

**BROOKLYN CLAY RETORT AND FIRE BRICK WORKS STOREHOUSE,**  
76-86 Van Dyke Street, (aka 224-234 Richards Street), Brooklyn. Built c. 1859.

Landmark Site: Borough of Brooklyn Tax Map Block 598, Lot 30.

On November 20, 2001 the Landmarks Preservation Commission held a public hearing on the proposed designation as a Landmark of the Brooklyn Clay Retort and Fire Brick Works Storehouse at 76-86 Van Dyke Street, (aka 224-234 Richards Street), Brooklyn, and the proposed designation of the related Landmark Site (Item No. 5). The hearing had been duly advertised in accordance with provisions of law. Five people testified in favor of designation including representatives of the Landmarks Conservancy, the Historic Districts Council and the Society for the Architecture of the City. The Commission also received a statement in support of designation from the owner. The Commission previously held a public hearing on the Brooklyn Clay Retort and Fire Brick Works (LP-1807) on September 11, 1990 and a continued public hearing on December 11, 1990.<sup>1</sup>

Summary

The Brooklyn Clay Retort and Fire Brick Works Storehouse is a significant mid-nineteenth century industrial building that is part of a complex established during the first era of development of Red Hook for shipping and industry. It is advantageously located with access to a slip in the Erie Basin. J.K. Brick & Company was founded by Joseph K. Brick in 1854 to manufacture products used in the production of illuminating gas by firms such as the Brooklyn Gas Light Company. Joseph Brick is credited with introducing the fire-clay retort--vessels in which coal was heated to produce gas used for illumination-- in the United States and his firm may have been the first in this country to manufacture retorts of fire clay, which made the production of illuminating gas economically feasible. In addition, the company, which became known as the Brooklyn Clay Retort and Fire Brick Company, offered a full line of refractory (aka "fire") bricks, which were used in various industrial capacities, such as lining of iron furnaces. During the nineteenth century the New York - New Jersey area was one of the major fire brick manufacturing centers in the United States. Today the Brooklyn Clay Retort and Fire Brick Works are the only extant buildings in the area connected with this once-significant industry. The c. 1859 Storehouse, probably designed by Brick, features main facades of roughly-cut and coursed ashlar of a local dark gray schist, detailed with brick and sandstone. It has the distinctive basilica-like form of mid- and late nineteenth-century industrial workshops; characteristic of such buildings, a clerestory of windows, skylights, and a bull's eye window in the Van Dyke Street facade light the interior from above and arched entrances correspond to the three-bay interior space.



## DESCRIPTION AND ANALYSIS

### The Development of Red Hook as an Industrial and Shipping Center<sup>2</sup>

The Brooklyn Clay Retort and Fire Brick Works is located in Red Hook, Brooklyn, a waterfront neighborhood in the northwest part of the borough facing Governor's Island. Named "Roode Hoek" by early Dutch settlers because of the color of its soil and its geographical configuration, Red Hook was isolated from the rest of South Brooklyn by a swampy area that eventually was drained by the Gowanus Canal. Around 1800 Red Hook became one of the towns of Brooklyn's administrative districts based on neighborhoods. It was chartered as a city in 1834. Land speculation began in the area during the early 1830s when the Red Hook Building Company acquired a large tract of land from the Van Dyke family; in 1838 the company proposed to build 500 houses whose occupants could take advantage of the ferry service the promoters envisioned connecting Red Hook to nearby Manhattan. However, this scheme was never implemented. In 1840 Colonel Daniel Richards first obtained the approval of the State Legislature for the construction of the wharves of the Atlantic Basin, on Buttermilk Channel opposite Governor's Island. Major work on the project did not take place, however, until around 1848, at which time Richards petitioned the city to open thirty-five streets in Red Hook around the Atlantic Basin. In 1843 William Beard purchased a large tract of land from George Hall, and began to reconfigure the Red Hook area by leveling and expanding it with landfill. Beard, in partnership with Jeremiah P. Robinson, reclaimed one-million square feet of land and built the Erie Basin, at the southwest tip of Red Hook, and nearby wharves and warehouses during the 1850s and 1860s. In 1864 Beard sold land to the Anglo-American Dry Dock Company, which proceeded to establish a large operation at Erie Basin.

