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United States Army Corps of Engineers

Historic Context Report

**Lorillard Stone Mill Dam, New York Botanical Garden,
Bronx County, New York**

March 18, 2024

April 11, 2024 (Rev. 1)

August 5, 2024 (Rev. 2)

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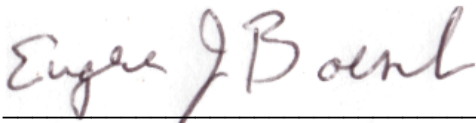
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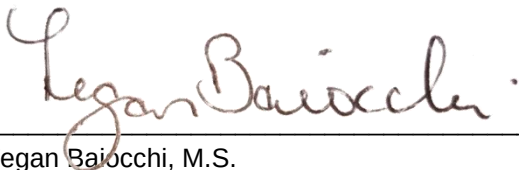
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Contents

Executive Summary..... 1

1 Introduction..... 2

1.1 Background..... 2

1.1.1 Bronx Park 2

1.1.2 Lorillard Family Ownership – Brief Timeline of the Study Area 3

1.2 Cultural Features for the Lorillard Tobacco Company Industry along the Bronx River 3

1.2.1 Mill Number 1 and its Wooden Crib Dam and Head Race 4

1.2.2 Mill Number 2 and the Stone Mill Dam 4

1.2.3 Mill Number 3 – The Lorillard Stone Mill..... 5

1.2.4 Mill Dams, Mill Ponds/Impoundments, Mill Races, and Water Control Devices 5

1.2.5 Lorillard Mansion Site and Former Mansion Access Road 7

1.2.6 Lorillard Workers’ Cottage 7

1.2.7 Lorillard Stables 7

1.2.8 Modesty/Privacy Wall Upstream of Lorillard Stone Mill Dam 8

1.2.9 Historic Viewshed Along the Bronx River 8

1.2.10 Potential Locations or other Evidence of Indigenous Occupations 10

1.3 Methodology 10

2 Environmental Setting..... 13

2.1 Geology..... 13

2.2 Surface Geology 14

2.3 The Bronx River..... 15

2.4 Bronx River Valley Corridor Flora and Fauna 15

3 Historic Context..... 18

3.1 Indigenous Cultures - Pre-Contact and Contact Period 18

3.1.1 Cultural Setting – Pre-Contact Period 18

3.1.2 Cultural Setting – Native American – Euro-American Contact Period..... 21

3.1.2.1 Reckgawawancs..... 22

3.1.2.2 Siwanoy 23

3.1.2.3 Effects of European Contact..... 23

3.1.2.4 Indications of Native American Activity in the Lorillard Stone Mill Dam Vicinity 24

3.2 Seventeenth Through Early Twentieth Century Period Cultural Context
for the Lorillard Stone Mill Dam Study 27

3.2.1	Early Years	28
3.2.1.1	Kekesheik	28
3.2.1.2	Bronck's Land	28
3.2.1.3	Nepperhaem	29
3.2.1.4	Vriedlandt.....	29
3.2.1.5	Pelham Manor	30
3.2.1.6	Jessup and Richardson Purchase and West Farms	30
3.2.2	Further Seventeenth- and Eighteenth-Century Context	30
3.2.3	Revolutionary War Years Context for the NYBG Vicinity	32
3.2.4	Post Revolutionary War Years.....	34
3.2.5	Nineteenth Century and Later.....	35
3.2.6	The Bronx River and New York City.....	37
3.2.6.1	The Bronx River Conduit	37
3.2.6.2	The Bronx River Reservation.....	37
3.3	Lorillard Years – 1760-1870	38
3.3.1	Preface.....	38
3.3.2	Snuff – Lorillard's Original Product	39
3.3.3	Lorillard's New York Period	39
3.3.4	Lorillard's Time in the Bronx	41
3.3.5	Lorillard Merchandising.....	42
3.3.6	Lorillard Tobacco in the Mid-Nineteenth Century	43
3.3.7	Lorillard's Move to Jersey City.....	44
3.3.8	Bronx Park and the New York Botanical Garden	45
3.3.8.1	Transfer to the New York Botanical Garden.....	48
4	Documentation and Evaluation of NRHP Eligibility	49
4.1	Architecture.....	49
4.1.1	Lorillard Snuff Mill, New York Botanical Garden.....	49
4.1.1.1	National Register of Historic Places Evaluation	49
4.1.2	Lorillard Stone Mill Dam, New York Botanical Garden	52
4.1.2.1	Similar Property Types	53
4.1.2.2	National Register of Historic Places Evaluation as Individual Resource.....	54
4.1.2.3	National Register of Historic Places Evaluation as a Contributing Feature of the Lorillard Snuff Mill	56

4.1.2.4 National Register of Historic Places Evaluation as a Contributing Feature
of the New York Botanical Garden 58

5 Summary and Recommendations..... 62

5.1 Architecture..... 62

5.1.1 Preliminary Assessment of Effects 63

5.2 Archaeology..... 63

5.3 Historic Research – Specific Topics or Studies to Address Gaps in Knowledge
or Increase the Knowledge Base for the Lorillard Occupation Study Area 65

5.3.1 African American Work Force..... 65

5.3.2 Tobacco and Spices 65

5.3.3 Wooden Box Crib Dam 66

5.3.4 Impoundment Survey..... 66

5.3.5 Bronxdale and West Farms 66

5.3.6 Signage..... 66

5.3.7 Mill Numbers 1 and 2..... 66

5.3.8 Types of Water Control Devices..... 66

5.3.9 Remote Sensing Survey and Geotechnical Borings 67

5.3.10 Geology..... 67

5.3.11 Reynolds American Inc./Lorillard Tobacco Company 67

6 Bibliography..... 68

Tables

Table 1 Previously Identified Precontact Archaeological Sites Near Lorillard Stone Mill Dam 24

Appendices

Appendix A Project Mapping

Appendix B Historic Maps

Appendix C Historic Figures and Photographs

Appendix D Current Photographs

Acronyms and Abbreviations

NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NYBG	New York Botanical Gardens
NYC	New York City
NYCLPC	New York City Landmarks Preservation Commission
NYSHPO	New York State Historic Preservation Office
NYSM	New York State Museum
USACE	United States Army Corps of Engineers

Executive Summary

The purpose of the project is to produce comprehensive documentation of the history, conditions, and communities associated with the Stone Mill Dam as a component of the overall Hudson Raritan Estuary (HRE) Bronx Zoo Dam and Stone Mill Dam, Bronx New York Project (Project). The Lorillard Stone Mill Dam is one of 20 restoration projects combined that were authorized for construction as part of the larger HRE Feasibility Study in Title IV – Water Resources Infrastructure, SEC. 401 Project Authorizations. The Lorillard Stone Mill Dam is located along the Bronx River within the East River/Harlem River/Western Long Island Sound Planning Region of the HRE. The USACE determined that the Project has the potential to adversely affect cultural resources that have not yet been identified through alterations to structures including the potentially eligible Lorillard Stone Mill Dam or disturbance of potentially significant archaeological deposits. The Area of Potential Effect (APE for archaeology, historic structures, and historic landscapes has therefore been defined as those areas along the proposed Project that would likely be directly impacted by project construction, and the APE for historic structures and historic landscapes also includes those locations that would be anticipated to have impacts visually from the completed project. A Programmatic Agreement (PA) was executed on in 2019 among the New York District, the Advisory Council on Historic Preservation (ACHP) and the New York State Historic Preservation Office (NYSHPO) and the New York City Landmarks Preservation Commission (NYCLPC) for the Project.

While the nearby Bronx Zoo and Dam was previously surveyed in 2013, the vicinity of the Lorillard Stone Mill Dam APE has not previously undergone a cultural resources survey, and the Lorillard Stone Mill Dam has not been previously documented or evaluated as a historic resource. The Lorillard Snuff Mill and the New York Botanical Gardens (NYBG) are both listed on the National Register of Historic Places (NRHP) and are both designated as National Historic Landmarks (NHLs). As such, the Lorillard Stone Mill Dam site may contain and contributing element of the Lorillard Snuff Mill and/or the NYBG but has not previously been evaluated as a contributing element to either historic property.

In accordance with the stipulations of the PA, the New York District is currently conducting cultural resources surveys in advance of the development of detailed designs to identify historic properties within the Project APE so that avoidance, minimization, and mitigation measures can be developed if necessary to address adverse effects.

Purpose

The purpose of the Project is to develop a historic context of the Project area, including an annotated bibliography and archive of relevant documents, images, and architectural assessments, that will help support recommendations of eligibility for the Lorillard Stone Mill Dam as a historic property in its own right, and/or as a contributing feature of either/both the Lorillard Snuff Mill or/and the NYBG; and to inform the USACE's evaluation of resources and determinations of effects as it proceeds through the Section 106 process for this Project.

1 Introduction

This document presents environmental and cultural contexts to accompany the National Register of Historic Places (NRHP) significance and eligibility evaluation for listing of the Lorillard Stone Mill Dam (Lorillard Stone Mill Dam) within its own right or as a contributing property to the National Historic Landmark New York Botanical Garden (NYBG). The dam is located along a lower reach of the Bronx River within what is now the NYBG, part of Bronx Park in New York City's (NYC's) Borough of the Bronx (Appendix A, Figures 1 and 2). Contexts are discussed as narratives addressing environmental setting and Pre-Contact Contact and Historic period events in which to place the dam and its builder, New York's Lorillard family and the Lorillard Tobacco Company, to aid in evaluating significance. The environmental setting section will include a brief presentation on the formation of the Bronx River and the "Gorge" through which it flows within much of the NYBG along with the predevelopment flora and fauna likely present in the vicinity. Historic period contexts will present area development from the seventeenth through the early twentieth century. The American Revolution and the role placed by "Delancey's Mills," located a mile to the south of the Lorillard Stone Mill Dam vicinity, adversely affected the larger Westchester County area, but had limited effect on what became the Lorillard Stone Mill Dam and its surroundings along the Bronx River. Events and activities relevant to the Lorillard family and the Lorillard Tobacco Company that occurred on the regional and local stages during the British colonial era and subsequent period of American independence, a period spanning roughly 110 years (circa 1760-1870), are separately discussed. Finally, conclusions on the sensitivity of the Bronx River and Lorillard Stone Mill Dam vicinity are made and suggestions provided on additional research.

1.1 Background

1.1.1 Bronx Park

Bronx Park, containing the NYBG and the Bronx Zoo of the Wildlife Conservation Society, is located on 661 acres purchased by the City of New York in 1884 with funds authorized by the New Parks Act from the Lorillard family and other Bronx landowners. The former Lorillard snuff mill and Lorillard Stone Mill Dam were part of that purchase. The mill was later used as a workshop for the NYC Parks Department, and later the NYBG, from circa 1900 until circa 1950. The Acts' intent was to preserve lands that would soon be acquired by NYC. Much of the land was acquired from Fordham University which transferred the land on the condition that it be used as a zoo and botanical garden. Other parcels were obtained from the Lorillard family and from the Lydig family. The Lydigs, another prominent local family, had bought their land from the Delancey family, yet another noted local family, which had operated mills along the Bronx River including a grist mill (built c. 1760) that became the first Lorillard Mill after 1792 within the current study area. That mill became the first Lorillard Snuff Mill along the Bronx River. In 1891, NYC transferred 250 acres of the Bronx Park for the creation of the NYBG. In 1937, the NYC Park Department turned more land and buildings over to the NYBG (Fitzpatrick 1927:697).

Among the notable features of the NYBG are the original Lorillard Snuff Mill, now a National Historic Landmark, located within the northern section of Bronx Park. The existing snuff mill was built in 1840 by the Lorillard family on the east side of the Bronx River and operated until 1870 on the site of an earlier wooden grist mill. The snuff mill is one of the few surviving pre-Civil War industrial buildings in NYC and remains the oldest existing tobacco manufacturing building in the United States (New York City Landmarks Preservation Commission [NYCLPC] 1991). The building as an example of the city's industrial architecture illustrates one of the successive eras of New York's metropolitan development: namely the evolution from agriculture to manufacturing.

After the city acquired the property, the NYC Park Department used the mill as a carpenter shop leaving its machinery and waterwheel unchanged until around 1900. In 1915, the NYC Park Department granted the NYBG an additional 140 acres which included the Lorillard buildings. The mill has been altered to serve as a café and event venue but its old fieldstone walls and almost two centuries old beams remain intact (Diamonstein-Spielvogel 2011:397-398).

1.1.2 Lorillard Family Ownership – Brief Timeline of the Study Area

What follows is a brief timeline of the history of the Lorillard Tobacco Company and the Lorillard family along the Bronx River at the NYBG (see Cahilly 2021). More detailed information follows in Section 5.

- 1760 Pierre Lorillard establishes his tobacco and snuff company on Chatham Street in lower Manhattan.
- c. 1792 Peter and George Lorillard move the company to Westchester County and purchase a wooden mill, mill dam and 50 acres of land along the Bronx River (Appendix B, Figure 1).
- c. 1800 The Lorillard brothers build a second wood-frame mill on the Bronx River approximately located at the present site of the Snuff Mill Road bridge.
- c. 1840 Peter (Pierre II) Lorillard builds a third snuff mill, still extant, on the Bronx River immediately upstream from the c. 1800 mill, on an island formed by the river and mill race.
- 1856 Pierre Lorillard III constructs a large mansion, stables, greenhouse, and other associated buildings above the Bronx River near the Lorillard snuff mills (Appendix B, Figures 2-4).
- 1870 Lorillard Tobacco Company relocates to 111 First Street, Jersey City, New Jersey.
- 1885 NYC Park Department purchases the former Lorillard estate to create a large portion of Bronx Park (Appendix B, Figures 5-7).
- 1900 NYC Park Department renovates the Lorillard Snuff Mill and equips it as a workshop for the park system.
- 1902 The NYC Park Department, in consultation with the NYBG, lowers and reconstructs the Lorillard Stone Mill Dam and fills in the mill race.
- 1915 The majority of Bronx Park land surrounding the Lorillard Snuff Mill becomes part of the NYBG; the Lorillard snuff mill, mansion, and stables remain under the control of the NYC Park Department (Appendix B, Figures 8 and 9).
- 1923 The former Lorillard Mansion is destroyed by fire.
- 1938 The NYC Park Department transfers use of the Lorillard Snuff Mill and stables to the NYBG.
- 1977 The Lorillard Snuff Mill is listed on the NRHP and designated as National Historic Landmark.

1.2 Cultural Features for the Lorillard Tobacco Company Industry along the Bronx River

Multiple features and/or site locations of historic significance or potential significance were identified within the Lorillard area along the Bronx River by the research and reconnaissance survey undertaken for this context study. Only the significance of the circa-1840 Lorillard Snuff Mill has been determined. These features/site locations are (see Appendix A, Figure 2):

- c. 1760 grist mill (Mill Number 1)
- c. 1760 submerged wooden crib box dam for c. 1760 grist mill
- c. 1800 Lorillard snuff mill (Mill Number 2)
- c. 1800 Lorillard Stone Mill Dam
- c. 1800 mill race and water control features
- c. 1840 Lorillard Stone Mill (Mill Number 3)
- c. 1840 head and tail races for Mills 2 and 3
- c. 1760 and c. 1800 mill pond impoundments for snuff mills and head and tail races.
- Historic stone removal/quarry work along eastern margin of Bronx River to accommodate the mill head and tail races.
- c. 1850 Workers' Cottage
- c. 1856 Lorillard Stables
- c. 1856 Lorillard mansion site.
- Lorillard mansion site access road.
- c. 1870 modesty/privacy wall upstream of Lorillard Stone Mill Dam.
- Historic viewshed along the Bronx River.
- Potential locations or other evidence of Indigenous occupations.

1.2.1 Mill Number 1 and its Wooden Crib Dam and Head Race

The first mill, mill pond impoundment, water control features, and mill races were constructed within the Lorillard study area around 1760. The mill was located about 140 feet south of the Lorillard Stone Mill Dam on the east bank of the Bronx River. Structural remains of the mill building still are visible (Appendix A, Figure 2; Appendix D, Photographs 1-7). It is thought that this mill was a grist mill used by a tenant of James Delancey until the end of the American Revolution. Purchased by Peter II and George Lorillard the mill in circa 1790 was reconfigured to grind tobacco into stuff. The two brothers recognized the use of water powered grind stones far out weighted the efficiency and productivity of the former hand grating and grinding techniques used at the Lorillard's first factory in lower Manhattan. It took about a year and a half to refit the mill with business continuing at their New York City location. The reconfigured mill opened about 1792. It burned about 1820 leaving just a stone foundation (Cahilly 2010). Whether the mill was in use up to the time it was burned is not clear. The stone foundations for the mill were repurposed by Peter (Pierre III) Lorillard, Jr. sometime after 1843 as a laundry for the Lorillard Mansion on the bluff to the east (Appendix C, Photograph 1).

1.2.2 Mill Number 2 and the Stone Mill Dam

This wooden mill constructed on a stone foundation was built in circa 1800 about 1,000 feet south of the Lorillard Stone Mill Dam (Appendix C, Photograph 2). It was referred to as the "Hemlock Mill" and later as the "Wooden Mill." Situated between the existing Stone Mill (Mill Number 3) and the current Stone Park Road Bridge. Mill Number 2 was served by water flowing through the same head race that powered Mill Number 3 (Appendix A, Figure 2;

Appendix B, Figures 4 and 5). It reportedly had two or three more powerful pitchback water wheels. The mill was in operation until 1870 when the Lorillard operation closed. However, it remained standing until the late 1880s possibly collapsing under the weight of the Blizzard of 1888. It remained a collapsed ruin in 1891 (Cahilly 2010:4). It is possible that a section of the retaining wall supporting the bank of the Bronx River and protecting the Stone Park Road Bridge foundation may be a portion of the foundation for Mill Number 2 (Appendix D, Photograph 8).

The existing Stone Mill Dam also was constructed in 1800 originally to serve the Wooden Mill (Mill Number 1) and the Hemlock Mill (Mill Number 2) (Appendix C, Photographs 3-9; Appendix D, Photographs 9-18). It later also served the Stone Mill (Mill Number 3). At the time of its construction, the Lorillard Stone Mill Dam was about 16 inches higher than currently and had a smoothed cap stone along the top. The stone facings placed against the top of the dam were added by NYC Park Department in the late nineteenth century to provide a more Catskill feel of churning water flowing over the dam (Appendix C, Photographs 10-13). With the construction of the Lorillard Stone Mill Dam, the earlier wooden box crib dam was abandoned and remains submerged within the bottom of the impoundment just north of the Lorillard Stone Mill Dam (Cahilly 2010:4; Appendix A, Figure 2; Appendix C, Photograph 14). The volume and force of the water cascading over the dam was commented upon in the 1798 drought-filled summer when reportedly 11,500,000 gallons of water raced by Mill Number 2 every 12 hours. This was more than 40 times as much as all New York City needed at the time for its potable water each day (Kent 1954:3).

1.2.3 Mill Number 3 – The Lorillard Stone Mill

The extant two-and-a-half-story Lorillard Stone Mill was built circa 1840 to expand the manufacturing capacity of the Lorillard Tobacco Company (Appendix C, Photographs 15-23; Appendix D, Photographs 19-24). The building was made of field stone, primarily Manhattan schist and brick, with wood frame windows and doors. It was erected on an island-like feature along the east bank of the Bronx River. Lorillard's design for the mill was non-traditional and innovative. Two overshot wheels powering grindstones were installed in the basement (Appendix C, Photographs 24 and 25). Water was drawn off the dam's head race and ran through the building rather than cascade over an exterior water wheel, driving the basement wheels and powering millstones located there. The water flowing through the basement was diverted from the same ten-foot wide and five-foot deep race that was constructed to provide waterpower to Mills Numbers 1 and 2 (Appendix C, Photographs 26-28). Unfortunately, the use of snuff was declining before the design could be fully profitable. Also, with the invention of so-called "Lucifer" matches in 1827, it became easier to light "seegars" or briarwood pipes anywhere (DeVillo 2015:88). The mill operated until around 1870 when the company moved their manufacturing to Jersey City. The mill sat unused and deserted until around 1900, when the NYC Park Department began using the Stone Mill for storage, carpenters' shops, sign making, and other park support activities (Appendix C, Photograph 29). After 1938, the NYBG also continued to use the Stone Mill as a workshop until around 1952.

1.2.4 Mill Dams, Mill Ponds/Impoundments, Mill Races, and Water Control Devices

Between circa 1760 and 1800, the Wooden Crib Box Dam would have created a mill pond impoundment for Mill Number 1. The pond would have fed water into a race about 130-140 feet long and about 10-feet wide and 5-foot deep providing waterpower to that mill.

The Lorillard Stone Mill Dam was constructed in 1800 by Peter and George Lorillard increasing the mill pond impoundment size and thus increasing the water available for Mills 1 and 2 (Appendix C, Photographs 3-9; Appendix D, Photographs 9-18). It's possible that the Lorillard's need for increased water availability was

seriously considered following the drought year of 1797 when a reduction in waterpower could have adversely affected mill operations.

The Lorillard Stone Mill Dam was lowered by about 16 to 18 inches in 1896 to accomplish better drainage upriver. This was done on the recommendation of the “Visiting Committee” in their first view of the grounds after the City of New York gave authorization for them to proceed with building the Garden which initially wanted the dam lowered by 24 inches. According to the committee, the Lorillard Stone Mill Dam’s “usefulness [...] has long passed away, and it is at present a very unnatural feature” (NYBG 1901:40) The committee proposed that the lowering of the dam would cause a narrowing of the stream from approximately 800 feet north of the dam, and would “permit a beautifying of the east bank of the river which is occupied by overgrown swamps and black water pools” (NYBG 1901:40). It was later proposed to lower the dam an additional eight inches, but this was not done (NYBG 1901: 40-41). The Committee also recommended that stone be piled against the down-stream face of the dam to give it the more natural character of a Catskill waterfall than the artificial and industrial appearance of a mill dam.

A source states that a water control board angled at 120 degrees directed water from the wooden crib box dam and impoundment into the head race. A similar device would have been needed for the Lorillard Stone Mill Dam race. A primary flow control feature of some sort also would have been needed to allow or stop water flow into the head race, emptying it so that repairs, cleaning, and maintenance could be enacted as needed. A 1905 photograph shows the race extending from the Lorillard Stone Mill Dam and mill pond and what appears to be a remnant of a water control feature of some sort (Appendix C, Photograph 30). Submerged timber remnants of the wooden crib box dam with attached hardware were identified within the Bronx River during a bathymetric survey of the Lorillard Stone Mill Dam impoundment in 2008 (Appendix C, Photograph 14; Cahilly 2023).

The section of the existing NYBG mill path between the ruins of Mill Number 1 and the Lorillard Stone Mill Dam, and extending from the bedrock outcrop along the east margin of the Bronx River valley to the point of river terrace drop off is the former route of the initial head race and its later extension to feed water to Mills 2 and 3 (Appendix A, Figure 2; Appendix B, Figures 4-8). The 1869 and 1884 surveys of the NYBG showing the Lorillard area indicate the location of the head race between the stone dam and the second and third mills (Appendix B: Figures 4 and 5). Period tool incisions, drilling holes, and other marks indicating cutting back the outcrop to accommodate the entire length of the race are visible reflecting labor-intensive activities for the construction of the route of the race and operations of the mills (Cahilly 2023; Boesch 2023, personal observations). The NYC Park Department filled the entire mill race circa 1902 (NYC Parks Department 1903:80-83; Appendix D, Photograph 25). Structural and stratigraphic evidence of the race remains was shown by excavations in the driveway of the Lorillard Stone Mill (Cahilly 2011:9; Cahilly 2015:10; 15). That work showed that the race was parallel to and about thirty-five feet from the east wall of the Mill (Appendix C, Photograph 28).

The primary head race flowed down the bank of the Bronx River between Mills Number 2 and 3. This is visible in photographs taken in the period between 1870 and 1900. There likely was a water control device at this end of the race to stop the flow of water for cleaning, repair and maintenance of the race or other activities (DeVillo 2015:88-89).

Primary water flow controls for each mill wheel at each mill would have existed, located either at the head of the sluice way leading into each mill or inside the mill behind its wheels. Flow controls would have been used to allow or restrict/deny water to reach the mill wheels, thus starting and stopping the machinery.

The mills operated sporadically if at the winter months as the Bronx River froze, particularly during the eighteenth and beginning of the nineteenth century as the period coincided with end of the so-called “Little Ice Age.” The mill ponds became mostly ice-covered during winter for much of the Lorillard period. While mill operations slowed, the Bronx River saw the rise of industrial ice harvesting which reportedly the Lorillard’s engaged in (DeVillo 2015:88).

1.2.5 Lorillard Mansion Site and Former Mansion Access Road

The Lorillard Mansion was built in 1856 for Peter Lorillard III (1796-1867) and his wife Katherine Ann Griswold (1809-1856). It was a grand, three-story, 45-room mansion made of wood and stone that apparently was expanded to 68 rooms. The house sat on a prominent rise on the east bluff of the Bronx River valley and a deep porch wrapped around two sides, with the western windows looking out over the Bronx River and the Lorillard Stone Mill Dam (Appendix C, Photograph 31). The house measured 100-feet by 75-feet in size making it the most extravagant dwelling in the Bronx, if not one of the most in NYC, at the time. The 250-acre estate also included the hemlock forest and other magnificent trees, and “Acres of Roses” later renamed the “Old Fashioned Flower Garden” through which winding paths extended (Dunkak 2007:12; City History Club of New York 1909:201-202). The Lorillards are said to have used the rose petals to flavor some of their snuff, but this may be anecdotal and did not occur. Following the death of Peter Jr. (Pierre III), the house was inherited by his son, Pierre Lorillard IV. In 1884, Pierre IV sold the grounds to the NYC Park Department for use as part of the newly established Bronx Park. Pierre IV had also constructed the original Breakers in Newport in 1878 but sold them during the same period he was selling the Lorillard Estate in the Bronx. The sales apparently were to raise money so that Pierre IV could develop with his brother Jacob the exclusive gated community of Tuxedo Park in the Village of Tuxedo, New York, from whence the “tuxedo” was invented (DeVillo 2015:225).

Between 1897 and 1906, the 41st Precinct of the NYC police department used the mansion as its Bronx Park Station, while the downstairs kitchen was used as a restaurant for the public. The 41st Precinct also utilized the Lorillard stables until around 1903 when they were reclaimed by the Park Department. Starting in 1910, the former Lorillard Mansion was rented out to the Bronx Society of Arts and Sciences for use as a museum, as well as storage for the NYBG (NYC Park Department 1915:166). The Lorillard Mansion was destroyed by fire in 1923, and several flower and plant specimens, as well as Revolutionary War and Indigenous artifacts, were lost (New York Daily News 27 Mar 1923:2; Meredith 2021; Cahilly 2023).

1.2.6 Lorillard Workers’ Cottage

The Lorillard Workers’ Cottage, also referred to as a “gate house), was likely constructed circa 1850 as a residence for one or more employees of the Lorillard Tobacco and Snuff Company operating on the Bronx River. The Workers’ Cottage is a one-and-a-half-story, three-bay-wide, Gothic Revival dwelling constructed of fieldstone and capped with a slate cross-gable roof (Appendix D, Photographs 27 and 28). The Workers’ Cottage shares several architectural details with the Snuff Mill, including the brick detailing and the stone quoins at the corners, but also displays a higher architectural style than the vernacular factory building. Given the high style of the structure, it is likely that it served as a residence for a site manager and his family, rather than for a group of employees. A review of the 1869 and 1884 maps of the Lorillard Estate suggests that there may have once been a handful of similar cottages on the property that served as worker or servant housing. The Workers’ Cottage currently is used as a private residence and was unable to be fully documented during field survey. The Lorillard Workers’ Cottage is located outside of the Lorillard Period Occupation Study Area approximately 420 feet to the east of the Lorillard Snuff Mill but is historically associated with the Lorillard Estate and the operations of the Lorillard Snuff Mill.

1.2.7 Lorillard Stables

The Lorillard Stables were likely constructed circa 1850 by Peter (Pierre III) Lorillard, Jr., and were likely primarily constructed for personal use along with that of the Lorillard Mansion, which was completed in 1856. It is unclear whether the extant Lorillard Stables were also used for Lorillard Company use; more research may be needed on

this point. The extant Lorillard Stables consist of a U-plan fieldstone building with Gothic Revival features capped with a steep-pitched cross-gable roof covered with slate shingles (Appendix D, Photograph 32). Fenestration consists of Gothic arched casement windows and multi-paned, metal-sash industrial windows. Like the Lorillard Snuff Mill and Workers' Cottage, the Stables feature decorative stone quoins at the corners, but unlike the other buildings, does not appear to utilize brick detailing. After the NYC Parks Department purchased the Lorillard Estate, the 41st Precinct Police Department leased the Lorillard Stables for several years until circa 1903, when they were "reclaimed" by the Parks Department. The Stables likely continued to serve as a Stables facility until after the 1920s; In their 1924 *Report on the New York Botanical Garden*, the Olmsted Brothers viewed the Lorillard Stables as "an unfortunate obtrusion" to the landscape, adding that "it is of vital importance that these be removed from the scene" (Olmsted Brothers 1924:18). The Olmsted Brothers generally viewed all of the Lorillard buildings as "unfortunate obtrusions," saying that

"The Lorillard Mansion and its appendages conspicuously intrude upon this landscape unit in a manner contradictory to its essential character. From the point of view of botanical consistency, no less than landscape value these contradictory elements ought to be removed and the entire landscape unit of the gorge, on both sides of the river, gradually restored as nearly to the conditions characteristic of such a gorge in a state of nature as is consistent with making it accessible to and enjoyable by large numbers of people. No artificial structures except such as are necessary to that end should be maintained here and these should be made as inconspicuous as is consistent with efficiency in operation and maintenance" (Olmsted Brothers 1924:23-24).

While the NYBG did not rebuild the Lorillard Mansion after its destruction by fire, it also did not heed the Olmsted Brothers' suggestion to remove all of the Lorillard buildings, and instead converted the Lorillard Stables into a maintenance facility. The Stables appear to have undergone alterations in the 1930s or 1940s.

1.2.8 Modesty/Privacy Wall Upstream of Lorillard Stone Mill Dam

Part of the land originally owned by Saint Johns' College and Fordham University west of the Bronx River, now falls within the NYBG (Taaffe 1891:15). Seminarian students training for the priesthood for the Catholic Archdiocese of New York reportedly swam in the river upstream of the Lorillard Stone Mill Dam. To preserve student modesty, a stone wall enclosing the 'private' swimming area reportedly was built in 1872 by school authorities on the west side of the Bronx River upstream from the dam (Historical Perspectives 1993:13). This indicates that a mill pond impoundment large and deep enough for swimming existed at the time by the Lorillard Stone Mill Dam. A 1905 postcard photograph of the area looking northwest from the Lorillard Stone Mill Dam appears to show a remnant of the wall still present at that time (see Appendix C, Photograph 1).

1.2.9 Historic Viewshed Along the Bronx River

During the late nineteenth century and early twentieth century period, over 50 professional painters and photographers used the Bronx River as a setting for their creativity. At least 35 painters of the Late Hudson River School used the setting during the late nineteenth century (DeVillo 2015:99-101). Two paintings especially are relevant for this context study and for the National Register evaluation of the Lorillard Stone Mill Dam. One oil on board painting was by William Rickarby Miller's entitled *Bronx River Dam* or *The Dam at Lorillard* (Appendix C, Photograph 33). The painting looks northward along the Bronx River showing the Lorillard Stone Mill Dam in the distance and a structure, likely the studio/laundry building that had been built on the foundation of Lorillard's Mill Number 1, on the river's east bank. Two children play or fish on the river's west bank.

Miller's 1883 painting reflects a lost period of the Bronx along the Bronx River when both were transitioning from a natural/rural state to a commercial/industrial land. Both aspects are displayed in this one image. The dilapidated

state of the mill (Mill Number 3), a few years after abandonment, may presage what the future has in store for the industrialized Bronx River in the twentieth century. The current viewshed of the Lorillard study area, while changed from Miller's time, still retains some touch of this lost period, one of the few or perhaps only such views that still exist in New York. Therefore, it should be considered as a reflection of a begone New York and a cultural and natural landscape worth celebrating and retaining.

The other painting was done by a Miss Halsey around the mid-1880's entitled *The Lorillard Road and Snuff Mill*. Commenting on the painting, the Brooklyn Eagle newspaper declared that the work "along with other scenes along its shores, shows what a rich country for artists the environs of the Bronx River are" (DeVillo 2015:100). Unfortunately, a reproduction of the painting was not found for this study.

Other artists and paintings of the period celebrating the Bronx River include the noted Sanford Gifford's classic 1862 painting *On the Bronx River* which shows a luminous winter twilight over a frozen river. Another painting, also called *On the Bronx River*, is also by William Rickaby Miller (1887). The work was selected for a 2013 exhibition of the Philips Museum of Art in Landcaster, Pennsylvania as "an illustration of the early encroachment of human development on the rural landscape" (Maddox 1993).

Other local period New York painters of the Bronx River include DeVillo 2015):

- David Johnson who exhibited his Spring on the Bronx River at the Union League in 1878.
- Edward Rorke (early 1890s) who depicted the Bolton Bleachery.
- J.M. Slaney's (1890) Ice Houses on the Bronx River which is part of the collection of the Museum of the City of New York.
- William Hart's The Bronx River was shown in 1892 by the Philadelphia Society of Artists.

The Bronx River also became a favored subject of painters from other schools (DeVillo 2015; Maddox 1993):

- Arthur J.E. Powell, a painter of western landscapes, included his work Low Tide on the Bronx River and the Bronx Kills, New York in a 1917 New York exhibition.
- Ernest Lawson, a part of "Ashcan School" of painting, produced in 1910 a depiction of The Bronx River which hangs in the Collection of the Metropolitan Museum of Art.
- Richard Hayley Lever of the British Saint Ives School produced a watercolor of The Bronx River (c. 1930).
- The Modernist Painter Oscar Bluemner painted abstract images of the changing industrial nature of the Bronx River between 1911 and 1917 called Evening Tones also known as the Bronx River at Mount Vernon. The paintings are part of the Smithsonian American Art Museum collection.

The noted late nineteenth and early twentieth century photographer, George E. Stonebridge's 1897-1918 photographic glass plate negatives of Bronx Park and other areas are unique artistic black and white recordings of past, forgotten landscapes and events. His work within the current Lorillard gorge study area are another artistic expression of the beauty and historic and natural uniqueness of the location. It is an important record for the Lorillard occupation and the Bronx River's past. Stonebridge also photographically recorded the June 15, 1904, PS General Slocum disaster that resulted in the deaths of over 1,020 people. His Bronx Park/Lorillard gorge and Slocum photographs, and his other photographs of the Bronx and elsewhere are in the Collections of the New York Historical Society and Museum (see Appendix C, Photographs 3, 7-11, 15, 20-28, 31, and 37).

1.2.10 Potential Locations or other Evidence of Indigenous Occupations

Based on the documentary research, discussions with knowledgeable people, and pedestrian reconnaissance, relevant environmental and cultural contexts (Pre-Contact, Euro-American Contact, Historic period) for the Lorillard study area were developed and the archaeological sensitivity of the study area assessed. Assessment of sensitivity for Indigenous sites was based on the location of known sites reported in the archaeological literature, OPRHP, LPC, and Bronx Historical Society data bases. The sensitivity assessment also was based on consideration of the present and former topographic and physiographic characteristics of the study area.

