallace
207 Poospansk Lane
Mastic, NY 11950
631-281-4143, ext. 100
Email: hwal1@aol.com

New York State Museum Cultural Education Center

New York State Museum Cultural Education Center
222 Madison Avenue
Albany, NY 12230

Endnotes

1 The NYC Landmarks Preservation Commission was awarded a grant from the New York State Office of Parks, Recreation & Historic Preservation Certified Local Government program. The activity that is the subject of these Guidelines has been financed in part with Federal funds from the National Park Service, U.S. Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of the Interior. In addition, this program receives Federal financial assistance for identification and protection of historic properties. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975, as amended, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, disability, or age in its federally assisted programs. If you believe you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Office of Equal Opportunity National Park Service 1849 C Street, N.W. Washington, D.C. 20240. The agency worked with Carol S. Weed to revise this document, which was edited by Eileen Salzig, and the Graphic Design was completed by Open. This document supersedes a 2002 document of the same name.

2 New York City Charter Sections 3020 et seq., Administrative Code of the City of New York Sections 25-301 et seq., and 63 Rules of the City of New York Sections 1-01 et seq.

3 City of New York. March 2014. The CEQR Technical Review Manual, available at: http://www1.nyc.gov/assets/oec/technical-manual/2014_ceqr_technical_manual_rev_04_27_2016.pdf

4 The State Environmental Quality Review Act (SEQRA) EL 8-0101 et seq. New York State Department of Environmental Conservation SEQR process site, available at: http://www.dec.ny.gov/permits/357.html. The statutory authority for the process is Environmental Conservation Law Sections 3-0301(1)(b), 3-0301(2)(m), and 8-0113.

5 http://www.dec.ny.gov/permits/6208.html

6 https://www.dec.ny.gov/docs/permits_ej_operations_pdf/cp42.pdf

7 Patricia L. Parker and Thomas F. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 38, U.S. Department of the Interior, National Park Service, National Register, History and Education, National Register of Historic Places.

8 Stokes, I. N. Phelps. 1915. The Iconography of Manhattan Island, 1498-1909. New York: Robert H. Dodd, v. 1., pl. 34.

9 https://www.nps.gov/history/local-law/arch_stnds_9.htm

10 This list does not represent recommendations but is provided solely as a resource of consultants that satisfy the requirements.

11 Joan H. Geismar. 2013. Washington Square Park, Greenwich Village, New York: Phase 3 Construction Field Testing. Report prepared by Joan Geismar, LLC, Manhattan. LPC Archaeology Report 1631.

12 Research design is defined in: https://www.nps.gov/history/local-law/arch_stnds_2.htm and is fully defined in the glossary.

13 Joan H. Geismar. 2009. Washington Square Park,

Greenwich Village, New York, Phase 1 Construction Testing Report.

14 Joan H. Geismar. 2012. Washington Square Park, Greenwich Village, New York, Phase 2 Construction Testing Report.

15 Chrysalis Archaeological Consultants, Inc. 2004. Phase IB Cultural Resources Monitoring of the Infrastructure Windmill Project, Queens County Farm Museum, Queens (Queens County), NY.

16 National Park Service. 2018. Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines, Standards for Identification, Performing Identification, Research Design. Accessed March 27, 2018 at: https://www.nps.gov/history/local-law/arch_stnds_2.htm

17 Local Law 96 of 2013 requires all land surveys that are submitted to the NYC Department of Buildings to use NAVD88 and New York City Information Technology and Telecommunications, 2015, Citywide Guidelines for Geographic Information Systems, available at: https://www1.nyc.gov/assets/doitt/downloads/pdf/citywide_gis_guidelines_public.pdf

18 Local Law 96 of 2013 requires all land surveys that are submitted to the NYC Department of Buildings to use NAVD88 and New York City Information Technology and Telecommunications, 2015, Citywide Guidelines for Geographic Information Systems, available at: https://www1.nyc.gov/assets/doitt/downloads/pdf/citywide_gis_guidelines_public.pdf

19 For additional information about these three techniques, see Section 4.0, Deep Testing Methods and Techniques, in the Minnesota Department of Transportation publication, "Minnesota Deep Testing Protocol Project," authorized and prepared by the Minnesota Department of Transportation and Federal Highways Administration under Mn/DOT Agreement No. 858678 OSA License No. 04-030, prepared by Commonwealth Cultural Resources Group, Inc., Jackson, MN (G. William Monaghan et al., 2006). Mn/DOT/WR-0200.

20 AKRF, Inc. 2013. Final Technical Report for the World Trade Center Memorial and Development Plan: Data Recovery and Analysis of the WTC Ship

21 Geoarchaeology Research Associates. 2 016. Phase I and II Geoarchaeological Investigation of the Riverside Project Area

22 National Park Service, Archeology Program. March 15, 2016. Managing Archeological Collections, Glossary, sampling definition. Available at: https://www.nps.gov/archeology/collections/glossary.htm

23 National Park Service, Archeology Program. March 15, 2016. Managing Archeological Collections, Glossary, culling definition. Available at: https://www.nps.gov/archeology/collections/glossary.htm

24 See Maryland Historical Trust, Technical Update No. 1, 2005:10 for additional guidance on laboratory methods and procedures.

25 Maryland Historical Trust, Technical Update No. 1, 2005:20

26 Maryland Historical Trust, Technical Update No. 1, 2005:20

27 Ratzer, Bernard, Thomas Kitchin, and London, Jefferys & Faden. To His Excellency Sr. Henry Moore, Bart., captain general and governour in chief, in & over the Province of New York & the territories depending thereon in America, chancellor & vice admiral of the same. This plan of the city of New York, is most humbly inscribed. London, Jefferys & Faden, 1776. Map. Available at: https://www.loc.gov/item/74692118/

28 https://www.merriam-webster.com/dictionary/pre-contact. Accessed April 19, 2018.

29 Kurt E. Dongoske, Mark Aldenderfer, and Karen Doehner (editors). 2000. Working Together: Native Americans and Archaeologists. The Society for American Archaeology: Washington, D.C.

30 NPS, Archeology Program. 2016 (March 15). Managing Archeological Collections, Glossary, Scoping definition. https://www.nps.gov/archeology/collections/glossary.htm.

31 Thomas F. King. 2003. Places That Count: Traditional Cultural Properties in Cultural Resource Management. Heritage Resource Management Series (Book 5). Altamira Press.

32 National Park Service. 2001. National Register of Historic Places Workshop, NCSHPO Annual Meeting, Washington, DC, March 25, 2001, Traditional Cultural Property Worksheet; https://www.nps.gov/nr/publications/bulletins/01workshop/tcpwork.htm.

33 Patricia L. Parker and Thomas F. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 38, U.S. Department of the Interior, National Park Service, National Register, History and Education, National Register of Historic Places.

34 South Carolina Department of Archives and History. 2018. Traditional Cultural Properties in South Carolina: Identification and Evaluation for Section 106. State Historic Preservation Office, South Carolina Department of Archives and History.

35 NPS, Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines as Amended and Annotated. https://www.nps.gov/history/local-law/arch_stnds_9.htm

36 Ibid

37 NPS, National Register Bulletin 1990: Guidelines for Evaluating and Documenting Traditional Cultural Properties. https://www.nps.gov/nr/publications/bulletins/nrb38/

38 Registry of Professional Archaeologists, Code and Standards. Retrieved on June 5, 2018: https://rpanet.site-ym.com/page/CodesandStandards

39 These guidelines are based on work completed by Camille Czerkowicz and the Museum of the City of New York for LPC in 2013-2016.