Several industrial and storage businesses located in the developing Red Hook area during the 1850s. The industrial firms included the Brooklyn Clay Retort and Fire Brick Company on Van Dyke Street, H.R. Worthington's Steam Pump Manufactory near the northeastern end of the Atlantic Basin, the Esler & Company Boiler Factory near the southwestern end of the Atlantic Basin, and the New York Patent Felt Company at the corner of Van Brunt and William Streets. The Red Hook Oil Stores of F.W. Green & Company, and the Wales, Wetmore & Company Oil Yard were located between Van Brunt Street and the northern end of Erie Basin in 1860. In addition the "W. Beard and J.B. and G.C. Robinson Stores" (warehouses) were built on that site during the 1860s

and 1870s, adding to the earlier warehousing facilities surrounding the Atlantic Basin such as the nearby Excelsior Stores and Abel Thompson's Storage Stores.

During the last decades of the nineteenth century the character of Red Hook became increasingly diverse as residential development finally occurred alongside the shipping and industrial facilities. The Erie and Atlantic Basins formed the nucleus of what had become one of the busiest and most important commercial warehousing depots in the port of New York. Manufacturing firms in Red Hook included the Erie Basin Iron Works, which manufactured stationary steam engines and gas holders; other foundries and iron works were established in the area by the turn of the century. The physical character of the area remained much the same from that time until major reconstruction of the pier warehouses on the waterfront began in the 1950s.

### Refractory Materials and American Industry<sup>3</sup>

Fire clays have refractory properties which allow them to retain their physical shape and chemical identity when subject to high temperatures. During the last half of the nineteenth century fire clays began to be widely utilized for the manufacture of bricks of various shapes, retorts, the vessels in which coal was heated to produce gas used for illumination, and other products which facilitated industrial processes. The development of the fire-clay and fire-brick industries occurred in the United States as deposits of fire clays were discovered and the expansion of industrial operations created an increase in demand. The rapidly growing iron and steel industry required a continual supply of fire brick to line furnaces since the bricks were worn away, literally consumed, by the heat of the furnaces. Fire brick was used also in brick and pottery kilns, iron smelting furnaces and rolling mills, lime and Portland-cement kilns, various types of stoves and furnaces, and in the coke industry. The widespread adoption of gas lighting in American cities around 1850 required increasing supplies of gas which was produced in clay retorts by heating coal. Low grades of fire clays were used to make sewer pipes, terra cotta, and hollow brick and tiles for use in arched floor construction. As American-made products became available, the use of more expensive sandstone blocks as furnace linings diminished and the importation of fire bricks and clay retorts from Europe was reduced.

The first American-made fire bricks were probably produced in New Jersey around 1812, although the location of that early plant is not known. The Salamander Works of Woodbridge, New Jersey,

in operation by 1825, was soon followed by a factory erected by John Watson in Perth Amboy. During the 1840s and 1850s additional fire-brick works were established near Woodbridge, New Jersey, to take advantage of the extensive deposits of fire clay in the area. By 1855 fire clay for making 50 million bricks annually was taken from the Middlesex County, New Jersey, clay pits.<sup>4</sup>

There were several firms in New York City that took advantage of the nearby deposits of fire clay and manufactured both clay retorts and fire bricks. In 1845 Balthazar Kreisler established a fire-brick works in Manhattan, later known as the New York Fire Brick and Clay Retort Works; Kreisler acquired a fire-clay deposit on Staten Island in 1852 and established a works there which eventually replaced the Manhattan factory (his son's house, the Charles Kreisler House and the workers' houses for the company, the Kreisler Worker's Houses are both designated New York City Landmarks). Joseph K. Brick established the Brooklyn Clay Retort and Fire Brick Works in 1854. The Maurer & Weber Company later known as the Manhattan Fire Brick and Enamelled Clay Retort Works, opened in 1863.<sup>5</sup> In 1868 John Cooper established a business, later known as the Greenpoint Fire Brick and Sewer Pipe Works, at 413-421 Oakland Street, Brooklyn. While there were 350 fire brick manufacturers in the United States in 1895, the New York-New Jersey area remained one of the major fire brick manufacturing centers.