Assessment of Historic period sensitivity was based on an analysis of eighteenth through twentieth century maps, as well as a review of other primary and secondary sources, and discussions with knowledgeable people. Identification of significant and potentially significant historic properties have been presented in Section 1.2 with suggestions made for further research in Section 6.

Determinations were made of the extent to which naturally occurring and past construction activities and other events within the study area would have affected the presence and preservation of any cultural resources possibly located there. Assessment of probable future ground disturbance caused by removal of the Lorillard Stone Mill Dam could not be made with any specificity. No information is currently available concerning direct or indirect impacts caused by construction activities associated with that action or of the Bronx River's ecological response in terms of flooding, bank, floodplain, or terrace erosion, or other actions occurring that may be detrimental to cultural resources and historic preservation.

1.3 Methodology

This cultural resource context study of the Lorillard Stone Mill Dam and Lorillard study area within the NYBG consisted of documentary research and pedestrian reconnaissance. It obtained information on the study area's past environmental setting, Pre-Contact period and Euro-American - Contact period culture history and archaeological site locations as well as local Euro-American history and land use through the early twentieth century to support the National Register of Historic Places evaluation of the Stone Mill Dam. Research was conducted at the following repositories in person, by e-mail, or telephone calls:

- Mertz Library - New York Botanical Garden.
- The Bronx Historical Society.
- Westchester County Historical Society.
- Westchester County Archives.
- New York City Public Library - General Research Division.
- New York City Public Library – Lionel Pincus and Princess Firyal Map Division.
- New York City Public Library – Irma and Paul Milstein Division of United States History, Local History, and Genealogy.
- Elmer Bobst Library – New York University.
- New York City Landmarks Preservation Commission.
- New York State Office of Parks, Recreation and Historic Preservation/New York State Historic Preservation Office.

Historic Context Report

Lorillard Stone Mill Dam, New York Botanical Garden, Bronx County, New York

- New York State Museum.
- New York Historical Society.
- Society of Industrial Archaeology, Roebling Chapter.
- Museum of the City of New York.

The following web sites also were accessed, some multiple times, for the study:

- New York City Public Library:
- Local History Division (<https://www.nypl.org/about/divisions/milstein>);
- Lionel Pincus and Princess Firyal Map Division (<https://digitalcollections.nypl.org/divisions/lionel-pincus-and-princess-firyal-map-division>);
- General Research Division (<https://www.nypl.org/about/divisions/general-research-division>).
- Cultural Resource Information System of the New York State Office of Parks, Recreation and Historic Preservation.
- <https://websoilsurvey.nrcs.usda.gov>
- David Rumsey.com.
- <https://nyc.gov/site/lpc>.
- <https://nyhistory.org>
- "National Register Information System". National Register of Historic Places. National Park Service.
- National Park Service Directors and Directorate, Historic Listing of National Park Service Officials, National Park Service Data Store (IRMA), Official site.
- <http://www.nysm.nysed.gov/research-collections/archaeology/native-american-archaeology/research/new-york-paleoindian-database>.
- <http://nypl.org/collections/nypl-recommendations/guides/historical-maps-ny-nj-atlas>
- National Historic Preservation Act of 1966, Public Law 102–575, National Conference of State Historic Preservation Officers, Official site.
- <https://historicaerials.com>.
- Digital Culture of Metropolitan New York – <https://www.dmny.org>

In addition, the following people were contacted in person or by telephone:

- Joan H. Geismar Ph.D. Urban Archaeologist.
- Amanda Sutphin, Director of Archaeology, New York City Landmarks Preservation Commission.
- Michael Raber, Ph.D. Industrial Archaeologist, Raber Associates.
- Gerry Weinstein, Industrial Historical, HAER Specialist, Archive of Industry.
- Daniel Pagano, Ph.D., Urban Archaeologist, New York City Landmarks Preservation Commission.

Historic Context Report

Lorillard Stone Mill Dam, New York Botanical Garden, Bronx County, New York

- Suzanne Nolan, ASLA, The Bronx River Parkway Reservation Conservancy.
- Rose Octelene, Resource Sharing Librarian, New York Botanical Garden.
- Paul Fitzpatrick, Real Property Accountability Officer, United States Army Corps of Engineers.
- Gina Santucci, Director of Environmental Review, New York City Landmarks Preservation Commission.
- Carissa Scarpa, Supervisory Archaeologist, Section Chief, United States Army Corps of Engineers, New York District.
- Paul Fitzpatrick, Real Property Accountability Officer, United States Army Corps of Engineers, New York District.
- Nancy Brighton, Deputy Federal Preservation Officer, United States Army Corps of Engineers.
- Tim Lloyd, Archaeology Unit, New York State Office of Parks, Recreation and Historic Preservation, State Historic Preservation Office.
- Chelsea Towers, Coordinator, Survey and National Register Unit.
- Tim Lloyd, Archaeology Unit, New York State Office of Parks, Recreation and Historic Preservation, State Historic Preservation Office.
- Sara McIvor, Technical Preservation Unit, New York State Office of Parks, Recreation and Historic Preservation, State Historic Preservation Office.
- Lynn Rakos, Field Environmental Officer, HUD-New York City Regional Office.
- Barbara Davis, Co-Director of the Westchester County Historical Society.
- Patrick Raftery, Associate Director and Librarian, Westchester County Historical Society.
- Wayne Cahilly, Cahilly's Horticultural Services, New York Botanical Garden Horticulturalist and Independent Amateur Historian.
- Ryan Clark, Archaeologist, Watershed Section, Environmental Analysis Branch, Planning Division, New York District, United States Army Corps of Engineers.

The pedestrian reconnaissance of the Lorillard Stone Mill Dam and Lorillard study area was conducted on December 1, and 22, 2023.

2 Environmental Setting

This section provides an overview of certain aspects of the pre-development environment of the Bronx particularly the Lorillard investigation area at the NYBG. It provides background information and insight into some of the principal geology and geomorphology forces which have produced the topography, landforms, and landform changes relevant to this investigation. It also will provide an indication of the environment and principal resources available for use by Euro-American explorers, traders, and settlers to the area and the prior Indigenous peoples living there.

2.1 Geology

The Bronx is part of the emergent coastal or seaboard lowland section of the Manhattan Prong sub-province of the New England Uplands physiographic province which is a northern extension of the Great Appalachian Valley (Schubert 1968:74; Rogers, Isachsen, and Nyahay 1990; Isachsen, et al. 2000). The Manhattan Prong encompasses the Bronx, Manhattan, most of Westchester County and part of Putnam County in New York (Van Diver 1985:79). It is characterized by northeast trending ridges carved from metamorphic rock. The NYBG is situated on the northern end of one of these ridges, the Crotona Park Ridge, a wide area of moderately high land that extends northward from the South Bronx. The volcanic and metamorphic rock that form that ridge and others are Grenville age (1,100 million years ago - mya) gneisses and Paleozoic Era, Cambrian-Ordovician age (540-444 mya) schist, pegmatite, mica, quartz, feldspar, hornblende, and quartzite and shallow valleys eroded into the Cambrian-Ordovician age limestone and marble (Glenn 1978:2; Van Diver 1985.) The Bronx River and nearby Westchester Creek flow through two of these valleys (Isachsen et al. 2000; Gratacap 1904). In addition, the Mosholu Fault runs along Mosholu Parkway and into the northern part of the NYBG passing the immediate vicinity of the Stone Mill Dam and continuing southeast (Schubert 1968; Toor 2018).

The specific geologic formations present in the investigation area are Granite Gneiss and Fordham Gneiss dating to between 575 and 1,100 mya which form the region's higher ground. More easily eroded Lower Quartzite, Inwood Marble, and Manhattan Schist dating to approximately 435 million years, are found within valleys such as the Bronx River valley (Schubert 1968; Isachsen et al. 2000). Bluestone, a fine grain sandstone rock of Paleozoic Era, Upper Devonian age (370-345 mya), also is present in more restricted localities in the NYBG and other nearby areas.

Bluestone layers reportedly were quarried by the Lorillard family and Saint John's College/ Fordham University within a few hundred feet of the Lorillard Stone Mill Dam for use locally and perhaps nationally during the Historic period (Cahilly 2023). The Lorillard family also operated a larger bluestone quarry for building material during the nineteenth century construction of the Lorillard mills along the Bronx River and the Lorillard Mansion formerly located on the eastern bluff overlooking the Lorillard Stone Mill Dam. The former quarry site (now Quarry Park on East 180th Street) is located about one mile southeast of the Lorillard Stone Mill Dam and former Lorillard Mansion site. A roadway reportedly lead from the quarry site to the Lorillard Snuff Mill and family mansion. Beaumont Avenue, Crescent Avenue, Arthur Avenue, and Quarry Road likely follow the approximately route of that former road. The Lorillard family reportedly expended large sums of money for numerous quarrying and building operations during the late eighteenth and nineteenth centuries considerably stimulating the local economy. A manager for the work reportedly was Peter Ray (born around 1800), an African-American who also spend time managing the Lorillard tobacco operations in the Bronx, Manhattan, and New Jersey (Peterson 2011).

2.2 Surface Geology

The Coastal Lowland is the rolling, sloping margin of the New England Uplands. In the Bronx, the lowland is a narrow strip approximately 6 to 10 miles wide, adjacent to the East River and Long Island Sound (Fenneman 1938; Van Diver 1985). It should not be confused with the submerged Atlantic Coastal Lowlands physiographic province which is located south of Manhattan and Staten Island and includes Long Island (Van Diver 1985).

The Coastal Lowland's elevation is generally between sea level and 250 feet above mean sea level (amsl). The area is now comprised of low rolling hills, ridges, and bedrock outcrops with rising ground along both sides of major local watercourse such as the Bronx River. Historically, along the Bronx River and its vertical rock gorge-like corridor, the elevation is generally between 20 and 75 feet amsl although further back but still near the Bronx River's margin, ground elevation reaches 180 feet amsl (Kemp 1897:78-85). The highest elevations occur to the west of the Bronx River. The lowest elevations occur along the banks of the river where they are about twenty feet amsl.

An early topographic map of the Bronx, west of the Bronx River, depicts the NYBG parcel as characterized by level woodland interspersed with small hills. A rise to the west parallels the Bronx River, with one area surrounding the river shown as fairly inundated (Viele 1874). Many small lanes and paths traversed the property, with several terminating at the river's valley margin or edge. At least one of the north-south paths likely followed the route of a Contact period trail. Other paths, also likely dating to the period of Contact, lead to the Bronx River. The paths may have had some time depth. The north end of the NYBG is formed "of the flood plain of the Bronx River, consisting largely of grassy meadows and marshes which at average flow of the stream, are several feet above its surface, but which at flood time are occasionally submerged for short periods" (NYBG 1921:206).

The Coastal Lowlands, as was the rest of the New England Uplands, were greatly affected by four major glaciations that affected the region until approximately 12,000 years before present (B.P.) when the Wisconsin period—the last glacial period—came to an end. A variety of deposits and features of up to 1,000 feet or more thick were left behind by massive glaciers that retreated from the area towards the end of the Pleistocene. Glacial till and outwash sediments cover most of the province. In addition, glaciofluvial events created from rock and sand terrain features some 100 feet or more tall, hundreds of kames, kame terraces, sand hills, and eskers as well as outwash plains, scoured rock surfaces, and erratics of varied sized from large boulders to small rocks throughout the area (Fenneman 1938). Roches Moutonnees, rounded ridges of bare rock scoured and polished by the ice on one side, also can also be found on the New York Botanical Garden grounds and surrounding lands (Glenn 1978:3).

Surface evidence for glaciation was formally common throughout the Bronx but has been mostly destroyed by development. However, evidence of glacial action has survived at the NYBG, other parts of Bronx Park, and Pelham Bay Park, three of the largest relatively undeveloped tracts in the New York City. The areas are representative of what all of the New York City landscape would have been like. The glacially transported erratics, include the "rocking stone" a tremendous boulder that was naturally deposited within the boundaries of the Bronx Zoo (Reeds 1925:7). Another erratic left behind during the ice sheet's retreat at the end of the Pleistocene discovered a few hundred feet upstream along the Bronx River terrace contained the turtle rock petroglyph produced by Native Americans likely during the Late Woodland or Contact periods. The so-called "Indian Rock" petroglyph is mentioned more fully in Section 3. Glacial potholes and scoured and striated bedrock also are common in the NYBG. One such pothole in a bedrock ledge is present along the eastern margin of the Bronx River just south of the stone mill dam. Glaciofluvial gravels are present in the area's major waterways, including the Bronx River (Schubert 1968). Late Pleistocene or early Holocene aged peat deposits were also encountered near Spuyten Duyvil Creek and the East River and may have formed within the Bronx River floodplain.

Following deglaciation towards the end of the Pleistocene, Glacial Lake Hudson covered much of the Hudson Valley extending from the Hudson Highlands south to the Harbor Hill morainal dam at the present-day Narrows of New York Harbor and at other morainal dams near New Jersey. Glacial Lake Hudson likely covered the current NYBG. Parts of Glacial Lake Flushing also may have covered the NYBG. When the morainal dams were breached, southeastern New York's glacial meltwater lakes receded exposing the area, including the NYBG, to new environmental settings.

2.3 The Bronx River

The Bronx River is the major river draining the Bronx, running north-south through the NYBG. It is the largest freshwater river in New York City although it becomes brackish as it gets close to its confluence with the East River in the Soundview Park section of the Bronx, about 4.5 miles south of the Lorillard Stone Mill Dam. The river originates 23 miles to the north in Westchester County at Valhalla originally from springs now inundated below the Kensico Reservoir. Those waters and Davis Brook combine to form the headwaters of the current Bronx River.

From Valhalla, the Bronx River flows southwestward in wide strike valley lowlands underlain primarily by the Cambro-Ordovician Inwood Marble mentioned previously. Nearly all of the rivers draining the Manhattan Prong in the New York City vicinity flow southwestward in similar wide northeast to southwest trending valley lowlands. About 2,000 feet north of the Lorillard Stone Mill Dam around today's East 204th Street, at the point where the northwest to southeast trending Mosholu Parkway Fault offsets the marble lowland, the Bronx River leaves its lowland valley, abandoning its former lowland course now occupied by Webster Avenue before emptying into Glacial Lake Hudson. Once diverted, the Bronx River flowed southward across the more-resistant gneisses and schists of the Hartland Formation in the narrow north – south trending trench of the Snuff Mill gorge that includes part of the Lorillard investigation area (Merguerian and Sanders 1996).

Schuberth (1968) speculated that the direction change for the ancestral Bronx River with the waterway beginning to erode the Snuff Mill gorge began in Miocene time (15 mya) as the river eroded a weak zone in the schist along an ancestral fault thus resulting in the current orientation of the river. Alternatively, Kemp (1897) stated that around 13,000 years ago a blockage of the Bronx River caused by glacial till deposition along its former westward lowland course caused the Bronx River's diversion with voluminous quantities of water from the melting Wisconsin ice mass cascading into the more-resistant gneisses and schists of the Hartland Formation and the Snuff Mill gorge. Recent investigations of subsurface data demonstrate that sediments in the former valley of the Bronx River at the point of diversion around East 204th Street include a clay layer overlying probable till deposits. This infers that the clay was deposited in a lake which formed when the Bronx River's former path to the southwest along Webster Avenue was blocked following glacial retreat at the end of the Pleistocene (Merguerian and Sanders 1996). These authors infer that geologic uplift possibly as a result of rebounding following the retreat of the Wisconsin ice mass, created a bedrock barrier across the Mosholu fault at the exact point where the Bronx River was diverted (Merguerian and Sanders 1996). It is problematic whether enough time existed to allow for a late Pleistocene and Holocene formation of the gorge. The causes of the Bronx River diversion and its period of occurrence, as well as the processes forming the gorge, are subjects that deserve further research.

2.4 Bronx River Valley Corridor Flora and Fauna

The predominant Pre-Contact period habitats present within the New England Uplands including the Bronx River valley were upland forests and freshwater marshes (Robichaud and Buell 1983: 106; Shelford 1974). Both habitats are still present along the Bronx River Valley in the NYBG.

Freshwater marshes are present along the edges of lakes, ponds, rivers (such as the Bronx River), and wherever depressions of land are kept flooded on a regular basis by high water tables (Robichaud and Buell 1973:105). In Pre-Contact freshwater marsh environments, the plant community was typically dominated by reed grass, cattail and possibly for a period, wild rice. All of these would have been important economic plants for Native American groups. Other plants that would have been common in Pre-Contact freshwater marshes were low-growing grass-like sedges, bulrushes, arrow-arum, blue flag, spike rush, bur reed, water dock, marsh fern, orange touch-me-not, and the swamp milkweed (Robichaud and Buell 1973:125-127).

The remaining portions of the New England Uplands in the Pre-Contact Bronx are characterized as upland forest because the most abundant or dominant type of vegetation present were tall growing, deciduous, broadleaf trees (Robichaud and Buell 1973:106). The forests are specifically described as Oak-Chestnut Forests composed primarily of mixed oaks (white, red, and black) with some chestnut trees also present on drier slopes (Robichaud and Buell 1983:106). Beech, several varieties of hickory, sugar maple, white ash, pine, and black cherry also would have been numerous (Shelford 1974). All of these species were present within the study area or its immediate vicinity during the Native American and early Historic periods. Chestnut, oak, and hickory trees potentially could have been exploited by Native American groups for subsistence purposes while some of the other varieties had other economic uses (e.g., medicinal, dwelling construction, craft manufacture, household needs, firewood, etc.).

Perhaps the most celebrated floral community within the NYBG near the investigated area are the stands of hemlock that are reported to represent the oldest undisturbed forest in New York City. In 1924, it was noted that “The most notable natural feature of the Botanical Garden, perhaps as a matter of botany and certainly as a matter of landscape, is the gorge of the Bronx River with its wild growth of hemlocks and associated plants, its picturesque precipitous slopes and ledges., its sense of remoteness and seclusion from the city and most of the works of men” (NYBG, Natural History of the Forest, accessed January 22, 2024).

Tidal flats as well as salt and brackish water marshes and meadows still exist in some areas with the Bronx. The oak-chestnut forest has been mostly eliminated from the area although small such areas remain in the NYBG and Pelham Bay Park. Small freshwater marshes also can be found in those locales.

Pre-Contact faunal species usually present within the marshes and meadows include various invertebrates, migratory waterfowl and other birds, muskrat and small rodents, rabbit, racoon, otter, skunk, opossum, and white-tailed deer (Shelford 1974; Gosner 1978; Roberts 1979).

Pre-Contact faunal species usually present within the forests of the New England Uplands including the Bronx included game birds, small rodents, rabbit, raccoon, otter, skunk, opossum, bear, and white-tailed deer and during at least a portion of the prehistoric period, elk (Shelford 1974; Gosner 1978; Roberts 1979). In the province's freshwater rivers, marshes, meadows, and lakes, all of which would have been present within the pre-development Bronx River valley, were found mussels, fish, certain amphibians and reptiles, migratory water fowl and other birds, and semi-aquatic mammals including muskrat and beaver (both of which reportedly were common along the Bronx River during the seventeenth century - Walton 1951:2; Shelford 1974; Gosner 1978; Roberts 1979). Beavers in particular were once very common on the Bronx River with Adriaen Van der Donck reporting that they were numerous in New Amsterdam in 1655 (Kanze 1988:69). Their abundance is seen by the fact that a single cargo of 7,246 beaver pelts were shipped from New Amsterdam to Amsterdam, Holland in November 1624 (Kanze 1988:69-70). The last beaver reportedly was recorded along the Bronx River around 1790 (Allison 1894: 127; Cook and Kaplan 1913:59). This is supported by the 1779 and 1785 Hill maps which indicate that portions of the lower Bronx River were the locations of “Beaver Dams” as of that period, suggesting the presence of Beaver Ponds (Appendix B, Figure 10). Nearer to the Lorillard study area, about three miles to

the north near Hunt's Bridge, also were reported to be Beaver Ponds along the Bronx River. Anadromous fish species and eels also likely were present seasonally within the project area via the Bronx River.

Shellfish were one of the most important prehistoric subsistence resources found along the shoreline of the Bronx. The species commonly utilized by Native Americans were oysters, soft shell clam, hard shell clam, scallops, and various marine shells. Shells of these species also were used by Indigenous people for tools, decoration, ornaments, and wampum.

In addition to species of fish significant to subsistence (e.g., flounder, sea bass, rock bass, blue fish, shad, etc.) other economically important species that would have been present or occasionally present in the salt and brackish waters off of the Bronx shoreline, at least seasonally, were waterfowl, harbor seals, and various species of whales and dolphins. The latter two most likely would have been exploited opportunistically (when the animals beached or were listless offshore due to illness or injury) by Native Americans.

3 Historic Context

3.1 Indigenous Cultures - Pre-Contact and Contact Period

This section provides a brief overview of past Indigenous (Native American) cultures in the Bronx and other parts of southeastern New York. Prior to development, archaeological sites associated with those cultures in the Bronx were plentiful especially in areas near waterways both salt and brackish, like the Hudson, East, and Harlem Rivers and Long Island Sound along with freshwater settings such as the Bronx River and others. Descriptions of the known sites in the NYBG area, some in the immediate vicinity of the Lorillard Stone Mill Dam are provided at the end of the Section.

3.1.1 Cultural Setting – Pre-Contact Period

The Pre-Contact period of southeastern New York, including the area that became the Bronx, encompasses the PaleoIndian, Archaic, Transitional, and Woodland periods. The Paleo-Indian period (14,000 9,000 BP) represents the earliest occupation of the southeastern New York region. The Archaic (9,000 3,000 BP) refers to a time prior to the introduction of horticulture and pottery manufacture and is divided into Early, Middle, and Late periods. The Transitional period (3,000 2,500 BP) witnessed a gradual change in Archaic lifestyles with the development of "Woodland" period traits. The Woodland period (2,500 450 BP), which is characterized by the use of pottery and reliance on horticulture, is also divided into Early, Middle, and Late periods. Archaeologists and ethnohistorians recognized the rapid period of cultural change to Indigenous cultures that ensued with the initial arrival of Europeans in the sixteenth through eighteenth centuries and refer to this time in southeastern New York as the Native American - Euro-American Contact period (500-300 BP). It represents the first recorded interactions between local Native Americans and European explorers, traders, merchants, and settlers. A simplified description of the cultures follows here.

The PaleoIndian period corresponds with the end of the Wisconsin glaciation. Sea levels were lower during this period and the subsequent Early to Middle Archaic period due to sea water being trapped in the remaining glacial ice. The Paleo-Indian and Early Archaic periods encompass the earliest well-documented human occupation in North America, spanning the terminal Pleistocene and earliest Holocene. As the glaciers retreated 16,000 to 17,000 years ago, tundra grasslands covered southeastern New York. During the Paleo-Indian period, the seasonal variation was slight, and the region's climate was wet and cold. Towards the end of the period, boreal forests appeared consisting primarily of spruce and fir (Snow 1980). Many faunal species now extinct or no longer native to the area were present. These included mammoth, mastodont, horse, caribou, giant beaver, sloth, elk, moose, and peccary (Snow 1980). Remains of extinct fauna found in the NYBG region include mastodont remains and other now extinct ice age species recovered from peat deposits located beneath the Harlem River less than approximately 2 miles south of the Lorillard Stone Mill Dam when the Harlem ship canal was excavated in 1885 (Calver 1948). Portions of another mastodont also were recovered nearby from a peat deposit formerly located below what is now the corner of Seaman Avenue near Dyckman Street in the Inwood section of northern Manhattan (Calver 1948). Mastodont, mammoth, and other extinct Pleistocene remains have been found elsewhere within the lower Hudson valley within 30 miles from the NYBG (Drum 1963).

Evidence for these earliest known peoples is thinly dispersed across the landscape but they are thought to have practiced an extensive, rather than intensive, settlement and subsistence pattern, exploiting the rather low carrying capacity of the area. The acquisition of high-quality lithic resources is thought to have played a significant

role in settlement patterns during these periods (Raber 1985:10). These high-quality materials were used within a curated, bifacial technology system adaptive to a more mobile lifeways (Parry and Kelly 1987).

Research has traditionally identified these Indigenous people as highly mobile hunter-gatherers, centering on the exploitation of now-extinct Pleistocene megafauna (Ritchie 1980; Raber 1985:9). Over the past few decades, however, the archaeological community has increasingly begun to acknowledge that the lifeways and resource base of these cultures were far more complex and diverse than previously recognized (Chilton 1994). Evidence for this added complexity have been found in the New York-New Jersey-Pennsylvania, where recovered floral and faunal materials indicate increased use of both riverine/wetland plant resources during the Paleo-Indian period (Kauffman and Dent 1982).

A variety of site types are attributed to the Paleo-Indian periods throughout the New York and New Jersey area. These include quarrying sites, rock shelter habitations, base camps, hunting sites and other temporary camps.

By the Early Archaic, greater seasonal variation developed and boreal forest moved in, replacing the open tundra and grasslands. With the extinction of many late Pleistocene animals, more modern species began to populate the area. Later during the Archaic, the climate became warm and moist, and the environment changed from a pine dominated forest to an increasingly deciduous forest (a mixture of oak and hemlock) which achieved an essentially modern character by 5,000 BP (Salwen 1975) resulting in a greater diversification of plant and animal communities. The generally moist environment also led to an increase in the number of swamps and bogs, creating important loci of plant and animal resources.

While Archaic cultures have been traditionally thought of as reflecting a forest-based adaptation, more recent research has produced a picture of an increasingly varied subsistence pattern based on the seasonal exploitation of various faunal and floral resources from other habitats. In the lower Hudson Valley and Long Island Sound area oyster became a major component of subsistence, at least seasonally, during this period. During this time, the NYBG and Bronx River valley were covered with forests and marshy tracts.

Archaic hunters and gatherers were still nomadic and organized into small bands which occupied localities along the Atlantic coast and estuaries, including the Hudson River, and their tributaries such as the Bronx River during the warmer months and interior regions during the colder months (Ritchie 1980).

Technological changes during this period are interpreted as reflecting the increased variety of biological resources and/or increased population pressure prompting the exploitation of previously unneeded resources. The earliest evidence for heavy woodworking tools and the processing of plant remains, such as seeds and nuts, coincides with the increased presence of mast-producing trees by 5,000 BP. These new tool types include grooved axes, milling equipment, ground and polished tools (such as adzes, axes, and atlatl weights), as well as net sinkers and nets or fishing.

Population growth throughout the period resulted in an increase in both site density and the number of functional site types represented in the archaeological record. Site types recognized for this period include spring fishing camps along major streams, fall open air hunting camps, rock shelter habitations, shellfish collecting and processing stations, mortuary sites, quarry and workshop sites, and semi-permanent villages.

Sites dating to the Transitional period are most frequently found along the coast and major waterways although smaller sites are known from the interior. New and radically different broad-bladed projectile point types appeared during this period as did the use, during the latter half, of steatite (soapstone) vessels.

During the Early Woodland period (3,000-2,000 B), the use of fired clay ceramic vessels gradually replaced the reliance on steatite vessels. Subsistence practices included a continuation of the hunting, gathering, and fishing of the Archaic but were supplemented by an increase in shellfish collecting.

Most Early Woodland sites in southeastern New York are located along the Hudson River or its major tributaries. Inland campsites are rare but also recognized.

Human populations during the Middle Woodland period (2,000-1,200 BP) gradually adopted a more sedentary lifestyle. Although it is generally felt that subsistence was essentially based on hunting and gathering supplemented by fishing and shellfish collecting, there has been speculation that domestication of various plants occurred during this period.

By Late Woodland times (1,200-450 BP) horticulture was the primary subsistence base and permanent villages existed. Use was still made, however, of temporary and special purpose campsites (Ritchie 1980; Snow 1980). Most Late Woodland sites are located along the Hudson River, its major tributaries, and the Long Island Sound shore although smaller inland sites also have been recognized (Skinner 1919a, 1919b; Parker 1920; Bolton 1922; Funk 1976; Levine 1978; Ritchie 1980; Truex 1982).

Evidence for several technological developments have been found at sites dating from the Woodland period. Plant processing tools are more numerous than at earlier sites. Also, a greater number of artifacts have been found manufactured from local materials. Technological changes include the development of storage and processing equipment associated with more permanent settlements, including pits, platform hearths and steatite bowls. Steatite bowls have been found on sites dating to the end of the second millennium. The Early Woodland is marked by the introduction of ceramic technology after 3,000 BP. These vessels were used to heat stews and gruels, extract fish and nut oils, as well as a method of storage. The earliest indication of a development in mortuary ceremonialism, status differentiation, and trade has been found dating to the Late Archaic. Increased evidence for these traits has been found at Early and Middle Woodland sites (Custer 1985, 1988b, 1996).

The Late Woodland period also is characterized by the earliest evidence for horticulture and semi-permanent villages, as well as the development of the cultures first encountered by seventeenth century European settlers. Excavations have uncovered large, sometimes stockaded, horticultural settlements located on arable floodplain land. Subsistence is believed to have been based primarily on agricultural systems, but satellite hunting/gathering/fishing stations have also been identified. With arable land for agricultural subsistence at a premium, and perhaps due to increasing social differentiation, archaeological evidence throughout the Late Woodland period indicates the occurrence of frequent organized warfare. As a result of this violence, many groups were extirpated, driven off, or absorbed within other groups. The number of Indigenous groups described by seventeenth- and eighteenth-century Euro-Americans for the Contact period probably do not reflect the actual number of Native American cultures existing in the southeastern New York region during the Late Woodland.

The Late Woodland period in the lower reaches of the Hudson River and coastal New York includes the Windsor and East River Traditions. These cultures are defined on the basis of ceramic typologies developed by Smith (1950). The Windsor Tradition is restricted to areas around coastal New York. East River culture is divided into an earlier Bowman's Brook Phase and a later Clason's Point Phase. These complexes have been reported at least as far up the Hudson River valley as the Bear Mountain Bridge area and along the Long Island Sound shore as far as southwestern Connecticut (Funk 1976:173-183; Ritchie 1980:270).

3.1.2 Cultural Setting – Native American – Euro-American Contact Period

The documentary history of the Bronx begins with the information recorded by early settlers concerning the Indigenous groups who occupied the area when Europeans first arrived in the early seventeenth century. The Contact Period (1500 - ca. 1700) is the time of the first large scale contacts between Native Americans and European colonists. By the latter part of the Late Woodland period Native American cultures began to resemble those of groups that were encountered by seventeenth century Europeans. At that time, Native Americans in the Bronx were part of the widespread Algonquian cultural and linguistic stock. Specifically, they were a group of Munsee (Minsi) speakers who migrated into southeastern New York and southwestern Connecticut during Late Woodland times. Their descendants were known collectively as the Wappinger (also Waranoans or Warban). This group included the Bronx County Native Americans encountered by European settlers (Cook 1976:73-74). The Bronx and areas to the north were reportedly known to the Wappinger as "Laaphawachking" (Bolton 1848). The name reportedly translates as the "place of stringing" (Lederer 1978:79) which apparently refers to Native American wampum manufacturing that occurred in the area (Ceci 1980). The Wappinger also occupied much of present-day Putnam, Dutchess, and New York Counties, and southwestern Connecticut.

The origin of the Wappinger is unclear. Pelletreau (1886:68) states that the name translates roughly as "east of the river" although Salomon (1982:85) feels that it may be derived from the Algonquian word "wapinkw" or "woapink" meaning opossum.

In political terms the Wappinger were divided into seven (Bolton 1975:4) or nine (Ruttenber 1872:77-83) main groups or chieftaincies and numerous sub-groups and bands. To the Dutch and English, the majority of the groups were known collectively as the River Indians. Regionally, the Wappinger Confederacy was loosely allied with the Mahikan Confederacy found to the north (Bolton 1975:4).

The total population of the Wappinger Confederacy has been estimated at about 13,200 individuals at the beginning of European contact (Cook 1976:74). Their settlements included camps along the major rivers with larger villages located at the river mouths (MacCracken 1956:266). Despite references to villages and other site types by early European explorers and settlers, few single-component Contact period sites have been identified and systematically excavated in southeastern New York.

Robert Juet (1959:28), an officer on the "Half Moon", provides an account in his journal of some of the lower Hudson Valley Native Americans. In his entries for September 4th and 5th, 1609, Juet states:

This day [September 4] the people of the country came aboard of us, seeming very glad of our coming, and brought greene tobacco, and gave us of it for knives and beads. They goe in deere skins loose, well dressed. They have yellow copper. They desire cloathes and are very civill. They have great store of maize or Indian wheate whereof they make good bread. The country is full of great and tall oakes.

This day [September 5] many of the people came aboard, some in mantles of feathers, and some in skinnies of divers sorts of good fures. Some women also came to us with hempe. They had red copper tabacco pipes and other things of copper they did wear about their neckes. At night they went on land againe, so wee rode very quiet, but durst not trust them (Juet 1959:28).

David Pieterz De Vries (Murphy 1857:154-155) recorded another description of the Native Americans who resided around New Amsterdam in 1639:

The Indians about here are tolerably stout, have black hair with a long, lock which they let hang on one side of the head. Their hair is shorn on the top of the head like a cock's-comb. Their clothing is a

coat of beaver skins over the body, with the fur inside in winter and outside in summer; they have, also, sometimes a bear's hide, or a coat of the skins of wild cats, or hefsapanen [probably raccoon], which is an animal most as hairy as a wild cat and is also very good to eat. They also wear coats of turkey feathers, which they know how to put together.

Their pride is to paint their faces strangely with red or black lead, so that they look like fiends. Some of the women are very well featured, having long countenances. Their hair hangs loose from their head; they are very foul and dirty; they sometimes paint their faces and draw a black ring around their eyes.

Scholars have associated the Reckgawawancs and Siwanoy groups of Wappinger Confederacy as formally associated with the Borough of the Bronx. Although the boundaries of the territories scholars traditionally associate with these groups is presented below, it should be stated that attempts to determine "ownership" rights to areas for any of the Contact Period lower Hudson Valley Native American groups is extremely difficult and the results usually unclear. Delineating precise borders is impossible and probably inappropriate for such boundaries were probably shifting and/or undefined and ambiguous. It also should be understood that the cultures and lifeways of Native American groups by the mid-seventeenth century would have been vastly different in social, economic, and political terms than what existed a century earlier due to the effects of European contact.

3.1.2.1 Reckgawawancs

The Reckgawawancs are traditionally associated with most of the island of Manhattan and the area adjoining the east bank of the Hudson River as far north as Yonkers and the area north of the East River and east of the Harlem River all the way to the Bronx River (Ruttenber 1872:77; Cook 1976: 73-74; Bolton 1975:18-22). They were closely related to the Weckquaesgeek, the Wappinger group located to the north, and probably under their political control to some extent (Bolton 1975:19).

Robert Juet and the crew of the "Half Moon" encountered Native Americans who were probably Reckgawawanc along the Hudson River shore of what is now the Manhattanville section of the Bronx. The location of the anchorage was apparently north of the confluence of Spuyten Duyvil Creek and the Hudson River. Writing in his journal on September 13, 1609, Juet (1959:30) states that "Then there came foure Canoes aboard; but we suffered none of them to come into our ship. They brought great store of very good Oysters aboard, which we bought for trifles."

The name Reckgawawanc is reportedly derived from the name of their sachem during the early years of contact, Reckgawac, who participated in a series of land transactions with the Dutch and English (Bolton 1975:18). Their main village was named Nappachamak and was located in present day Yonkers (Cook 1976: 73) near the mouth of the Nepperhan or Saw Mill River. Another large village, possibly seasonally occupied, was located in the vicinity of Cypress Avenue between 132nd and 133rd Streets at the confluence of the Bronx Kill and East River about 4 miles south of the NYBG.

