

Old Croton Aqueduct Walk



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LOCATION

Borough of Bronx
2200 Aqueduct Avenue,
Bronx, NY 10453

Tax Lots: Block 3210 Lots 1 and 7; Block 3211 Lot 1 in part; Block 3212 Lots 1, 67, 71; Block 3213 Lots 27, 48, 49, 70; Block 3214 Lot 33; Block 3215 Lot 31.

LANDMARK TYPE

Scenic

SIGNIFICANCE

The Old Croton Aqueduct Walk is a linear park located on top of a historic water system constructed between 1837 and 1842. Considered an engineering marvel and a nationally significant model of urban infrastructure, the Aqueduct served as a crucial source of water for New York City, and almost immediately after its opening, became a beloved open space for residents.



Aqueduct Walk, near 181st Street, Copyright New York City Department of Environmental Protection, DEP Archives, Digital Image ID p009937

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Old Croton Aqueduct Walk

2200 Aqueduct Avenue, Bronx

Designation List 538

LP-2673

Built: 1842

Architect: John B. Jervis

Landmark Site: Bronx, Tax Map Tax Lots: Block 3210 Lots 1 and 7; Block 3211 Lot 1 in part; Block 3212 Lots 1, 67, 71; Block 3213 Lots 27, 48, 49, 70; Block 3214 Lot 33; Block 3215 Lot 31.

Building Identification Number (BIN):

2817757; 2817791; 2818020; 2817806; 2817807

Calendared: August 15, 2023, October 03, 2023

Public Hearing: November 14, 2023

On November 14, 2023, the Landmarks Preservation Commission held a public hearing on the proposed designation of the Old Croton Aqueduct Walk as a New York City Scenic Landmark and the proposed designation of the related Landmark Site (Item No. 2). The hearing was duly advertised in accordance with the provisions of the law.

The Commission received support for the proposed designation from six people including representatives of the owner, the New York City Department of Parks and Recreation; the Bronx Borough President's office; Bronx Community Board 5; the New York Landmarks Conservancy; the Historic Districts Council; and the Friends of the Aqueduct Walk. No one spoke in opposition. The commission also received three letters of support including from New York City Council Member Pierina Sanchez, Bronx Community Board 7, and an individual.

Summary

Old Croton Aqueduct Walk

The Old Croton Aqueduct Walk scenic landmark is a linear public park in the Bronx located along Aqueduct Avenue between West Kingsbridge Road and West Burnside Avenue. The public walkway is on top of the Old Croton Aqueduct, an engineering marvel constructed in 1842 which brought the first direct supply of water to New York City. Almost immediately after its completion, the trail of the aqueduct became a beloved open space for New Yorkers. In 1930, it came under the control of the New York City Parks Department, which created and has maintained it as a public park.

In the 1830s, New York City's population was growing rapidly. Wells and cisterns used by citizens were becoming depleted and polluted, and the lack of readily available water left the city vulnerable to fire and disease. After many failed attempts at establishing a water supply system, the 1832 cholera outbreak in New York City conclusively underscored to city officials the need for a direct water source. In 1833, the Water Commission of New York turned to the Croton River for water, but due to many complications, it would take another nine years for water to flow to the city.

In late 1836, engineer John B. Jervis was appointed chief engineer to design an aqueduct system and its related structures, including the High Bridge (designated a New York City landmark in 1970). Work began in the spring of 1837, and upon its completion in July of 1842, the 41-mile-long aqueduct carried 45 million gallons of water daily to the city from a reservoir in Croton, New York. The conduit was covered with earth and stone embankment walls, still visible at certain points depending on the

topography of the area. The aqueduct sloped downwards along its length, using only gravity to carry the water; this innovative design allowed the city to use the vast water supply of the Croton River without relying on expensive hydraulic pumps.

Despite many challenges over five years of construction, including labor uprisings, severe weather, a failed dam, and rising costs, the aqueduct was a success from its first day. It was so successful, in fact, the city's new desire for fresh water outpaced the aqueduct's ability beyond what anyone had predicted. The New Croton Aqueduct, completed in 1890, would carry enough water to keep up with the expanding population of New York City; the Old Croton Aqueduct stayed in service alongside the New Croton Aqueduct until 1955. While the New Croton Aqueduct carried most of the city's water supply, the Old Croton Aqueduct's main significance to New Yorkers became the path they had come to appreciate along its embankment, especially in the Fordham and University Heights neighborhoods of the Bronx.

The aqueduct created a linear trail through Westchester, the Bronx, and Manhattan, which became a serene passage between the developing areas. The trail was a favored walk of notable Bronx resident Edgar Allan Poe. The Bronx community worked to preserve this park twice in the early 20th century. First, in 1903, the community stopped a trolley line from being constructed alongside the walkway, and again, in 1929, the community stopped the city's Sinking Fund Commission from selling this land for development. In 1930, the New York City Parks Department took control of the "shoestring" park.

On April 27, 1940, after completing a substantial renovation, the Parks Department opened the Aqueduct Walk as an official public park. In 1938, as part of the rehabilitation of the open space noted landscape architect Gilmore D. Clarke of the 1939 World's Fair and the Central Park Conservatory Garden, designed the park to include benches,

sandpits, a playground where the children of the area had historically played, as well as open spaces for adults, such as shuffle boards and horseshoe pits. More recently, the Parks Department has upgraded the lighting, playgrounds, and relief stations, which improve public access and amenities along the walk without diminishing its historic integrity. This park's connections to its neighborhoods, stewards, and New York City's infrastructure history make it a truly unique public space.

Description

Old Croton Aqueduct Walk

Description

The Old Croton Aqueduct Walk (known as Aqueduct Walk) is a 4.9-acre linear public park in the Bronx. The park is accessible at many points between West Kingsbridge Road and West Burnside Avenue, and has a paved path, previously an earthen cover, which runs along the top of and/or alongside the Old Croton Aqueduct. Throughout much of the walk, the raised embankment wall of the aqueduct is visible when the surrounding street dips below the grade of the aqueduct. Due to the topography and the engineering of the aqueduct, Aqueduct Walk has the most visible sections of the embankment within New York City. The longest stretch of the visible embankment walls runs between West 190th Street and West 184th Street. At West Burnside Avenue, the end of the landmark site, historic alterations to the Old Croton Aqueduct's structure are visible.

Significant Historic Features

The most significant historic features of the Old Croton Aqueduct Walk are the below-ground system and supporting structures of the aqueduct itself, visible in the stone embankments between West Kingsbridge Avenue and West Burnside Avenue. Due to the aqueduct's changing relationship to the surrounding grade and streets, the embankment is more visible in some places than others.

A city-owned public park for almost a century, the Aqueduct Walk's 1930s landscape design and presence of a continuous pathway along the length of the park, with access from surrounding streets, are also significant historic features.

In the 1930s and 1940s New York City's Parks Department (now the New York City Department of Parks and Recreation), commissioned landscape architect Gilmore D. Clarke, and built additional retaining walls, stairs, and entrances to the park. While these are not related to the original aqueduct, they are significant features of the park within its urban surroundings.

Clarke's 1938 designs included lawns, paved pathways, railings, recreational areas like a playground, and horseshoe, shuffleboard, and sand pits. Additionally, the design included seating areas, some of which remain today, and lighting along the walk. As a linear public park extending through a developed residential neighborhood with changes in grade along its length, entrances to the park feature stairs or gentle ramps to navigate the grade change, some of which have changed over time to improve accessibility.

Aqueduct Embankment and Stone Retaining Walls

The Aqueduct Walk park offers access on top of and alongside the Old Croton Aqueduct. Raised sections offer access above street level, and some sections include paths alongside the aqueduct embankment. The embankment walls surround the below-ground conduit of the Old Croton Aqueduct and become visible when the level of the road dips below the level of the aqueduct. The embankment walls are a combination of sloped earthen cover (grass and dirt) and rough stone retaining walls, some parts of which are original while other parts have been repaired or replaced since Aqueduct Walk's initial construction (see alterations section below). The sections with visible and accessible points of the aqueduct embankment walk are as follows.

Below West 190th Street the grade of the surrounding land dips below the level of the aqueduct. On the east side the embankment is entirely covered in stone, while on the west side the embankment is

partially covered in an earthen cover; at this point the path continues straight along the top of the aqueduct.

From West 188th Street and south to West Fordham Road, the park consists of pathways both on top of the embankment and beside it. The path beside the Aqueduct Walk runs alongside the stone embankment wall.

The visibility of the stone and earthen cover extends to roughly West 184th Street where the street level rises. Between West 184th Street and West 183rd the park is elevated. The sloped earthen cover and retaining wall continue until the road is at grade with the aqueduct again, and only the earthen cover of the embankment is exposed along with a small stone retaining wall. From West 183rd Street until just south of West 181st Street the aqueduct and road are at grade. Between West 181st Street and West Burnside Avenue the road dips below the level of the aqueduct and the earthen cover and retaining walls are visible until the termination of the landmark site at West Burnside Avenue.

At West Burnside Avenue, the stone embankment rises 130 feet above street level, the highest point of the landmark site. The path extends south to the end of the embankment, past the staircase. The staircase curves alongside the embankment walls on University Avenue. On University Avenue, the footpath allows close-up views to the terminus of the aqueduct embankment on the northern side of West Burnside Avenue.