**Fire Bricks for Industry.** During the late nineteenth century, fire bricks were made in a variety of shapes in addition to the standard nine-and-one-half-inch-long brick.<sup>6</sup> Three classes of fire brick were produced, with the first class designed to withstand the greatest temperatures and those of the third class suited for use where mechanical strength was more important than a brick's refractory qualities. Since the stability of fire-brick masonry depended on the minimum usage of mortar, there was little tolerance for variations in dimensions or irregularities in the faces of the bricks. Although fire clay was found in a variety of shades, high-quality fire bricks often had a uniform pale cream or buff color. Naturally occurring fire clays varied in refractoriness and other physical properties, such as plasticity, texture, color, and tensile strength, and were blended for increased stability, minimal expansion and contraction upon exposure to extreme changes in temperatures, and for various applications. The clays were stabilized with the addition of an infusible tempering material, such as quartz or burnt clay.

The manufacture of fire brick was similar to the production of other types of brick which involved clay

preparation, molding, drying and burning, but fire brick required special handling of materials in each step of the process.<sup>7</sup> In the "clay or pugmill," the fire clay was ground and then mixed in a dry state with the tempering material -- quartz or burned clay -- on a large wood platform or in circular pits. The dry mixture was then dumped into a pugmill box where water was added to create a wet mixture suitable for molding. After the fire bricks were unmolded and dried for a few hours, they were re-pressed to produce denser bricks with smooth surfaces and sharp edges. The bricks were then dried for about a week in ventilated rooms which were heated during the winter; some brick manufacturers dried bricks on special floors heated by flues. The dried bricks were then progressively kiln-fired, which took about a week. Brick manufacturing was gradually systematized and modernized through the introduction of improved clay mixing and molding machinery during the late nineteenth century, and fire brick producers were able to make, at a lower cost, products of increasingly high refractoriness.

**Clay Retorts for Gas Works.**<sup>8</sup> Because they were made from the same type of clay as fire brick and also required specialized production methods, clay retorts were commonly produced by fire-brick works. Clay retorts varied in size, "single retorts" were typically 21 by 14 inches in diameter and eight to eight-and-a-half feet long, "through retorts" typically had the same diameter but were 18 to 20 feet long. The heating of a "charge" of coal in a retort carbonized the coal and produced gas, leaving coke as a byproduct. A mid- to late nineteenth-century gas works consisted of groups of fifteen retorts encased in "settings" or "benches" in a retort house. Gas was produced during five- to six-hour "charges" in the retorts, extracted, purified, and then stored for future use. When this method of producing coal gas was first developed around 1820, cast-iron retorts were used. By 1850 clay retorts replaced cast-iron retorts because they could be heated to a higher temperature and held their heat longer. In fact, the increased efficiency of gas production achieved through the use of fire-clay retorts made the manufacture of gas more economical and was responsible for more widespread use of gas for illumination.<sup>9</sup> During the late 1850s, 200 retorts made by the Brooklyn Clay Retort & Fire Brick Works were in use at the Brooklyn Gas Light Works. The size of the market is indicated by the fact that each of the nearly 3,000 retorts in use in the extensive works of the Manhattan Gas Company during the early 1860s had to be replaced after two years of use.<sup>10</sup>

Fire-clay retorts were difficult to manufacture. There was a "peculiarity of manipulation in preparing

and tempering the clay,"<sup>11</sup> which had to be very pure and highly refractive. The retorts -- long, tube-like vessels with 2" thick walls -- were made with cross-sections that were D-shaped, round, or oval. They were formed in shells of sheet iron with a wooden core. The retort was built up slowly as clay was tamped into the form and then the core was withdrawn before the mouth of the retort was modeled by hand. After drying for several weeks, the retorts were fired in specially-designed kilns, with fire brick surrounding and supporting the vessels. The specialized nature of this work is illustrated by the average production of thirty retorts a week by the Manhattan Fire Brick and Clay Retort Works during the 1870s, in contrast to the company's production of 5,000-6,000 fire bricks a day. During the 1880s there were twelve firms manufacturing clay retorts in the United States, three of which were located in New York City.<sup>12</sup>