A larger number of sites were recorded for the area around Kingsbridge and the Marble Hill section of the Bronx and contiguous areas along Spuyten Duyvil Creek and now the area of West 230th to West 231st Streets between Broadway and the Hudson River. These were less than two miles west of the NYBG. Not much is known about the sites in terms of their role in the Reckgawawanc settlement pattern (see Boesch 1996). However, they were reportedly used at least until the late 1670's while the Contact period sites around Inwood in Manhattan were occupied until the early eighteenth century (Bolton 1975:20-21). That time was well past the period when the Reckgawawanc would have been engaged in a traditional Pre-Contact settlement system.

It was from that area that a group of Native Americans attacked the Half Moon on October 2nd, 1609, upon its return voyage down the Hudson River. Writing in his Journal, Juet states that:

The second, faire weather. At breake of day wee weighed, the wind being at North-west, and got downe seven leagues; then the floud was come strong, so we anchored. Then came one of the Savages that swamme away from us at our going up the River with many other, thinking to betray us. But wee perceived their intent and suffered none of them to enter our ship. Whereupon two canoes full of men with their bowes and arrows shot at us after our sterne; in recompense whereof we discharged six muskets and killed two or three of them. Then above a hundred of them came to a point of land to shoot at us. There I shot a falcon at them and killed two of them; whereupon the rest fled into the woods. Yet they manned off another canoe with nine or ten men, which came to meet us. So I shot a falcon, and shot it through, and killed one of them. Then our men with their muskets, killed three or four more of them. So they went their way.

3.1.2.2 Siwanoy

The Wappinger group traditionally associated with the portion of the Bronx east of the Bronx River were the Siwanoy or Sinawoy. One of the largest groups of the Wappinger Confederacy, the Siwanoy were known according to Ruttenber (1872:81), as "one of the seven tribes of the sea coast." Their traditional lands extended approximately 24 miles along the west and north shores of Long Island Sound from Hell Gate in the Bronx to Norwalk, Connecticut and as far inland as White Plains (Cook 1976:69-70). Ruttenber (1872:81) includes the lands presently occupied by the West Farms and Westchester sections of the Bronx, the Westchester towns of Pelham, New Rochelle, Eastchester, New Castle, North Castle, Mamaroneck, Scarsdale, White Plains, Harrison, and Stamford, Connecticut as associated with the Siwanoy (Bolton 1881:1:403).

The earliest reference to the Siwanoy is from the 1619 account of Captain Thomas Dermer. (Adrian Block reportedly observed Siwanoy "wigwams" five years earlier at Castle Hill Neck but did not see any Native inhabitants). In that year (1619), Dermer, sailing in his pinnace, encountered a group of Native Americans along the shore of what was later called Throgs Neck (Jenkins 1912:40). Dermer states that "a great multitude of Indians let fly at us from the bank, but it pleased God to make us victors. Near unto this we found a most dangerous cataract amongst two unequal tides, the one ebbing and flowing two hours before the other" (Jenkins 1912:40). Dermer is probably referring to Hell Gate.

3.1.2.3 Effects of European Contact

Problems and conflicts during the seventeenth century between the Indians of the lower Hudson valley area and the Dutch resulted in the death from smallpox, measles, influenza, and other maladies further devastated the local Native American populations.

During the initial period of European contact, the Reckgawawancs probably numbered about 400 individuals and the Siwanoy approximately 1,800 individuals (Cook 1976:70 and 73). By the year 1628, the population of the Reckgawawancs has been estimated to have been reduced to 200 to 300 individuals (Cook 1976:73). In 1715 only a few survivors of the group were reported as living in the vicinity of Inwood in northern "Manhattan" (Bolton 1975:20-21). By 1650, approximately 700 to 900 hundred Siwanoy remained (Bolton 1975). In a single tragic event occurring in February of 1644, an estimated five to seven hundred individuals of the "tribe of the Siwanoy" were slaughtered by the Dutch under Captain John Underhill at a village, the precise location of which is uncertain although candidate sites are in Bedford and Pound Ridge in Westchester County and in Fairfield, Connecticut. By the early eighteenth century only remnants of the group remained, most of which were reported living in the vicinity of Rye Pond in North Castle (Bolton 1975:34). The last recorded Siwanoy settlement was situated near Bear Swamp, formerly located in the Morris Park section of the Bronx, and was occupied until 1782 (Bolton 1848:145). That area is between Lydig and Brady Avenues about a mile southeast of the NYBG.

3.1.2.4 Indications of Native American Activity in the Lorillard Stone Mill Dam Vicinity

Native American activity in the Lorillard Stone Mill Dam is suggested by references to Indigenous archaeological sites and Aboriginal trails within that vicinity (Bolton 1922, 1975; New York City Landmarks Preservation Commission 1991; Historical Perspectives 1993; Boesch 1996). Numerous small sites including camps and shell middens dating to the Archaic and Woodland periods have been identified along the shores of the Bronx River within and adjacent to the NYBG (NYCLPC 1991:33). This area also contained a Native American rock shelter and a turtle petroglyph engraved on a glacial erratic, which has since been removed and is on display in the NYBG Watson Building. Many Native American trails ran through the area, including one that bisected Bronx Park in the vicinity of modern Fordham Road (Grumet 1981). As seen by the locations of the known sites, the recorded trails would have brought Contact period and perhaps earlier Native Americans to the immediate Lorillard study area.

A review of the archaeological data bases of the New York State Museum (NYSM), New York State Historic Preservation Office (NYSHPO), and LPC and of published histories of the Native American occupation of New York City revealed that there are at least 9 Native American archaeological sites near the Lorillard Stone Mill Dam and the Lorillard area of occupation (Boesch 1996; see Table 1 for a summary of the 9 sites). Nearly all these sites have been identified within the boundaries of Bronx Park and the NYBG (Appendix A, Figure 3). Further information on them is provided below.

Table 1 *Previously Identified Precontact Archaeological Sites Near Lorillard Stone Mill Dam*

Bear Swamp	Boesch:1996: #43	5,000 ft southwest	Late Woodland – Contact	Siwanoy Village	Boesch (1996); Bolton (1922, 1975)
Bronx River I	Boesch:1996: #46	700 feet south	Precontact, possibly Late Woodland	Camp site	Boesch (1996)
Bronx River II	Boesch:1996: #47	5,000 feet south	Precontact, possibly Late Woodland	Shell Middens	Boesch (1996)
Unnamed	Boesch:1996: #49	700 feet south	Precontact, possibly Late Woodland	Camp	Boesch (1996)
New York Botanical Garden I	Boesch:1996: #119	650 feet west	Precontact	Camp	Boesch (1996)
New York Botanical Garden II	Boesch:1996: #120	1,000 feet north	Precontact	Rock Shelter	Boesch (1996)
New York Botanical Garden III	Boesch:1996: #121	386 feet north	Precontact/Contact	Turtle Petroglyph	Lenik (1988), Boesch (1996), Gilbert (2018)
New York Botanical Garden IV	Boesch:1996: #122	500-700 feet west	Precontact	Projectile Points	Boesch (1996)
Achqueehgenom	Bolton 1922	500 feet south	Precontact	Fording place	Bolton (1922)

New York Botanical Garden Prehistoric Site I

A Pre-Contact period camp site was reportedly located on a slope within what was formerly the property of Saint John's College and later Fordham University (now part of the NYBG) in the area of the first Jesuit Cemetery on the property about 1,500 feet southwest of the Lorillard Stone Mill Dam (Appendix A, Figure 3). Many oyster shells and arrow heads were reportedly recovered at that location. The interments were moved to a new area, also on NYBG grounds, and it is possible that the Native American artifacts came from the new location (Butler 1977:25). It was speculated that the site was the half-way stopping point for Native Americans traveling from Spuyten Duyvil southwest to Long Island Sound. Caviston (1952:3) speculated that "this seems plausible because of the extraordinary number of oyster shells and arrowheads which have been discovered on that spot."

New York Botanical Garden Prehistoric Site II

A Pre-Contact period cave or rock shelter site was located on the grounds of the NYBG on the west side of the Bronx River near the Magnolia Road Bridge about 1,000 feet north of the Lorillard Stone Mill Dam (Appendix A, Figure 3). The site was reportedly investigated by the noted avocational archaeologist Dr. Theodore Kazimiroff, active in the region who recovered lithic material and Late Woodland pottery. The shelter "consists of a large slab of fallen rock that is leaning against the bedrock ledge and forms a small, enclosed area" (NYCLPC 1991:36). NYCLPC "believes that the site may be a significant site and... it has the potential for yielding information on the prehistory of the area" (NYCLPC 1991:3.).

New York Botanical Garden Prehistoric Site III

A turtle petroglyph with appendages and a head was located on the east side of the Bronx River and identified by noted professional archaeologist Dr. Ralph Solecki of Columbia University (NYCLPC 1991:38; Appendix A, Figure 3). According to NYCLPC (1991:38), "The turtle design is incised or carved into the top of a small granite boulder that lies in the middle of the trail some twenty feet above and thirty-six feet east of the river, and about 386 feet north of the waterfall [Lorillard Stone Mill Dam]. This boulder is a glacial erratic that was dropped here by the retreating ice sheet about 13,000 years ago...The design is well executed and is about 5 1/4 inches in length by 3 inches wide. The head of the turtle is oriented to the north while the face is turned to the west or toward the river." The petroglyph is hypothesized to have been made sometime between 1,000 and 400 years ago by Lenape peoples. Two similar but smaller petroglyphs have been found in the New York City region but likely served as ornaments (Lenik 1988). The NYBG erratic has been moved from its original location and is now protected under glass in the garden's Watson Building.

New York Botanical Garden Prehistoric Site IV

Avocational archaeologist Dr. Theodore Kazimiroff reportedly collected many projectile points dating from the Archaic to the Late Woodland period's Bowman Brook phase, and possibly extending back another 1,000 years (the late Archaic through early Woodland periods) from surface contexts and eroding from various locations following rainstorms on the grounds of the NYBG (Appendix A, Figure 3). According to his son, Ted Jr., Dr. Kazimiroff frequently walked NYBG property after a rainstorm and often finds projectile points" (Historical Perspectives 1993). Most of the collection is in storage at the NYBG.

Bear Swamp Site

The large Siwanoy village at Bear Swamp was a habitation site near the NYBG but outside of its property (Appendix A, Figure 3). It "was probably a principal station of the "Sin [Siwanoy] of the Bronx District" who inhabited the area through 1782 (Bolton 1922: 224). The village was situated approximately one mile to the southeast of the Lorillard study area and evidence of the Native American occupation of the location was still visible on the surface into the 1920s (Boesch 1996). The village was situated on the west side of a stream known

historically as Downing's Brook in the Morris Park section of the Bronx. An Indian trail known as "Bear Swamp Road" led to the village. As seen on Bolton's (1922) maps, this trail crossed through the northeastern corner of the Lorillard Stone Mill Dam and continued east indicating Native Americans would have passed through the study area. The former Bear Swamp Road was reported to have derived its name "from a swamp to the east of Bronxdale, where the Siwanoy had an important village near the site of Morris Park race-track" (Jenkins 1912:214). The trail skirted the Bear Swamp and lead to Castle Hill Point (McNamara 1984:39). While the trail followed a portion of modern Bronxdale Avenue, nearly all former traces of the site were eliminated after the construction of Bronx Park and the Bronx and Pelham Parkways (McNamara 1984:39).

Achqueehgenom and Sachkerah

Another Native American habitation site, referred to as an "Indian Settlement" reportedly was located on the east side of the Bronx River north of modern Fordham Road (Hermalyn 1972:3; Grumet 1981; Appendix A, Figure 3). This location was known as Achqueehgenom, meaning "high bank" or "where the [Bear Swamp] path goes over" during the Contact period. The site and trail may have some time depth. It has been suggested that the area served as a boundary between different Contact period Native American groups and/or was the location of a shallow wading place in the middle of a trail where the Bronx River could be easily crossed. Bolton (1922) identifies this village within the southeast corner of the NYBG, to the north of the Bronx Zoo about 700 feet south of the Lorillard Snuff Mill. The Native American Bear Swamp trail lead from the village to Manhattan along the line of modern-day Bronx and Pelham Parkway, Kingsbridge Road, and Bronxdale Avenue (Bear Swamp Trail – see above; Boesch 1996).

Reginald Bolton's (1972) "Indian Paths in the Great Metropolis" mentions an east-west Indian trail called Sachkerah that traversed the northern Bronx through Norwood at Gun Hill Road at the northern boundary of the NYBG (Bolton 1972:48; Appendix A, Figure 3). This trail, first recorded circa 1669, appeared to traverse a site called Cowangough, a "boundary place" or a "wading place" where the trail crossed the Bronx River (Grumet 1981:9-10). Grumet also placed an unnamed Indian trail approximately on the route of what is now Southern Boulevard (Grumet 1981:69). The Bronx River itself was known by Native Americans as Aquahung or "a place of high bluffs or banks" (Kazimiroff 1954:250 as quoted in NYCLPC 1991:32).

Unnamed Camp Site

A small possibly Late Woodland period campsite (Bolton 1922: 240) was reportedly located along the banks of the Bronx River at the Achqueehgnom wading place about 700 feet south of the Lorillard Snuff Mill (Appendix A, Figure 3).

Bronx River I

The Westchester County Historical Society's 1933 Map of Westchester County Showing Indian Occupation indicates the presence of a camp site immediately south of the NYBG along the banks of the Bronx River. The site location is about 750 feet south of the Lorillard Snuff Mill (Appendix A, Figure 3). The site indicated may be Bolton's (1922) Unnamed Camp Site mentioned above.

Bronx River II

The Westchester County Historical Society's 1978 Westchester Heritage Map indicates the presence of shell heaps and middens possibly dating to the Late Woodland period on the east bank of the Bronx River south of Delancey's Mills, about a mile south of the Lorillard Snuff Mill (Westchester County Historical Society 1978; Appendix A, Figure 3).

Other Pre-Contact/Contact Period Sites in the Lorillard Stone Mill Dam Bronx River Region

Archaeological research in the Northeast has demonstrated a Pre-Contact and Contact period preference for settlement on well-drained, upland soils in proximity to fresh water (Ritchie and Funk 1973:333-369). In their assessment of archaeological sensitivity for the Bronx Park property, the LPC identified areas as sensitive that were characterized as "elevated terraces that are undisturbed, well drained, and has easy access to potable water..." (NYCLPC 1991:26). Portions of the Lorillard Stone Mill Dam study area contain these attributes. LPC's (1991:39) assessment continued:

The west side of the Bronx river, between Lincoln rock on the north and the waterfall on the south...This area is an elevated terrace that is generally flat, well-drained, and has easy access to potable water and other food and material resources. Except for the walking trails, this zone is largely undisturbed and is within the NYBG Forest which is an uncut woodland in New York City. A second potentially sensitive zone is located along the east side of the Bronx River between Snuff Mill Road on the north and the edge of the Montgomery Conifer Collection on the south...A third...is located along the west side of the Bronx River to the south of Snuff Mill Road.

The Lorillard Stone Mill Dam study area also is shown in the New York State Office of Historic Preservation's CRIS data base as located within an archaeological buffer zone/area of sensitivity that extends along the Bronx River valley corridor and adjoining bluffs, terraces, and floodplain from East Fordham Road/Pelham Parkway on the south to the Dr. Theodore Kazimiroff Boulevard on the north and west and the Bronx River Parkway on the east due to the presence of archaeological sites in the area.

In addition to the Bronx River which would have provided fresh water, there were at least two known springs previously within or near the Lorillard study area. The first was located near the south part of the Magnolia Collection just east of a turn in the river about 500 feet northeast of the Lorillard Stone Mill Dam. The second was located about 175 feet east of the Lorillard Stone Mill Dam near the former location of the Lorillard mansion. Both springs were covered with wooden structures in the late nineteenth century (NYBG Historic Date Files). The parcel had scattered wetlands, and a lake once sprawled north-south just east of the Lorillard's stable, now the operations center. Drained land surrounding these water sources may have been attractive for Native American habitation.

At least 25 other past Native American archaeology sites or other evidence of activity have been recorded along the Bronx River between the New York City – Yonkers municipal boundary and the river's confluence with the East River (Boesch 1996; LPC 2023). This clearly indicates the Pre-Contact and Contact period attraction of the entire Bronx River valley corridor (and points further north) to Native Americans for subsistence, fresh water, travel, and other purposes. Undeveloped areas along the valley, such as the Lorillard Stone Mill Dam area, and/or locations where extensive filling has occurred as part of development must be considered to be archaeologically sensitive for such sites.

3.2 Seventeenth Through Early Twentieth Century Period Cultural Context for the Lorillard Stone Mill Dam Study

An overview of the Euro-American culture history of the region which includes the current Lorillard Stone Mill Dam through the early twentieth century is presented in this section. Discussion on the Lorillard tobacco business, its development, and its later activities along the Bronx River within what is now the NYBG as well as a limited account of its effects on the Bronx community of which it was a part is provided in Section 5.

Prior to development land to the east and west of the Bronx River in the vicinity of the NYBG was a fertile, plain-like feature. As with the rest of the Bronx, the area was open farmland, pasture, or woodlots from the seventeenth century on until the time of residential and commercial development in the early-to-mid nineteenth century and later. Commercial/industrial practices, primarily water powered saw and corn/wheat grist mills harnessing the water power of the Bronx River, developed a little more than a mile south of the current NYBG. The area likely was chosen for such endeavors because not only could the powerful Bronx River be dammed to create impoundments/mill ponds on the wide floodplain and construct mills but through the location passed several Native American trails that became roads providing routes to the Harlem River and East River/Long Island Sound and access to markets in New York City and beyond. Needed raw materials agricultural or otherwise could be brought into the area and commodities sent out somewhat easily. A nearby village called West Farms arose and gave its name to that section of the Bronx which later also was referred to as Delancey's mills. The mills and village became the area's dominant economic site through the late seventeenth and eighteenth centuries particularly attracting wanted and unwanted attention through the period of the American Revolution.

For most of the period prior to the late eighteenth century, the part of the Bronx River, its gorge, terrace, floodplain, and bluff-like margins occupied by the Lorillard family for almost a century remained in a natural, probably mostly undeveloped state. Unrecorded activities such as timber harvesting, riverine resource exploitation, and travel likely did occur there as part of the area's rural setting but to date these early historic activities are unknown and deserve to be researched.

3.2.1 Early Years

For the first 13 years after the Dutch founding of New Netherlands in 1626, no notable land purchases or settlements occurred within the lower Hudson Valley region north or east of Spuyten Duyvil Creek. Land purchases between Native Americans and the Dutch were many and in the historical record confusing with the boundaries of these purchases tending to be obscure. However, the topographical features of the Bronx and its waterways dictated, to a considerable extent, many of the original purchases within its area and served as natural boundaries in the later establishment of distinct towns and political divisions within the Bronx. This is especially true of the Borough's north-south running rivers such as the Bronx River (aka West Farms Creek). The river served this boundary purpose with different purchasers acquiring tracts to the east or west of the Bronx River. The current Lorillard study area falls into this early purchase divide although the known Lorillard structures are situated in the Bronx River or on its east side.

3.2.1.1 Kekesheik

As far as can be ascertained, the first official European land sale from the Native Americans in the Bronx occurred in 1639 when Rechgawawanc and possibly Siwanoy sachems (or sagamores) identified as Fecquemeck, Rechgawac, Teckerew, and Packanarieus, sold to the Dutch West Indian Company the lands of "Kekesheik" which included all the acreage between the Bronx and Harlem Rivers now encompassing the west Bronx and the City of Yonkers (Taaffe 1891:18; Bolton 1975:18; Lederer 1978:77).

3.2.1.2 Bronck's Land

The next notable purchase was also in 1639 or possibly 1640 when a 500-acre tract known as Ranachaqua (or Ranaqua) was sold by Siwanoy and Rechgawawanc sachems to Jonas Bronck (c. 1600-1643). Bronck was a Dutch, Danish, or Swedish farmer who became the first white settler of the region that became the Bronx and for whom the Bronx River and the Borough of the Bronx were subsequently named (Jenkins 1912:26). Bronck's purchase encompassed all the land on the east side of the Harlem River below the line of present-day East 150th

Street or possibly East 161st Street. The area was then known as Ranachagua, or “the End Place,” as it was the southern terminus of a Native American trail (the Westchester Trail, now Westchester Avenue). Ranachagua soon became known as “Bronck’s Land,” and the Aquahung, or “River of High Places” that lay to its east became known as “Bronck’s River.” Bronck established a farming plantation with tobacco planned as a primary crop along with wheat, and corn. He also raised cattle and hogs, in “numbers unknown running in the woods” (Vail 1903). He cleared the land and built a stone house “covered with tiles,” a barn, several tobacco houses, and barracks for his workers and servants (Evjen 1916:169). The purchase price for the land was two guns, two kettles, two adzes, two shirts, a barrel of cider, and six coins (Evjen 1916:170). His house stood approximately where the current MetroNorth Railroad line crosses East 138th Street (NYLPC 1991).

It is doubtful that Bronck established a mill along the Bronx River given that his property included the marshy, flat floodplain and shoreline of the southernmost reach of the river near where it joined the East River. Not ideal locations for a water powered mill although Bolton (1848) claims he did in fact construct one along the lower Bronx River. If so, Bronck’s mill was the first of many which would be erected along the lower Bronx River during the seventeenth and eighteenth centuries (Bolton 1848). Bronck’s died in 1643 as conflict between the Dutch and Native Americans was starting (referred to as Kiefts War – 1643-1645) and his plantation burned. It was subsequently partially rebuilt but sold soon after (Sack 1974).

Bronck’s widow remarried and moved with her new husband near present-day Albany. Bronck’s remaining tenants, frustrated with growing tobacco and concerned about further conflict with Native Americans, mostly abandoned their parcels and dispersed. Bronck’s land eventually became known as Morrisania and Mott Haven, but the Bronx River and its margins for much of the seventeenth and early eighteenth centuries also kept the name Aquahung.

3.2.1.3 Nepperhaem

The Dutch West Indian Company did not develop their 1639 Kekesheik purchase. The Reckgawawanc apparently felt that this neglect entitled them to resell the same land, for in 1646 Tackerew and eight others sold 24,000 acres of it to Adriaen Van der Donck (Allison 1896:27; O’Donnell 1968: XXVII). Van der Donck had previously received permission from Dutch Governor Kieft, as a reward for services rendered the previous year, to purchase the lands supposedly owned by the Dutch West India Company (O’Donnell 1968: XXV). The deed to this tract calls the land “Nepperhaem.” With this purchase, Van der Donck acquired an estate (bouwery) that extended from the Hudson to the Bronx Rivers (including the current NYBG west of the river) and from Spuyten Duyvil Creek on the south to a large glacial erratic (or rock) formerly located on the Hudson River near the present-day New York City – Yonkers municipal boundary. The erratic was a predominant landmark to local Native Americans who reportedly referred to it by the Algonquian word “Amackassin” (or “Meghkeekassin; Ruttenber 1872: 365-366; Scharf 1886: I:23). Unsurprisingly, both Algonquian terms reportedly translate as “large rock” (Lederer 1978:8; Grumet 1981). The rock was destroyed or covered by fill when the railroad was built along the east shore of the Hudson River in 1848 (Bolton 1922).

3.2.1.4 Vriedlandt

In the early 1640s, a large plot of land was granted to a group of settlers led by John Throgmorton (for whom Throgg’s Neck was named) that encompassed most of the land east of the Bronx River and north of the East River and Long Island Sound. The settlement was named Vriedlandt, meaning “land of peace,” but within a few years it was destroyed by warring Native Americans and any colonists who survived the attack fled the area, causing it to become a “wilderland” (Jenkins 1912:30).

3.2.1.5 Pelham Manor

In 1654, local Siwanoy represented by the sachems Orochquot, Annoke (or Ann Hock reportedly the killer of Anne Hutchinson in August 1643), Wawhamkus, Mehumow, Maminepoe, and others, resold 50,000 acres of Dutch claims to the eastern Bronx and eastern Westchester to the Connecticut physician Thomas Pell, an Englishman, and one time Master-of-the Bedchamber to Charles I. The tract sold extended from Eastchester Creek on the south to Gravelly Brook in what is now Mamaroneck in the north and westward to the Bronx River (Shonnard and Spooner 1900:173; Bolton 1975:33). The tract included the east part of the current Lorillard study area. With the purchase, Pell became First Lord of the Manor of Pelham. Scharf (1886) claims that Pell paid for the land with “sundry hogshead of Jamaca rum.”

Pell was legally challenged by the Dutch Courts who considered him an English trespasser on Dutch territory (Saunders 1991). The dispute was resolved in September 1664 when the British Navy supported by militia lead by Pell, entered New Amsterdam and forced Peter Stuyvesant, the Dutch Governor of New Netherland, to surrender the colony to the British (Saunders 1991). Pell's claim was confirmed, and he received a patent for his purchase. Following surrender, the British took control of New Amsterdam, and the colony was renamed New York.

Even after Pell's and the earlier purchases, no substantial settlements were present in the Bronx prior to the mid-seventeenth century. Unknown, individual Dutch and English squatters, settlers, or traders pushing into what was a wilderness likely represent the only penetrations into the Bronx during that period. Within a few years following the British takeover, however, small settlements were started. The only substantial settlement in the Bronx by circa 1670, however, was the Village of Westchester located along Westchester Creek. It was founded by New Haven people brought in by Thomas Pell soon after his purchase to serve primarily as workers on his Manor (Jenkins 1912). The original village is about two and a quarter miles south of the Lorillard Stone Mill Dam.

3.2.1.6 Jessup and Richardson Purchase and West Farms

In 1663, Edward Jessup and John Richardson brought from nine Native Americans a tract of land west of the Bronx River. Following the Dutch surrender of New Amsterdam, and according to contemporary procedure, the two purchasers were required to seek confirmatory patents from the New York Common Council for the land which was purchased from the Indians. The two purchasers subdivided the tracts into twelve farms including the NYBG property west of the Bronx River. Fordham Manor was created from one of the farms when it was granted in 1671 by Governor Lovelace to Jan Archer, a Dutchman (Jenkins 1912:5). Further subdivision led to the establishment of tenant farms throughout the tract, with all the land within the NYBG property west of the Bronx River falling into possession of the Corsa family by the late seventeenth century. Their farm estate, Rose Hill, was established in 1692 (Appendix C, Photograph 34).

Jessup and Richardson also began the settlement (later village) of West Farms along the Bronx River near the southern end of the present Bronx Zoological Park. The location is about a mile and a quarter south of the Lorillard Stone Mill Dam (Jenkins 1912:42). By the late seventeenth century, Jessup and Richardson had erected a sawmill and a corn (grist) mill in their settlement along the Bronx River (Bolton 1848) suggesting that much of the area surrounding the NYBG was agricultural in nature with maize/corn and or wheat cultivation likely prominent.

3.2.2 Further Seventeenth- and Eighteenth-Century Context

Jessup and Richardson's mills were conveyed to Evert Byvanck by circa 1704. The Indigenous trail connecting Byvanck's Mill with Kingsbridge, near the northern end of Manhattan, was improved and a more formal road was in place along the route circa 1704 (Carlson 1955). Byvanck died in 1711 with his wife Tryntje (also spelled "Wyntie"), inheriting the property, house, and mills (New York Historical Society 1894). Soon after, Byvanck's son-

in-law, William Provoost, inherited the property which then included farms, mansion, and two additional grist mills making four mills in total (up from two mills more than a decade earlier).

The property was conveyed in 1711 to Nicholas Brouwer, who leased it to Daniel Tournier in 1712 and again in 1719 (Carlson 1955). The property apparently was up for sale in 1726 with a New York Gazette notice announcing that year that "two grist mills and one sawmill, a good house, and several parcels of upland and meadow" totaling 160 acres were for sale at West Farms (Carlson 1955). The purchase would also include the privilege of erecting additional mills and to cut timber from all of Westchester. Stephen Delancey apparently purchased the property, thus beginning an important period in the West Farms/Delancey Mills area. In 1774, trustees of the town of Westchester sold to Stephen's sons James and Oliver Delancey, the rights to land under the Bronx River "and all such lands that have been granted by the town for use of the mills" (Bolton 1848: 255). The area became known as Delancey's Mills or Delancey's Bridge during most of the eighteenth century. James Delancey was a notorious Loyalist whose politics and military efforts against the Patriots resulted in much of the Delancey property being lost after the American Revolution. However, the mill's remained Delancey family property until 1825 possibly due to Oliver's involvement and more moderate political leanings.

Jessup and Richardson's late seventeenth century mill construction along the lower Bronx River established a tradition of waterpower milling that continued there until the late nineteenth century. Mill dams were constructed to form impoundments to harness waterpower for use in the mills. Such dams transformed the landscape of the Bronx River. By the mid to late nineteenth century, West Farms and surrounding sections of the Bronx River became industrial. Besides saw and grist mills there were paper, paint, carpet, and pottery works along with Lorillard's snuff mill along the lower stretch of the Bronx River (Myers 1940). Without the mills, the Bronx River "would be nothing but a narrow silvery stream" wrote one early twentieth century commentator (Comfort 1906: 42). Likely cleaner too.

Despite West Farms commercial/industrial growth, relative to the growth of lower Manhattan the Bronx remained largely vacant during the period of New York City's early development. During the seventeenth and most of the eighteenth centuries, the current Lorillard Stone Mill Dam vicinity probably consisted of undeveloped floodplain and terraces with possibly scattered seasonal riparian marsh. Although individual farms were scattered throughout the central and south Bronx, there were few substantial communities in the area until the early to mid-nineteenth century and only a few "miniscule towns" were established along the primary travel route the Boston Post Road (Burrows and Wallace 1999:61). That road connected New York City with Boston as early as 1672. In the NYBG, road sections ran parallel to and near the west side of the Bronx River. Other sections were incorporated into the Bronx Zoological Park. The road was an important local transportation route that linked people and communities in the region and influenced commerce, industry, and settlement patterns" (NYCLPC 1991:25).

Most of the European settlers working the lands of these various purchases during the seventeenth and into the eighteenth centuries were tenants or people enslaved to the landowner. Tenant quit-rents varied but for farmers were paid principally with corn/maize, wheat or other grains, vegetables, fruits, livestock, or poultry, during the early years when money was scarce. Tradesmen might pay in goods or by providing services. By the mid-eighteenth century, quit-rents were frequently paid in cash (Hutchinson and Hutchinson 1980:20). Generally, rents were paid once or twice a year with delivered goods and commodities sent to markets in New York or other places along the eastern seaboard, and occasionally to the West Indies (Allins n.d.). On some manors, tenants could lease their farms for 99 years, with the privilege of the lease descending from father to son, after which the heirs may have the right to purchase the property (Silliman 1976:3).

In 1683, the County of Westchester was formed by the New York Colonial Assembly, extending from the South Precinct of Dutchess County on the north, to the Harlem and East Rivers on the south. What is now the Borough of the Bronx, including the NYBG property became part of Westchester County (Jenkins 1912:1).

3.2.3 Revolutionary War Years Context for the NYBG Vicinity

Following the British takeover of New York in 1776, forcing the American army to withdraw northward, Westchester County south of the Croton River including most of the Bronx became part of the "Neutral Ground." The term was generally applied to the area after the 1776 Battle of White Plains when neither British or American forces controlled the region and bitter internecine warfare occurred (Todd 1886; Hufeland 1974). Forces loyal to both sides and to neither ranged almost unchallenged across the area raiding, burning, ravishing, pillaging, and killing. Violence and conflict were frequent with family members and friends many times pitted against one another. According to one source, throughout the Revolutionary War "more mixed fighting [occurred in the Neutral Ground] than anywhere else in the thirteen states" (Guiterman and Williams 1920: 230). The horrific effects of the war to the region were described by Louis-Alexander Berthier of the French army in 1781 (Lee 1975:72):

This whole country gives evidence of the horrors of war. The inhabitants we find are in communication with the English and are pillaged by American raiding parties. All the Whigs here have abandoned their houses. Among them are some very handsome ones, deserted, half destroyed, or burned, with untended orchards and gardens filled with fruits and vegetables, and driveways overgrown with grass two feet high. Only along the borders of the Sound is there less devastation since there the inhabitants have changed sides whenever it has proved expedient.

From 1776 until the end of the war, the British lines were at Spuyten Duyvil extending eastward to anchor at Delancey Mills and West Farms. Their main fort (Number 5) was at Kings Bridge at today's intersection of Kingsbridge Road and Sedgewick Avenue less than a mile and a half west of the NYBG. Several small earthworks and posts were situated along the defensive line short distances north and east of Spuyten Duyvil Creek closer to the NYBG (The MacDonald Papers 1844).

The DeLancy family, as stated previously, was one of the most prominent and influential Loyalist families in the region and many of its men held highly ranked positions in the Loyalist and British military. The West Farms/Delancey Mills, Bridge, Mansion, and surrounding areas, situated less than a mile and a quarter south of the Lorillard study area, were a center of British and Loyalist encampments, supply depots, mills, travel routes, and other activities under the control of the Delancey family during the war. As stated, the area served as the eastern point of the British military line defending Manhattan extending eastward from the Hudson River and Spuyten Duyvil Creek.

Although there is no substantiation, one source suggests that the Delancy family owned what is now the NYBG property during the war (Jenkins 1912: n.p.). More likely the Delancey family-owned parcels east of the Bronx River to the area of West Farms where their holdings extended westward to Morrisania. During the Revolution, areas east of the Bronx River north of West Farms, including what is now the NYBG, were owned by the Corsa family. A member of that family, Andrew Corsa (Appendix C, Photograph 35) was part of the famous Westchester Guides who served as guides and scouts for Westchester County troops battling against the British (Westchester County Historical Society 1932:55; Jenkins 1912:171).

Since the Delancey's mills and activities and their mansion along the Bronx River played important roles in New York during the Revolutionary War, they became targets of American rebels. The forests surrounding the area provided adequate protection for approaching troops hoping to attack or kidnap family members and Loyalist troops (Jenkins 1912). Although there is no recorded of fighting within the current Lorillard Mills study area

during the Revolution, Hufeland (1974) suggests the Bronx River gorge provided concealment to Patriot troops on their way to surprise the Loyalists at West Farms and Delancey Mills passing the future Lorillard occupation area.

Frequent Revolutionary War events are recorded for the West Farms/Delancey Mills and Bridge area during the war. Some of the more notable include:

- As the Revolution began, a company of militia from West Farms was raised and trained during the late spring of 1775 to resist the British (Hufeland 1974:67).
- A detachment of Continental troops and New York militia with over 200 wagons under the command of the noted Brigadier General John Stark took as much food and forage as their wagons would hold from the West Farms area and other portions of the Bronx in late summer 1776 after the Battle of Brooklyn Heights and the withdrawal northward of Washington's army (Hufeland 1974:369). Dr. James Thacher, a surgeon of a New England Regiment who recorded many of the war's events, localities, and battlefield sites, accompanied this action and described the country he rode through, including what is now the NYBG. His writing provides a first-hand account of the war's effects on the people around the area (Thacher 1827:285):

The country is rich and fertile, and the farms appear to have been advantageously cultivated, but it now has the marks of a country in ruins. A large proportion of the proprietors having abandoned their farms, and the few that remain, find it impossible to harvest the produce. The meadows and pastures are covered with grass of a summer growth, and thousands of bushels of apples and other fruit, are rotting in the orchards. We brought off about two hundred loads of hay and grain, and ten times the amount might have been procured, had teams enough been provided. Those of the inhabitants of the neutral round who were tories, have joined their friends in New York, and the whigs have retired into the interior of our country.