Park Retaining Walls

Starting in the 1930s, Parks constructed low retaining walls alongside the embankments, shoring up the earthen cover of the aqueduct between West 184th Street and West 183rd Street. In 1940, between roughly West 181st and West Burnside Avenue on University Avenue, Parks constructed a stone retaining wall with stone pillars and iron fencing.

As Parks took over the superficial rights of Aqueduct Walk, the Department of Water Supply, Gas, & Electricity completed a renovation at West Burnside Avenue where they removed a bridge and installed a steel siphon to bring the Aqueduct underground. In conjunction with alterations to the aqueduct in 1930 the Department of Water Supply, Gas, & Electricity constructed new stone retaining walls on the most southern point of the landmark site on West Burnside Avenue. The renovation also included constructing stairs on University Avenue.

The renovation combined the historic embankment walls of the Old Croton Aqueduct with the new walls constructed in 1930. The top embankment wall on West Burnside Avenue is partially original; the west and east sides of the top wall are original embankment walls of the Old Croton Aqueduct, while the south-facing side of this wall was constructed in 1930, as were the slope walls north of the upper chamber on the Aqueduct path. The construction in 1930 also included iron gates, stone pillars, and masonry walls on West Burnside Avenue. In 1940 another retaining wall was constructed on the lower portion of the earthen embankment.

Parks constructed additional stone retaining walls when creating Aqueduct Walk Park in the 1930s and 1940s, including the retaining walls on University Avenue and Aqueduct Avenue East.

Linear Path

The Aqueduct Walk park has a linear path that connects through the entire park. The path, historically earthen covered, is now paved in asphalt or concrete and winds through approximately the center of the park. It sits roughly on top of the Old Croton Aqueduct conduit. Though its materials have changed over time, the presence of a continuous pathway along the aqueduct defines the character of this historic park.

From West Kingsbridge Road to West 192nd Street alongside Aqueduct Avenue, the path is a concrete sidewalk, with a short fence and grass that runs alongside it; the path is interrupted at West 192nd Street by the asphalt road. Continuing along Aqueduct Avenue south of West 192nd Street the path runs on a concrete sidewalk beside a short fence and grass; the path is again interrupted at West 190th Street by the road.

Below West 190th Street, the path, covered in asphalt, is above ground level. From West 190th Street to West Fordham Road the path is surrounded by a short fence and grass. From West 188th Street to West Fordham Road there is an asphalt path alongside the embankment walls of the Aqueduct Walk below the level of the aqueduct. Both paths are interrupted by West Fordham Road. From West Fordham Road to West 183rd Street the aqueduct continues above ground level surrounded by a short fence, grass, trees, and shrubbery. The path is interrupted by West 183rd Street.

From West 183rd Street to West 182nd Street the asphalt path sits slightly raised above ground level with a partially raised earthen embankment to the east of the path and a short fence on either side. At West 182nd Street, the path curves away from the top of the aqueduct conduit, returns to street level, and runs alongside the Parks basketball courts and playgrounds. The path is interrupted by West 181st Street. South of West 181st Street the path curves back on top of the aqueduct conduit. Below West 181 Street the path rises again above street level, and it is paved and surrounded by short fences. The path continues to rise above street level until the terminus of the walk where it is at the highest point, 130 feet above street level.

Entrances and Stairs

Throughout the Aqueduct Walk, when the aqueduct is at street level, access to the park is available directly from the sidewalk. When the aqueduct is above street

level, ramps or staircases are required to access the park.

Below 190th Street, there are two at-grade access points to the elevated section: one at Aqueduct Avenue and 190th Street, and one to the south at Fordham Road and Aqueduct Avenue. On the southern side of Fordham Road, there are two staircases which allow access to the lower grade line of the surrounding land below the embankment of the aqueduct, which were used for recreation in the 1940s; they are no longer accessible to the public. Access to the lower-level path alongside the Aqueduct Walk is provided at street level from West 188th Street or Fordham Road.

Continuing south, the next entrances to the raised section between West Fordham Road and West 183rd Streets are a curved staircase at West 184th Street and a straight staircase at Evelyn Place. After this section the aqueduct is again at street grade. Upon reaching West 181st Street and Aqueduct Avenue, there are several open pathways to the level of the aqueduct including one stair. Just above West 180th Street the surrounding street dips below the grade of the aqueduct; access is provided to the Aqueduct Walk here with a ramp.

The southern end of the Aqueduct Walk, at West Burnside Avenue, is the highest point of the aqueduct above street level within the landmark site. The path continues just short of the embankment wall at the end of the landmark site. From the path, a staircase leads down to the intersection of University and West Burnside Avenues.

Alterations

Reflecting the park's long history of community use, Parks has made various changes over the years, including adding and changing entrances, adding amenities such as playgrounds and seating areas, and renovations to retaining walls. In recent years Parks has added various amenities at the southern end of the landmark site, such as play spaces, seating areas,

accessible entrances, and a new triangular-shaped plaza south of West 181st Street that expanded the park slightly beyond its historical boundary; these changes do not detract from the intact and historically significant elements of the 1842 Old Croton Aqueduct visible in the park. Designation as a scenic landmark recognizes that future changes to improve access and accessibility may be necessary within this elevated park.

Retaining Walls and Stairs

The stairs at East 184th Street were altered in 1973 and replaced with non-historic stairs between 2011 and 2014. The historic retaining walls between Evelyn Place and West 184th Street were also altered in 1973.

A section of the retaining wall on University Avenue and Aqueduct Avenue East was constructed between 1930 and 1940 was altered in 2018-2019 when the Parks Department removed a staircase entrance and installed a ramp on Aqueduct Avenue East north of West 180th Street.

The retaining walls between West 190th Street and Fordham Road were repaired in 1940 as part of a Works Progress Administration project.

Playgrounds

Parks constructed a playground between 183rd and 181st Street in 1938 and have made additions and alterations since then to meet the changing needs of the local community. In 2007, the playground was updated to include two basketball courts, an exercise area, a playground, and a seating area. In 2018, a comfort station was constructed just north of the basketball courts (not included within the landmark site). Within the playground, Parks constructed a miniature Croton Dam water feature with a drain acting as the aqueduct with the various towns the aqueduct passed through embossed in brick along the way, recalling the significant history of the aqueduct within the park.

Street Furniture

The Aqueduct Walk is lined with Type B pedestrian lights, used by the New York City Department of Transportation for parks and plazas. The light was designed in 1911 for the Central Park mall. The staircases are lit with the World's Fair Pedestrian Pole. This pole was first used at the World's Fair in 1964 and later installed in the city's parks, plazas, and bikes paths. Since the 1938 design for the Parks Department, lights have been changed and added.

Throughout the landmark site there are several seating areas, many of which were present since Parks created the park in 1938. The plaza seating areas at West 181st St, Fordham Road, West 192nd Street, and Kingsbridge Road were added in the 1972 renovation. Between 2018 and 2020, the West 181st Street plaza was reconfigured and extended slightly west of its historical path, which the landmark site follows, to provide a larger seating area with pathways. The alteration included stairs, benches, tables, and chess tables. The furniture in all the seating areas within the park has been updated.

History and Significance

Old Croton Aqueduct Walk

History and Early Development of University Heights and Fordham

The Old Croton Aqueduct Walk stretches north to south across the Bronx neighborhoods of Fordham and University Heights, which have rich history.

Prior to European contact, the area which became as the Bronx was occupied by Indigenous Peoples known as the Mannhattans, Wiechquaesgecks, and the Siwanoy, members of the larger Algonquian group, the Lenape or Delaware, who spoke a dialect called Munsee.¹ Present-day University Heights and Fordham were part of the last unified regions in the Indigenous people's "control," known as Keskeskick.²

In 1641, Jonas Bronck, a Scandinavian immigrant to the Dutch colony of New Amsterdam, became the first recorded European settler of the present-day Bronx when he "purchased" a 500-acre tract from local Indigenous Peoples. While Europeans viewed contracts such as this as purchase agreements, scholars have noted that at this time, Indigenous Peoples did not perceive them the same way, recognizing them more as temporary tenancies.³ Bronck's settlement, which became known as Broncksland, extended eastward from the Harlem River to a stream called *Sacrahung* by Indigenous Peoples and Bungay Creek by later English settlers. *Sacrahung* rose within a marshland later known as Hassock's Meadow near present-day Crotona Park and flowed southward, roughly along the line of Intervale Avenue, into the East River near Port Morris.⁴ Bronck built a stone house near the Harlem River in what is now the Mott Haven neighborhood.