- During the autumn of 1777, a column of British regulars under the command of Colonel Howe marched down the road that became Webster Avenue, the former aboriginal trail, about two thirds of a mile west of the Bronx River Lorillard study area (Sauthier 1777).
- On November 4, 1776, a brigade of British Regulars under the command of Major General Grant encamped at Delancey's Mill and West Farms (Hufeland 1974:177).
- Late autumn of 1777, a detachment of Patriot troops raided Delancey's Mill and West Farms capturing the notorious Loyalist Commander and Sheriff of Westchester James Delancey and other Loyalists. The captured men were taken to Connecticut. Delancey was soon released on parole in exchange for an American officer but soon broke his parole (Hufeland 1974:250).
- A British block house was constructed by Captain James Delancey at what is now East 179th Street across the Bronx River from Delancey's mills (Hufeland 1974: 103; NYCLPC 1991). The mills are depicted a short distance to the south of the 'Road to West Farms' (now roughly East 180th Street) by Hufeland (1974). The block house repeatedly was a target of Patriot troops and finally destroyed by Colonel Aaron Burr in January or February of 1779 (Magazine of American History 1881; Kelley 1909).
- On August 5, 1779, a Patriot force of 140 mounted troops and 40 Continental infantry under the command of Lt. Colonel White raided Loyalist militia at Delancey's Mills and Morrisania taking prisoners and supplies (Hufeland 1974:308; Westchester County Historical Society 1978:6).

- In November 1779, a Patriot detachment raided West Farms and captured the notorious Loyalist, Major Mansfield Bearmore, a local resident. Bearmore was soon exchanged and paroled, but he quickly broke his conditional release and returned to leading Loyalist troops. He was killed in action in November 1780.
- As part of a larger Patriot action, a column of Continental troops crossed over Delancey's Bridge and moved to the nearby settlement of West Farms, securing both, on January 1, 1781 (Hufeland 1974:399).
- At the end of January 1781, two brigades of British troops occupied Delancey's Bridge and West Farms (Hufeland: 1974:408).
- Illustrating the fluid nature of the war time situation at West Farms is the fact that Delancey's Mills served as headquarters for British General Howe in 1776 with Howe's troops pillaging neighboring farms (Jenkins 1912:154) while George Washington, French General Comte de Rochambeau, and their military escorts crossed the Bronx River at Delancey's mills on July 23, 1781 and used the nearby Delancey Mansion for a short term bivouac headquarters of George Washington (Bolton 1848).
- A Patriot raid occurred on December 23, 1781, when 25 Patriot troops captured a few British officers and other British troops at Delancey's Mills and confiscated or destroyed enemy supplies (Hufeland 1974:408).
- In 1782, Captain Honeywell's Patriot Calvary attacked Delancey's camp at West Farms and took 20 prisoners. They were pursued by Loyalist militia to Mount Vernon and escaped (Westchester County Historical Society 1976:8).
- On January 24, 1783, a troop of 50 militia under the command of Captain Daniel Williams and Lieutenant John Odell raided Delancey's Mills and West Farms taking "two prisoners, 15 horses and a variety of plunder (The MacDonald Papers 1844).

The Bronx River was an important terrain feature tactically serving as a natural boundary and north to south travel corridor between American and British troops and also connecting to existing thoroughfares leading in other directions (Jenkins 1912). The river was described during the early nineteenth century "as a clear, murmuring stream with watermills and farmlands along its length" and an important source of drinking water (Hermalyn 1982:7).

The war events mentioned as well as the importance of the Bronx River and the roadways passing and converging on the critical Delancey's Mills and West Farms area must have resulted in troops, couriers, teamsters carrying supplies, and other military activities being a common sight in the area. It is likely that troops involved in some of these actions passed through the NYBG property and the Lorillard Stone Mill Dam area.

3.2.4 Post Revolutionary War Years

During the late eighteenth and early nineteenth centuries, the Bronx retained its rural, farming character with grain and vegetables, particularly cucumbers, and livestock as the main crops with a population estimated at 1,781 in 1790 (Silliman 1976:17; Kantrowitz 1995). Prior to 1792, the Lorillard occupation area may have been used for fishing or woodlots. As mentioned in Section 3, it is speculated by a New York City Landmarks Preservation archaeologist that the Lorillard Stone Mill Dam was constructed where it is possibly as a result of a beaver dam and pond already present there (Pagano 2024). Such an impoundment could have served as a fishing location during early historic times. It has been further speculated that Native Americans constructed weirs in such ponds to exploit fish (Connaway 2007: 421).

Westchester County was divided into 5 townships by an act of the New York State Legislature on March 7, 1788 (Shonnard and Spooner 1900:531- 532). What is now the NYBG was located within the ancient Manor of Fordham within the Township of Westchester, which included most of the central part of the Bronx east and west

of the Bronx River (Jenkins 1912:5-6). The Westchester township was further subdivided in 1846 when the Town of West Farms (as opposed to the earlier village settlement) was formed from all the land west of the Bronx River, encompassing part of the NYBG property.

After the American Revolution, the New York State Legislature set up a Commission of Forfeiture to proceed with the orderly selling of lands formerly owned by Loyalists which had been confiscated by the State, and a Commission of Sequestration to dispose of Loyalist material property (Yoshpe 1939). Nearly all the Delancey family's property was confiscated and sold. Apparently, some family members remain loyal to the Patriot cause or other events transpired since the family retained the mills and surrounding property (McNamara 1984:39). After the war, the property was owned by Oliver Delancey, most likely Peter Delancey's third son, although Stephen Delancey also had a son named Oliver, who was a Brigadier General in the British army and whose son, also named Oliver, was a Major (Bolton 1848). Oliver Delancey was recorded in the 1790 Federal Census as a citizen of the Township of Westchester, living in a household with 7 free white individuals, 1 free individual, and 6 slaves. Another household headed by Warren Delancey was also located in the town of Westchester in that census.

Oliver Delancey and Joseph Browne, who owned a linseed oil factory on the western side of the Bronx River near Delancey's Mills, erected a dam across the Bronx River between their properties in 1793 (Carlson 1955). Browne, the brother-in-law of Aaron Burr, later propose a plan to use the Bronx River as the source of drinking water for New York City, although this plan was never enacted (Koeppel 2000). The year before the construction of this dam, Pierre Lorillard, constructed his snuff mill to the north of Delancey's Mills within the boundaries of the modern Botanical Gardens (Burrows and Wallace 1999).

Immediately after the Revolutionary War, the Boston Post Road was realigned in an attempt to provide a more direct route between New York and Boston. Whereas the original path of the road crossed the Bronx River at Williamsbridge, to the north of the Lorillard Stone Mill Dam, the realigned road crossed the river within what is now the Bronx Zoo. The land on which the new road was constructed was confiscated by eminent domain from the owners (Jenkins 1912). The new road was completed by John B. Coles in 1789 and is often referred to as "Coles' Boston Post Road" (Stegman 1927). It was made a public highway in 1797, after which it greatly increased West Farms' importance as an industrial and residential location (Jenkins 1912).

3.2.5 Nineteenth Century and Later

The Delancey family continued to own the land in the vicinity of their mills at the start of the nineteenth century. A tract of land on both sides of the Bronx River that included the Delancey mansion and mills was leased by David Lydig, a paper miller, around 1802 or 1803 for use as a summer residence (Carlson 1955). Lydig bought the land and property in 1825 (Jenkins 1912:389; McNamara 1984:420). By this period, the dam and natural waterfalls within the Bronx River near 180th Street, formerly known as Delancey's Falls, became known as Lydig's Falls (McNamara 1984:420). During the first half of the nineteenth century, the area was heavily wooded with a "scarcely perceptible trail" through it (Comfort 1906:46). The Lydig family retained the land on the western side of the river, which would remain in the family until Bronx Park was established in the late-nineteenth century.

In 1820, Robert Bolton established a bleachery near the Boston Post Road's crossing over the Bronx River, south of the NYBG property. Many of Bolton's employees settled nearby in Bronxdale, a small milling village on the Boston Post Road just east of the Bronx River near the NYBG property (Jenkins 1912:417). The mills and former Delancey mansion were destroyed by a fire in 1822. The mills burned a second time in 1845 at which time they were rebuilt on the western side of the river (Comfort 1906; Carlson 1955).

In 1841 St. John's University, where seminarians received training to be priests for the Catholic Archdiocese of New York, was established in Fordham on Southern Boulevard at "Rose Hill," a section of the former Corsa farm.

Rose Hill Manor, the oldest structure on the property at the time of St John's acquisition, was built in the 1690s by the Corsas (Appendix C, Photograph 34; Gannon 1967:26). At that time, the area was relatively undeveloped with only a few isolated farmhouses in the vicinity (Taaffe 1891:50).

Part of the land originally owned by the College and University west of the Bronx River, now falls within the NYBG (Taaffe 1891:15). Students reportedly swam in the river upstream of the Lorillard Stone Mill Dam. To preserve student modesty, a stone wall enclosing the 'private' swimming area reportedly was built in 1872 on the west side of the Bronx River upstream from the dam (Historical Perspectives 1993:13). This indicates that a mill pond impoundment large and deep enough for swimming existed at the time by the Lorillard Stone Mill Dam. St John's also quarried blue stone for building construction from land now within the NYBG property (Cahilly 2023, personal communication).

In the nineteenth century, St. John's maintained a Jesuit cemetery on what is now NYBG property. By one account, the cemetery "was moved in 1899 from a wooded grove on what is today Southern Boulevard to the present-day property, at the time when Fordham University (then St. John's College) sold their property beyond Southern Boulevard to the New York City Parks Department (Spielvogel 2011). The last reinterment [took place] in 1904" (Butler 1977:25). By another account regarding the cemetery now on Fordham's campus, "In 1890 the cemetery was opened for the reception of the bodies which, until then, had lain in the land sold by the college to the city for the Bronx Park" (Taaffe 1891:15). It is unclear when the cemetery was moved or if all the burials were taken, however, the original cemetery was never viewed as a sacred spot. The current cemetery on Fordham's grounds holds some 150 buried men, mostly Jesuit priests who were instructors at St. John's College (Firestein 1976:64).

In the first half of the nineteenth century, with the construction of bridges, the Bronx became more accessible to individuals living and working in Manhattan. The Harlem River Bridge, the first to be constructed, connected Manhattan's Third Avenue with the Boston Post Road, which had been established in 1673. However, the current NYBG area remained far enough from the city to be ineffective for daily travel. Nevertheless, with the establishment of railroad lines that connected the Bronx and Manhattan, the newly accessible Bronx quickly grew.

A new bridge was constructed over the Harlem River in 1840 to allow the New York and Harlem Railroad to continue through the Bronx to White Plains and other upstate locations and Connecticut (Burrows and Wallace 1899). The railroad was opened along the route in 1842. The newly constructed railroad lines allowed for the continuation of the rapid growth of the Bronx.

While populations of other New York boroughs grew significantly during the colonial period, by the late-eighteenth century, the Bronx was still relatively isolated. Only 2,267 are recorded as living in the Bronx in 1820, growing modestly by 1840 to 5,346 people (Kantrowitz 1995). While still primarily an agricultural community, commerce and industry within the Bronx expanded rapidly by the mid-nineteenth century with a population in 1850 of 8,032, skyrocketing to 23,593 in 1860 and 51,980 by 1880 (Krantowitz 1995). Waterfront areas along the East River and Long Island Sound developed and numerous docks and other loading facilities appeared to facilitate the increase in trade.

After the Civil War, many wealthy industrialists and merchants bought up the agricultural lands within the Borough and built estates. Improvements in rail transportation allowed them to commute to work in New York City. In 1881, the New York City and Northern Railroad (later changed to the New York and Putnam Railroad) was extended through the Borough further increasing the area's growth as a residential, suburban community (Gallo and Kramer 1981).

With the increased accessibility brought to the Bronx by the railroad, the area began to become fully populated towards the end of the nineteenth century. As a result, the portion of the Bronx west of the Bronx River (referred to as the 23rd and 24th Wards of New York County) was annexed to the City of New York in 1874 (Jenkins 1912).

The area to the east of the river was annexed in 1895 and the entire area officially became the Borough of the Bronx three years later (Jenkins 1912).

By 1900, the establishment of more efficient commuting links with New York City, especially the completion of the New York City Rapid Transit Line to Riverdale and the Interborough Rapid Transit lines connecting the Bronx and Manhattan in 1904, resulted in a basic change in the nature of the Bronx (Olmsted 1989). Modernization came to the Bronx with the twentieth century. The borough witnessed the electrification of its streets and homes, the arrival of indoor plumbing and the appearance of public phones in drug stores (Hermalyn 1989). As the Lower East Side of Manhattan was crowded with tenements and slums, the Bronx became a desirable destination for new immigrants (Homburger 1994). By 1900, the Bronx was home to 200,507 people (Krantowitz 1995; U.S. Census Bureau 1900-1930). With the advent of the automobile, networks of highways and parkways were constructed throughout the Bronx. The 5-mile northward extension of the Bronx River Parkway was opened in 1951 (New York Times 1951). The population of the Bronx reached 732,016 by 1920 rising to almost 1.3 million ten years later (Krantowitz 1995; U.S. Census Bureau 1900-1930).

3.2.6 The Bronx River and New York City

3.2.6.1 The Bronx River Conduit

Reservoir construction along the upper reaches of the Bronx River was suggested as early as 1830 when New York City proposed utilizing the waters of Rye Lake to meet its growing needs (Cumming 1886:462). Nothing was done until a small holding reservoir was created by the construction of a 45-foot high earthen and masonry dam across the Bronx River in North Castle between 1880 and 1885 creating a 230-acre reservoir. A 48-inch pipeline (the Bronx Conduit Pipeline) carried 30 million gallons of water a day to a holding reservoir in the Williamsbridge section of the Bronx (Lederer 1978:78). The present Kensico Reservoir was created in 1915 with the completion of the existing Kensico Dam at the same location as the original earthen and masonry dam. The existing dam is made of stone and cement. The existing reservoir, created to hold water transported via the Catskill Aqueduct from the Delaware water system, covers 13.3 square miles, and has a capacity of 30.6 billion gallons (Cooper n.d.:6). It joined Big and Little Rye Lakes and created a reservoir 36 yards higher than the original reservoir (Lederer 1978:76).

In 1880, as part of the New York water supply system, construction began on the so-called Bronx River Conduit (also referred to as the Bronx River pipeline or the Kensico pipeline), a 48-inch cast iron pipe, designed to bring the waters of the Rye Lakes to New York City, specifically the newly annexed Westchester towns of West Farms, Morrisania, and Kingsbridge. Construction of the pipeline originally was proposed in the 1830's but never started. Upon completion in 1884, the pipeline extended from the Kensico dam to the city's receiving reservoir at Williamsbridge in the Bronx (Shonnard and Spooner 1900:11, 548, 614; Weidner 1974:64; Galusha 1999:53). The conduit pipeline is a potentially significant industrial property associated with the New York City water supply system. The conduit extends from the Kensico Dam Plaza and runs along the western side of the Bronx River in the study area vicinity.

3.2.6.2 The Bronx River Reservation

By the late nineteenth century, the increasing population of Westchester County caused development pressure that resulted in residences being increasingly constructed in the Bronx River floodplain in the Greenburgh-White Plains area (Lawyer and Leckie 1983:18). Annual flooding of the Bronx River produced extensive damage to those structures and caused severe hardship to many floodplain residents. According to Rosch (1939:194-195), the entire valley would become inundated each spring. Water frequently rose to within a foot of the keystone of the White Plains Main Street bridge. The ground floors of nearby homes were flooded and "outbuildings, fences,

and wheelbarrows, pig styes, and all manner of debris was carried down” the river or lodged against the bridge (Rosch 1939:195). This flooding likely was the reason the height of the Lorillard Stone Mill Dam was reduced by 18 inches to increase the Bronx River’s flow rate during this period.

During the late nineteenth century, in an unsuccessful effort to control the flooding in the White Plains area, many marshy areas in the Bronx Valley were filled and major tributaries of the Bronx River placed in storm sewers. However, these areas had provided natural drainage locations, and their modification increased the severity of the flooding.

During this period, industrial development along the Bronx River increased, with various river side firms introducing a wide range of metal and chemical pollutants into the river (Lawyer and Leckie 1983:21). Also contributing to the river pollution was the sewage problem created by the increasing population. Most raw sewage was simply dumped into the Bronx River. An 1896 Bronx Valley Sewer Commission Report concluded that the Bronx River had become an “open sewer” characterized by “noxious, odoriferous and unsanitary conditions” (Morris 1896). The growing population in the Bronx River Valley also resulted in an ever-increasing need for an adequate supply of fresh water. Wells and local streams were inadequate or became contaminated.

In 1892, the City of New York purchased a large tract of land between West Farms and Williamsbridge for Bronx Park (now the Bronx Zoo and the NYBG). Before the park could be developed, however, the polluted Bronx River which flowed through the park had to be cleaned. In 1895, the Bronx Valley Sewer Commission was formed. In the same year, construction of the Bronx Valley Sewer by Westchester County was authorized (Weidner 1974; Galusha 1999:53; Cooper n.d.:2). By 1915, all the communities along the Bronx River north of Bronx Park had connected to the sewer line (Lawyer and Leckie 1983:21).

In addition to solving the pollution problem, many early twentieth century reformers wanted to restore the valley to its former scenic beauty and develop its recreational potential (Lawyer and Leckie 1983:23). Led by the Board of Directors of the New York Zoological Society, a Bronx River Parkway Commission was appointed by the New York State Legislature in 1906 charged with the task of establishing “a reservation of the lands on either side of the [Bronx] river” (Lawyer and Leckie 1983:23). The primary purpose of the reservation was to protect the zoo and botanical garden from the threat of further pollution. Real estate and development interests, however, which owned property along the reservation’s proposed path resisted the idea fearing that they would suffer an economic loss (Lawyer and Leckie 1983:23).

A compromise was eventually reached whereby the reservation was established within the Bronx River Valley in return for the construction of a two-lane roadway through that reservation connecting Bronx Park with White Plains. The Bronx Parkway Commission was authorized to begin work in 1913. Land was initially obtained through donations and purchases. In total 1,155 acres of land were acquired for the reservation, which extended as far north as the Kensico Reservoir, for a cost of over four million dollars. Over 200 buildings were moved or destroyed. The river and its tributaries were cleaned and dredged, and 30,000 trees and 140,000 shrubs planted. Paths were developed and benches set up for public use. The parkway and reservation were officially dedicated in 1925 (Lawyer and Leckie 1983:23).

3.3 Lorillard Years – 1760-1870

3.3.1 Preface

Development of the American tobacco industry has been ongoing for centuries dating back to Pre-Contact times and the widespread use by Native Americans of the cultivar *Nicotiana* spp. The most ubiquitous domesticated cultivar in continental America north of Mexico was *Nicotiana rustica* which was chewed and smoked (Kunitz 2016).

From its Native American origins as a domesticated plant used ceremonially in both North and South American, European explorers, traders, and settlers started the recreational use of tobacco. Its use spread to European countries and to their colonies where it became an important export crop which greatly contributed to the prosperity and permanency of colonial settlement from Connecticut to Georgia during the seventeenth and eighteenth centuries. Virginia tobacco reportedly was best and most flavorful and known colloquially as “the bewitching vegetable” although other colonies/states have claimed the honor. Some have even said shade grown and broadleaf tobacco grown in the Connecticut River valley (a.k.a Tobacco Valley) was a close second (Gruber 1960; LaMondia 2020).

3.3.2 Snuff – Lorillard’s Original Product

The use of snuff was popular in the eighteenth century. A fast nicotine hit was acquired through the ground tobacco quickly hitting the blood stream in the days before matches were available to quickly get nicotine through smoking “seegars” and pipes. The Lorillard family was renowned for its snuff. Its use had come from Europe to the United States and became fashionable among the upper classes before being more commonly used. Both men and women (including Betsey Ross who claimed she used it used for her eyesight (DeVillo 2015:88).

Usually, a small amount of ground tobacco was placed between forefinger and thumb, held against one nostril and then the other and inhaled. The aim was to cause a sneeze that simulated sexual pleasure (Downey 1951:11). By the early nineteenth century, the Lorillards had a particular recipe for making snuff. The most common type was called Maccoby Snuff, although other varieties also were made. The recipe states that the Lorillard tobacco buyers must acquire:

A mixture of tobacco leaf from Kentucky and Virginia, preferably around two years old and make sure it’s not too ripe but as sweet as possible. Cut off the butts or heads and pile the leaves in a dry place for three or four months. Then put the leaves in bins for casing or curing, wetting it with liquor (rum, gin, or brandy) and salt water. To make the dry composition, add one tablespoon of find gum camphor (get the best kind), coarse salt (roast it a good deal like coffee) one tablespoon Gum Arabic (you had better get the best gum and pound it yourself), one tablespoon Gum Guaiac (avoid the black tarry flavored kind, pay the druggist a little extra). Be sure not to omit any ingredients: camphor gives life and power and burnt salt flavor, Gum Arabic imparts a sweet taste and Gum Guaiac sneezing power. To finish, add all the ingredients to a quart of high-proof alcohol and mix in the tobacco leaves (Peterson 2011:152).

The final product for wholesale use was packed into dried and tanned animal bladders. The sales merchant would remove from the bladders the amount purchased which the buyer would keep in a covered jar for freshness (Peterson 2011:152).

3.3.3 Lorillard’s New York Period

Pierre Abraham Lorillard (1742-1776) was a young French Huguenot born in Montbeliard, France. He immigrated to America with his parents circa 1760 to escape religious persecution in France. One New York source dated April 21, 1762, records his trade as a stocking weaver. A brother, John George, supposedly came to New York in October 1760, prior to the arrival of his brother and parents to arrange work and lodging for them. The Lorillard family reportedly was fairly prosperous perhaps giving Pierre an advantage in his later endeavors (Broadstruck 2005).

Pierre married Anna Catherine Moore in the summer of 1763 during which time they lived in Hackensack, New Jersey (Lorillard Notes 2023). The couple eventually had five children: Pierre (Peter) Lorillard II (born September 7, 1764, J. George Lorillard (born December 25, 1766; Blazius Lorillard (born June 7, 1769); Johann Jacob

Lorillard (born January 17, 1772); and Jacob Lorillard (born May 22, 1774); (Lorillard Notes 2023). Peter Lorillard II and J. George entered the tobacco business together as did Peter II male offspring.

Soon after arrival in America, Pierre began importing tobacco, a slave produced crop, from Virginia, and resold it at auction. Eventually, North and South Carolina tobacco also was imported, by Pierre and perhaps from the Kentucky area but this last is problematic until the nineteenth century. While the import – auction trade was profitable, Pierre apparently wanted to create and produce tobacco products rather than reselling bulk shipments. Eventually, he abandoned the import trade and started in the snuff tobacco trade, establishing a small “manufactory” shop making and selling snuff on the on Chambers Street by the “High Road to Boston” (the Boston Post Road now Park Row). George’s role at this early date is unclear. Peter II reportedly was the first European to make snuff in North America. The reason for beginning the trade also was not discovered for this study. The store was moved to a rented house on Chatham Street (now Park Row) where Pierre sold tobacco products including the increasingly popular and fashionable seegars (cigars), of the “best quality and flavor” made from the same southern crops that he had auctioned earlier in his business life (Peterson 2011:49). Some broadleaf and shade grown tobacco may have been acquired from growers in the Connecticut Valley. By the late 1760s Lorillard and his growing family moved back to New York City living in the upper story of his leased Chatham house. The principal product was snuff, which at the time was produced by a labor-intensive effort using hand graters and grinders. However, Pierre made a name and fortune for himself as an importer, products manufacturer, and seller of tobacco. He prospered for in a short while he had purchased the house and factory outright as well as the entire Chatham Street – Chambers Street block and the surrounding 5 or 6 acres of land (Rowell 1870:29). The factory and store were demolished by 1859.

Unfortunately for Pierre and his young family, the American Revolution soon began. A fervent patriot, he was killed inadvertently or intentionally in 1776 by Hessian soldiers while trying to prevent a prison break in 1776, likely from the notorious nearby Sugar House Prison holding Americas captured during the Battle of Long Island in August, 1776, although the circumstances of his death are not fully reported. A source has him being more of an active participant in the affair resulting in his subsequent execution (Peterson 2011:48).

Following Pierre Lorillard’s death, control of the company passed to his widow, Anna Catharine Lorillard (nee Mohr/Moore). At the time of Pierre’s death, his two eldest sons, Peter (Pierre II) and George, were around the ages of 12 and 10, respectively; Anna Lorillard took over the management of both the factory and the retail shop until her children were old enough to manage the firm (Gruber 1960:17; Goodwin 2018:16). Anna Lorillard successfully operated P. Lorillard & Company for approximately 14 years. In 1790, she transferred ownership of the company to Peter and George Lorillard, who were then 26 and 24 years old, respectively (Goodwin 2018:16). While the transfer of ownership reportedly occurred in 1790, Peter and George were most likely involved in the business during most of their adult lives, if not earlier. Pierre and Anna Lorillard’s three youngest children, Blazius, Johann, and Jacob, did not enter the tobacco business, but instead pursued other endeavors. Jacob ran a successful tannery business near Collect Pond (present-day Foley Square). It was not discovered what enterprise the other siblings engaged in. In any case, the family became part of the was part of the “elite” of New York society, referred to as one of the “Knickerbocker Society” reflecting New York’s Dutch heritage (Peterson 2011:49).

The Lorillards were inventive and innovative in there trade as will be seen. This entrepreneurship was on display as early as May 17, 1787 or 1789 when the Company placed a newspaper notice showing an Indian with a smoking pipe leaning on a hogshead marked “BEST VIRGINIA,” listed “tobacco and snuff of the best quality and flavor, at the Manufactory, No. 4 Chatham Street, near the Gaol by Peter and George Lorillard, where may be had as follows: Cut tobacco, Common kitefoot do., Common smoking do., Segars do. Ladies switch do., Pigtail do. In small rolls, Plug do., Hogtail do. Prig or carrot do., Maccuba snuff, Rappee do. Straiburgh do., Common rappee

do., Scented rappee do. of different kinds, Scotch do. The above tobacco and snuff will be sold reasonable and warranted as good as any on the continent.” This was the first advertisement of America’s oldest tobacco company. It promised that “If not found to prove good, any part of it may be returned, if not damaged.” This money back guarantee also was a first for American business (Sircom 1954:1; Gruber 1960).

3.3.4 Lorillard’s Time in the Bronx

By 1790, Manhattan had urbanized, and the neighborhood surrounding Chambers and Chatham Streets was becoming more residential and commercial, and less industrial. Not only did the factory noise upset the local residents, but they were also concerned about their proximity to the large quantities of flammable powered tobacco snuff that could easily ignite. The Lorillard brothers were also growing unsatisfied with their Manhattan location, as the exponential growth of the neighborhood had made further expansion of their manufacturing operation on Chatham Street difficult and expensive. To remedy these problems, Peter and George Lorillard decided to move their manufacturing to a location that had access to waterpower, good roads, a growing labor pool, and few neighbors. Around 1790, the Lorillard brothers responded to a notice of sale of a property along the Bronx River in a New York gazetteer. The notice detailed a 50-acre property approximately ten miles north of Manhattan along the Bronx River within Westchester County being sold by Richard and Mary Hunt (Appendix B, Figure 1). The Hunts were possibly former tenants on the Delancey family estate. Much of the Delanceys were Loyalists during the American Revolution, and after the war, much of their land was confiscated by the New York Commission of Forfeiture as discussed in Section X. The Hunts would have purchased the land from the Commission (Sircom 1954:1).

In 1792, the Lorillard brothers purchased the 50 acres of land in Westchester County, which included a grist mill, a crib dam, and a dense hemlock forest along the Bronx River, which flowed through a 100-foot gorge (Westchester County Clerk, White Plains, New York [WCC] 1792: Deed Book [DB] L:344). The brothers subsequently purchased water rights from surrounding landowners, intending to harness the river’s current through the gorge to grind their tobacco into snuff (WCC 1792:DB L:346-348). While the Lorillard Company’s retail shop remained on Chatham Street, the brothers relocated the manufacturing operations to the Westchester County property circa 1792 and retrofitted the existing wood-framed grist mill into a snuff mill. It took the Lorillards and their employees about a year and a half to fully renovate and refit the grist mill into one for grinding tobacco. This was the mill (Mill Number 1) that used the wooden box crib dam to create the mill pond to supply it waterpower. A mill race or sluice and other devices would have been in place. The date of the mill’s original construction is unclear, but one source states it was constructed around 1750, if not earlier, by a tenant of the Delancey family (Cahilly 2010). As mentioned, the Delanceys, as Loyalists, apparently forfeited the mill and land following the American Revolution (Ultan 2009:116).

The Lorillards’ mill is recognized as the first industrial mill to operate on the Bronx River, meaning that it was a mill that was not also involved in agriculture. The mill is also considered “one of the early and most efficient developments of waterpower in America” (Gruber 1960:17; deKadt 2023:29). Their move to the Bronx had as much to do with the foresight of Peter (Pierre II) Lorillard, who realized that with slight modifications, tobacco could be turned into snuff using grind/mill stones powered by waterpower. He based his grinding technique on a similar system used by Delaware’s DuPont firm to grind together components for gunpowder. Prior to this time snuff was made laboriously through the use of hand-graters and grinders as Pierre did the generation before, or through the use of horsepower to turn the grindstones. Peter’s other innovation was the use of rose petals to sweeten the snuff to make it more enjoyable. While it’s been speculated that he grew the rose petals on his Bronx manor, it is likely that they were imported (Cahilly 2010).

In 1794, Peter and George Lorillard obtained the right to build a mill dam on the Bronx River from the Bussing family who owned land on either side of the stream (WCC 1794:DB L:349-351). It is unclear whether this dam was the wooden box crib dam meaning that it was not contemporary with the construction of Mill Number 1. Alternately, if the dam referred to was the existing Lorillard Stone Mill Dam, then the existing dam was built soon after Lorillard's circa 1792 purchase rather than the accepted date of 1800 (Ultan 2009:116). It also is possible that the wooden box crib dam may have been in place circa 1790 but needed repair. Whether the earlier wooden dam, likely located slightly upstream of the Lorillard Stone Mill Dam, was demolished or left to decay is unknown.

Relocating its manufacturing to the Bronx River allowed Lorillard & Company to quickly increase its production, necessitating the construction of a second, much larger mill building (Mill Number 2) circa 1800 (Appendix C, Photograph 2). This mill was located between the current Stone Snuff Mill and the Bronx River Road Bridge (a.k.a. Stone Mill Bridge) to the south over the Bronx River. Mill Number 2 was a large, wood-framed mill resting on a fieldstone foundation and clad in weatherboard, with two externally mounted mill wheels. The operation of the second mill also required the Lorillard brothers to build a new fieldstone mill dam that diverted water into a 900-foot-long, 10-foot-wide, and five-foot-deep mill race to carry water to the mill wheels (Appendix C, Photographs 26-28). It's likely that an indenture between the Lorillard brothers and Oliver and Rachel DeLancey in 1801 addressed some additional water rights required to construct the new mill and dam, as it granted the right to erect within the Bronx River

“any dam [...], mill [...], or other works whatsoever excepting Grist Mills for manufacturing flour for bread and excepting also any dam, mound, reservoir, or other works made of such heights above the surface of the said river when at its ordinary heights as to cause the meadow now belonging to John Drake to be inundated or overflowed” (WCC 1801:DB 76:399-401).

Both Mill Number 1 and Mill Number 2 operated for the Lorillard Company until circa 1820, when Mill Number 1 was reportedly destroyed by fire.

Peter and George Lorillard continued operating the tobacco business as “P & G Lorillard's Superior Snuff and Fine Cut Tobacco” until George Lorillard's death on September 24, 1832. Peter (Pierre II) Lorillard continued operating the business with his son, Peter (Pierre III) Lorillard, Jr., who was primed to take over the ever-expanding tobacco company. Peter (Pierre III) Lorillard, Jr., had joined his family's tobacco business in 1817 at the age of 21, closely collaborating with his father and uncle. After George Lorillard's death, Peter (Pierre III) took on more of a leadership role.

It's speculated that African Americans comprised a relatively large percentage of the Lorillard Company's workforce from its earliest eighteenth-century origins through the nineteenth century. A large number of free and enslaved African Americans were part of the residential population of the Chambers Street-Chatham Street area where the firm began, as well as the South Bronx later on, and it makes sense that they would have been a part of the available labor pool at the time. It is also recorded that Peter Ray, an African-American man, and possibly his father were in managerial roles of responsibility at Lorillard Company in New York City, the Bronx, and New Jersey for extended periods of the nineteenth century (Peterson 2011). The company's apparent generosity to African-American communities in the Bronx and upper Manhattan is also well documented (Peterson 2011).

3.3.5 Lorillard Merchandising

In the 1830s, Lorillard began the first “nationwide” distribution of manufactured merchandise with United States Postmasters stocking and selling Lorillard products. Postal riders also distributed handbills and broadsheets advertising tobacco products. Lorillard followed this act by franchising tavern owners to sell Lorillard tobacco, and when others did the same with their products, he hired artisans to carve life-size “cigar store Indians” (a feature in

Lorillard advertising) to stand in front of taverns to distinguish those selling his product from others (Gruber 1960). At the same time, Lorillard launched the first lines of high end “private label tobacco” manufactured but sold under other names. Lorillard created private labels and branded theirs according to quality. The labels themselves became collectables not least because of their colorful suggestive nature. Examples include Magdalen Smoking Tobacco, which featured a buxom woman with flowing hair lying on cushions. Others were more racist. Century Fine Cut depicted “Nature,” represented by an angelic white woman with flowing hair giving tobacco to a passive Native American surrounded by chattering monkeys. To prevent counterfeiting of his product, in the early 1860s, Lorillard made tobacco disks out of tags stamped with their brand name and secured one to each disk. Some of the tags had passive sayings such as “Good Smoke” while others had more suggestive names like “Climax” (Peterson 2011:153). The company also briefly placed a small amount of money in each can of new varieties of smoking tobacco. This created free press. People purchased these varieties in enormous quantities and over a brief period of time product purchases were assured and the included free money discontinued (Rowell 1870:30; Gruber 1960).

As the Lorillard Company expanded production with more varieties of all tobacco products appearing, the early nineteenth century, Philip Hone, the Whig, New York City Mayor from 1826 to 1827, and a celebrate diarist and socialite, wrote that Peter Lorillard “led people by the nose and got them to chew what they couldn’t swallow” (DeVillo 2015:88).

3.3.6 Lorillard Tobacco in the Mid-Nineteenth Century

As the demand for tobacco products surged, especially following the Lorillard Company’s use of advertising, the company’s profits soared. By this time, the company had been producing chewing tobacco in addition to snuff and pipe tobacco. To accommodate the increase in production, a new mill building (Mill Number 3) was constructed circa 1840 immediately north of the circa-1800 mill (Mill Number 2) (Appendix C, Photographs 10-22). The circa-1840 mill is extant and is a two-and-a-half-story, seven-bay-wide structure constructed of native fieldstone with brick trim. Like the circa-1800 mill, the circa-1840 mill was powered by water diverted down the mill race by the Lorillard Stone Mill Dam to the north.