When the English took over New Amsterdam in 1664, Westchester became part of the Province of New York, and in 1683 Westchester County was established as one of the 12 counties of the Province of New York created by an act of the New York General Assembly. By the 1690s the European presence in the counties that make up today's Bronx increased, Indigenous Peoples' land was taken from them, some were enslaved, and the population of enslaved Black people in the area increased. By the 1700s, roughly 10% of the eight hundred people who lived in the counties that would make up the Bronx were enslaved.⁵ Though New York State passed a law providing gradual emancipation of enslaved people in 1799, slavery was not abolished here until 1827. Begun in 1837, no enslaved people worked on the construction of the Old Croton Aqueduct.⁶

In 1841, Archbishop John Hughes established St. John's College, later named Fordham University, in the Village of Fordham alongside the new Harlem River Railroad station. When constructed, St. John's College was surrounded by a rural village, but it developed quickly. Westchester's population grew due to the work brought from the construction of the aqueduct, an influx of immigrants, and the railroad. In 1840, the population of Westchester was 4,154, and by 1870, the population was 37,393, mostly settled west of the Bronx River.⁷

In 1895, Henry McCracken purchased the land alongside the Harlem River for the uptown campus of New York University. McCracken, seeking publicity, referred to the campus as "University Heights" and successfully petitioned the city to rename Aqueduct Avenue to University Avenue. This change saw the birth of a new neighborhood, which, alongside Fordham, developed at a steady pace through the mid-20th century due to the presence of these institutions and access to public transportation.⁸

History of New York City's Water

Prior to the arrival of Dutch settlers, the Indigenous Peoples living on the island of Manhattan had ample water sources. Manhattan's land was a dense forest with streams and ponds, and diverse populations of flora and fauna. The Collect Pond, a large spring-fed pond located in what is now Chinatown, was a source of water near a common settlement, Werpoe.⁹ Despite centuries of Indigenous Peoples surviving on Manhattan's water, the new settlers virtually eviscerated the Island's clean water within 100 years of the Island's "purchase."¹⁰

The Collect Pond, at first, sat north of New Amsterdam's wall but was quickly engulfed by the new settlement. In New Amsterdam below Wall Street, public waste was an issue and there was no system for public water; it was crowded and overrun with pigs and goats. On August 29, 1664, the last Dutch Colonial Governor, Peter Stuyvesant, surrendered to the English. He excused his surrender on the grounds, amongst many other issues, that New Amsterdam was "without either well or cistern."¹¹

After taking over the new colony, the English constructed public wells as early as 1677, making them a large source of water for the inhabitants of New York. In 1686, the English attempted to build a large-scale public water system by constructing eight wells in the middle of the streets.¹² As waste continued to flow into the streets it trickled down to the water sources of the wells, contaminating the water of the new colony, which spread disease rampantly.¹³

In the early 1700s, while the public used street wells and the Collect Pond, tea pumps were the most popular source of water for wealthy citizens in New York.¹⁴ Tea pumps, or tea wells, of New York were used mainly to brew tea water, hence the name. Enslaved people retrieved water for wealthy New Yorkers who could afford it. Comfort's Tea Well, owned by businessman Gerardus Comfort, was

considered the best water in New York and the most popular tea well in the early 1700s.

In 1741, after a series of fires, amongst other common crimes, white residents became suspicious of an impending rebellion of Black residents and suspected a plot to contaminate the drinking water. This resulted in New York's Conspiracy Trials of 1741, ending in the executions of seventeen Black men, two white men, and two white women.¹⁵ Following the executions, New York's Common Council passed a law restricting the retrieval of water, stating: "No Negro Mulatto or Indian Slave within this City after the publication hereof Shall on any Lords Day or Sunday Presume to fetch any water other than from the next well or pump the place of their abode or shall presume to ride any horse through any of the streets of the City or on the common."¹⁶ Entangled in the suspicion, Gerardus Comfort's well was put out of business and the already limited water supply became more restricted.

In the early 18th century, New Yorkers set up various industries alongside the Collect Pond to access its water. These businesses, mostly slaughterhouses, tanneries, and breweries slowly began to contaminate the water. Industry, combined with soot and other waste from the colony, made the water undrinkable. The city drained the pond in the early 19th century.¹⁷

By 1742, the Tea Water pump, located over the spring at Chatham and Roosevelt Streets (between today's Pearl and James Streets) became one of the city's last remaining sources for clean water. Men made a living delivering water from the tea pumps or carting water to the city in casks from distant water sources. However, at 45 shillings a year for water, many could not afford this service and relied on the contaminated water from public pumps. Acknowledging the water disparity, City officials sought to repair and maintain the public pumps. While keeping in mind the 1741 plot, city officials charged

each alderman with protecting their respective pumps.¹⁸

In 1774, Christopher Colles, a self-described unlucky Irishman from Kilkenny, presented a plan for the first waterworks on the island of Manhattan.¹⁹ His proposal included a reservoir and revolutionary pump which would bring water through the city streets with an aqueduct.²⁰ An aqueduct is a specifically designed system, often comprised of structures, pipes, tunnels, and canals to guide a water flow from its source to another location for use.²¹ Colles' aqueduct would use steam to pump fresh water around the city. The Common Council accepted his proposal, however upon completing his steam engine for the pump, the American Revolution broke out, disrupting any hopes for completing the aqueduct.²²

Through the 1780s, as buildings were constructed, roads were paved, and poor sanitation prevailed, any water procured through wells in the street was not of good quality. Despite this, City officials invested more into public wells, clinging to their dwindling water supply. In 1795, Yellow Fever took hold of New York City, killing 732 people of the population of 50,000.²³ Its toll on New Yorkers was exacerbated by the lack of fresh water.²⁴ Following the Yellow Fever outbreak, the city began planning for a new water source.²⁵ In 1798, Dr. Joseph Browne of Westchester considered both the Sawmill River and the Bronx River for water. Ultimately, Browne decided the Bronx's proximity made it the superior choice and presented a plan for its design.²⁶

Browne's brother-in-law, Aaron Burr, former United States Senator and future Vice President, used his connections to persuade the state to pursue Browne's plan through a private corporation.²⁷ Aaron Burr's Manhattan Company was given the sole charter to bring water to New York City. By 1799, the company decided against using the Bronx River and instead dug large wells in the streets, constructing a reservoir on 13th Street and Fourth Avenue.²⁸ Though

the Manhattan Company did technically bring water to New Yorkers, it was costly, and the water was not accessible above Pearl and Grand Streets.

The lack of water in an increasingly populous city led to drastic destruction of property by fires that were not possible to extinguish.²⁹ With only limited water supplied by the Manhattan Company, the public continued to depend on the public wells in the streets and the city focused on the installation of more cisterns to fight fires.³⁰

The Common Council looked for more sources of water within the confines of the city and made improvements to existing sources such as moving wells from the streets to sidewalks to provide easier access, in a piecemeal approach more focused on finding an economic solution than an effective one. The Common Council continued this strategy for seven more years until a devastating Cholera epidemic erupted in New York City in 1832, killing roughly 3,500 people. This was closely followed by the 1834 Cholera epidemic, which claimed another 1,000 lives.³¹ Then, on December 17, 1835, what became known as the Great Fire of 1835 burned all night, and without the ability to extinguish it 700 buildings in Manhattan's financial district were destroyed. Without readily available clean water to prevent disease or fires from spreading, it became clear that city officials needed to find an abundant source of water.³²

Selecting the Croton River

Initial efforts to bring water to Manhattan from the north focused on the Bronx River and later shifted to the Croton River farther north. In the spring of 1832, the New York water committee employed several surveyors to take levels of the Bronx River and its source the Rye Ponds, as well as the Byram River and its sources the Wampus and Byram Ponds. In 1820, Canvas White, engineer, had concluded that the Croton River could not be connected to the Bronx

River and was therefore not included in the initial agenda.

Contrary to the engineers' opinions, Myndert Van Schaik, State Alderman (1833) and State Senator (1832-1838) during the aqueduct's construction, believed New York's search for water was not in the Bronx.³³ To discount the Bronx River, Van Schaik took city officials and planners on a tour to showcase the Bronx River's inadequacies.³⁴ He also called in a favor from De Witt Clinton Jr., an up-and-coming railroad engineer, to survey the possible route of an aqueduct from the Croton River.³⁵

In late 1832, two opposing reports were submitted to the New York water committee. One, by surveyors Dewey and Serrell, concluded that the Bronx River would be the best source of water, and the Croton River was too far away with an "unnecessary" supply of water.³⁶ A second evaluation, by DeWitt Clinton Jr., in agreement with an earlier Lyceum of Natural History study, determined that the Croton River was in fact superior and would become essential as the Bronx River would quickly be rendered insufficient.³⁷

Clinton laid out a simplistic, albeit attractive, design for the water route from Croton. Though later engineers would change the route, elevation, and design, Clinton's principal idea of the aqueduct would remain the same.³⁸ On February 26, 1833, an act to appoint commissioners to supply the city of New York with "pure and wholesome water" passed in the State Assembly in Albany.³⁹ The newly formed Water Commission engaged Canvas White and David Douglass to make "separate and distinct" examinations of the Croton, Sawmill, and Bronx Rivers. Only Douglass was able to complete his report, delivered on November 1, 1833, finding that only the Croton River would be able to supply New York City with an adequate supply of water.⁴⁰ He presented a plan similar to Clinton's, though more sophisticated, and

restated Clinton's previous decision that the Bronx River would become insufficient in due time.⁴¹

The Common Council fought with city and state politicians over financing the aqueduct for two years before any action was taken. Eventually, city officials decided the need for "pure and wholesome water" was greater than any argument to be made over money. The Water Commission called for more surveys, which engineers Major David Douglass, George W. Cartwright, and John Martineau completed in February 1835. The Water Commission recommended a Croton aqueduct to the Common Council, urging them to move ahead with the plan and hold a public vote. In April 1835, New York City was given three weeks to vote on the aqueduct; the vote passed 17,330 to 5,963, in favor of the Croton Aqueduct. On June 2, 1835, Major Douglass was hired as the chief engineer.⁴² After the Great Fire in December 1835, Stephen Allen, Chairman of the Water Commission, pressured Chief Engineer Douglass to speed up and questioned the amount of work he had completed.⁴³

Westchester residents opposed the aqueduct as it would go through their privately-owned land without providing them any of the water it carried. They put pressure on the Commission, frequently harassed land surveyors, and protested the work, delaying the project further.⁴⁴ The owners fought for their land rights, passing the Convenient Passage Act, requiring passage for the residents across the aqueduct, which settled the issue and contributed to the walkability of the aqueduct later in its history.⁴⁵

By mid-1836 the Water Commission had quelled issues with Westchester residents and laid speculative pipes below ground for the incoming aqueduct in Manhattan yet no work on the aqueduct had begun. Engineer Douglass had still not submitted complete drawings for the aqueduct by late 1836. On October 1, 1836, Chairman Allen encouraged Douglass to resign, and when he would not, the

Commission fired him. On October 12, 1836, the Commission hired John B. Jervis as chief engineer. Jervis was a more experienced engineer than Douglass, which was a positive turn for the project.⁴⁶

Design of the Old Croton Aqueduct

Chief Engineer Jervis acknowledged the quality of Douglass' work but was surprised at the lack of progress he had made. Jervis didn't start construction until after the winter of 1836, citing little point in starting work as the winter would halt any progress, and instead used the months before breaking ground to complete survey work and drawings. His design retained a similar shaped conduit to what Douglass planned but increased the size and reduced the amount of masonry used, to save money and increase efficiency. Issues with land purchases and leases persisted well into early 1837, but Jervis had completed nearly all the major engineering drawings.⁴⁷

In 1837, the Commission began accepting bids for sections of the aqueduct. Jervis broke it into four sections so work could begin on one section while the engineers finished their surveys for the others. The first section stretched from the Croton River to about three miles south of Ossining. The second section ran from there along the Hudson River, across the Pocantico (Mill River) at Sleepy Hollow, through to Hastings. The third section, which includes the Aqueduct Walk, ran from Hastings to Yonkers, cutting inland two miles to the Sawmill River and Tibbitt's Brook to Fordham Church, just east of the northern tip of Manhattan, about two miles short of the High Bridge. The fourth section ran from the southern end of the Bronx across the Harlem River down 10th Avenue cutting across town through the planned Central Park down 5th Avenue to reach the distributing reservoir at 42nd Street. The Aqueduct eventually connected into the backup distributing reservoir constructed in Central Park between 1858-

1862 (A designated New York City Landmark, 1974).⁴⁸

Jervis designed all the major structures of the Old Croton Aqueduct, including the aqueduct itself. Jervis' plan for the aqueduct required substantial tunneling, infilling ground where the topography went below the level of the aqueduct, and a large amount of earth surrounding the aqueduct to protect it from freezing temperatures. Jervis also designed many components for the aqueduct that allowed it to function, including waste weirs, culverts, ventilators, the grade line of the aqueduct, and the interior of the aqueduct of itself.⁴⁹ The components functioned as follows:

The Aqueduct Conduit

The aqueduct consisted of 41 miles of horseshoe-shaped tunnels with an average height of eight-and-a-half feet and a width of seven-and-a-half feet, with varying sizes to accommodate the changing topography. The aqueduct was lined with between eight and twelve inches of bricks. The aqueduct was set onto rubble, which was set into a stone foundation, and laid onto concrete. To keep its downward slope level the aqueduct was cut through hillsides, rockfaces, uneven ground, and flat surfaces, and covered with stone and earthen embankment walls.⁵⁰

Bricks for the aqueduct had strict standards; known as "great" bricks, they had to be fired at a high degree, pass a ring test, and be a dark color. Any light-colored bricks that didn't pass the test were rejected.⁵¹ Jervis also demanded the use of hydraulic cement, which increased the project cost by about \$250,000. Since it dried quickly in water and stayed dry in changing temperatures and humidity, it was seen as the only feasible solution.⁵² The Commission initially rejected Jervis' proposal but gave in when Jervis underscored that if the masonry failed, it would be their fault.⁵³

Culverts

A total of 114 culverts were constructed underneath the conduit to avoid the aqueduct's water interacting with other streams, roads, and possible flood zones. The culverts, or arches, varied in length from one-and-a-half feet to 25 feet. Jervis noted that the culverts are all finished with "well-dressed flagging" or stone and use hydraulic cement.⁵⁴ Five original road culverts, spanning from 14 to 20 feet, were constructed for traffic to pass under the aqueduct.

In 1896 a new culvert was added in the Bronx. When the aqueduct was constructed the areas of Fordham and University Heights were rural but as the Bronx began to develop Burnside Avenue needed throughway access. The city constructed a marble arched culvert across Burnside Avenue, cutting through the aqueduct embankment, to allow the trolleys to pass underneath the aqueduct, this culvert was later demolished in 1930.⁵⁵

Weirs

To allow excess water to run off when the water level has reached the "proper height," six waste weirs were constructed along the length of the aqueduct. The weirs facilitated passive water runoff and manual water interception from both the streets and streams through internal wells and culverts. Each individual weir was enclosed in a stone building. Like the culverts, the weirs are clad with "well-dressed stone."⁵⁶ The weir in Van Cortlandt Park along the Old Croton Aqueduct trail is the last remaining weir within New York City.

Ventilators

To allow ventilation for the water, 33 ventilators were constructed on the aqueduct at intervals of every mile except where a waste weir was planned. The weirs had a channel or opening to allow excess water to escape, rendering a ventilator irrelevant. The ventilators are 14-foot-tall structures that taper at the top, measuring 15 inches in diameter. Eleven of the ventilators were

constructed with doors to allow access to the aqueduct.⁵⁷ No ventilators are still extant within New York City.

Grade Line of the Aqueduct

The constant slope of the aqueduct is one of its most significant features. In contrast to the plans for the Bronx River aqueduct or the other aqueducts of its time, which relied on hydraulic pumps, the Old Croton Aqueduct functioned solely on the force of gravity.⁵⁸

The declivity, or downward slope, of the aqueduct was generally consistent through Westchester and the Bronx and became more gradual in the Manhattan section. In Westchester County the declivity was a slope of 13 ¼ inches per mile. At this section, the top of the aqueduct remained at grade and the floor depreciated.⁵⁹ The grade between the Harlem River and Manhattan Valley, which runs through the Bronx, is relatively the same grade as the Westchester section. But the section from Manhattan to the receiving reservoir sloped at nine inches per mile.

The High Bridge

The High Bridge (1848, John B. Jervis, a designated New York City landmark), New York City's oldest bridge completed in 1848, carries the Croton water across the Harlem River. The length of the bridge is 1,420ft. By the completion of the Old Croton Aqueduct line in 1842, the High Bridge was still under construction. Until the completion of the High Bridge, the water was carried across in temporary iron pipes.⁶⁰

Constructing the Old Croton Aqueduct

Construction of the Croton Aqueduct was plagued by an economic depression, poor working conditions and unfair payment of laborers which led to delays, strikes, and uprisings. The panic of 1837 peaked when the banks of New York lost their silver and gold in May of 1837, sending the economy into a depression just as contractors bid for jobs on the aqueduct. Contractors sought to maximize their profits by keeping wages low

and laborers were compelled to take what wages they were offered due to the economic downturn. The laborers on the Croton Aqueduct were primarily Irish immigrants seeking financial, food, and housing security, who had little bargaining power.

In the winter of 1839, the laborer's wages were cut from \$1 a day to 6 shillings a day (a cut of approximately \$32 to \$24 in today's money.) For comparison, throughout the construction the axemen on the aqueduct made \$1.25 a day (approximately \$41.82 today), Chief Engineer Jervis earned roughly \$13.70 a day (approximately \$458.34 today), and the Water Commission paid for the costly horses, drivers, lodging, and meals of the surveyors, engineers, and chairmen.⁶¹ Inequity in pay came from the top down. The Water Commission paid the wage of those responsible for implementing the aqueduct and the contractor paid the laborers, leaving the necessary job of the laborer grossly underpaid and undervalued.⁶²

The largest strike of the construction happened following the laborer's wage cut. The laborers stopped working and walked along the aqueduct to Manhattan.⁶³ Gathering at what is now Union Square, where many other unions would soon gather, the laborers shared their grievances "During all last year...we received one dollar a day for our labor. In the winter the price was reduced to six shillings, and up to Friday, we worked for that sum, but we won't do it any more at all- at all."⁶⁴ To stop the "riots," the Mayor ordered in the army. The newspapers mocked the grand display "between the Irish with sticks and the soldiers with horses" calling it the *Bloodless Croton War*. The laborers conceded to seven shillings a day and returned to work.⁶⁵ At first, the newspapers supported the laborer's grievances, but following the New York election of 1840, the tide changed. For a short period, the papers would continue to support the assembly of "skilled" workers, but the growing anti-labor sentiment seen in 1840 foretold the swiftly

changing attitude toward all labor unions in the coming decades.⁶⁶

Without the workers who carried out the difficult construction, the Croton Aqueduct would not have been possible, yet limited documentation exists of this integral part of its history. Some of the people who constructed the aqueduct include John Delaney, from County Laois, Ireland who worked as a superintendent on the aqueduct; John Hoise, "one of the ablest masons" of his time; James Dunlap, a laborer, Ferris Smith, a mason, Samuel Baird, a laborer, Joseph Black, a foreman, Mr. Nobel, a mason, and Luke McGuiny, a laborer.⁶⁷ These few men are a representation of the 3,500 to 4,000 who worked in difficult conditions for low pay to bring the first direct water source to New York City.