Peter (Pierre II) Lorillard died on May 23, 1843, and was buried at the New York Marble Cemetery. His obituary marked the first time in an American newspaper that the word “millionaire” had been used to describe someone’s wealth, though it should be noted that Lorillard was not the first American millionaire (John Jacob Astor), and that the word had been frequently used in the United Kingdom prior to Lorillard’s obituary.

By the time of Peter Lorillard’s death in 1843, the Lorillard Company along the Bronx River had expanded quite a bit from the initial 50-acre purchase in 1792. According to several sources, the Lorillard industrial property was expanded to comprise hundreds of acres, as well as “workmen’s cottages, a warehouse, [and] facilities for packing smoking tobacco,” though it is unclear when these facilities were constructed (Heimann 1960:193; Adams 1976). The property also included the “Acres of Roses,” from which the Lorillards allegedly harvested rose petals to add to their snuff (deKadt 2011:29; Heimann 1960:193). Peter (Pierre III) Lorillard, Jr. further expanded the property circa 1850 to include a residential estate for his wife, Katherine Ann Griswold Lorillard, and their children. The estate comprised a three-story, five-bay-wide, stone mansion built on a bluff overlooking the Bronx River gorge (Appendix B, Figures 3-5; Appendix C, Photograph 31), as well as a stone stables building (Appendix C, Photograph 32), greenhouses, a studio or laundry building (Appendix C, Photograph 1), servants’ quarters, and other domestic outbuildings. The studio/laundry building is rumored to have been constructed on the foundation of the old grist mill (Mill Number 1). The property also included miles of riding trails through the virgin hemlock forest preserved throughout the estate. The stone mansion boasted either 45 or 68 rooms, depending on the source, and was completed in 1856 (Dunkak 2007:12; Meredith 2021). Unfortunately, Katherine Lorillard died the same

year; Peter (Pierre III) remained at their old residence at 787 Broadway and never fully occupied the Lorillard Mansion in the Bronx, though he and other members of his family likely stayed there on occasion (New York Tribune, 18 Sept 1856:7; Yonkers Statesman, 28 June 1882:2).

Peter (Pierre III) Lorillard, Jr., stepped away from company operations circa 1865, leasing out the snuff factory property to his two eldest sons, Pierre IV and George Lyndes Lorillard “for an annual rent of \$4,500” (Yonkers Statesman, 2 Sept. 1869:7). Peter (Pierre III) died two years later on October 6, 1867, leaving his entire estate to be divided amongst his children. While portions of Peter (Pierre III) Lorillard’s real estate holdings were sold at public auction, the majority of the snuff factory property, including the Lorillard Mansion and surrounding land and structures on the Bronx River, was “cut up” and divided between Pierre IV and his brothers Jacob and Lewis Lorillard (Yonkers Statesman, 28 June 1887:2).

By 1868, according to Rowell (1870:30):

The Lorillard Tobacco Company had a downtown store, three factories, three warehouses in Manhattan and four in Brooklyn, and four in Jersey City. There are leaf purchasing houses in Cincinnati, Louisville and throughout Virginia and North Carolina and smaller offices in most larger United States cities. The company employed 700 people at an average wage of \$325.00 per year. The gross sales for the company for 1868 were between 4 and 5 million dollars. Four to six thousands hogs head of leaf are available at all times either in store, warehouse, or in process of manufacture. Each weighting from one to two thousand pounds. In 1868 \$1,236,595 of fine cut tobacco was sold; \$1,000,000.00 of smoking tobacco, and \$1,000,000.00 of snuff. In 1866, 1867, and 1868. The Lorillard Company paid the government \$3,500,000.00 in direct taxes on their products.

Although snuff was made at Lorillard factories, the product was sent to large warehouses in New York and elsewhere for processing along with other tobacco products. A typical Lorillard warehouse workplace included a basement area where packing of fine quality snuff was conducted with labeling and tax stamps affixed. Offices and shipping rooms usually occupied the first floor. Second floor services consisting of other packing and stamping rooms. The third floor was the location of wrapping chewing tobacco in tin foil. Sewing machines also were on the third floors were to contain the scores of varieties of smoking tobacco. At least 10,000 pouches were made each day containing from one eighth to a pound of tobacco and using one to three thousand yards of muslin and linen. Bags were filled, stamped, and labeled on the fourth floor. Upon each barrel, box, bag, or package a tax stamp was placed (Rowell 1870:29-30).

3.3.7 Lorillard’s Move to Jersey City

After the Civil War, American preferences regarding tobacco products were changing, with snuff taking a backseat in popularity to that of plug chewing tobacco. The nature of industry and manufacturing overall was also rapidly evolving, shifting from small-scale mills to sprawling urban factories with direct access to rail lines and port facilities. While the Lorillard Company sought to shift its emphasis away from snuff and toward plugs, the Bronx River location was ill-suited to be converted or retrofitted to serve this goal and desired future growth (Goodwin 2018:18-19; Heimann 1960:193). As a result, Pierre IV and the company’s Board of Trustees made the decision to move the manufacturing operation across the Hudson River to Jersey City, New Jersey (Goodwin 2018:18-19). The Jersey City location not only promised access to modern infrastructure like railroads, ports, and a larger supply of available labor, but also boasted a modern municipal water system that could be used to provide water sprinklers for fire suppression and protection, a serious concern for mills at the time. The P. Lorillard Tobacco Company, as it was then called, completed the move of its manufacturing operations to 111 1st Street in Jersey

City in 1870, and the Bronx River snuff mill facility was largely abandoned, though it remained in Lorillard ownership (Goodwin 2018:19; Yonkers Statesman, 28 June 1887:2).

Pierre IV and George Lorillard remained involved with the Lorillard Tobacco Company after its move to New Jersey but were increasingly better known for their extreme wealth and their position in New York Society rather than their association with the tobacco company. The Lorillard men were all avid yachtsmen, and their participation in boating races and purchases is widely reported on in New York and Rhode Island newspapers. Pierre IV is also credited with being a tremendous influence in making Newport, Rhode Island, a hot spot for the upper echelons of New York society thanks to his yachting activities there, as well as his construction of a massive Queen Anne “cottage” there on 10 acres in 1878. After shifting his interests from yachting to thoroughbred racehorses, he sold his Newport summer estate, named The Breakers, to Cornelius Vanderbilt II in 1885. Pierre IV subsequently partnered with Jacob Astor to develop the 17,000 acres of land he inherited from his father Peter (Pierre III) Lorillard, Jr., into the Tuxedo Club, which is now the community of Tuxedo Park (Cahilly 2010; see Section 1.2.5).

Likewise, George Lyndes Lorillard was an avid yachtsman and celebrated thoroughbred horse owner and racer. After graduating from the Yale Scientific School with a degree in medicine in 1862, George Lorillard purchased a large estate on Long Island that eventually totaled approximately 800 acres. George later constructed a large stable and training track on the estate, and then worked with a nearby reform school to take on young boys as stable boys. Lorillard arranged for them to be educated and to learn how to ride horses, and then after five years, gave them an opportunity to become professional jockeys (McFarland 2017:25-26). In 1884, George Lorillard sold his Long Island estate to brothers Robert and William Bayard Cutting. William Cutting’s 635-acre portion of the former Lorillard estate later became part of the Bayard Cutting Arboretum State Park.

After the move to Jersey City, the Lorillard Company continued to introduce new and progressive innovations, not only in its tobacco products, but also regarding its social policies toward its work force. By the 1880s, the Lorillard Company began offering free breakfasts and lunch to its employees, subsidized transport for travel to and from the job for local workers, “industrial baby-sitting services” for children of women workers at its factory, health screenings, and education services among others (Gruber 1960). In 1899, the Lorillard Tobacco Company was absorbed into a large tobacco consortium in which several small tobacco companies maintained their own corporate identities but were controlled by the American Tobacco Company and James Buchanan Duke. This arrangement was dissolved by an order of the U.S. Court of Appeals in 1911, after which the Lorillard Tobacco Company began an independent company once again.

Through the early to mid-twentieth century, the Lorillard Tobacco Company’s focus shifted once more from plug tobacco to cigarettes, introducing brand names like Newport, Maverick, Old Gold, Kent, True, Satin, and Max. In 1956, the Lorillard Tobacco Company shut down its manufacturing operations in Jersey City and opened a new factory in Greensboro, North Carolina. The company was purchased by the conglomerate Loews Corporation in 1968, and in 1997, the company’s headquarters moved out of New York City to Greensboro. The Reynolds Tobacco Company purchased the Lorillard Tobacco Company in 2014.

3.3.8 Bronx Park and the New York Botanical Garden

The Lorillard estate, including the snuff mills, sat unused for several years. The property was briefly considered as part of a route for a Westchester County Rapid Transit road, for which Pierre Lorillard IV offered right-of-way in 1879 (New York Daily Herald, 23 July 1879:8). The Lorillard property isn’t specifically mentioned in the endeavor after April 1880, but later articles about the new Bronx Park mention that it is easily accessible via rapid transit (New York Times, 2 April 1880:2). In the early 1880s, the Parks Commission of New York City began looking to acquire sites

within the Bronx for the formation of several new public parks. One of the most favored properties was the Lorillard estate, along with the nearby Van Cortland and Lydig estates. After more than four years of planning, inspections, appraisals, and negotiations, the Commission purchased 4,000 acres at a cost of more than nine million dollars for the formation of six parks: Bronx Park, Van Cortlandt Park, Pelham Bay Park, Claremont Park, Crotona Park, and St. Mary's Park (New York Sun, 22 Sept. 1884:4; Yonkers Statesman, 9 Oct 1888:1).

The majority of the 653-acre Bronx Park was comprised of Lorillard lands; an 1887 *Yonkers Statesman* article describe the estate as "being nearly a third of the whole," while the *New York Times* claimed that the estate made up "more than half" of the park (Yonkers Statesman, 28 June 1887:2; New York Times, 24 Oct 1886:4). Regardless of the discrepancy in acreage, both newspapers agreed that the Lorillard estate was an obvious choice for use as park land. The *New York Times* article described an 1886 visit by the Parks Commission, saying that "the river scenery in the vicinity of the Lorillard mansion was a great surprise to most of the party, who had no idea that such wildness, grandeur, and romantic beauty were to be found nearer home than the Adirondack wilderness," while the *Yonkers Statesman* more succinctly described it as "a park in itself" (New York Times, 24 Oct 1886:4; Yonkers Statesman, 28 June 1887:2).

Only a few months after it was established, there were calls from the public, including a group called the Torrey Botanical Club, to use 100 acres in the northern portion of Bronx Park as a botanical garden (Yonkers Statesman, 11 Feb 1889:3). Over the next two years, these calls gained steam and the attention of the Parks Commission, which granted the newly formed New York Botanical Society use of the land in the northwestern section of Bronx Park in 1891 (Appendix B, Figure 6; New York City [NYC] Parks Department 1900:27). Subsequent provisions in 1894 and 1896 expanded Botanical Society land to 250 acres. Meanwhile, similar provisions in 1895 and 1897 granted use of the southeastern portion of the park for a Zoological Garden totaling approximately 261 acres (New York Times, 9 May 1897:20; NYC Parks Department 1900:28).

The 150 acres of Bronx Park between the grounds of the Botanical Society and the Zoological Society contained the Lorillard mansion, the snuff mill and dam, and a grove of hemlock trees, as well as the "nurseries and propagating houses of the [Parks] Department, [which] furnish all the plants, shrubs and young trees required in all the parks north of the Harlem river" (Appendix B, Figure 7; NYC Parks Department 1898:57). For the first few years in its life as a public park, the former Lorillard estate remained largely untouched, except for the construction of a simple wood-framed footbridge over the Bronx River just below the Lorillard mansion (Appendix C, Photographs 8-10). The bridge overlooked the Lorillard dam and was a popular site for artists and photographers looking to capture the natural landscape, while others enjoyed exploring the abandoned structures of the Lorillard snuff mill. During the Great Blizzard of 1888, the circa-1800 wood-frame snuff mill collapsed into the Bronx River (Appendix C, Photograph 36; Hungerford 1936:34; NYBG nd:112).

The Parks Department began making significant improvements in the late 1890s (New York Times, 10 July 1890:20; NYC Parks Department 1899). One of the first requests for improvements came from N.L. Britton, the Secretary of the New York Botanical Society, who in January 1896 brought before the NYC Parks Board of Commissioners the possibility of lowering the height of the Lorillard Dam in order to help drainage in the marsh lands within the Botanical Gardens land (NYC Department of Public Parks Board of Commissioners 1896:193). Britton requested permission to open the gate of the dam to test the effectiveness of permanently lowering the dam, but the request was laid over in lieu of receiving photographs of the surrounding area, and it is unclear if the test was ever performed (NYC Department of Public Parks Board of Commissioners 1896:235;254). The NYC Parks Department revisited the idea of lowering the Lorillard dam in 1901; the annual report for that year describes the plan to lower the "dam in the Bronx river at the Lorillard mansion as indicated by the original studies, in order to drain the northern end of the reservation in a satisfactory way; observation and experience during four seasons clearly show this to be

necessary (NYC Parks Department 1902:90). The work was completed during the summer of 1902 when the Lorillard dam was lowered approximately 16 inches “and at the same time rebuilt, furnishing a cascade instead of a water-fall” (Appendix C, Photographs 10-13; NYBG 1903:420).

The mill race that once carried water to the Lorillard snuff mills was also likely filled in circa 1902. The mill race is depicted on an 1897 map of the former Lorillard Estate (Appendix B, Figure 7), though it had likely been unused since the closing of the mill in 1870 and allowed to run dry. In 1902, the NYC Parks Department reported constructing “800 lineal feet of new dirt road 25 feet in width [...] from the workshops north along the banks of the Bronx River to the dam” (NYC Parks Department 1903:80-83). The annual report for 1903 also states that the Parks Department had constructed a 2,480-foot-long road “from Bronx and Pelham Parkway, along the easterly shore of the Bronx river to the Falls,” noting that a portion of the path had been “laid during the year 1902, but it has been reformed and widened and generally improved” in 1903 (NYC Parks Department 1904:75).

In 1897, the Parks Department began actively utilizing the former Lorillard buildings, including the mansion and the stone snuff mill (see Appendix B, Figure 7). In that year, the main floor of the Lorillard mansion and the Lorillard stables were used by the 41st Precinct police department as a Bronx Park station, and the downstairs kitchen was “turned into a restaurant for the visiting public” (Comfort 1906:47; NYC Parks Department 1898:53; Barnes 1897:877). By 1903, the NYC Parks Department had reclaimed the stables for parks use, though the Lorillard mansion remained occupied by the 41st precinct until at least 1906 (NYC Parks Department 1903:83; Comfort 1906:47). Also starting in 1897, the Parks Department began making improvements to the snuff mill, including its “partial reconstruction [for use as] a storehouse for sprinkling carts” (Appendix C, Photograph 29; NYC Parks Department 1898:53). These alterations continued into the early twentieth century, including the removal of the mill’s machinery between 1899 and 1900 and the installation of modern electric power equipment in 1912 (NYC Parks Department 1900:28; 1901:25; 1913:139). The snuff mill served as the general workshop for all of the NYC parks during this period, with a carpentry and paint rooms for making park signs, as well as a blacksmith’s shop in the basement (New York City Parks Department 1901:25).

The 1906 and 1907 annual reports describe plans for the construction of a new concrete foot bridge that would replace an earlier wooden foot bridge near the Lorillard dam (NYC Parks Department 1907:99; 1908:94). During the design phase, the landscape architect suggested a new location for the bridge further downstream from the dam. While plans were approved in 1908, construction was delayed due to an “embargo resolution” that held up the funds (NYC Parks Department 1909:291). The concrete arch footbridge was finally completed by Lafferty and Weir in 1911 (NYC Parks Department 1912:116;119; Appendix D, Photograph 26). The footbridge was later named “Hester Bridge” after Dr. James Hester, who served as the President of the New York Botanical Garden from 1980 until 1989.

The Lorillard Stone Mill Dam quickly became a point of interest within Bronx Park for its picturesque and isolated setting. In an 1894 guidebook of its excursion routes, the New York Central & Hudson River Railroad include Bronx Park as a must-see destination on its Harlem Division route (New York Central & Hudson River Railroad 1894:7). After its 1902 renovation, the “Lorillard Falls” often appeared, along with the rest of the Lorillard buildings, in newspaper articles, journals, reports, and city guidebooks about the Bronx borough and its parks. In 1909 and 1910, the American Scenic and Historic Preservation Society’s annual report featured both the Lorillard Mansion and the Lorillard Snuff Mill and their surroundings, and described the Lorillard Stone Mill Dam, saying “this miniature Niagara is as picturesque and as popular as ever, and the cynosure of myriads of artists and photographers” (American Scenic and Historic Preservation Society 1910:61-62). The Lorillard Falls, as well as the Lorillard Mansion, Snuff Mill, and “Acres of Roses,” were also featured in the City History Club of New York’s 1909 *Historical Guide to the City of New York* (201-202; 400).

Through the 1920s, Lorillard Stone Mill Dam was a common inclusion in city guidebooks. The 1922 and 1924 guides published by the Bronx Board of Trade say that while the Bronx Zoo and the Botanical Garden are the “dominating features” of Bronx Park, the “Lorillard Falls are also well worth seeing, as is also the Lorillard Snuff Mill” (Bronx Board of Trade 1922:28; 1924:29). The guide also lists the “Lorillard Falls and Snuff Mill” as a separate and distinct point of interest within Bronx Park (Bronx Board of Trade 1922:13). The Lorillard Falls also continued to be included as a point of interest in the City History Club of New York’s 1923 *Landmarks of New York; An Historical Guide to the Metropolis*.

3.3.8.1 Transfer to the New York Botanical Garden

Starting in 1910, the Lorillard mansion was rented to the Bronx Society of Arts and Sciences for use as a museum, as well as storage for the New York Botanical Society (Appendix B, Figure 8; NYC Parks Department 1915:166). In 1915, the NYC Parks Department transferred most of the rest of Bronx Park to the New York Botanical Garden totaling 140 acres and including use of the Lorillard mansion; the Parks Department retained the use of and the land surrounding the Lorillard stables, its music stand, and the Lorillard snuff mill, which it continued to utilize for its workshops (Appendix B, Figure 9; New York Botanical Garden 1916:85; NYC Parks Department 1916:242-243). The New York Botanical Garden continued to lease the Lorillard mansion to the Bronx Society of Arts and Sciences for use as a museum, but also installed storage space in the basement and board rooms on the first floor (Appendix C, Photograph 37; NYBG 1916:283).

On March 26, 1923, the upper three floors of the Lorillard mansion were destroyed by a fire likely caused by sparks in the chimney (Appendix C, Photograph 38). While no one was killed or injured, the fire destroyed “invaluable floral specimens and 20,000 lantern slides of flowers and plants in various stages,” amounting to the life work of Dr. Edmund Bronx Southwick, the curator of the New York Botanical Gardens (New York Daily News 27 Mar 1923:2). Nineteen oil paintings belonging to the Metropolitan Museum of Art were saved from the building. The ruins of the mansion were removed in between 1924 and 1925, with salvageable materials saved and stored for future use (NYBG 1929:16; 100).

In 1938, the New York Botanical Garden and the City took part in a land exchange, whereby the New York Botanical Garden gave the NYC Parks Department approximately 120 acres of land on the north and east sides for use as playgrounds and general park land, and in exchange, the NYBG took possession of the Lorillard snuff mill and stables and the Parks Department’s propagating houses, as well as the land surrounding the structures (Appendix C, Photograph 39; NYBG 1939). The Lorillard snuff mill building continued to serve as a workshop for a variety of tasks, including sign painting, until at least 1948 (New York Daily News 7 Aug 1948:8). In the early 1950s, there was some discussion of demolishing the Lorillard snuff mill to make way for an overpass linking Connecticut and Pennsylvania; however, the project did not go through, and the City instead decided that the structure should be renovated (Polesetsky 1954). In 1954, the mill was “revamped with a soda fountain and restaurant” (Polesetsky 1954).

4 Documentation and Evaluation of NRHP Eligibility

4.1 Architecture

4.1.1 Lorillard Snuff Mill, New York Botanical Garden

The Lorillard Snuff Mill, also known as the Lillian and Amy Goldman Stone Mill, is a circa-1840, two-and-a-half-story, seven-bay-wide, and three-bay deep vernacular snuff mill building constructed on the east bank of the Bronx River within the New York Botanical Garden (NYBG) (Appendix D, Photographs 9-14). The mill rests on a stone basement foundation that is exposed on three sides, is constructed of native fieldstone with brick trim, and is capped with a side-gable roof. The roof is pierced at the north and south gable ends by large interior brick chimneys on the east side of the ridgeline. The corners of the structure feature decorative stone quoins. The façade (east elevation) features a central, double-leaf paneled door with a simple transom light. Single-leaf segmental arch doorways with similar transom lights are also located at the north and south ends of the façade; the southern entrance is sheltered by a canopy. A single-leaf wood-paneled door is also located in the lower basement level of the south elevation. The rear (west) elevation of the mill features a large, semi-circular, concrete patio that provides access to the exposed basement level of the mill. Each of the seven bays of the basement level features an assembly of double-leaf, glass-paneled doors, side lights, and transom lights. The bays are divided by prominent brick buttresses. A circa-2015, one-story, one-bay-wide, fieldstone addition is appended to the north elevation. Fenestration consists of twelve-over-twelve, double-hung, wood-sash, segmental arch windows throughout. A circle drive is located on the east side of the mill building providing access to Bronx Park Road and a parking lot to the south, and a paved footpath extends north from the circle drive along the east side of the Bronx River to Hester Bridge and the Lorillard Stone Mill Dam (Appendix D, Photograph 25). The footpath generally follows the alignment of the old mill race that was constructed circa 1800 and filled in to widen and improve an existing path circa 1902.

4.1.1.1 National Register of Historic Places Evaluation

The Lorillard Snuff Mill was listed on the NRHP and designated a National Historic Landmark in December 1977. While the NRHP nomination evaluated the Lorillard Snuff Mill as significant in the area of Industry with a period of significance between 1840-1870, as well as 1792-1870, the original nomination did not evaluate the property according to the NRHP Criteria of Eligibility (Criteria A, B, C, and D), and also did not consider the other extant resources associated with the Lorillard company and estate as potentially contributing features of the Lorillard Snuff Mill. Therefore, this inventory form update will address these gaps. Because the workers' cottage and stables/maintenance facility could not be adequately documented during field survey and because they are out of the scope of the Undertaking, only the Lorillard Stone Mill Dam (Appendix D, Photographs 14-24) was evaluated as a potential contributing feature of the Lorillard Snuff Mill.

Criterion A

Area of Significance: Industry

Period of Significance: c. 1800-1870

The Lorillard Snuff Mill is listed on the NRHP under Criterion A in the area of Industry as the oldest tobacco mill in the United States; for its association with the P. Lorillard Company, which was a pioneering tobacco and snuff company that predated the United States and operated from circa 1760 until 2014; and for its association with the "historic role of tobacco in American social and economic life" (Adams 1976). The mill represents the popularity and social importance of snuff in particular during the early to mid-nineteenth century before it was overtaken by chewing

tobacco and cigarettes as the tobacco products of choice. The Lorillard Snuff Mill is also significant as a physical representation of the industry and ingenuity that transformed several generations of the Lorillard family and others associated with the Lorillard Tobacco Company into wealthy and influential members of New York society.

Criterion B

The Lorillard Family – Peter (Pierre II) and George Lorillard, Peter (Pierre III) Lorillard, Jr.

The Lorillard Snuff Mill is directly associated with the Lorillard family, specifically Peter (Pierre II) and George Lorillard, who chose and purchased the initial 50-acre property on the Bronx River. Peter and George Lorillard also likely had direct involvement in the design and planning, if not the overall construction, of the Lorillard Stone Mill Dam, mill race, and Mill Number 2 circa 1800. Peter (Pierre II) and his son Peter, Jr. (Pierre III) were also likely involved in the construction of the extant Lorillard Snuff Mill (Mill Number 3) circa 1840. For these reasons, the Lorillard Snuff Mill is recommended eligible for NRHP listing under Criterion B for its direct association with members of the Lorillard Family, namely Peter (Pierre II) and George Lorillard, and Peter (Pierre III) Lorillard, Jr.

Criterion C

The 1976 NRHP nomination for the Lorillard Snuff Mill does not specifically state that the property is significant under Criterion C for architecture or engineering but does say that it “presents a fine example of an early eighteenth-century industrial edifice,” though the author likely intended “nineteenth century” instead of “eighteenth century” (Adams 1976). The earlier 1966 New York State Historic Trust inventory form expands on this idea, stating that “architecturally the building is important as an example of an early factory building,” adding that the “vernacular type structure set a high standard of masonry construction for a factory building [...] and that it is a picturesque reminder of an early type of industrial, masonry construction” (Wiggins 1966).

While the Lorillard Snuff Mill may have been an early nineteenth century example of a stone vernacular factory building in New York, it has undergone several non-historic alterations. The majority of the non-historic exterior changes were introduced during the 1954 renovation, including the alteration of the building’s fenestration on the façade (east elevation) by replacing the windows at the north and south ends of the façade with single-leaf, wood-paneled doors; the construction of the large, semi-circular, stone and concrete patio on the west elevation; and the reconstruction of the basement level of the west elevation to include seven bays of large, glass door-and-window assemblies separated by large brick buttresses. The 1954 renovation also added larger gable-end chimneys, which replaced the circa-1905 chimneys; the circa-1840 Lorillard Snuff Mill originally did not feature gable-end chimneys.

Aside from the 1954 alterations, the Lorillard Snuff Mill underwent work in the early 1900s that removed many of the characteristics and features that identified the building as a water-powered snuff mill, including the removal of the machinery and the infill of the mill race at the lower basement level. Despite these non-historic alterations, the Lorillard Snuff Mill sits on the Bronx River as a rare surviving example of a mid-nineteenth century, vernacular stone factory building associated with early industrial activities on the Bronx River, and still embodies its distinctive characteristics of its type, period, and method of construction. As such, the Lorillard Snuff Mill is recommended eligible for NRHP listing under Criterion C.

Criterion D

Architectural resources are not usually evaluated under Criterion D. To be eligible under this criterion, the resource would need to provide valuable, previously unknown information on some aspect of history. The Lorillard Snuff Mill building is a well-known, well-investigated, and altered type of resource and as such is recommended not eligible under Criterion D.

Additional archaeological studies may be necessary to determine whether there are any intact archaeological sites related to the Lorillard Snuff Mill operations along the Bronx River. Foundation ruins associated with the circa-1760 grist mill (Mill Number 1) and the circa-1850 Lorillard studio/laundry building are extant just downstream of the Lorillard Stone Mill Dam and may warrant further investigation (Appendix D, Photographs 1-8).

Integrity

The Lorillard Snuff Mill is located on the site of its original construction on the east side of the Bronx River circa 1840, and therefore retains its integrity of **location**. The Lorillard Snuff Mill (Mill Number 3) was the Lorillards' third snuff mill on the Bronx River, but the first constructed of fieldstone. While largely a vernacular building, the design represented a more permanent and sophisticated factory design than the wood-framed mills of the past, setting "a high standard of masonry construction for a factory building" (Wiggins 1966). The Lorillard Snuff Mill underwent significant alterations circa 1905 with the removal of machinery and infill of the lower basement level and mill race on the west elevation, and the addition of brick chimneys at the north and south gable ends (Appendix C, Photograph 36). Additional changes were made on the west elevation in 1954 with the construction of the large, semi-circular, stone and concrete patio and the reconstruction of the basement level to include seven bays of large, glass door-and-window assemblies separated by large brick buttresses (Appendix D, Photographs 12-13). The façade (east elevation) was also slightly altered when the original first-story windows at the north and south ends were replaced with single-leaf wood-paneled doors (Appendix D, Photographs 9-11). Due to these alterations, the Lorillard Snuff Mill no longer retains its integrity of **design**.

When the Lorillard Snuff Mill was constructed circa 1840, its surroundings included other mill-related buildings, including the circa-1800 Mill Number 2 to the south, and other tobacco-packing facilities and workers' housing, but otherwise was described as idyllic wilderness, and despite the expansion of the Lorillard estate, the development of Bronx Park, and the construction of newer facilities associated with the NYBG nearby, the integrity of the Lorillard Snuff Mill's open and natural **setting** has remained intact. The Lorillard Snuff Mill was originally constructed of mortared fieldstones with brick accents. While the reconstruction of the basement level on the west elevation replaced most of the original material in this location with metal and glass doors that are not consistent with the original materials used in the construction of the Lorillard Snuff Mill, most of the original materials are extant, and other alterations and additions have incorporated in-kind materials as well. As such, the Lorillard Snuff Mill retains most of its integrity of **materials**.

Likewise, the Lorillard Snuff Mill has lost some of its expressions of workmanship through its several renovations, most notably with the removal of the interior machinery and the reconstruction of the interior to add a restaurant/kitchen in the mid-twentieth and early-twenty-first century. For the most part, however, the most recent renovations have striven to retain or match the original character, skill level, and methods of construction of the Lorillard Snuff Mill, as seen in the salvage and restoration of the original structural beams and stone exterior and the restoration of the cedar shingle roof. Therefore, the Lorillard Snuff Mill retains most of its integrity of **workmanship**. Despite the major changes in design, and to a smaller extent, workmanship and materials, the overall aesthetic and historic character of the Lorillard Snuff Mill is largely intact, and therefore retains its integrity of **feeling**. As an individual resource and with its contributing features (the Lorillard Stone Mill Dam and Workers' Cottage) the Lorillard Snuff Mill retains its ability to convey its association with the Lorillard Tobacco and Snuff Company's early nineteenth century industrial/manufacturing activities on the Bronx River, despite its diminished architectural integrity. Therefore, the Lorillard Snuff Mill retains its integrity of **association**.

Recommendations

The Lorillard Snuff Mill is significant under Criterion A in the area of Industry with a period of significance between circa 1800, when the contributing Lorillard Stone Mill Dam was constructed, and 1870, when the Lorillard Tobacco

Company ceased manufacturing operations along the Bronx River and moved to New Jersey. The Lorillard Snuff Mill is also recommended eligible for NRHP listing under Criterion B for its direct association with Peter (Pierre II) and George Lorillard, who purchased the property along the Bronx River and constructed the Lorillard Stone Mill Dam, and Peter (Pierre III) Lorillard, Jr., who with his father was involved in the construction and operation of the circa-1840 Lorillard Snuff Mill, as well as the circa-1850 Workers' Cottage and the circa-1850 Lorillard Stables (Appendix D, Photographs 23 and 24). Peter (Pierre III) Lorillard, Jr., was also instrumental in preserving and retaining the natural environment and beauty along the Bronx River, including the Hemlock Grove and Bronx River gorge. Despite a series of non-historic alterations performed on the building circa 1905 and 1954, the Lorillard Snuff Mill is recommended eligible for NRHP listing under Criterion C as a rare surviving example of an early-to-mid-nineteenth century vernacular masonry industrial building on the Bronx River. Despite a loss of integrity of design and a diminished integrity of materials and workmanship, the Lorillard Snuff Mill and its contributing features (the Lorillard Stone Mill Dam and the Workers' Cottage) retain the ability to convey the property's significance in these areas.

4.1.2 Lorillard Stone Mill Dam, New York Botanical Garden

The Lorillard Stone Mill Dam is a circa-1800, fieldstone, gravity dam located on the Bronx River within the NYBG (Appendix D, Photographs 15-24). The dam extends southeastward from the north bank of the Bronx River approximately 58 feet before turning southwestward and continuing for approximately six feet, terminating at the south bank of the river. The curve at the south end of the dam represents the extant remnant of an associated flue, or mill race, that has been since been infilled (see Appendix D, Photographs 16-19). The top of the dam is visible at the surface level of the river and is approximately two feet thick (Appendix D, Photograph 23). The base of the dam is below the surface of the water and was not visible at the time of survey but is likely several feet wider than the top. Several boulders and other large stones have been added to the downstream face of the dam to create a cascade effect. There is a small breach at the northern end of the dam, and evidence of a smaller breach at the southern end near the curve.

The Lorillard Stone Mill Dam was constructed circa 1800 by Peter and George Lorillard to replace a wooden crib dam that had served a circa-1760 grist mill. The old mill dam, as well as the right to construct a new mill dam in the Bronx River, is referenced in the 1792 deeds regarding water rights between Peter and George Lorillard and Peter and John Bussing (Westchester County Deed Book L, Page 346-349). The Lorillard brothers also constructed a new wood-frame snuff mill and a mill race circa 1800 that carried water from the Bronx River from the stone dam to the snuff mill (Appendix A, Figure 2; Appendix B, Figures 4-8). Peter Lorillard later added a third mill, the extant stone snuff mill building, circa 1840, which was also powered by water from the stone dam and mill race.

Peter (Pierre III) Lorillard, Jr., constructed a mansion on the bluff overlooking the dam in 1856, though it is unclear based on conflicting sources whether the residence was ever permanently occupied by the family. The Lorillard snuff mill operated on the Bronx River until 1870, when the manufacturing activities of the Lorillard snuff and tobacco company relocated to New Jersey. The dam gate supplying water to the mill race was likely closed at this time. The Lorillard family retained ownership of the estate, including the snuff mill and dam, until circa 1885, when the property was sold to the City of New York for the creation of the Bronx Zoo.

Compared to the snuff mill and mansion, the stone dam is mentioned sparingly within late nineteenth century and early twentieth century sources, and usually only when describing the location of the previously mentioned structures. In an 1897 article of *Harper's New Monthly Magazine*, James Barnes describes his visit to Bronx Park:

"A winding road enters the woods to the north of the village; it leads directly to the old Lorillard mansion, who which estate all this property once belonged. The fine old house stands in a little park of its own,

almost upon the edge of a deep gorge, through which the Bronx roars and tumbles, when the water is high, like a great trout-stream, just below the dam that held back the water that turned the wheels of an old snuff mill, whose ruins are at the bottom of the steep path into the gorge” (Barns 1897:867).

A similar article by author Helen Bartlett Bridgman detailing her visit to Bronx Park was published the following year in the *Standard Union* and describes the dam and scenery below the Lorillard mansion (Bridgman 1898:1). While Bridgman considered the mansion itself “rather ugly,” she had a more pleasant opinion of the Bronx River gorge:

“It is at this point that the Bronx, falling over a dam, originally constructed to furnish power for the Lorillard snuff mill, cuts its way through a rock defile, something like fifty feet high, and knows many a passionate rush and whirl before resolving itself into the smoother waters below. [...] Except for the wandering young people, often with arms about each other, and the ivy-covered remains of the old mill, the illusion of a mountain brook in this midst of virgin forests is perfect” (Bridgman 1898:1).

After the New York Botanical Society acquired the northern portion of Bronx Park, both the NYC Park Department and NYBG noted within their annual reports and bulletins that, without the regular diversion of water through the Lorillard mill race, the marsh lands within the NYBG land north of the dam suffered from inadequate drainage. In 1896, Secretary of the New York Botanical Society, N.L. Britton, suggested opening the gate to the mill race as a way to test whether lowering the dam would alleviate the drainage issue (NYC Department of Public Parks Board of Commissioners 1896:193). The idea of lowering the dam was revisited in 1901 after “observation and experience during four seasons” showed the alteration to be necessary; the dam was lowered approximately 16 inches during the summer of 1902 (NYC Parks Department 1902:90; NYBG 1903:420).