Completion of the Old Croton Aqueduct

Water ran through the Old Croton Aqueduct to the distributing reservoir on July 4, 1842, and it became available to the public with a large celebration on October 14, 1842. On this day, many people stopped business for a day of celebration. The anticipation was that fresh clean water, the cleanliness of the city, and cool fountains would make the city and citizens cleaner and safer.⁶⁸

Though many citizens did not trust the new water at first, it vastly improved life in New York City. Clean drinking water became readily available, the streets were cleaned, the Fire Department had ample water to fight fires, and previously difficult tasks such as bathing and cleaning soon became unimaginably easy. Only new buildings were plumbed for the water, while old buildings had to be fit with fixtures, creating a foothold for the plumbing trade.⁶⁹ Not every home could afford water, but the free Croton fountains had clean water. Because of these essential and welcome amenities, the Old Croton Aqueduct allowed New York City to develop into the economic capital of the United States in the 19th

century, thanks to the engineering ability of Dewitt Clinton Jr., David Douglass, John B. Jervis, and the men who constructed it.

The Old Croton Aqueduct in the Bronx

The Old Croton Aqueduct section of the Bronx is within the third section of the Aqueduct's construction. To construct the aqueduct between Fordham and the High Bridge the city had to rent the land of eleven landowners, many of which lend their names to areas of the Bronx, including James Bathgate, of Bathgate Avenue.⁷⁰

The third section of the aqueduct was completed and ready for all payments to contractors by the winter of 1841. At that time, this section of the Bronx, not yet part of New York City, was part of Westchester County so the aqueduct did not directly supply the surrounding population with water. This was not an issue as the land here was rich with plenty of fresh water sources, which had drawn the attention of many water surveyors in the search for Manhattan's water supply over the previous 40 years. The aqueduct came within six feet of a spring used by the neighborhood for fresh water at Harrison and East Burnside Avenues, which had water that "was cold and clear and had a fine taste. It rose through a rocky bottom and fed a brook that babbled noisily away among thickly-growing trees filled with twittering birds."⁷¹

The New Croton Aqueduct

The Old Croton Aqueduct was so successful it became the catalyst of its own demise. Indoor plumbing, increased water usage and waste, and an exploding population made expanding the water supply system a necessity, and water metering became a central topic. In 1860, the *New York Times* wrote "The only reasonable method of preventing waste, is to charge each house with the water which goes into that house, and the only possible method of ascertaining this quantity is *to measure it*."⁷² That year meters were

approved by the Commissioner, mayor, controller, and chief engineer of the Old Croton Aqueduct for certain buildings.⁷³

In 1870 city officials attempted to increase the capacity of the Old Croton Aqueduct, at 75 million gallon a day the capacity of the old aqueduct had been far exceeded, causing leaks in the roof.⁷⁴ Though city officials knew another aqueduct was needed by 1870, the panic of 1873 rendered that impossible, it was not until a drought from 1880-1881 that the city's interest in constructing a new aqueduct arose again. Construction began on the New Croton Aqueduct in January 1885 and was completed July 1890. Following the completion of the New Croton Aqueduct, the Old Croton Aqueduct supplied water to New York City until 1955. In 1987 the northernmost point of the aqueduct reopened and continues to supply water to the town of Ossining.⁷⁵

The Aqueduct Walk Community Open Space

Soon after its completion, the linear embankment of the aqueduct became an important path for the residents of Fordham and University Heights. The Aqueduct Walk was closely tied to its surrounding community and residents sought to protect the open space it historically provided. One of the earliest frequenters of the walk was Edgar Allan Poe. In 1910, The Bronx Society of Arts and Sciences wrote,

"In Poe's time, the aqueduct walk had been built only three or four years. It has hardly changed in three score years. No more delightful path can be imagined than the grassy turf above the aqueduct spring. Oxford has her Addison's Walk; let New York commemorate Poe's Walk."⁷⁶

Poe moved to his cottage in Fordham in 1846, with his wife who was sick. Poe's cottage (a designated New York City Landmark) at that time sat at Kingsbridge Road and Valentine Avenue just northeast of the Aqueduct Walk. According to local sources, Poe would frequently walk down the Aqueduct Walk and over the High Bridge when it was complete in 1848.

Fordham remained rural for decades after the aqueduct's construction. In 1881, *The Brooklyn Daily Eagle* reported that while walking on the aqueduct one would find "horses, cattle, goats, and fowl running free about the fields and barn yards lying below the pathway at either band." The paper estimated it to be "perhaps a mile and a half along this picturesque aqueduct avenue" before you would reach the end Kingsbridge Road where you could turn toward Poe's cottage.⁷⁷

At the turn of the 20th century as the Bronx transitioned from rural farmlands to a developing neighborhood, city planners, developers, and recreationalists began eyeing the increasingly rare open space of the Aqueduct Walk. Cyclists proposed turning the entire route into a cycling path and city officials proposed creating a large parkway connecting between Manhattan's Fifth Avenue and the tip of City Island in the Bronx which would go through the Aqueduct Walk. While others made plans, developers, who saw the value in the land, bought the adjoining lots, constructed apartments, and advertised them using the unique features of the Aqueduct Walk as the buildings' backyard.⁷⁸

Despite the interest surrounding this open space of land between West Kingsbridge Road and West Burnside Avenue, it remained intact largely due to the community who valued the pathway. In 1903, the City proposed a trolley line along Aqueduct Avenue. The community responded in a letter printed in the *New York Times*, outlining the importance of the aqueduct and the community's resistance to the

trolley, which they said could only serve "private interests of corporation promoters or money-seeking undertakings." The author described Aqueduct Avenue as a "wide and beautiful parklike avenue through a choice residential section," and amongst their many objections cited their belief in the "City Beautiful as well as the city prosperous."⁷⁹ Community interest prevailed, and the open space continued to be an integral part of the community's life through the early 20th century. It was featured in early New York Walk books and in 1920 it was a section of the New York Athletic Club's carefully planned marathon.⁸⁰

In 1929, the Aqueduct Walk was again threatened. The City's Sinking Fund Commission sought to sell the four parcels of land which make up the walk for development. After learning of the Sinking Fund Commission's plan, former registrar of Bronx County, Edward Polak, wrote an open letter to the city on July 5, 1929. In his letter Polak stated the land was used by "thousands of pedestrians," he underscored the use of this land as a public park, and shared residents' fears that this sale would set a precedent for closing all the entrances to the aqueduct.⁸¹

On July 9, 1929, the Bronx Board of Trade reported that preserving the Aqueduct Walk would be both beneficial for the community, its people, and the economy.⁸² On July 12th, the Bronx Chamber of Commerce authorized its president to enact legal action against the City to stop the sale.⁸³ Simultaneously, the president of the city's Parks Association, Nathan Straus Jr., wrote to the Bronx Commissioner of New York City Parks Department encouraging them to take control of this land. In Straus' letter he shared that the money from the sale would purchase park land elsewhere when the "children of the neighborhood adjoining the aqueduct use it as a playground" regularly.⁸⁴

In addition to the Parks Association and the Bronx Chamber of Commerce, the Bronx Board of

Trade, the Boscobel Avenue Association, the 161st Street Civic Organization, the Throggs Neck Improvement Association, the West Farm Businessmen's Association, and the Westchester Square Business Association all joined together in opposition of the sale of the land.⁸⁵ On October 29, 1929, the Local Board of Chester, 22nd District, resolved to recommend the Sinking Fund Commission turn the land over to the Parks Department.⁸⁶ In 1930, the Department of Water Supply and Electricity transferred surface rights of the Aqueduct Walk to the New York City Parks Department. The Bronx community secured the Aqueduct Walk as a public park.⁸⁷

Aqueduct Walk Park

In 1930, the Department of Water Supply and Electricity made a crucial change to the Aqueduct walk as the Parks Department was taking it over, related to the need to widen West Burnside Avenue. The Bronx's early 20th century development brought with it increased vehicular traffic, which required many roads to be widened. The Department of Water Supply and Electricity demolished the marble arches across West Burnside Avenue, constructed 30 years prior, to allow the passage of the trolley, and brought the still functioning aqueduct underground via a steel siphon which connected to the original tunnel of the aqueduct on the southern side of West Burnside Avenue. The removal of the arches allowed trollies, pedestrians, and cars to fit safely on West Burnside Avenue. In addition to the removal of the arches, the Department also added a staircase at the southwestern end of the landmark site on University Avenue. In 1941, the department added more retaining walls and new access points to the chamber of the aqueduct siphon.

In 1938, the Parks department developed the park that was then known as the "Aqueduct Lands." Noted landscape architect Gilmore D. Clarke designed

the new park, now known as Aqueduct Walk. Clarke notably consulted on the Central Park Zoo and Conservatory Gardens, designed the updated Madison Square Park, and he contributed to the redesign of Bryant Park, another reuse of old aqueduct land. Today's path was part of Clarke's 1938 landscape design for Aqueduct Walk, including the curved path between West 183rd Street and West 181st Street. Clarke used this curve to create space for the playground, which still exists today. His design also included stone walls to match the historic walls, wrought iron fencing with two-inch pipe railings, trees, lawns, plantings, wooden benches, and play areas including horseshoe pitches, shuffle boards, sand pits, and playhouses. Each of Clarke's designs noted "no heavy trucks shall enter the premises [they]...must be kept away from the Aqueduct" as during the construction of this park, the aqueduct was still an important water source for the city.⁸⁸ Parks officially opened the park on April 27, 1940, and it has continued to be a significant fixture in Bronx city life ever since.⁸⁹

Throughout the 20th century, New Yorkers used the Aqueduct Walk as an urban hiking trail. In 1936, the alderman of Yonkers noted that most pedestrians arrived in the city by way of the Old Croton Aqueduct.⁹⁰ Aqueduct Walk continued to appear in New York Walk books and trails in the coming decades.⁹¹ It also remained an asset in the community. In 1940s tax photos, young men are seen playing horseshoe and shuffleboard alongside the Aqueduct Walk. Through the 1960s, cyclists and hikers continued to enjoy the 32 miles of the Aqueduct, between the Bronx and Croton. In 1966, under Governor Rockefeller, the state sought to acquire all 32 miles and create a public right of way, in 1968 the state ultimately acquired only the 28 northernmost miles above the city boarder. In 1970, a journalist for the *New York Times* revisited his childhood neighborhood, finding the Aqueduct Walk

which they had nicknamed “The Acky” reliably in place, and the quiet well-preserved street along the aqueduct just as he remembered.⁹²

Today the walk continues to be a significant feature within the neighborhood and a popular public space. Over the decades Parks has made several additions to the walk including basketball courts, playgrounds, and seating areas all while maintaining the historic features of the Old Croton Aqueduct constructed in 1842.

Conclusion

The Old Croton Aqueduct was a long sought after and vital water source for the City of New York. The aqueduct was a life sustaining, gravity powered, engineering marvel constructed by immigrants that allowed the city to continue to develop at an explosive rate through the 19th century. After its construction, the walkway atop the aqueduct become a favored path for New Yorkers in the rapidly developing city. Today the Aqueduct Walk remains a significant reminder of New York City’s 19th century water infrastructure, while continuing to serve as a highly unique and popular open space for the Bronx community.

Endnotes

¹ According to Ann-Marie Cantwell, the Munsee had social and economic ties with other Munsee speaking peoples in communities “across a territory that stretched from the lower Hudson Valley and western Long Island across northern New Jersey,” including the region now defined New York City. Robert Grumet highlights the difficulty of establishing the identity of specific Indigenous communities in what is now New York City during the early colonial period as the names that have come to be associated with 17th-century Indigenous groups historically represented a diversity of things including place names, an individual or community leader, a village, or a longhouse community. In turn, these identities shifted as groups moved or were forced to relocate. Wiechquaesgeck, for example, was a local place name that became a general term for the larger community that inhabited portions of Northern Manhattan and the Bronx. The name Siwanoy represented the Indigenous communities that lived along the northern shore of Long Island Sound from Norwalk, Connecticut to the south Bronx that subsequently merged with the Wiechquaesgeck and other Indigenous groups in the Westchester highlands during the second half of the 17th century. The name “Manhattan” was historically identified as a language and a community of people living in northern-Manhattan and adjacent areas in the Bronx. Anne-Marie Cantwell “Penhawitz and Wampage and the Seventeenth-Century World They Dominated” in Meta F. Janowitz and Diane Dallal, eds., *Tales of Gotham: Historical Archaeology, Ethnohistory and Microhistory of New York City* (New York: Springer, 2013), 7–28; Robert Steven Grumet, *Native American Place Names in New York City* (New York: Museum of the City of New York, 1981), 24–26, 53, 59–62; Robert Steven Grumet, *The Munsee Indians: A History* (Norman: The University of Oklahoma Press, 2009), 309–310n6. The present-day descendants of the area’s Indigenous people are members of the Stockbridge-Munsee Community Band of Mohicans, the Delaware Nation, the Delaware Tribe of Indians, the Shinnecock Nation, and the Unkechaug Nation.

² Robert Steven Grumet, *Native American Place Names in New York City*, (New York: Museum of the City of New York, 1981), Map 2, 5; 19.

³ While Indigenous Peoples signatories were included in these documents, scholarly interpretations of early land

contracts between Europeans and the Munsee people suggest that the Indigenous Peoples participants likely viewed them more as easements or tenancies rather than a sale. Archaeologist and author Anne-Marie Cantwell argues that the “Munsee did not yet realize that they were perceived as selling the land in the European sense, that is permanently alienating themselves from it. Rather, they thought they were simply allowing the Europeans to use it for a while.” This conflict of perception explains why Indigenous Peoples may have signed contracts that did not include fair compensation for their land. Anne-Marie Cantwell, “Penhawitz and Wampage and the Seventeenth Century World They Dominated,” from Meta F. Janowitz and Diane Dallal, eds., *Tales of Gotham: Historical Archaeology, Ethnohistory, and Microhistory of New York City* (New York: Springer, 2013), 7–30, cited in Landmarks Preservation Commission, Aakawaxung Munahanung (Island Protected from the Wind) Archaeological Site Designation Report (LP-2648) (New York: City of New York, 2021), prepared by Amanda Sutphin, Jessica Striebel MacLean, and MaryNell Nolan-Wheatley, n64.

⁴ Hassock’s Meadow was described as lying “west of the old village of West Farms, and south of the present Tremont Avenue” by Randall Comfort in *History of Bronx Borough City of New York* (New York: North Side News Press, 1906), 42. According to “Two of the Oldest Bronx Settlements,” *Real Estate Record and Guide* (February 17, 1912), 321, Hassock Meadow was in the vicinity of the Tremont and Belmont neighborhoods.

⁵ *The Encyclopedia of New York City: Second Edition*, (United Kingdom: Yale University Press, 2010), 161.

⁶ Stephen Jenkins, *The Story of the Bronx* (New York: The Knickerbocker Press, 1912), 93.

⁷ Lloyd Ultan, *The Northern Borough: A History of the Bronx*, (New York: Bronx County Historical Society, 2009), 127.

⁸ Jenkins, 346.

⁹ According to Grumet, in *Native American Place Names in New York City*, the explanations of the name “Werpoe” have not been supported by the record. Tooker in 1911 claimed Werpoe derived from the Delaware *wipochk* “a bushy place or thicket” and Schoolcraft 1845, claimed Werpoe came from the Dutch *wawbose* “a hare” he further claimed Werpoe was “a piece of elevated ground, situated above and beyond the small lake or pond called the Kolck” meaning the collect pond.; Gerard T. Koeppel, *Water for*

Gotham, (New Jersey: Princeton University Press, 2021), 8-10.

¹⁰ Ibid, 8-10, 25-27.; While Europeans viewed contracts such as this as purchase agreements, scholars have noted that at this time, Indigenous Peoples did not perceive them the same way, understanding them more as temporary tenancies.

¹¹ Maud Wilder Goodwin, *Fort Amsterdam in the days of the Dutch*, (New York: The Knickerbockerpress, 1897), 268.

¹² *Proceedings of the Common Council of the City of New York*, (New York, 1742), 1674-1690, 429, 441-42.

¹³ Koeppel, 23; MCC 1675-1776, 1:224, 376, 377, 420; *Proceedings of the Common Council 1674-1690*, 33, 324, 404.

¹⁴ Koeppel, 29-49.

¹⁵ Daniel Horsmanden, *The New York Conspiracy Trials of 1741: Daniel Horsmanden's Journal of the Proceedings, with Related Documents* (Boston, MA: Bedford/St. Martin's, 2004), 5-10; Lionel Pincus and Princess Firyal Map Division, The New York Public Library. "A plan of the city and environs of New York : as they were in the years 1742-1743 and 1744," New York Public Library Digital Collections. Accessed February 23, 2023.

¹⁶ *Minutes of the Common Council (MCC)*, (New York: M. B. Brown Printing & Binding Company), 1675-1776, 5:50.

¹⁷ By 1811, the City had no choice but to drain the pond, though the spring that supplied the pond still ran underground. MCC, 1784-1831, 2:352, 256-357

¹⁸ William Harrison Ukers, "Tea in Old New York", *All About Tea*, United States: Tea and coffee trade journal Company, Vol. 1, 1935, 51.

¹⁹ T. Schramke, *Description of New York Croton Aqueduct*, (New-York: T. Schramke, 1846), 7.

²⁰ *Proceedings of the New York Historical Society, Volume 2*, (New York: Press of the Historical Society, 1845), 1845, 91.

²¹ "Aqueduct", Britannica, The Editors of Encyclopedia Britannica, 11/27/2023, <https://www.britannica.com/technology/aqueduct-engineering>.