In addition to the lowering of the dam height, several other alterations were made to the dam and the surrounding area during the summer of 1902. The NYBG bulletin for 1903 states that, at the same time the Lorillard Stone Mill Dam was lowered, it was “rebuilt” with the addition of boulders and rocks on its downstream face, “furnishing a cascade instead of a waterfall” (NYBG 1903:420). The cascade is rumored to have been completed at the request of the NYBG to create a more natural and Adirondack-like environment that complimented the rest of the dam’s surroundings. In comparing the earliest (pre-1903) photographs of the Lorillard Stone Mill Dam (Appendix C, Photographs 7-8, 29-31) with the 1909 photograph (Appendix C, Photograph 34), the additional spray and tumult caused by the added stones is visible in the 1909 photograph. Further comparison of the 1909 photograph with a 1927 photograph of the dam (Appendix C, Photograph 35) shows a higher cascade in the 1927 photograph, indicating that additional stones were added to the downstream face of the dam after 1909, though no specific records describing this work were uncovered.

4.1.2.1 Similar Property Types

Bronx Zoo Dam

The Bronx Zoo Dam is located approximately 0.6 mile downstream from the Lorillard Stone Mill Dam on the grounds of the Bronx Zoo (Appendix D, Photograph 30). The dam was constructed circa 1840 by James Bolton to power the Bronx Bleach and Cloth Tape Factory and is comprised of an earth embankment with a concrete core wall and two distinct spillways. Both spillways are constructed of earthwork and natural rock, which form graduated cascades. It is unclear from the previous documentation if, like the Lorillard Stone Mill Dam, the natural rock cascades were added later. In 2005, the NY SHPO determined that the Bronx Zoo Dam is eligible for NRHP listing under Criterion A in the area of settlement and community development for the role it played in the growth of the village of Bronx, and under Criterion C as “a rare survivor of early nineteenth century engineering

design in the Bronx” (NYSHPO 2005). The determination of eligibility did not provide a period of significance for the Bronx Zoo Dam.

182nd Street Dam/Delancey’s Mill Dam

The 182nd Street Dam, historically known as “the Lower Dam,” De Lancey Mills Dam,” or Bronx River Falls, is located near East 180th Street and Boston Road on the south side of the Bronx Zoo, approximately 1.3 miles downstream from the Lorillard Stone Mill Dam (Appendix D, Photograph 31; Jenkins 1912:307; Topping n.d.). The previous documentation identifies the 182nd Street Dam as possibly constructed by Jonas Bronck in 1639 but adds that this claim is debatable (Vairo 2005). The 182nd Street Dam was also the site of a sawmill and gristmill constructed in 1680 by William Richardson and Associates, which were rebuilt after a fire in 1845 (Vairo 2005). The dam and associated mills were owned and operated by the DeLancey family during the American Revolution, after which the mill was confiscated and sold to the Lydig family (Topping n.d.). The Lydig family owned the property until circa 1885, when the NYC Parks Department purchased the land, including the dam and mills, to create part of Bronx Park. Like the Lorillard Stone Mill Dam and the Bronx Zoo Dam, the NYC Parks Department reconstructed the 182nd Street Dam to create a natural rock cascade on the downstream face circa 1910 (Vairo 2005). A fish ladder was added in 2015 (Topping n.d.). In 2005, the NY SHPO determined that the 182nd Street Dam “meets Criterion A “in the area of Settlement for the role it played in the early development of this portion of the Bronx” and “may also be significant for its association with the recreational history of the area during the early 1900s” (Howe 2005). The determination of eligibility did not provide a period of significance for the 182nd Street Dam.

4.1.2.2 National Register of Historic Places Evaluation as Individual Resource

Criterion A

The Lorillard Stone Mill Dam was constructed circa 1800 to provide waterpower to the new Lorillard Snuff Mill (Mill Number 2) on the Bronx River, and later powered both the circa-1800 and circa-1840 Lorillard snuff mills (Mill Number 2 and Mill Number 3). While the Lorillard Company’s corporate history claims that the circa-1800 snuff mill on the Bronx River was “one of the nation’s first uses of industrial waterpower,” it is unclear on what data this claim is based; grist and other types of mills had employed the use of waterwheels long before the Lorillard Company. However, the Lorillard Snuff Mill was one of the first industrial endeavors on the Bronx River, and likely the first company in the nation to use waterpower to grind tobacco into snuff. The Lorillard Tobacco and Snuff Company operated on the banks of the Bronx River from circa 1792 until 1870. During that period, the Lorillard company pioneered “America’s first nationwide distribution of manufactured merchandise when US postmasters stock and sell Lorillard products,” developed “private label” tobaccos for dealers, and introduced a “tin tag” as a form of trademark on tobacco products to protect against imitators (Gruber 1960:4). All the while, the Lorillard Stone Mill Dam helped provide power to the mills to produce the product. As such, the Lorillard Stone Mill Dam is significant for its direct association with the early use of waterpower for industrial purposes along the Bronx River, as well as for its association the operations of the P. Lorillard Tobacco and Snuff Company on the Bronx River between circa 1800 and circa 1870.

Criterion B

The Lorillard Stone Mill Dam is associated with Peter (Pierre II) and George Lorillard to the extent that the Lorillard brothers owned the Lorillard tobacco company and directed the dam to be constructed circa 1800. It is unknown, however, how much direct involvement the Lorillard brothers had with the design or construction of the dam. It is likely that they hired an outside professional to design and construct the dam and mill race and had little involvement or association other than that of a corporate nature. There is no evidence that any other person or persons significant in local, regional, or national history is directly associated with the Lorillard Stone Mill Dam. For these reasons, the Lorillard Stone Mill Dam is recommended not individually eligible for NRHP listing under Criterion B.

Criterion C

The Lorillard Stone Mill Dam was constructed circa 1800 as a mortared stone gravity dam on the Bronx River and, like similar previously recorded dams on the Bronx River (i.e. Bronx Zoo Dam and 182nd Street Dam), represents an example of “early nineteenth century engineering design in the Bronx” (NYSHPO 2014). However, the reconstruction work performed on the Lorillard Stone Mill Dam in 1902 has altered the resource in such a way that it no longer embodies its distinctive characteristics of its type, period, or method of construction. Further, the Lorillard Stone Mill Dam does not appear to represent the work of a master, does not possess high artistic value, and does not represent a significant and distinguishable entity whose components lack individual distinction. For these reasons, the Lorillard Stone Mill Dam is recommended not individually eligible for NRHP listing under Criterion C.

Criterion D

Architectural resources are not usually evaluated under Criterion D. To be eligible under this criterion, the resource would need to provide valuable, previously unknown information on some aspect of history. The Lorillard Stone Mill Dam represents a rare surviving example of a stone mill dam constructed at the turn of the nineteenth century and may provide important information regarding the construction and engineering of late eighteenth and early nineteenth century gravity dams in the Bronx River region. However, the Lorillard Stone Mill Dam was extensively altered circa 1902, and it is unknown how much of the original structure is extant beneath the Bronx River. Further, background research has revealed that submerged remnants of an older crib box dam dating from the mid-eighteenth century are present near the Lorillard Stone Mill Dam and may also have the potential to reveal important information on the construction of mid-eighteenth-century crib box dams in the Bronx River region of New York (Cahilly 2023). No other information was uncovered regarding the surviving elements of the circa-1760 crib box dam, however, and the remnants were not observed during field survey due to light conditions and water level. For these reasons, additional archaeological studies may be necessary to determine whether there are any intact features that would qualify the Lorillard Stone Mill Dam as eligible under Criterion D.

Integrity

The Lorillard Stone Mill Dam is located on the site of its original construction within the Bronx River circa 1800, and therefore retains its integrity of **location**. The Lorillard brothers originally constructed the dam as a hewn-stone gravity dam that would direct water down a mill race. After the Lorillard estate was sold for the creation of Bronx Park, the NYC Park Department and NYBG altered the dam’s height by lowering it approximately 16 inches. The Park Department also added boulders to the dam’s downstream face in an effort to transform the industrial-looking mill dam waterfall into a more natural-looking cascade. The associated mill race was also filled in at that time. Due to these significant alterations, the Lorillard Stone Mill Dam no longer retains its integrity of **design**.

When the dam was constructed circa 1800, its surroundings were described as idyllic wilderness, and despite the expansion of the Lorillard Snuff Mill facilities throughout the first half of the nineteenth century and the larger development of the Lorillard estate, including the construction of the Lorillard mansion, in the 1850s, the area surrounding the dam remained largely unchanged. While the Lorillard mansion and an alleged laundry outbuilding have been lost to fire and demolition, respectively, and a footbridge has come and gone, the integrity of the dam’s natural, idyllic, and Adirondack-like **setting** has remained intact. The Lorillard Stone Mill Dam was originally constructed of mortared fieldstones with perhaps a limestone cap. In 1902, the topmost 16 inches of the dam, including the limestone cap, was removed, and large boulders were added to the downstream face of the dam. The NYBG bulletin describes the dam as being “rebuilt” in 1902. While some of the original materials of the dam, specifically the limestone cap, were removed during the rebuild, most of the original fieldstones and other components of the Lorillard dam are likely extant, though hidden beneath and behind the boulders and other stones that were added later to create the cascade. As such, the Lorillard dam retains most of its integrity of **materials**.

While the work performed in 1902 likely retained most of the dam's original materials, it significantly changed the nature and representation of the artisan technology and methods of construction that were employed in its original construction circa 1800. As such, the Lorillard dam no longer retains its integrity of **workmanship**. Despite the changes in design and workmanship, the overall aesthetic and historic character of the Lorillard dam is largely intact, and therefore retains its integrity of **feeling**. As an individual resource, the Lorillard Stone Mill Dam no longer retains its ability to convey its association with the larger Lorillard tobacco and snuff company due to the significant alterations made to the name at the turn of the twentieth century. These include the loss of the mill race and the reconstruction of the dam to appear less like an industrial dam and more like a natural waterfall. As such, the dam alone no longer conveys its association with industrial activities along the Bronx River, including its link to the Lorillard tobacco company, and therefore no longer retains its integrity of **association**.

Evaluation Recommendation

The Lorillard Stone Mill Dam is significant under Criterion A in the area of Industry with a period of significance between circa 1800, when the dam was constructed, and 1870, when the Lorillard Tobacco Company ceased operations along the Bronx River and moved to New Jersey. The Lorillard Stone Mill Dam also represents an example of early nineteenth century waterpower engineering and design in the Bronx. The dam has undergone several alterations outside of its period of significance that have adversely impacted its ability to convey its significance in these areas. These alterations include the 1902 work of lowering of the dam, filling in the associated mill race, and adding boulders and stones to the downstream face to create a cascade effect. Most of these alterations were performed to make the dam look less like an industrial dam and more like a natural waterfall that better fit in with the "Adirondack" feel of the Bronx River Gorge. As a result of its loss of integrity of design, workmanship, and association, the Lorillard Stone Mill Dam no longer conveys as an individual resource its significance in the area of Industry or as an example of early nineteenth century waterpower engineering or design. For these reasons, the Lorillard Stone Mill Dam is recommended not individually eligible for NRHP listing under Criteria A, B, and C. Additional archaeological investigations are necessary to provide sufficient information to evaluate the Lorillard Stone Mill Dam for potential eligibility under Criterion D, as it potentially retains sufficient integrity of materials, design, and workmanship to provide information on late eighteenth and early nineteenth century dam/water control engineering and design.

4.1.2.3 National Register of Historic Places Evaluation as a Contributing Feature of the Lorillard Snuff Mill

The Lorillard Stone Mill Dam is associated with the Lorillard Snuff Mill, which was designated as an NHL and listed on the NRHP under Criterion A in the area of Industry. The Lorillard Snuff Mill is also recommended eligible for NRHP listing under Criteria B and C for its association with Peter (Pierre II) Lorillard and his son, Peter (Pierre III) Lorillard, Jr., and as an example of an early nineteenth century vernacular factory building that operated on the Bronx River. The Lorillard Snuff Mill has a period of significance between 1840 and 1870, beginning with its initial construction and ending with the relocation of the Lorillard manufacturing operations from the Bronx River to Jersey City, New Jersey. However, the NRHP nomination for the Lorillard Snuff Mill also provides "1800-1870" as a period of significance, representing the approximate period of time that the Lorillard company operated on the Bronx River. The "1800" beginning date also coincides with the construction of the Lorillard Stone Mill Dam. To be considered a contributing element of the Lorillard Snuff Mill, a feature needs to have been constructed or operating during the period of significance, retain sufficient integrity from that period of significance to convey its association with the Lorillard Snuff Mill, and relate to the documented significance of the Lorillard Snuff Mill.

Criterion A

The Lorillard Stone Mill Dam was constructed circa 1800 to provide waterpower to an earlier snuff mill (Lorillard Mill Number 2) on the Bronx River. After the extant Lorillard Snuff Mill (Mill Number 3) was constructed circa 1840, the dam served both Mill Number 2 and Mill Number 3 until the company ceased operations on the Bronx River in 1870. While the Lorillard Company's corporate history claims that the circa-1800 snuff mill on the Bronx River was "one of the nation's first uses of industrial waterpower," it is unclear on what data this claim is based; grist and other types of mills had employed the use of waterwheels long before the Lorillard Company. However, the Lorillard Snuff Mill was one of the first large-scale industrial endeavors on the Bronx River, and likely the first company in the nation to use waterpower to grind tobacco into snuff. The Lorillard Tobacco and Snuff Company operated on the banks of the Bronx River from circa 1792 until 1870. During that period, the Lorillard company pioneered "America's first nationwide distribution of manufactured merchandise when US postmasters stock and sell Lorillard products," developed "private label" tobaccos for dealers, and introduced a "tin tag" as a form of trademark on tobacco products to protect against imitators (Gruber 1960:4). All the while, the Lorillard Stone Mill Dam provided waterpower to the mills to produce the Lorillard product.

The Lorillard Stone Mill Dam was constructed circa 1800, which predates the construction of the Lorillard Snuff Mill (Mill Number 3) by approximately 40 years; however, both the Lorillard Snuff Mill and the Lorillard Stone Mill Dam are directly associated with the operations of the Lorillard Tobacco and Snuff Company, which operated on the Bronx River between 1792 and 1870, and the Lorillard Stone Mill Dam operated during the Lorillard Snuff Mill's period of significance (and vice-versa). While the Lorillard Stone Mill Dam underwent significance alterations at the turn of the twentieth century that diminished its integrity of design and workmanship, it retains its integrity of location, setting, feeling, most of its materials, and when viewed with the Lorillard Snuff Mill, its integrity of association. Finally, the Lorillard Stone Mill Dam is directly related to the documented significance of the Lorillard Snuff Mill under Criterion A, as it provided waterpower for the factory the entire period of its operations and represents the technological ingenuity and advancements of the Lorillard Company during its period of operations. For these reasons, the Lorillard Stone Mill Dam should be considered a contributing feature of the NRHP-listed and NHL-designated Lorillard Snuff Mill property under Criterion A in the area of Industry. While the Lorillard Snuff Mill was constructed circa 1840, the Lorillard Stone Mill Dam predates the extant mill by approximately 40 years; therefore, the period of significance for the Lorillard Snuff Mill should begin circa 1800 with the construction of the Lorillard Stone Mill Dam and end in 1870 with the end of Lorillard manufacturing operations on the Bronx River.

Criterion B

The Lorillard Stone Mill Dam was likely designed, if not built, by Peter (Pierre II) and George Lorillard circa 1800 to serve the snuff mill operations. With the diminished integrity of the Lorillard Stone Mill Dam, this association with the Lorillard brothers is not strong or significant enough to qualify it for significance under Criterion B on its own; however, the Lorillard Stone Mill Dam provides additional context and significance to the Lorillard family's connection and involvement with the Lorillard Snuff Mill and the Lorillard Tobacco and Snuff Company's operations on the Bronx River as a whole. After operating successfully on the Bronx River with existing facilities for eight years, the Lorillard brothers constructed the Lorillard Stone Mill Dam, along with the mill race and Mill Number 2 in 1800, representing the Lorillards' financial investment and a long-term commitment and trust in the location and use of waterpower for snuff manufacturing. Because the Lorillard Stone Mill Dam is directly related to the Lorillard family's association with the Lorillard Snuff Mill, the Lorillard Stone Mill Dam should be considered a contributing feature of the Lorillard Snuff Mill under Criterion B. The period of significance for the Lorillard Snuff Mill's significance under Criterion B would extend from circa 1800 when the Lorillard Stone Mill Dam was constructed to 1870 when snuff manufacturing operations on the Bronx River ceased.

Criterion C

The Lorillard Snuff Mill is recommended eligible under Criterion C as an example of an early-to-mid-nineteenth century masonry factory building that operated on the Bronx River. Despite significant alterations to the building, particularly on the west elevation, the Lorillard Snuff Mill continues to convey its significance as a rare surviving example of early-to-mid-nineteenth century industrial architecture in its (mostly) originally setting on the Bronx River. While the Lorillard Stone Mill Dam is directly associated with the operation of the Lorillard Snuff Mill, most of the significant non-historic alterations to the property directly impacted the property's ability to convey the significant early-to-mid-nineteenth century engineering and design that made operation of the mill possible. Not only has the Lorillard Stone Mill Dam been lowered and had its associated mill race infilled, but the head/tail race along the west elevation of the snuff mill has also been removed and infilled, and the machinery is no longer extant. As such, the Lorillard Stone Mill Dam no longer retains its ability to convey its association with significant engineering and design related to the operation of the Lorillard Snuff Mill, and it also no longer retains sufficient integrity to relate to the Lorillard Snuff Mill's significance as a surviving example of an early-to-mid-nineteenth century factory on the Bronx River. For these reasons, the Lorillard Stone Mill Dam is recommended as a non-contributing feature of the Lorillard Snuff Mill under Criterion C.

Criterion D

Architectural resources are not usually evaluated under Criterion D. To be eligible under this criterion, the resource would need to provide valuable, previously unknown information on some aspect of history. Since the Lorillard Snuff Mill building is a well-known, well-investigated, and altered type of resource, it is recommended not eligible under Criterion D. While the Lorillard Stone Mill Dam is an architectural resource, it is largely submerged, and some sources suggest that original components of the dam's construction, as well as remnants of an early dam, may be extant beneath the water surface. As such, additional archaeological studies may be necessary to determine whether there are any intact features related to the Lorillard Snuff Mill operations along the Bronx River that would qualify the Lorillard Stone Mill Dam as eligible under Criterion D, either individually or as a contributing feature of the Lorillard Snuff Mill.

4.1.2.4 National Register of Historic Places Evaluation as a Contributing Feature of the New York Botanical Garden

The Lorillard Stone Mill Dam is located within the 250-acre NYBG, which was established in 1891. The NYBG was listed on the NRHP on May 28, 1967, under Criterion A in the areas of Education and Science. The NRHP nomination is dated January 22, 1976, and was certified by the National Park Service on October 12, 1983 (Greenwood 1976). The property is also a designated NHL. The nomination form lists the periods of significance for the NYBG as "1875-1899" and "1900-1924," and incorrectly states that the NYBG was established in 1896 on 230 acres, rather than in 1891 on 100 acres and later expanded to 250 acres by 1896 (Greenwood 1976). The nomination also identifies the NYBG as a historic district but does not specify which buildings and features should be considered contributing or non-contributing, though does describe "the 40-acre virgin hemlock forest [...], the Pinetum of over 200 specimens of evergreens, the Rose Garden having 80 species and 400 cultivars of roses, and the exceedingly attractive 1-acre Thompson Rock Garden" as notable features (Greenwood 1976). The nomination also notes that the "40-acre virgin hemlock forest and the original conservatory and museum building" date from the inception of the NYBG (Greenwood 1976). The nomination also mentions the three extant Lorillard estate buildings, including the Workers' Cottage (described as an unused and boarded up gatehouse), Lorillard Stables, and Lorillard Snuff Mill; the Lorillard Stone Mill Dam is not mentioned in the nomination text.

According to the nomination, the NYBG is historically significant as a world-renowned educational and scientific research institution, standing as "one of the world's largest herbariums" and "the Western Hemisphere's largest

botanical library,” with internationally recognized “programs in research, publishing and education” (Greenwood 1976). However, the nomination’s statement of significance does not assess the NYBG’s historical significance under Criterion A in the area of Recreation/Tourism, or under Criterion C in the areas of Landscape Architecture, and Architecture. While out of the purview of the current Undertaking, the NYBG should consider reevaluating its eligibility for NRHP listing in the interest of documenting the institution’s full historical significance and integrity.

Criterion A

The NYBG was created out of land from Bronx Park, which was established by the NYC Parks Department circa 1886. Bronx Park was comprised of the former Lorillard, Van Cortlandt, and Lydig estates, which were located on either side of the Bronx River. The Lorillard estate in particular was a key part of Bronx Park, as it was well known for its virgin hemlock forest and idyllic Bronx River gorge. The Bronx River and its picturesque “waterfall” were popular with visitors from the beginning, as indicated in an 1890 New York Times article:

“It was in the Bronx River that Peter Lorillard found the chief beauty of his estate as well as motive power to move the machinery with which he piled up his fortune. Through that park of the park which was his estate it rushes with great velocity between steep rocky banks which it takes a sure foot to climb. Broken by many boulders and running over an uneven bed of rocks, the little river lashes itself into a fury and fills the air around with the music of its anger. Peter Lorillard dammed the stream to get the power for his snuff mills. The dam is a picturesque affair today, piled high with driftwood and broken trees and shrubs, through which the waters gush to fall on the rocks below” (New York Times 20 Jul 1890:20).

While the dam itself was not included in the initial limits of the NYBG, it impacted the drainage within the NYBG land to the north. An 1895 article in the New York Times detailed the results of a survey of the property and the work needed to create the NYBG:

“Special attention will be paid to the drainage, for upon it depends the health of the visiting public, and the corps of specialists who will be constantly at work on the grounds. The site abounds in marshes and damp ground, but under modern scientific drainage it can be converted into a most advantageous place for botanical purposes. {...} In all probability the old dam belonging to the Lorillard Snuff Mills, on the Bronx, which now backs up water to the height of eight feet, will be torn down, thus draining the marshes at the end of the park and abating to a considerable extent the malaria which has been prevalent in the Bronx region for years” (New York Times, 15 August 1895:9).

By December 1896, however, plans for the Lorillard Stone Mill Dam had changed slightly, and its complete removal was no longer considered. Instead, the New York Times reported that:

“Drainage considerations will make it necessary to lower the dam in front of the old Lorillard house, but the lake mentioned will take place of wet meadows to the north, the banks of the stream will be beautified, and the dam will be hidden by crude rocks which will give the effect of a natural cascade” (New York Times, 8 Dec. 1896:11).

N.L. Britton, the secretary of the New York Botanical Society, first asked the NYC Parks Department to make the above alterations to the Lorillard Stone Mill Dam as early as January 1896, though the work was not actually performed until the summer of 1902 (NYBG 1903:420). After the reconstruction work was completed, the Lorillard Stone Mill Dam was no longer referred to as a dam, but instead as “Lorillard Falls” or “the falls at the Lorillard Mansion” (New York Tribune, 11 Sept. 1907:6; New York Times, 17 May 1908: B; Brooklyn Daily Eagle, 5 Dec. 1920:S7). The Lorillard Stone Mill Dam remained part of Bronx Park outside of the NYBG until at least 1915, but was described in the NYBG’s 1907 *Descriptive Guide to*

the Grounds, Buildings and Collections as part of the “natural features {that} are of special interest” within NYBG’s general plan of development, which included the gorge of the Bronx River, extending south from the waterfall at the Lorillard Mansion, along the edge of the hemlock grove to the southern boundary of the Garden” (NYBG 1907:2-3).

In the early 1900s, the “Lorillard Falls” were frequently described, along with the rest of the Lorillard buildings, in newspaper articles, journals, and reports about the Bronx borough and its parks. In 1909 and 1910, the American Scenic and Historic Preservation Society’s annual report featured both the Lorillard Mansion and the Lorillard Snuff Mill and their surroundings, and described the Lorillard Stone Mill Dam, saying “this miniature Niagara is as picturesque and as popular as ever, and the cynosure of myriads of artists and photographers” (American Scenic and Historic Preservation Society 1910:61-62). The Lorillard Falls, as well as the Lorillard Mansion, Snuff Mill, and “Acres of Roses,” were also featured in the City History Club of New York’s 1909 *Historical Guide to the City of New York* (201-202; 400).

Through the 1920s, Lorillard Stone Mill Dam was a common inclusion in city guidebooks. The 1922 and 1924 guides published by the Bronx Board of Trade say that while the Bronx Zoo and the Botanical Garden are the “dominating features” of Bronx Park, the “Lorillard Falls are also well worth seeing, as is also the Lorillard Snuff Mill” (Bronx Board of Trade 1922:28; 1924:29). The guide also lists the “Lorillard Falls and Snuff Mill” as a separate and distinct point of interest within Bronx Park (Bronx Board of Trade 1922:13). The Lorillard Falls also continued to be included as a point of interest in the City History Club of New York’s 1923 *Landmarks of New York; An Historical Guide to the Metropolis*.

While for most of this period the Lorillard Stone Mill Dam was not technical part of the NYBG, it was both integral to the NYBG’s overall developmental plan and directly related to the characteristics that made the NYBG an important point of interest for residents and visitors of the Bronx alike. The Lorillard Stone Mill Dam, after the addition of the more natural looking cascade, complemented and contributed to the “idyllic,” “picturesque,” and “scenic” qualities of the Bronx River gorge and the NYBG as a whole. After the NYBG acquired the rest of the Lorillard estate property in the 1930s, this association continued, with the “Lorillard Falls” remaining a popular and isolated retreat for NYBG visitors. The Lorillard Stone Mill Dam was also frequently showcased on postcards throughout the early to late twentieth century.

The Lorillard Stone Mill Dam was constructed circa 1800, prior to the creation of the NYBG, and has served as a popular site for visitors to Bronx Park and NYBG since the creation of Bronx Park in 1884 and the creation of NYBG in 1891. The NYBG and NYC Parks Department made significant changes to the Lorillard Stone Mill Dam in 1902, not only to more effectively aid in NYBG land drainage, but also to create a landscape feature that better complemented the natural and idyllic setting of the Bronx River gorge within and adjacent to the NYBG. The Lorillard Stone Mill Dam has remained an integral point of interest for visitors to the NYBG. For these reasons, the Lorillard Stone Mill Dam is recommended as a contributing feature of the NYBG under Criterion A associated with its potential significance in the area of Recreation/Tourism.

Criterion B

Further investigation is needed to determine whether the NYBG is significant for its association with any person or persons in local, regional, or national history. It is unlikely, however, that the Lorillard Stone Mill Dam would be considered a contributing feature of the NYBG’s significance under Criterion B. The Lorillard Stone Mill Dam was constructed circa 1800 for, if not by, Peter and George Lorillard, both of whom died several decades before the NYBG was formed in 1891. Further, other than the alterations conducted in 1902, the Lorillard Stone Mill Dam has largely remained untouched and unchanged during

its association with NYBG, and no significant individuals potentially associated with NYBG are directly associated with the Lorillard Stone Mill Dam. For these reasons, the Lorillard Stone Mill Dam is recommended as not contributing to the NYBG's potential significance under Criterion B.

Criterion C

Further investigation is needed to determine the NYBG is significant for its Landscape Architecture. While the areas of Bronx Park that were used to create the NYBG retained much of their natural setting, significant planning and construction were required to transform the park setting into a "museum of plants" suitable for public consumption. The earliest of these plans and needs are detailed in newspaper articles and Board of Commissioner minutes published in the late 1890s through the early twentieth century, and primarily focused on labeling trees, securing new varieties, managing drainage issues, and constructing walking paths and bridges (New York Tribune, 20 Aug 1895:11). Development and construction continued through the first quarter of the twentieth century. In 1924, the Olmsted Brothers conducted an investigation into the NYBG and provided a report detailing how to remedy the impression that the "grounds of the Botanical Garden are much less beautiful and much less attractive and valuable to the general public, and especially to that part of the public particularly interested in gardening, in gardens and in landscape beauty, than is reasonably to be expected in the leading institution of its kind in the metropolis of the United States" (Olmsted Brothers 1924:5). Improvement of the NYBG has continued consistently ever since.

The Lorillard Stone Mill Dam predates Bronx Park and NYBG by nearly a century; however, as early as 1895, the dam was a key part of the larger plan for NYBG, as it directly impacted the drainage of the lands to the north within the NYBG property. In 1902, the Lorillard Stone Mill Dam was lowered 16 inches in order to provide better water flow and better drainage in the marshlands to the north. Perhaps more importantly, the dam was also altered to better fit in to the natural setting of the NYBG and the Bronx River gorge; the addition of large stones and boulders created a gentler cascading feature to the downstream face of the dam and obscured its original industrial purpose. The "Lorillard Falls" were later touted in visitors' guides and other tourism materials as an idyllic point of interest within the wilderness oasis of the Bronx River gorge and NYBG. For these reasons, the Lorillard Stone Mill Dam may be considered a potential contributing feature of the NYBG under Criterion C for its association with the larger planning and design of the NYBG. The Lorillard Stone Mill Dam's association with the NYBG under Criterion C would likely fall between the creation of the NYBG in 1891 and the last major alterations made to the Lorillard Stone Mill Dam by the NYBG circa 1903.

Criterion D

Background research has revealed that several precontact archaeological sites have been identified within the NYBG property. Further investigation is needed to determine whether the NYBG itself is eligible for NRHP inclusion under Criterion D. Further, while the Lorillard Stone Mill Dam is recommended potentially individually eligible under Criterion D for its potential to provide important information regarding the construction and engineering of late eighteenth and early nineteenth century gravity dams in the Bronx River region, as well as its potential to reveal information on the construction of eighteenth-century wooden crib dams, neither of these potential areas of significance are related to the dam's association with the NYBG, and it does not have the potential to reveal any significant and previously unknown information related to the history or development of the NYBG. For these reasons, the Lorillard Stone Mill Dam is recommended as not potentially contributing to the NYBG under Criterion D.

5 Summary and Recommendations

This Project involves the research and development of a historic context for the Lorillard Stone Mill Dam study area, as well as documentation of the Lorillard Stone Mill Dam, evaluation of its eligibility for inclusion on the NRHP as an individual historic property, and an evaluation of the Lorillard Stone Mill Dam as a potential contributing feature of the Lorillard Snuff Mill, which was listed on the NRHP and designated an NHL in 1977. This report also provides a comprehensive narrative of the changes in use of the Lorillard Stone Mill Dam study area through its occupation.

5.1 Architecture

The Lorillard Stone Mill Dam is recommended as not individually eligible for NRHP listing under Criteria A, B, or C due to a loss of integrity. The significance of the Lorillard Stone Mill Dam lies primarily in its association with the operations of the larger Lorillard Tobacco and Snuff Company manufacturing complex on the Bronx River, and significant alterations made to the dam circa 1902 have significantly diminished the structure's ability to convey this association as a stand-alone resource. Likewise, the dam is also potentially significant as a rare surviving example of late eighteenth- and early-nineteenth-century engineering and design of dams and water control structures on the Bronx River; however, as the integrity of the dam's design and workmanship has been significantly diminished due to those same circa-1902 alterations, it no longer represents late-eighteenth- or early-nineteenth-century design and workmanship. While structures are not typically evaluated under Criterion D, the majority of the Lorillard Stone Mill Dam was submerged or otherwise obscured by the flow of the Bronx River at the time of survey, and a full inspection of the dam's construction was not possible. Therefore, there was not enough information available to fully evaluate under Criterion D.

While not recommended individually NRHP eligible, the Lorillard Stone Mill Dam is recommended as a contributing feature of the NRHP-listed Lorillard Snuff Mill, which is significant under Criterion A in the area of Industry, under Criterion B for its association with the Lorillard family, and under Criterion C as an example of an early-to-mid-nineteenth-century industrial building within its original setting on the Bronx River. The Lorillard Snuff Mill has a period of significance between circa 1800 and 1870. The Lorillard Stone Mill Dam is recommended as contributing under Criteria A and B, though it does not retain sufficient integrity to be considered a contributing feature under Criterion C.

In addition to the Lorillard Stone Mill Dam, at least two other structures associated with the Lorillard Tobacco and Snuff Company are extant on the NYBG property: the circa-1850 Workers' Cottage and the circa-1850 Lorillard Stables. While these structures were photographed and noted in the historic context, these structures are located outside of the Lorillard Occupation Study Area and a comprehensive survey of the buildings was not possible at the time of survey. While these structures should also likely be considered contributing features of the Lorillard Snuff Mill, additional documentation and evaluation is recommended.

Likewise, research and field survey have identified several areas within the Lorillard Occupation Study Area that are potentially archaeologically sensitive. These include foundational ruins immediately downstream from the Lorillard Stone Mill Dam associated with the circa-1760 Mill Number 1 and circa-1850 Lorillard studio/laundry building, as well as possible remnants of the early box crib dam immediately upstream from the Lorillard Stone Mill Dam. As such, further archaeological investigations are recommended.

5.1.1 Preliminary Assessment of Effects

The Lorillard Stone Mill Dam is recommended as a contributing feature of the NRHP-listed and NHL-designated Lorillard Snuff Mill. Therefore, the complete removal of the Lorillard Stone Mill Dam would introduce an adverse effect on the Lorillard Snuff Mill and its ability to convey its significance under Criteria A and B. Given the Lorillard Stone Mill Dam's previous loss of integrity of design and workmanship, however, minor alterations to the dam and surrounding area may or may not introduce adverse impacts to the Lorillard Snuff Mill property and would need to be further assessed based on specific design plans.

5.2 Archaeology

This section identifies multiple historic features and site locations within the Lorillard Stone Mill Dam study area that are associated with the late eighteenth through late nineteenth century Lorillard occupation along the Bronx River within the NYBG (see Appendix A, Figure 2). Only the significance of the third mill (the National Historic Landmark Lorillard Snuff Mill) has been determined. These features/site locations are:

- The locations of the c. 1760 First Mill and its submerged wooden crib box dam. The ruins of the mill exist east of the Bronx River about 140 feet south of the Lorillard Stone Mill Dam. Architectural elements within the ruins can be discerned and were noted during the reconnaissance for this study.

Timbers with hardware that were part of the wooden dam are submerged in the Bronx River just upstream of the Lorillard Stone Mill Dam within what was the former mill pond near the river's eastern edge. The structural extent of the timbers present is unknown but at least two sections were noted in 2008 and during the reconnaissance for this study. Additional submerged sections may exist within the mill pond's bottom sediments. Stratigraphic evidence for remaining sections of a head race and water control feature also may be present just to the east of the Lorillard Stone Mill Dam (see Figure 3) while remaining sections of a tail sluice or race appears to be visible within the mill ruins.

- Much of the visible, original structure of the c. 1800 Lorillard Stone Mill Dam, remains. The height of the dam was reduced by 16 to 18 inches and changes made to the top of the dam in 1896. Also, stones were attached to the front of the dam to create a cascading water fall effect at that time to evoke the Catskill Mountains. The visible, historic effect of the dam is not adversely affected by these changes. (A relatively recent breach also appears to be present towards the western end of the dam.) Construction and structural observation-based information on the interior face of the dam and the methods by which its base was anchored to the river bottom and bedrock are not available due to its submergence. No design documents or plans dating to the dam's construction are known. It is assumed a coffer dam of some sort was used in the Lorillard Stone Mill Dam's construction, sections of which may remain submerged and preserved in bottom sediments upstream of the dam.
- The Second Mill was located along the east side of the Bronx River between the existing Snuff Mill (Third Mill) and Bronx Park Road Bridge. Remains of the mill are not readily apparent, however, the east abutment for the bridge may include part of the mill's foundation. Stratigraphic indications for the head race providing water to the mill may exist north of the bridge.
- The c. 1840 Third Mill (Lorillard Snuff Mill) site has been documented and archaeologically investigated. However, as yet unidentified archaeological resources associated with the mills operations or other prior activities may still exist surrounding it, possibly buried beneath fill layers.