²² Christopher Colles, *Copy of a Proposal of Christopher Colles for furnishing the City of New-York with a constant supply of Fresh Water*, 1774.

²³ William Burns, *Encyclopedia of Plague and Pestilence, Fourth Edition: From Ancient Times to the Present* (New York: Infobase Publishing, 2021), 649.

²⁴ Koeppel, 63.

²⁵ "Some Suggestions in Preventive Medicine", *American Medicine*, Vol 16, 1911, 595.

²⁶ J. Brown, M.D., *Proceedings of the Corporation of New York, on supplying the city with pure ... water*: with a memoir of J. Browne, M.D. on the same subject. (New York, July 2, 1798), 4.

²⁷ Through great persuasions, at the hand of Alexander Hamilton, the city agreed to let the Manhattan Company hold the sole contract to bring water to the city. In a twist that would leave the city still gasping for water, Burr added a paragraph to the contract stating The Manhattan Company could use any surplus money for "the sole benefit of the company." (Matthew L. Davis, *Memoirs of Aaron Burr*, vol 1 (New York: Harper & Brothers, 1837), 418).

²⁸ This cost the Manhattan Company only \$100,000 of the 2-million-dollars they raised. Burr took the remaining 1.9-million-dollar surplus and funded the Manhattan Banking Company (Koeppel, 124; Stephen Ginsberg, *"The History of Fire Protection"*, (New York University: New York, 1968), 164-171).

²⁹ In 1829, a fire destroyed an estimated \$600,000 of property.

³⁰ Charles King, *A Memoir of the Construction, Cost, and Capacity of the Croton Aqueduct*, (New-York: Printed by C. King, 1843); John Fellows, *Manhattan Water Works: The Rates at which the Water Will Be Delivered*, (Public Advertiser), May 1, 1807, 3.

³¹ "Epidemics in New-York: Diseases from Which This City Suffered in its Early Days", *The New York Times*, 16 February, 1896, 28.

³² In 1806, the city moved public wells from the streets to sidewalks. In 1808, the Manhattan Water Works charter was extended. In 1816, the Common Council investigated the Manhattan Water Works' failures under their contract, but to no action against them. (MCC 1784-1831, 2:552, 561; MC Minutes, 1:48) After several failed attempts to bring water to the city from a nearby sources, the Common Council convened again. They resolved to keep working towards gaining fresh water despite the Manhattan Water Works Company holding the sole charter to bring water into Manhattan. Not until 1831 would the Common Council convene again to examine the work of the Manhattan Water Company. During this meeting, the Common Council

outlined that the Manhattan Company unequivocally failed to deliver on their contractual obligations and resolved to transfer all public water procurement back to the city. The 1825 Act passed to incorporate the New York Waterworks company, one of the last private waters works incorporated for NYC water, also failed to find water on Manhattan. ("Water for our city," *Evening Post* (New York, New York), March 28, 1825; AN ACT to incorporate the New-York Water-Works Company, March 24, 1825.)

³³ "Hon. Myndert Van Schaik," *New York Times*, 1865, 5.

³⁴ *Evening Post*, 18 March 1845.

³⁵ Koeppel, 146-153.

³⁶ *Canvass White's Report*, January 28, 1824; *Benjamin Wright's Report*, January 28, 1824.

³⁷ Lyceum of Natural History, "Report on the source, quantity, and purity of the water", February 22, 1831.

³⁸ Dewitt Clinton, *Report on Possible Sources of Water Supply for New York City*, (New York: Joint Committee on Fire and Water, 1833), 220-221.

³⁹ An act for the appointment of commissioners in relation to supplying the city of New-York with pure and whole some water, Passed February 26, 1833.

⁴⁰ Report Of the Commissioners, under an act of the Legislature of this State, passed February 26, 1833, relative to supplying the city of New-York with pure and wholesome water, December 31, 1833.

⁴¹ Ibid.

⁴² Report of the Department of Public Works of the City of New York for the Quarter Ending United States: The Department, 1897. *Report of the Water Commissioners*, August 1, 1836.

⁴³ Koeppel, 174-178.

⁴⁴ Koeppel, 183-184.

⁴⁵ Laws of the State of New York, United States, 1836, 60: required NYC to "erect and sustain convenient passes across or under the aqueduct whenever said aqueduct shall intersect the land in said county of Westchester, belonging to an individual, or individuals, for the farming and other purposes of the land thus intersected."; Amendment to "An Act to Provide for Supplying the City of New York with Pure and Wholesome Water", Passed May 2, 1834.

⁴⁶ *New York Evening Post*, March 18, 1845; Reminiscences of John B. Jervis.

⁴⁷ King, 176-179.

⁴⁸ John B Jervis, *Description of the Croton Aqueduct* (New York: Slamm and Guion, 1842), 6; Landmarks Preservation Commission (LPC), Central Park (LP-0851), 2.

⁴⁹ Ibid.

⁵⁰ Method of Construction of Steep Side Hills, Jervis Papers, Rome Public Library.

⁵¹ Tower, 1843; King, 37.

⁵² Douglass, the first engineer of the aqueduct, had suggested quick lime, which was cheaper but less effective.

⁵³ Jervis, p 4-5; King, 44-45.

⁵⁴ Ibid.

⁵⁵ H. K. Landis, E. M., "Embankment", *Engineering New-Record*, Vol 38, 1897, 164.; City of New York Department of Water Supply Gas & Electricity Bureau of Water Supply, New Retaining Walls at Burnside Avenue, Siphon of Old Croton Aqueduct, July, 1930.

⁵⁶ Jervis, 14.

⁵⁷ Jervis, 13.

⁵⁸ Fayette Bartholomew Tower, *Illustrations of the Croton Aqueduct* (United Kingdom: Wiley and Putnam, 1843).

⁵⁹ Jervis, 10.

⁶⁰ Jervis, 22.

⁶¹ *Croton Aqueduct Comptroller Vouchers*, 1838-1868, New York City Municipal Archives.

⁶² Ibid.

⁶³ "The Croton Works Riot", *New York Daily Herald*, April 9, 1840; "Riot and Bloodshed", *Evening Post*, August 23, 1837.

⁶⁴ "Another Great Excitement-Tremendous Row along the line of the Croton Water Works," *New York Daily Herald*, April 7, 1840.

⁶⁵ "Important Movements on the Croton Water Works", *New York Herald*, April 21, 1840.

⁶⁶ The newspapers, despite continued anti-laborer, and anti-Irish sentiment, seemed in favor of the laborers getting the raise. "Poor hard-working men" as the *Commercial Advertiser and Journal* referred to the laborers, were finally bringing water to New York City for which these contractors "have lucrative contracts, and all they can squeeze out of the laborers is so much put in their own pockets."; *Commercial Advertiser and Journal*, April 10, 1840.

⁶⁷ John Delaney was born in Cullahill County Queens (now known as County Loais), Ireland. He was an expert stone mason employed on the Old Croton Aqueduct. Delaney worked on the aqueduct from 1838 to 1840 when he moved to Massachusetts, but when the first Croton Dam failed Delaney returned as a superintendent on the project. Delaney stayed on as a manager of the project until the Dam was restored and the aqueduct was completed in 1842.; Louis H Everts, *History of the Connecticut Valley in Massachusetts, with illustrations and biographical sketches of some of its prominent men and pioneers*, (Philadelphia: L.H. Everts, 1879), 938; Living Burial and Escape”, *American Penny Magazine, and Family Newspaper*, (United States: T. Dwight, 1846), 20.; Hosie gained notoriety later in life by surviving a mine shaft collapse after being trapped for a week in the Carbondale mine disaster.; Recalling a mine disaster: Death of John Hosie, a coal operator”, *New York Times*, May 08, 1881.; James Dunlap, a laborer, went on to become involved with the Pennsylvania Coal Company.; Alfred Mathews, *History of Wayne, Pike, and Monroe Counties*, (Pennsylvania: R.T. Peck & Company, 1886), 701.; Ferris Smith, a mason on the aqueduct, settled the town of Fitchburg, Michigan, shortly after the completion of the aqueduct.; John T Fitch, *Descendants of the Reverend James Fitch 1622-1702*, (Camden, Me: Picton Press, 1996), 95-96. and Luke McGuiny, who lost his life in the mining excavations in the Manhattan section of the aqueduct in 1838.; “A Locofoco Voter in Trouble”, *Chenango Telegraph*, May 09, 1838; “Horrid”, *Poughkeepsie Eagle*, January 26, 1839.

⁶⁸ Tower, 147-152.

⁶⁹ During the aqueduct’s construction, speculative pipe was laid beneath the streets of Manhattan, but only new buildings were plumbed for the Croton water. In anticipation of the incoming demand for plumbing, “master plumbers” ran ads in newspapers for their services installing pipe, maintaining it, and procuring the necessary fixtures at prices they had already negotiated.⁶⁹ The plumbers quickly consolidated into the Master Plumbers Society, to control prices, wages, standardize work, and establish a work week.⁶⁹ A group of journeymen plumbers started their own organization. Five years after the completion of the aqueduct the Brooklyn journeyman’s local became Local Number 1 of the new United Association of Journeymen Plumbers, Gas Fitters, Steam Fitters and Steam Fitter’s Helpers of the United States and Canada. The aqueduct created a foothold for the plumbing trade in New York City as it almost immediately changed the quality of life for some New Yorkers, in turn changes their wants and needs for everyday life. (Mary-Lane Kamber, *A Career as a Plumber, Pipefitter, Or Steamfitter* (United States: Rosen YA, 2018)).

⁷⁰ Land acquisition maps, No. 69-74, 1837-1839, Accessed 2023, Department of Environmental Protection Archives.

⁷¹ James Reuel Smith, *Springs and Wells of Manhattan and the Bronx*, (New York City: New York Historical Society, 1938), 197.

⁷² “Cheap Water”, *New York Times*, October 9, 1860.

⁷³ “The Use of Water-Meters”, *New York Times*, June 30, 1881.

⁷⁴ Croton Aqueduct Department, *2nd quarterly report*, 1876; Koeppel, 287-288.

⁷⁵ “Called to Water Talk”, *The Daily Times (Mamaroneck)*, October 25, 1955; “You May be Plugging Faucets by Objections to New Mains”, *The Reporter Dispatch*, July 25, 1957; Old Croton Aqueduct State Historic Park, *Ossoning.com*, March 23, 2018, <https://ossining.com/old-croton-aqueduct-state-historic-park/>

⁷⁶ In Memoriam: Edgar Allan Poe, 1809-1849, United States: The Society, 1910.

⁷⁷ “High Bridge”, *The Brooklyn Daily Eagle*, December 18, 1881.

⁷⁸ “Plan a 20-mile Parkway”, *New York Times*, June 18, 1905; “Aqueduct Cycle Path”, *Yonkers Statesman*, November 22, 1898; “This Sale Offers”, *The Sun*, June 2, 1907.

⁷⁹ “Aqueduct Avenue Trolleys”, Letters to the Editor of the Times, *New York Times*, March 15, 1903.

⁸⁰ “N.Y.A.C. Marathon Course Mapper Out”, *New York Times*, May 17, 1920.

⁸¹ “Protests City Land Sale”, *New York Times*, July 05, 1929.

⁸² “Use of Aqueduct Studied”, *New York Times*, July 9, 1929.

⁸³ “Bronx Chamber Opposes Land Sale”, *New York Times*, July 12, 1929.

⁸⁴ “Asks City to Cede Bronx Land”, *New York Times*, July 13, 1929.

⁸⁵ Ibid.

⁸⁶ “Establishing a Public Park Along the Site of the Old Croton Aqueduct,” *The City Record*, October 29, 1929, p. 8030.

⁸⁷ Aqueduct Walk Park, NYC Parks Department, <https://www.nycgovparks.org/parks/aqueduct-walk-x001a/highlights/6338>.

⁸⁸ Art Commission of The City of New York, Design for A Public Structure, *Development of Aqueduct Lands*, March 8 1938.

⁸⁹ Department of Parks, Press Release, April 27, 1940.

⁹⁰ “Yonkers Shorts Ban May Extend To Park”, *New York Times*, May 25, 1936.

⁹¹ New York Walk Book, (New York: American Geographical Society, 1923), p 16-17.; “Trail to Run Along Croton Aqueduct”, *New York Times*, September 25, 1966.

⁹² “The Bronx Revisited for a Stroll”, *New York Times*, October 4, 1970.

Findings and Designation

Old Croton Aqueduct Walk

On the basis of a careful consideration of the history, the architecture, and the other features of this building and site, the Landmarks Preservation Commission finds that the Old Croton Aqueduct Walk has a special character and a special historical and aesthetic interest and value as part of the development, heritage, and cultural characteristics of New York City, state, and the nation.

Accordingly, pursuant to the provisions of Chapter 74, Section 3020 of the Charter of the City of New York and Chapter 3 of Title 25 of the Administrative Code of the City of New York, the Landmarks Preservation Commission designates as a Scenic Landmark the Old Croton Aqueduct Walk and designates Borough of The Bronx Tax Map Block 3210 Lots 1 and 7; Block 3211 Lot 1 in part; Block 3212 Lots 1, 67, 71; Block 3213 Lots 27, 48, 49, 70; Block 3214 Lot 33; and Block 3215 Lot 31 as its Landmark Site, as shown in the attached map.



Aqueduct Walk, path, near University and West Burnside Avenues, 2024



Aqueduct Walk, path, near University and West Burnside Avenues, 2024



Aqueduct Walk, entrance and path, near West 181st Street and Aqueduct Avenue East, 2024



Aqueduct Walk, seating area, near West 181st Street and Aqueduct Avenue East, 2024



Aqueduct Walk, fitness area, basketball court, and path, near West 182nd Street and Aqueduct Avenue East, 2024



Aqueduct Walk, seating area and path, near Evelyn Place and Aqueduct Avenue East, 2024



Aqueduct Walk, entrance and path, southern entrance on West Fordham Road, 2024



Aqueduct Walk, entrance and path, norther entrances on West Fordham Road, 2024



Aqueduct Walk, path and embankment wall, north from West Fordham Road entrance, 2024



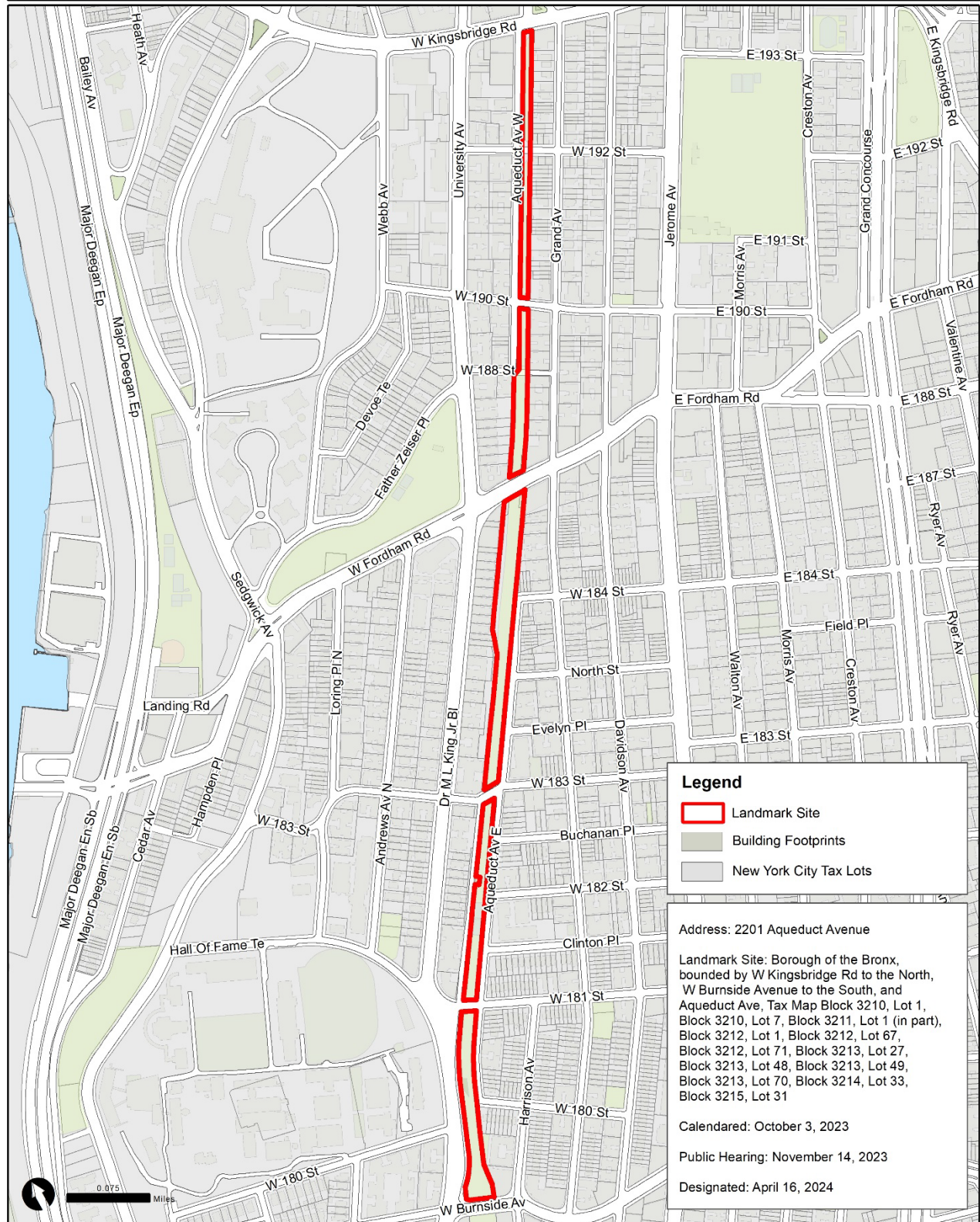
Aqueduct Walk, entrance and path, southern entrance on West Kingsbridge Road, 2024



Burnside Avenue Bridge, Removed
Lehman College Archives, 1920



University and Burnside Avenue
NYPL Digital Collections, 1931



Graphic Source: MapPLUTO, Edition 23v1, Author: New York City Landmarks Preservation Commission, DHW, Date: 4.16.2024