- Stratigraphy and structural elements for the circa 1840 head race for the three mills likely remain within the approximately 1,800 feet the race reportedly extends from the Lorillard Stone Mill Dam to the Mill Number 2 area. The race was filled around 1900. Stratigraphic evidence for the race was discovered during excavations about 35 feet east of the existing Snuff Mill (Mill Number 3). Other stratigraphy for the race or structural elements including water control features may be present along the Bronx River Waterfall Trail or south of the Snuff Mill. Gravity would cause the movement of water through the head race so determining the degree of southward slope of the race over distance, if possible, would be useful in understanding mill operations.
- Mill pond impoundments would have been located upstream from the c. 1760 and 1800 dams. The earlier mill pond's dimensions likely were obscured by incorporation into the later 1800 mill pond. The spatial dimensions of the later mill pond may be defined providing some information on the volume of water or storage capacity contained within which would help in estimating the power that could be delivered to the mill sites.
- Historic stone removal/quarry work still mark the eastern margin of the Bronx River gorge where it was cut back for the placement of the head and tail races for the mills along the part of the river terrace that extends between the Lorillard Stone Mill Dam and Mill Number 3. The visible marks of these historic activities likely required Lorillard craftsmen to possess a working knowledge of the local, primarily schist, bedrock within the gorge in order to take advantage of seams and other flaws or faults in the stone that could then be more easily removed. Information on the removal patterns, techniques, and tools used for such quarrying may be discerned by recording the features by a qualified geologist.
- While the Lorillard Mansion burned, its remains subsequently removed, and later intrusive activities have occurred on its former site, it is possible that nineteenth century water retention or sanitary features (cisterns, wells, and privies), likely truncated, may remain. If so, they would be important archaeological resources. The former mansion access road leading from the mill work area along the Bronx River's east bank up the valley margin may be the only landscape artifact directly associated with the Mansion, s Lorillard occupation that remains. An accurate survey of the roadway and archaeology to understand its construction and stratigraphy, along with the recovery of associated artifacts, may provide information on the road's period or periods of construction and full purpose.
- Any actions that would adversely affect the visual nature of the current gorge in terms of its historic nature-rural/industrial character should be carefully considered. The role that the Bronx River played, including the Lorillard study area, in late nineteenth and early twentieth century artistic expression that recorded that transition of the river and the Bronx Borough, as discussed in Section 1.2.7, would play a significant role in that consideration. A viewshed analysis of the gorge by a qualified architectural historian or historic preservation specialist is recommended prior to any such Lorillard Stone Mill Dam action.
- Cultural deposits or structural remains associated with the Lorillard period of occupation may be present within the study area. These could be associated with mill operations dating anytime within the 1760-1870 time period or later historic events. Small, limited domestic type deposits associated with mill workers during the period also may exist. Due to the ephemeral nature of Revolutionary War actions within the gorge it is unlikely that such resources would exist although individual artifacts may remain. Indigenous sites also may be present within the study area given that such sites have been found in the Lorillard occupation vicinity and the environmental settings of the location. Even if disturbed, the presence of such a resource would be important.

Although the Area of Potential Effect for any planned Lorillard Stone Mill Dam removal or modification project or other related or unrelated action has not been developed, additional archaeology and research is recommended prior to any action occurring in the study area, particularly if any of the sensitive locations or viewshed discussed here will be adversely affected. Scopes of work for additional studies would depend on the extent of proposed construction or other actions.

5.3 Historic Research – Specific Topics or Studies to Address Gaps in Knowledge or Increase the Knowledge Base for the Lorillard Occupation Study Area

5.3.1 African American Work Force

The Lorillard Family employed workers and took pride in its reportedly fair treatment of African Americans from its earliest days in New York City and into its Bronx and New Jersey periods. Whether Lorillard's African-American work force was enslaved, free, or emancipated individuals would have varied over time. Much of the Lorillard fortune came from slave grown southern tobacco. Peter Lorillard II also was a property speculator who in 1797 profited by purchasing from a private owner land that formed part of the African-American (Negro) Burial Ground in lower Manhattan and sub-divided into lots. Research does not identify interments as being removed beforehand. Additional research on the Lorillard family's business and personal relations with the historic African American community in New York City is warranted and relevant today.

Peter Ray (1800-1882), an African American and lifelong Lorillard employee, started work as an 11-year-old errand boy in New York City, rose to be Foreman at the Manhattan and Bronx facilities, and was promoted to general superintendent at the company's Jersey City facility (Peterson 1911:327). Ray also reportedly was an expert in the quality of broadleaf and shade grown tobacco imported into New York to the extent that Lorillard frequently took him to examine and attest to the quality of the imported commodity. Further research on Peter Ray's Lorillard work in the Bronx and his reportedly important role in African American communities in Manhattan and the Bronx, especially the African Methodist Episcopal Church, nineteenth century is warranted.

5.3.2 Tobacco and Spices

The reliance of slave produced broadleaf and shade grown tobacco from the south and from New England's Connecticut valley requires more research. The sources for the leaves likely changed with time due to economic factors and personal taste. If tobacco came from Connecticut in any appreciable quantities, particularly during Lorillard's early years, the route the crop took could have been by land down the Boston Post Road, which ran immediately past Lorillard's Bronx facility. It may also have traveled by boat, landing at wharfs in Manhattan or at the developing maritime port along the East River/Long Island Sound at Soundview and transported the four miles north to the Snuff Mill. The transportation of spice used by the Lorillard's would have followed this same pattern with shipments unloaded either in Manhattan or Soundview. It is possible that both water-based travel occurred with larger ocean-going vessels landing in Manhattan with tobacco leaves or spices transferred to lighters or other smaller vessels for travel up the East River to Soundview. This topic has importance in assessing the Lorillard's impact on the local South Bronx economy at the time.

The type and quantity of the spices Lorillard used to flavor its products also likely changed as personal tastes, costs, and global politics changed. Also changes over time to the variety and quantity of tobacco products made by Lorillard likely occurred with items such as snuff, plugs, chewing, "seegars", hand rolled and machined rolled

cigarettes, and tobacco/nicotine liquid infused wood for oral use (an early product) available. This information if readily obtained would be of interest in the history of tobacco and derived products.

5.3.3 Wooden Box Crib Dam

Research on the design and use of Wood Box Crib Dams during the eighteenth century would provide information about this lesser-known dam and race technology. Little documentary information is readily available for it nor are intact, physical examples of such a dam present in New York City. The portion of the dam preserved in the Bronx River near the Lorillard Stone Mill Dam reportedly is the oldest and the only example, partial or otherwise, of a Wooden Box Crib Dam in New York City (Cahilly 2023).

5.3.4 Impoundment Survey

A professional survey employing state of the art techniques recording the Lorillard Stone Mill Dam mill pond impoundment, with examination for the possible maximum elevation of that feature, may provide knowledge of the volume of water that could flow through the head race when water control features were fully opened to power the mills.

5.3.5 Bronxdale and West Farms

The Lorillard Tobacco Company apparently played an economic role in the nineteenth century development of the Bronxdale (east of the NYBG) and West Farms (south of the NYBG) communities. Lorillard workers, likely white and African-Americans, immigrants and native born, apparently lived in these communities. The Lorillard Company may have provided various free school, health, and other services in these communities to its workers and their families during the nineteenth century as it did to its Jersey City work force after the company moved there around 1870.

5.3.6 Signage

Additional signage along the Lorillard Waterfall Trail and south of the Snuff Mill to identify other historically important areas (head race, Mills 1 and 2, Bronx River gorge rock cutbacks, mansion road, bedrock and glacial geology/gorge, Hester Bridge, etc.) would educate all who use that part of the NYBG.

5.3.7 Mill Numbers 1 and 2

The function of structural features remaining for Mill Number 1 should be documented by an industrial archaeologist or industrial historian specializing in eighteenth century mills. Documentation would include locations of the head and tail races, slots for the mill wheel and remaining structural timbers beams, and foundations.

Confirmation of the possible foundation for Mill Number 2 being part of the supported for the eastern abutment of the Bronx Park Road Bridge.

5.3.8 Types of Water Control Devices

Research on types and designs of vintage water control devices such as sluice gates, weirs, diversion boards, that would have been critical to a full understanding of the Lorillard mill operations, especially its waterpower supply.

5.3.9 Remote Sensing Survey and Geotechnical Borings

A ground penetrating radar survey undertaken along the Waterfall Trail and south of the Snuff Mill to determine the route of the c. 1800 Lorillard head race and its diversions into tail races and identify possible locations of water control features. Geotechnical borings would provide information on the types and depths of soil deposits used to fill the race around 1900.

5.3.10 Geology

Information regarding local geological faults and bedrock geology should be gleaned from existing sources to identify to any potential threats to structures as is done in New Jersey by the New Jersey Geological Society's earthquake risk assessment studies (Dombroski Jr. 2005). How this applies to risks to cultural resources within the NYBG could be ascertained.

5.3.11 Reynolds American Inc./Lorillard Tobacco Company

The Lorillard Tobacco Company, Greensboro, North Carolina was purchased by Reynolds American, Inc., a company owned by British American Tobacco, in 2015. Attempts should be made to access the archives of the Lorillard Tobacco Company or its successor, Reynolds American, Inc. to determine whether important additional information is available on the Lorillard Stone Mill Dam or on other Lorillard operations in Manhattan, the Bronx, and elsewhere

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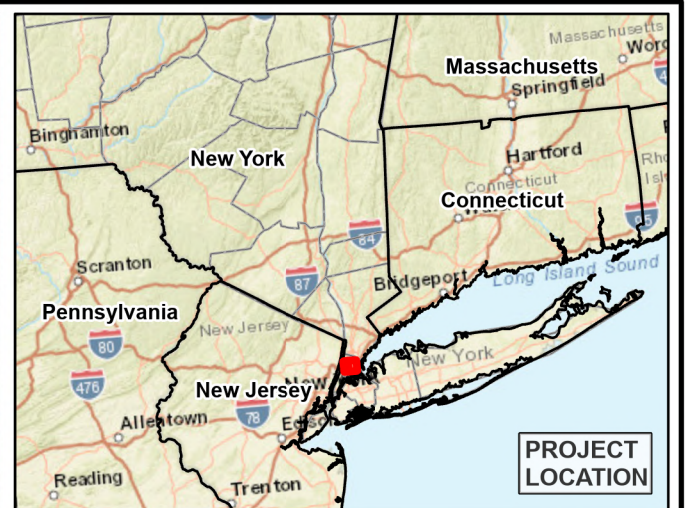
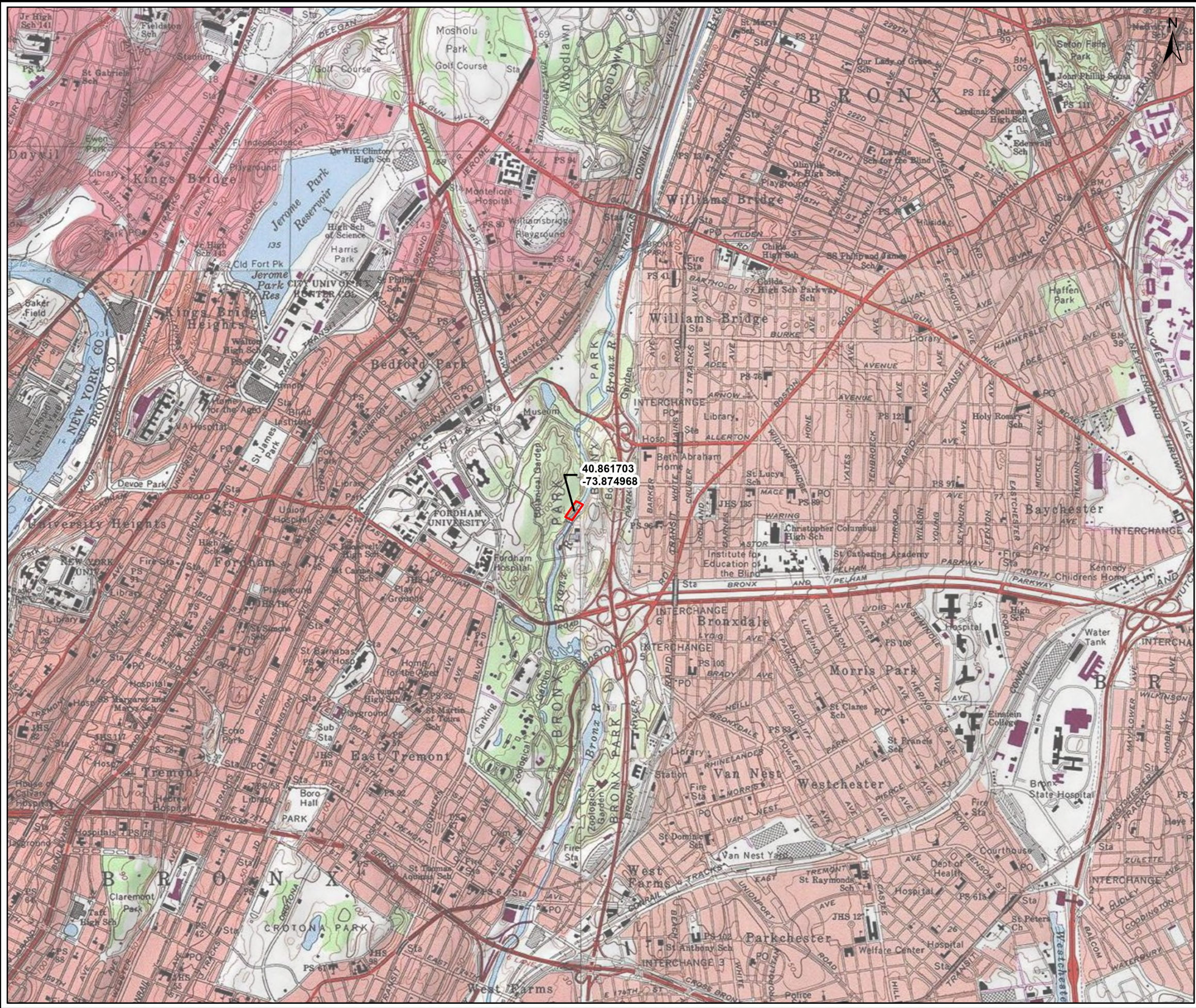
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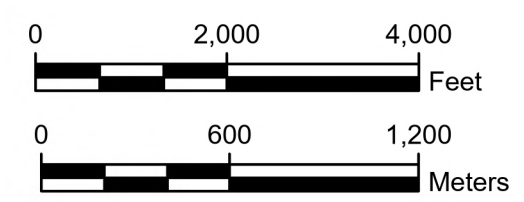
Appendix A

Project Mapping

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LEGEND:
 Project



USGS Topographic Quadrangles for Central Park (1979) and Flushing (1979), New York and NatGeo World Map (Inset). Obtained from ESRI Image Service.

HRE STONE MILL DAM BRONX COUNTY, NEW YORK	
PROJECT OVERVIEW	
 CDM SMITH ARCADIS WSP	FIGURE 1



Lorillard Period Occupation Study Area/Historic Rural-Natural-Industrial Transition Viewshed



Approximate Location of Mill Race



Potentially Sensitive Area for Indigenous Archaeological Sites



Potentially Sensitive Area for Historic Period Archaeological Deposits



HRE-STONE MILL DAM PROJECT
NEW YORK BOTANICAL GARDEN
BRONX COUNTY, NEW YORK

SITE PLAN – LORILLARD ESTATE



CDM SMITH | ARCADIS | WSP

FIGURE
2



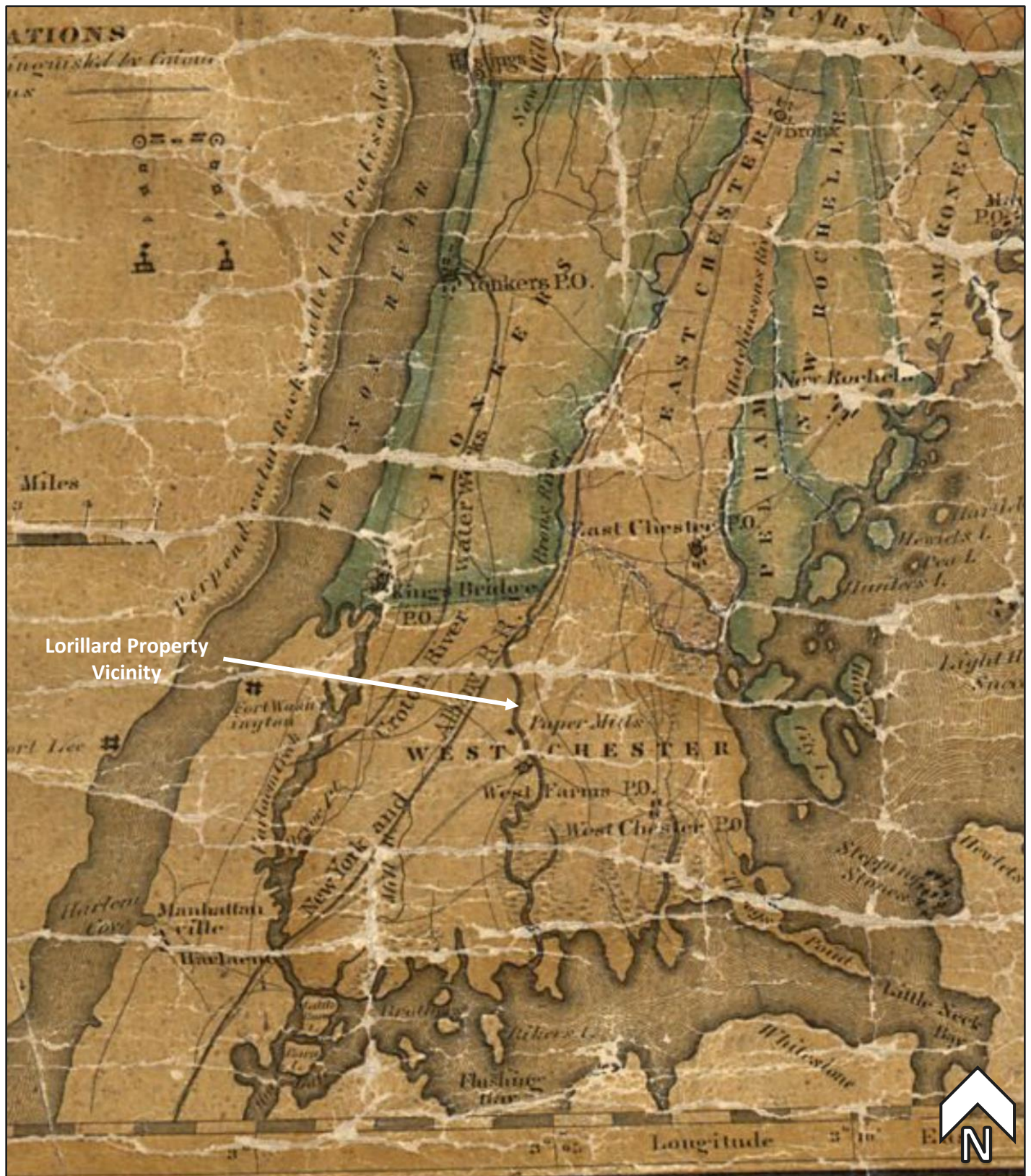
HRE-STONE MILL DAM PROJECT NEW YORK BOTANICAL GARDEN BRONX COUNTY, NEW YORK	
PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES	
 CDM SMITH ARCADIS WSP	FIGURE 3

Appendix B

Historic Maps



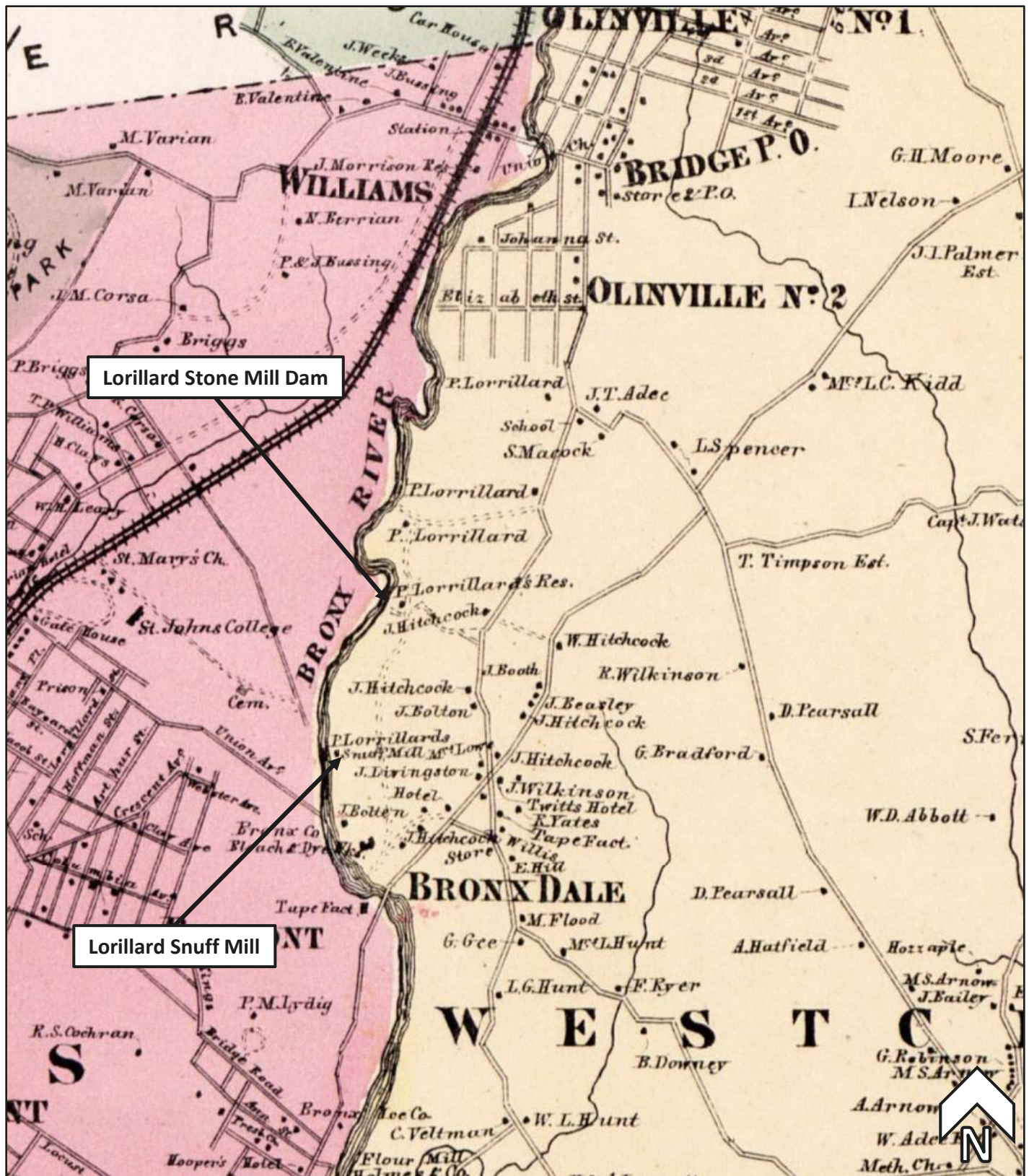
Figure 1
1820 Map of Westchester County, New York



Source: Stone & Clark. 1820. *Map of the County of Westchester*. Stone & Clark (republished 1839), Ithaca, New York. Westchester County Archives, collections.westchestergov.com/digital/collection/ccmaps/id/51/rec/6.



Figure 2
1867 Map of Westchester County



Source: Beers & Co. 1867. Plans of Westchester, West Farms, Morrisania, Westchester County, and Part of New York County. Beers & Company.
Courtesy of Westchester County Archives, collections.westchestergov.com/digital/collection/p17286coll1/id/21/rec/66



Figure 3
1869 Map of the Lorillard Estate

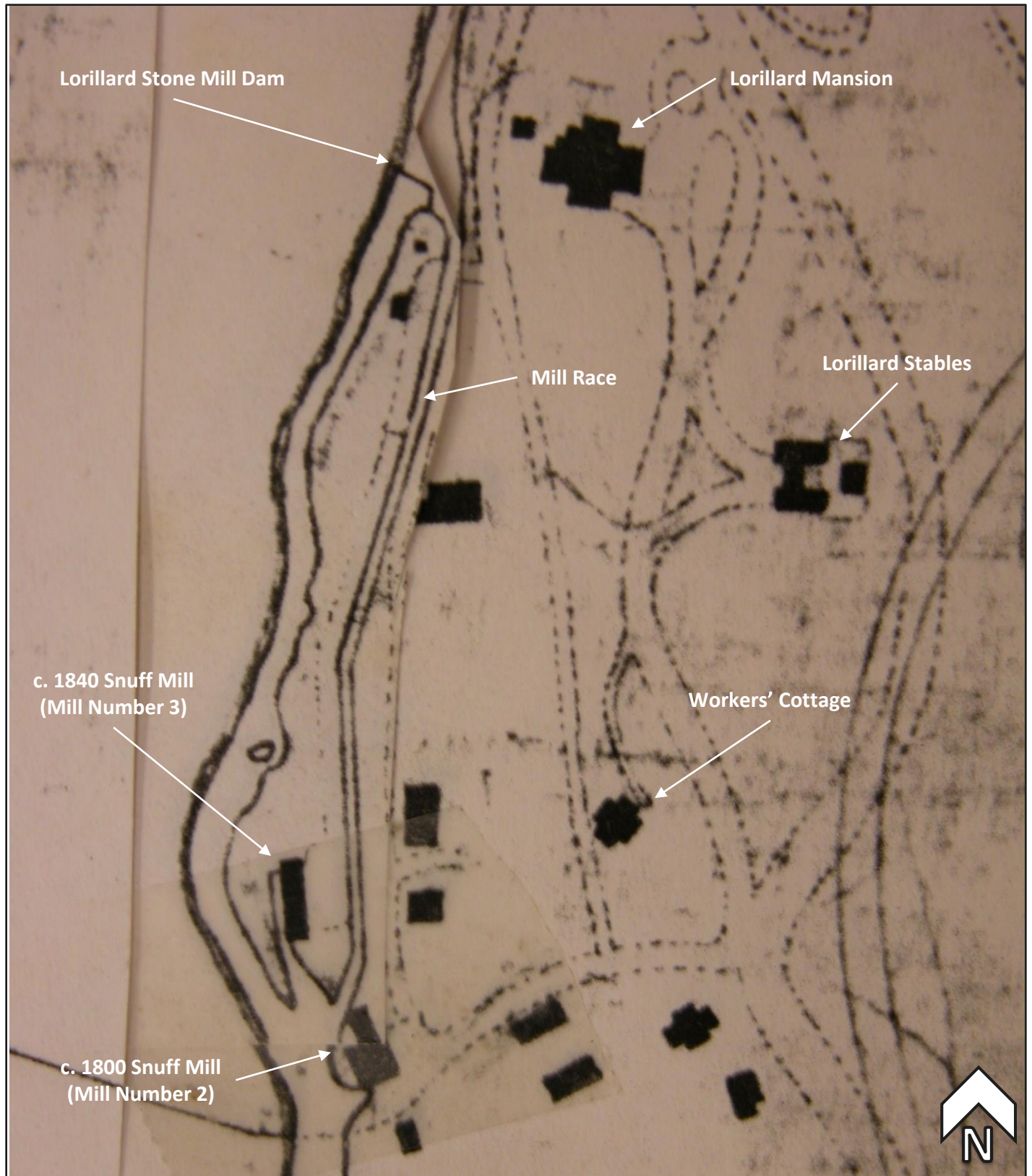
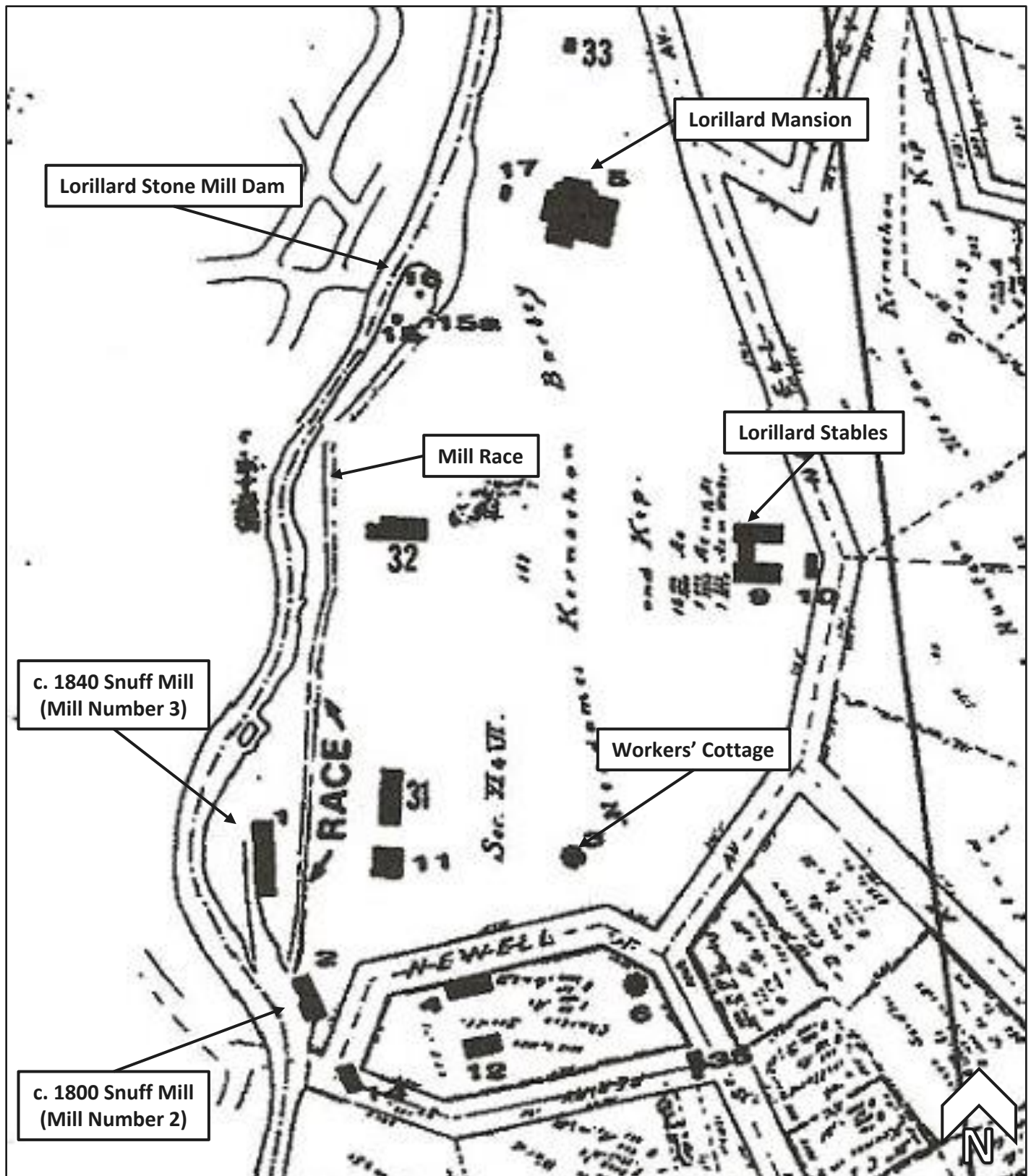
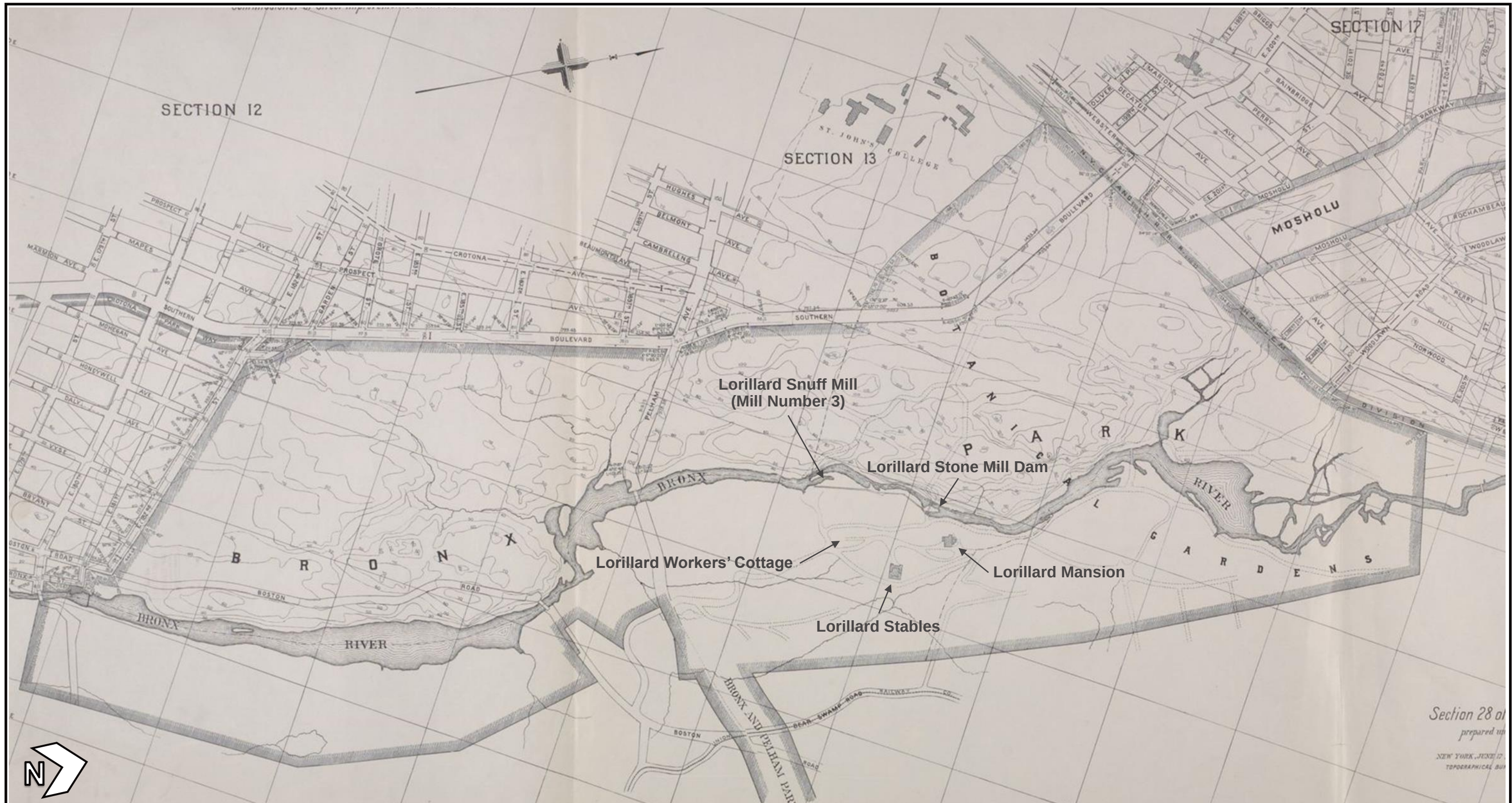




Figure 4
1884 Map of the Lorillard Estate

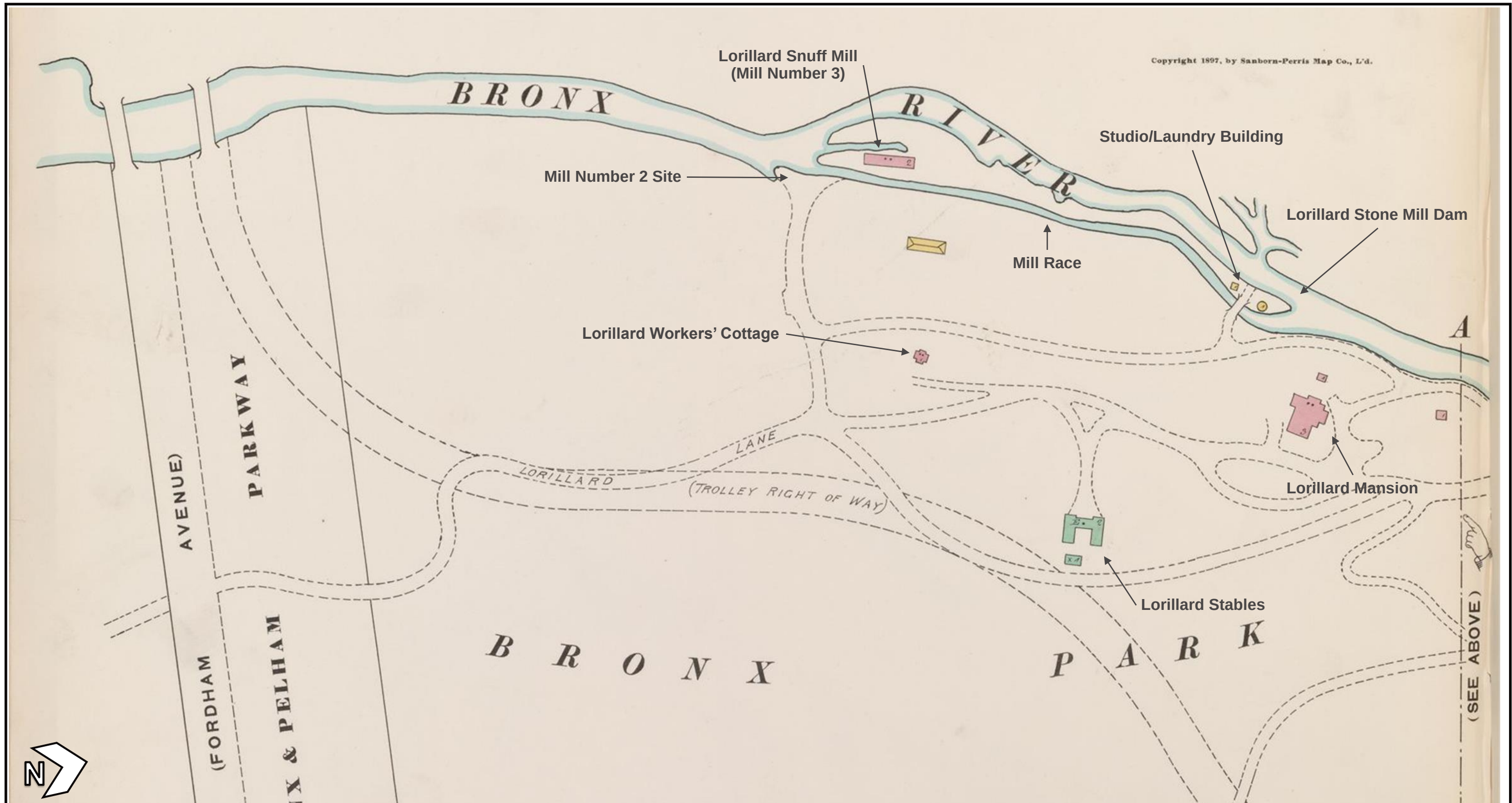




Source: New York Topographical Bureau. 1892. Map or Plan of Section 28. *Maps or Plans and Profiles Located and Laid Out by the Commissioner of Street Improvements of the 23rd and 24th Wards of the City of New York.* Atlases of New York City, Lionel Pincus and Princess Firyal Map Division, New York Public Library Digital Collections.



HRE-STONE MILL DAM PROJECT NEW YORK BOTANICAL GARDEN BRONX COUNTY, NEW YORK	
1892 MAP OF BRONX PARK	
  	FIGURE 5



Source: Sanborn Map Company. 1897. Sheet 47. *Sanborn Fire Insurance Map from New York, Bronx, Manhattan, New York, Vol. B.* Library of Congress.



HRE-STONE MILL DAM PROJECT
NEW YORK BOTANICAL GARDEN
BRONX COUNTY, NEW YORK

1897 SANBORN FIRE INSURANCE MAP
OF BRONX PARK

CDM SMITH | ARCADIS | WSP

FIGURE
6



Source: Sanborn Map Company. 1914. Sheet 106. *Sanborn Fire Insurance Map from New York, Bronx, Manhattan, New York, Vol. 14*. Library of Congress.

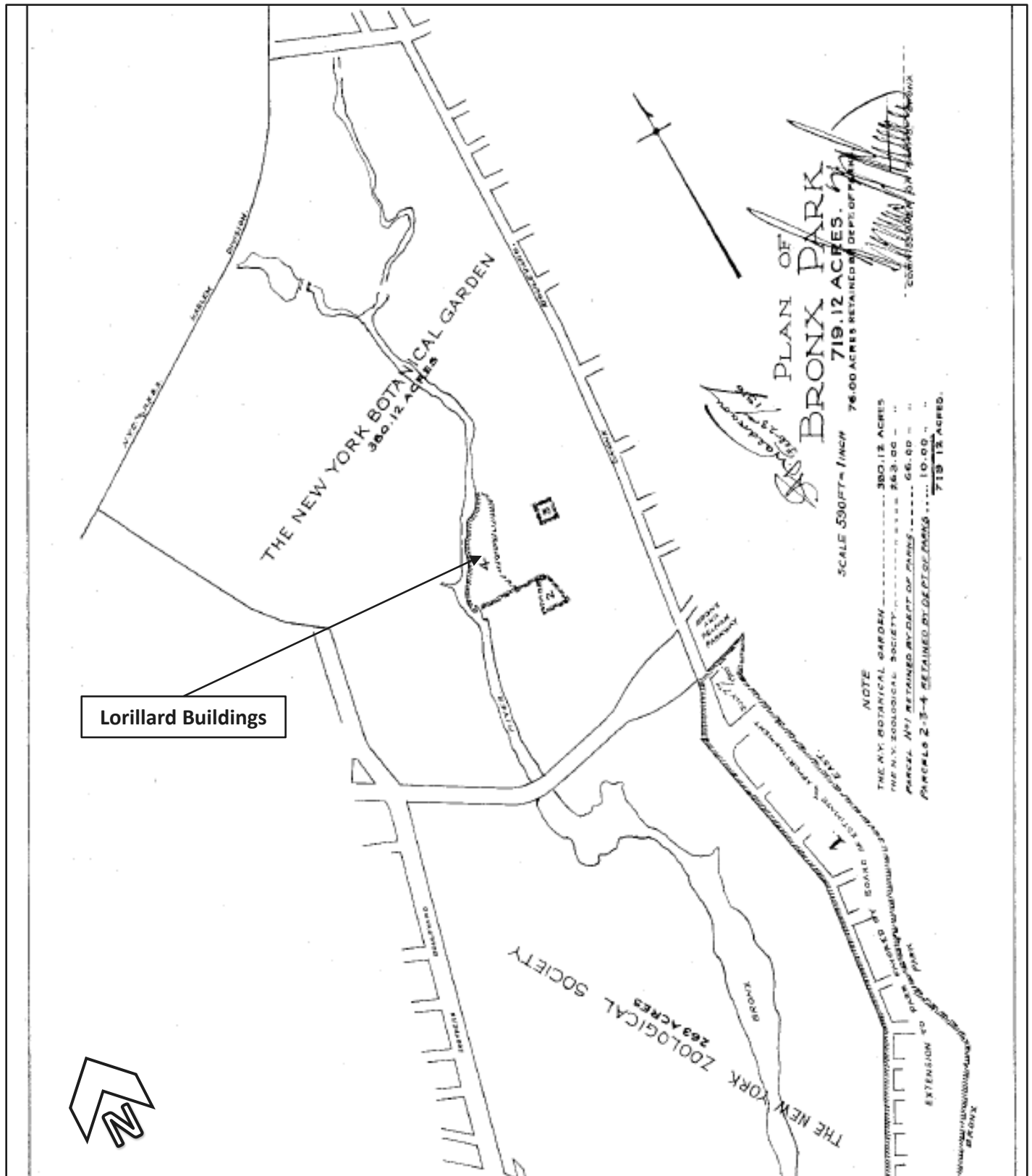


HRE-STONE MILL DAM PROJECT
NEW YORK BOTANICAL GARDEN
BRONX COUNTY, NEW YORK

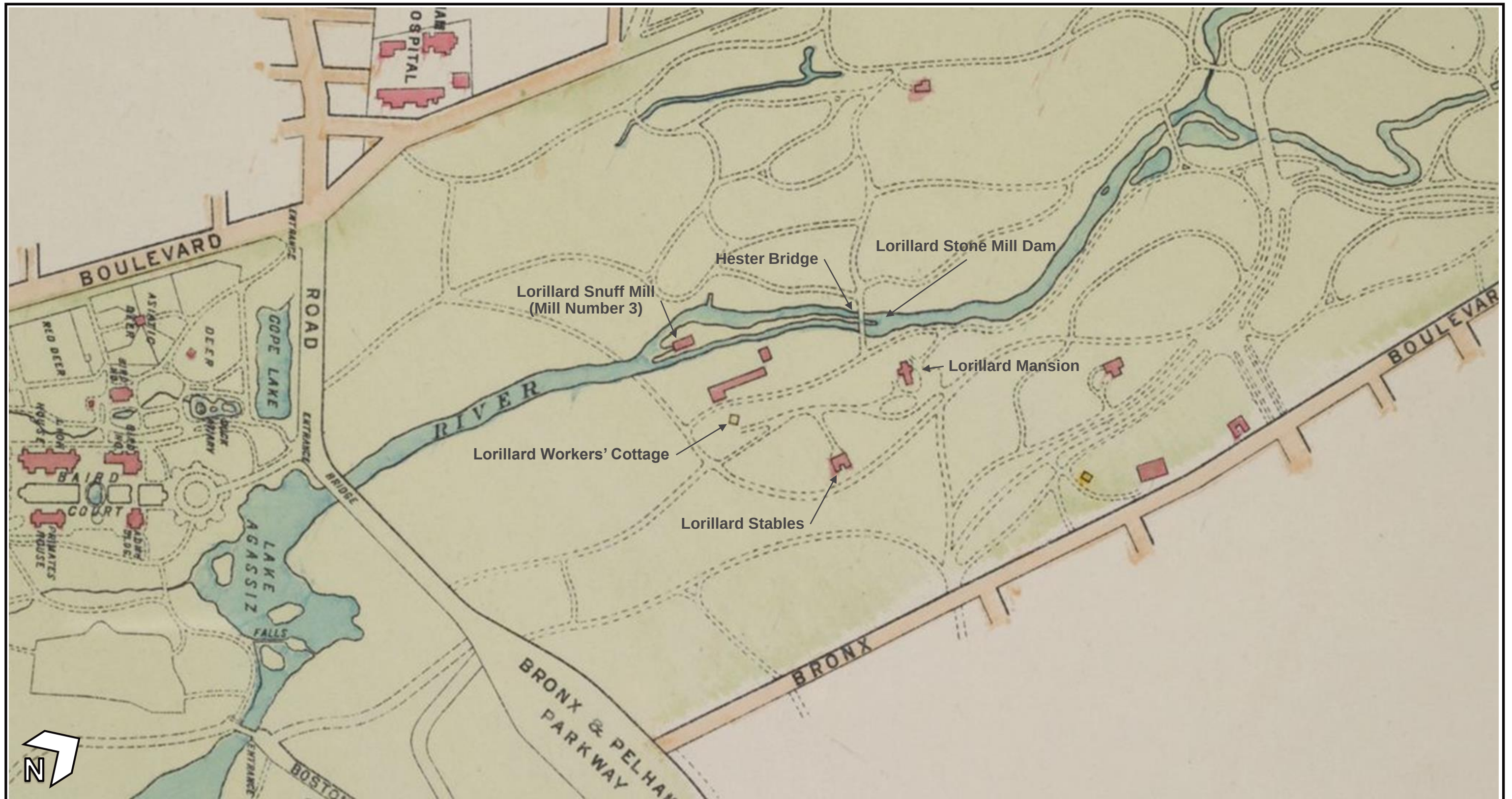
1914 SANBORN FIRE INSURANCE MAP
OF BRONX PARK



Figure 8
1915 Map of Bronx Park showing NYBG and NY Zoological Society Land



Source: NYC Parks Department. 1916. *Annual Report: 1915*. Clarence S. Nathan, Inc., New York City.



Source: G.W. Bromley & Company. 1921. Plate 83, Part of Section 13, Borough of the Bronx. *Atlas of Borough of the Bronx, Sections 9, 10, 11, 12 & 13*. G.W. Bromley & Company, Philadelphia. Atlases of New York, Lionel Pincus and Princess Firyal Map Division, New York Public Library Digital Collections.



HRE-STONE MILL DAM PROJECT
NEW YORK BOTANICAL GARDEN
BRONX COUNTY, NEW YORK

1921 PLAN OF BRONX PARK



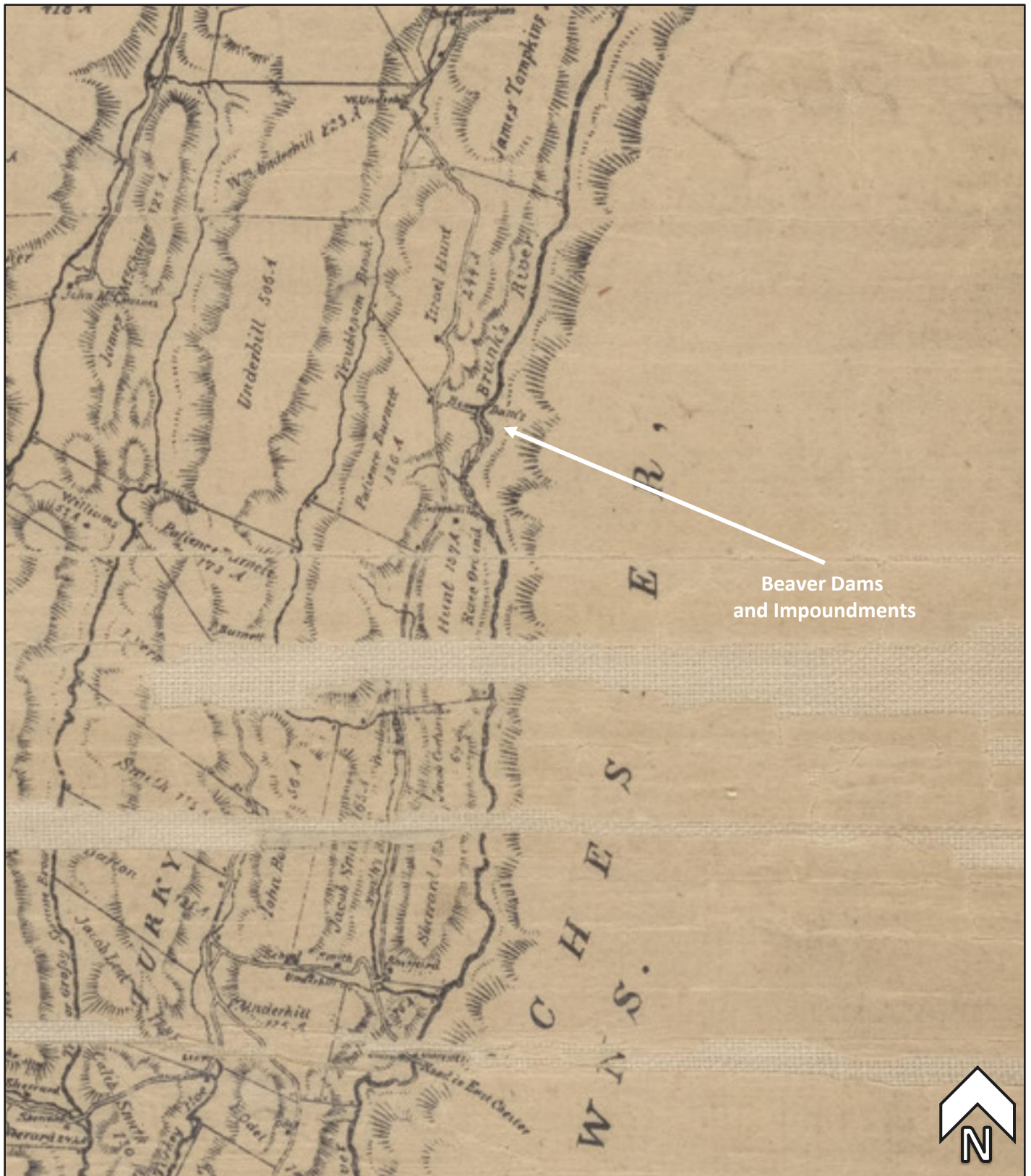
CDM SMITH | ARCADIS | WSP

FIGURE

9



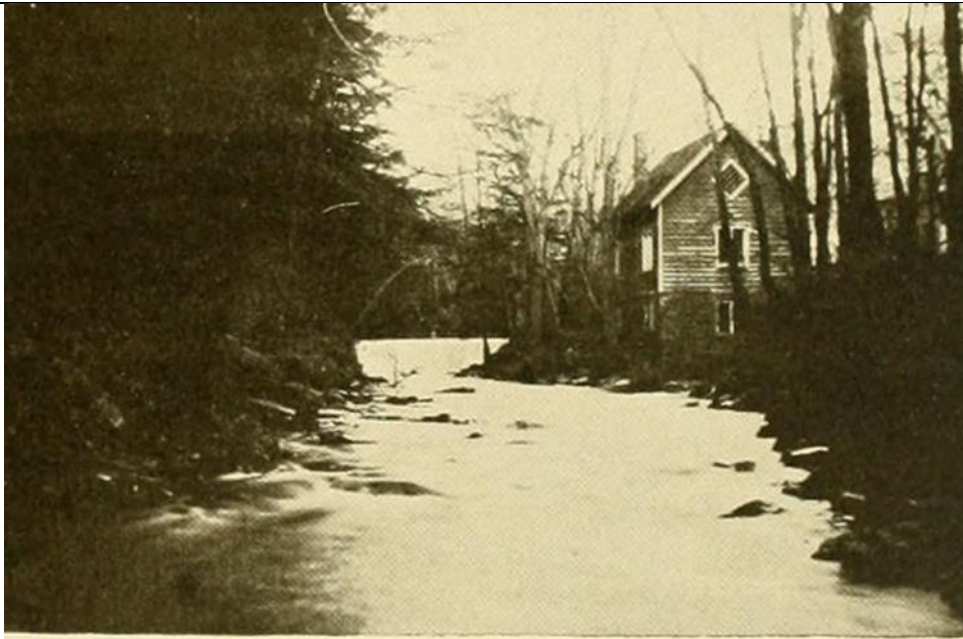
Figure 10
1850 A Plan of the Manor of Philipsburg, Westchester County, New York



Source: Hill, John. 1850. *A Plan of the Manor of Philipsburg, Westchester County, New York*. Westchester County, New York. Lionel Pincus and Princess Firyal Map Division, New York Public Library. <https://digitalcollections.nypl.org/items/dc0a7520-0980-0134-1589-00505686a51c>.

Appendix C

Historic Figures and Photographs



Lorillard Studio, Bronx Park

Photograph: 1

Date: circa 1880

Description: Lorillard Studio, or laundry building at the dam, Bronx Park.

Randall Comfort, *History of Bronx Borough, City of New York*, 1906. Page 47.

Direction: North



Photograph: 2

Date: circa 1880

Description: View of the circa-1800 Lorillard snuff mill. The initial date of 1939 is crossed out with a note that the mill collapsed in 1888-1889. New York Botanical Garden Historical Photographs, Album No. 1 *Mertz Digital Collections*.

Direction: East



Photograph: 3

Date: 1893

Description: View of Lorillard Dam from old circa-1885 footbridge. New York Botanical Garden Historical Photographs, Album No. 1 *Mertz Digital Collections*.

Direction: North



Photograph: 4

Date: 1896

Description: View of Lorillard Dam and entrance to mill race (right). New York Botanical Garden Historical Photographs, Album No. 1 *Mertz Digital Collections*.

Direction: Northwest



Photograph: 5

Date: circa 1902

Description: View of Lorillard Dam. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library.*

Direction: North



Photograph: 6

Date: circa 1902

Description: View of Lorillard Stone Mill Dam in winter.

Direction: North



Photograph: 7

Date: circa 1902

Description: *Falls in Snow, Bronx Park.* View of Lorillard Stone Mill Dam before the addition of cascade stones. George E. Stonebridge Photograph Collection, 1897-1918, New York Historical Society Museum & Library.

Direction: North



Photograph: 8

Date: circa 1902

Description: *Wood Bridge in Snow.* View of Lorillard Stone Mill Dam and circa-1885 footbridge. George E. Stonebridge Photograph Collection, 1897-1918, New York Historical Society Museum & Library.

Direction: Northeast



Photograph: 9

Date: circa 1902

Description: View of Lorillard Stone Mill Dam, circa-1885 footbridge, foundation ruins, and Lorillard Mansion. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Northeast



Photograph: 10

Date: circa 1902

Description: View of Lorillard Stone Mill Dam reconstruction during the summer of 1902. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Northeast



Photograph: 11

Date: circa 1904

Description: View of Lorillard Stone Mill Dam from west bank, likely taken after the dam was lowered and the cascade was added. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: East



Photograph: 12

Date: April 1909

Description: View of Lorillard Stone Mill Dam after the circa 1902 alterations. New York Botanical Garden Historical Photographs, Album No. 1 *Mertz Digital Collections*.

Direction: North



Photograph: 13

Date: July 8, 1927

Description: View of Lorillard Stone Mill Dam after the addition of more cascade stones. New York Botanical Garden Historical Photographs, Album No. 1 *Mertz Digital Collections*.

Direction: North



Photograph: 14

Date: 2008

Description: View of submerged timber remnants, possibly associated with the circa 1760 wooden crib box dam, identified during a bathometric survey of the Lorillard Stone Mill Dam impoundment.

Direction: Northwest



Photograph: 15

Date: circa 1902

Description: View of the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Northeast



Photograph: 16

Date: c. 1895

Description: Lorillard Snuff Mill in Bronx Park.

Ewing Galloway, *Photographic Views of New York City, 1870s-1970s*, Irma and Paul Milstein Division of United States History, *The New York Public Library Digital Collections*.

Direction: Southeast



Photograph: 17

Date: c. 1895

Description: Lorillard Snuff Mill in Bronx Park.

Ewing Galloway, Photographic Views of New York City, 1870s-1970s, Irma and Paul Milstein Division of United States History, *The New York Public Library Digital Collections*.

Direction: North



Photograph: 18

Date: 1896

Description: The Lorillard Snuff Mill beside the Bronx River.

Robert L. Bracklow Photograph Collection, 1882-1918, *New York Historical Society Museum & Library*.

Direction: Northwest



Photograph: 19

Date: c. 1897

Description: View of the circa-1840 Lorillard snuff mill. James Reuel Smith Springs and Wells Photograph Collection, 1893-1902, *New York Historical Society Museum & Library*.

Direction: North



Photograph: 20

Date: circa 1902

Description: View of the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Southeast



Photograph: 21

Date: circa 1902

Description: View of the circa-1840 Lorillard snuff mill and mill race. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: North



Photograph: 22

Date: circa 1902

Description: View of the façade (east elevation) of the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Northwest



Photograph: 23

Date: circa 1902

Description: View of the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Southwest

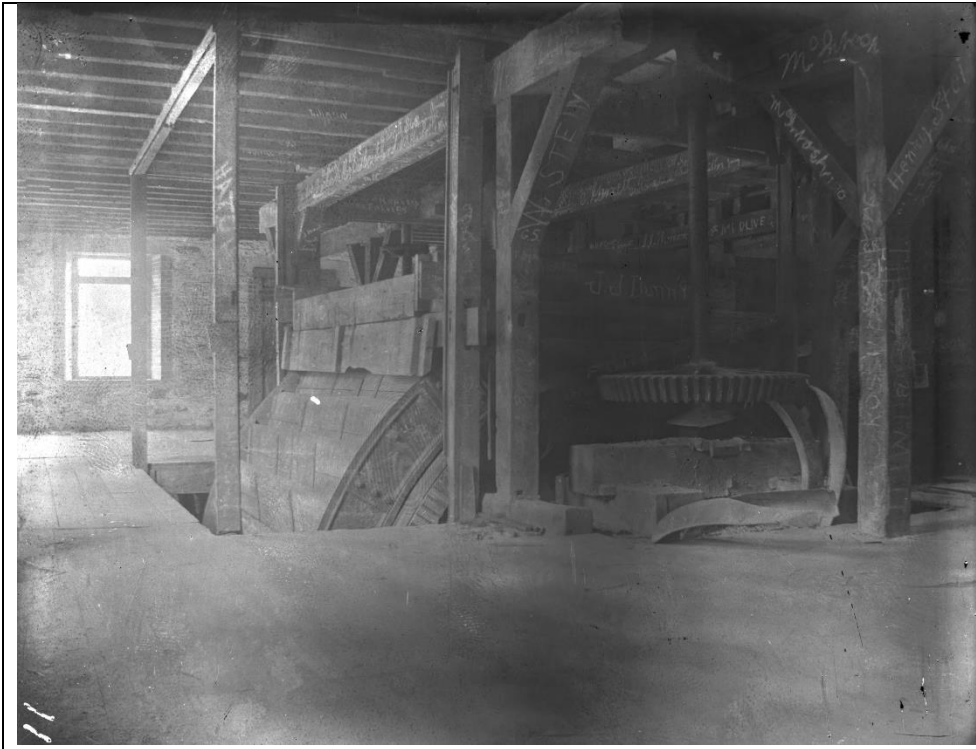


Photograph: 24

Date: circa 1902

Description: View of the graffitied water wheel inside the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: West



Photograph: 25

Date: circa 1902

Description: View of the graffited water wheel inside the circa-1840 Lorillard snuff mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: East



Photograph: 26

Date: circa 1902

Description: View of the mill race (right) and footpath between the snuff mills and the Lorillard Stone Mill Dam. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Northeast



Photograph: 27

Date: circa 1902

Description: View of the mill race (left) and footpath between the snuff mills and the Lorillard Stone Mill Dam. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: Southwest



Photograph: 28

Date: circa 1902

Description: View of the mill race in front of the circa-1840 Lorillard Snuff Mill. George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: North



Photograph: 29

Date: c. 1905

Description: Lorillard Snuff Mill in Bronx Park during conversion into the parks' workshops.

Photographic Views of New York City, 1870s-1970s, Irma and Paul Milstein Division of United States History, *The New York Public Library Digital Collections*.

Direction: Northwest



Photograph: 30

Date: circa 1905

Description: 1905 postcard photograph showing the Lorillard Stone Mill Dam, a section of the Head Race and part of a Water Control Device (right). *New York Historical Society Museum & Library*.

Direction: North



Photograph: 31

Date: circa 1902

Description: Lorillard Mansion, Bronx Park.

George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library*.

Direction: North



Photograph: 32

Date: circa 1918

Description: Lorillard Stables, Bronx Park.

New York Botanical Garden Historical Photographs, Album No. 2 *Mertz Digital Collections*.

Direction: Unknown



Photograph: 33

Date: circa 1883

Description: 1883 Oil on Board Painting by William Rockery Miller titled *The Bronx River Dam* or *The Dam at Lorillard*. The painting looks northward along the Bronx River showing the Stone Dam in the distance and Lorillard's Mill Number 1 on the river's east bank (right). Two children explore or fish on the river's west bank (left).

Direction: North



Photograph: 34

Date: 1921

Description: Rose Hill Manor House, constructed circa 1690, part of Corsa Family Farm. Pen and ink sketch by Helen Lossing Johnson, 1921. *Westchester County Historical Society, 1932*.

Direction:



Photograph: 35

Date:

Description: Andrew Corsa (1762-1852), member of the Patriot Westchester Guides during the American Revolution. *Westchester County Historical Society, 1932).*

Direction:



Photograph: 36

Date: circa 1902

Description: View of ruins of the circa-1800 Lorillard Snuff Mill (Mill Number 2) with circa-1840 Mill Number 3 in the background.

George E. Stonebridge Photograph Collection, 1897-1918, *New York Historical Society Museum & Library.*

Direction: Northwest



Photograph: 37

Date: 1915

Description: Lorillard Mansion, New York Botanical Garden, Bronx Park. The sign above the door says "Board Room."

New York Botanical Garden Historical Photographs, Album No. 4. *Mertz Digital Collections.*

Direction: West



Photograph: 38

Date: March 26, 1923

Description: Fire engine companies pump streams of water from the Bronx River near the Lorillard Stone Mill Dam fight a fire at the Lorillard Mansion, Bronx Park.

New York Daily News. Page 3.

Direction: Northeast



Photograph: 39

Date: 1936

Description: Lorillard Snuff Mill, Botanical Gardens, Bronx Park.

Historic American Buildings Survey, HABS NY-462, *Library of Congress*.

Direction: Northwest

Appendix D

Current Photographs



PHOTO POINT



HRE-STONE MILL DAM PROJECT
NEW YORK BOTANICAL GARDEN
BRONX COUNTY, NEW YORK

PHOTOGRAPH LOCATIONS

 CDM SMITH | ARCADIS | WSP

FIGURE
1



Photograph: 1

Date: December 4, 2023

Description: View of Lorillard Stone Mill Dam and possible foundations ruins of circa-1760 mill and circa-1885 footbridge, New York Botanical Garden

Photo Point: 1

Direction: North



Photograph: 2

Date: December 4, 2023

Description: Stone wall remnant possibly belonging to the circa-1760 grist mill (Mill Number 1) located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 1

Direction: Southeast



Photograph: 3

Date: December 4, 2023

Description: Stone wall remnants possibly belonging to the circa-1760 grist mill (Mill Number 1) and/or the circa-1850 laundry/studio building located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 1

Direction: Southeast



Photograph: 4

Date: December 4, 2023

Description: Stone foundation remnants possibly belonging to the circa-1760 grist mill (Mill Number 1) and/or the circa-1850 laundry/studio building located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 2

Direction: Northwest



Photograph: 5

Date: December 4, 2023

Description: Stone foundation remnants possibly belonging to the circa-1760 grist mill (Mill Number 1) and/or the circa-1850 laundry/studio building located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 2

Direction: West



Photograph: 6

Date: December 4, 2023

Description: Stone foundation remnants possibly belonging to the circa-1760 grist mill (Mill Number 1) and/or the circa-1850 laundry/studio building located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 2

Direction: Southwest



Photograph: 7

Date: December 4, 2023

Description: Stone foundation remnants possibly belonging to the circa-1760 grist mill (Mill Number 1) and/or the circa-1850 laundry/studio building located immediately downstream of the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 1

Direction: Northwest



Photograph: 8

Date: December 4, 2023

Description: Possible remnants of the foundation of Mill Number 2 near Stone Park Road Bridge, New York Botanical Garden.

Photo Point: 3

Direction: Southeast



Photograph: 9

Date: December 4, 2023

Description: Lorillard Stone Mill Dam looking upstream, New York Botanical Garden.

Photo Point: 4

Direction: North



Photograph: 10

Date: December 4, 2023

Description: Lorillard Stone Mill Dam looking upstream, New York Botanical Garden.

Photo Point: 4

Direction: North



Photograph: 11

Date: December 4, 2023

Description: Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 5

Direction: Northwest



Photograph: 12

Date: December 4, 2023

Description: Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 5

Direction: Northwest



Photograph: 13

Date: December 4, 2023

Description: View downstream toward Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 6

Direction: Southwest



Photograph: 14

Date: December 4, 2023

Description: View toward former mill race at the Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 6

Direction: Southwest



Photograph: 15

Date: December 4, 2023

Description: Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 7

Direction: Southeast



Photograph: 16

Date: December 4, 2023

Description: View downstream toward Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 8

Direction: South



Photograph: 17

Date: December 4, 2023

Description: Lorillard Stone Mill Dam looking downstream, New York Botanical Garden

Photo Point: 8

Direction: South



Photograph: 18

Date: December 4, 2023

Description: View of Lorillard Stone Mill Dam looking upstream from Hester Bridge, New York Botanical Garden

Photo Point: 9

Direction: Northeast



Photograph: 19

Date: December 4, 2023

Description: Lorillard Snuff Mill (Mill Number 3), New York Botanical Garden.

Photo Point: 10

Direction: Northwest



Photograph: 20

Date: December 4, 2023

Description: Façade (east elevation) of the Lorillard Snuff Mill (Mill Number 3), New York Botanical Garden.

Photo Point: 11

Direction: West



Photograph: 21

Date: December 4, 2023

Description: Façade (east elevation) of the Lorillard Snuff Mill (Mill Number 3), New York Botanical Garden.

Photo Point: 12

Direction: Southwest



Photograph: 22

Date: December 4, 2023

Description: Rear (west) elevation of the Lorillard Snuff Mill (Mill Number 3), New York Botanical Garden.

Photo Point: 13

Direction: South



Photograph: 23

Date: December 4, 2023

Description: Rear (west) elevation of the Lorillard Snuff Mill (Mill Number 3), New York Botanical Garden.

Photo Point: 14

Direction: East



Photograph: 24

Date: December 4, 2023

Description: View of the Lorillard Snuff Mill (Mill Number 3) from across the Bronx River, New York Botanical Garden.

Photo Point: 3

Direction: Northeast



Photograph: 25

Date: November 2023

Description: Historic hammer and chisel marks on bedrock (lower right) with adjoining stone wall along embankment on the east side of the former mill race along the Bronx River, New York Botanical Garden

Photo Point: 15

Direction: Northeast



Photograph: 26

Date: December 4, 2023

Description: View of the Bronx River and footpath/former Lorillard mill race looking upstream toward Lorillard Stone Mill Dam, New York Botanical Garden

Photo Point: 9

Direction: Northeast



Photograph: 27

Date: December 4, 2023

Description: View downstream of Lorillard Stone Mill Dam looking toward Hester Bridge, New York Botanical Garden

Photo Point: 1

Direction: Southwest



Photograph: 28

Date: December 4, 2023

Description: Circa-1850 workers' cottage, New York Botanical Garden

Photo Point: 16

Direction: West



Photograph: 29

Date: December 4, 2023

Description: Circa-1850 workers' cottage, New York Botanical Garden

Photo Point: 17

Direction: Northwest



Photograph: 30

Date: December 4, 2023

Description: Circa-1850 Lorillard Stables, New York Botanical Garden

Photo Point: 18

Direction: East



Photograph: 31

Date: 2008

Description: Right Spillway of the Bronx Zoo Dam. *NYCRIS Resource Data, 00501.001399.*

Photo Point:

Direction: Northwest



Photograph: 32

Date: Circa 2008

Description: View of the 182nd Street Dam/Delancey Mills Dam prior to construction of the fish ladder. *NYCRIS resource data, 00501.001398.*

Photo Point:

Direction: Northeast

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