#### The Brooklyn Clay Retort and Fire Brick Company<sup>13</sup>

The Brooklyn Clay Retort and Fire Brick Company was founded in 1854 by Joseph Keasey Brick, who was an authority on the construction and management of gas works and has been credited with introducing fire-clay retorts in the United States. Brick, a Salem County, New Jersey, native, learned gas works engineering in Philadelphia while acquiring an education at the Franklin Institute during the evening. He relocated to the New York City area around 1848 to design and superintend the construction of the Brooklyn Gas Light Company's works near the East River. In addition to his work at the Brooklyn Clay Retort, Brick was also for many years the engineer and a director of the Brooklyn Gas Light Company. His engineering projects also included the first gas works in Buffalo and the city water distribution system in Savannah, Georgia.

It appears that Brick established the Brooklyn Clay Retort and Fire Brick Works, first known as J.K. Brick & Company, to provide the materials needed for gas works construction. In fact, the Brooklyn Clay Retort and Fire Brick Works may have been the first in the United States to produce fire-clay retorts.<sup>14</sup> Brick owned fire clay deposits near Sayreville in Middlesex County, New Jersey, from which raw materials were shipped via the Raritan River directly to his works on the Erie Basin in Red Hook, Brooklyn. The firm was soon producing a full line of fire bricks and clay retorts. By 1860 it provided retorts for the nearby gas works of Harlem, Syracuse, and Hempstead. The company also entered the European market, having sold retorts to the gas works in Genoa and Trieste, Italy.<sup>15</sup>

After Brick's death in 1867, the company was operated as a co-partnership by Edward D. White, a prominent businessman in Brooklyn and a director of the Nassau Gas Light Company, who had previously joined the firm, and Julia Brick, the widow of the founder. Around that time the company became known as the Brooklyn Clay Retort and Fire Brick Works. In 1877 Ira N. Stanley, a gas engineer, joined White in the management of the company. The works, which had "systematized" facilities, was, nonetheless, essentially a non-mechanized operation in which a work force of over seventy laborers processed 5,000 tons of clay a year. In addition to retorts and fire bricks, the firm also offered ground fire clay and fire brick as tempering materials, fine sand, and later a "fire cement" for laying fire brick. By 1893, when the firm was incorporated, it had been known for several years as the Brooklyn Fire Brick Works.

#### Development and Design of the Complex<sup>16</sup>

Joseph Brick was involved with the early development of Red Hook as a manufacturing and shipping center. As early as 1852 he acquired several lots which afforded a 300-foot frontage on Van Dyke Street and extended through the block to Elizabeth (now Beard) Street, west of the intersection of Van Dyke and Richards Streets. On the south side of Van Dyke Street, a masonry building was erected by 1855, a two-story factory building that originally housed much of the brick and retort manufacturing operation. In the view of the building featured in the advertisements of the company in 1858-59,<sup>17</sup> three kiln chimneys rise through the gable roof of the structure, while the chimney for the boiler and steam engine stood on the south side of the building.

In 1857 and 1858 Brick purchased lots on the north side of Elizabeth (now Beard) Street, which were south of the eastern end of the factory building. On this site a structure was built which housed a steam engine and boiler rooms at the rear of the ground story; in the carpenter shop, located in the upper story, the patterns and molds required for the numerous shapes of fire brick were fabricated. In 1859 Brick acquired a large lot on the waterfront (southwest of Beard Street) and entered into an agreement with Beard and Robinson, developers of the Erie Basin, to construct a slip, half of which would be on Brick's property.<sup>18</sup> That same year, Brick acquired the site on the north side of Van Dyke Street where the storehouse (the term used for storage buildings in the mid-nineteenth century) was erected. Coal bins were located in the east bay of this building and a stable occupied the rear portion. The firm's property

extended north of the storehouse to Coffey Street. The lot to the west of the storehouse, 88 Van Dyke Street, was acquired in 1864 and within a short period of time a two-story office building (no longer standing) was built on it. A one-story brick building where gas retorts were produced (no longer standing) was erected to the east of the factory building, along Richards Street.

By the mid-1860s the facilities of the Brooklyn Clay Retort and Fire Brick Works had been fully developed in a manner characteristic of mid- and late-nineteenth century industrial complexes. The works -- as such facilities were known -- consisted of a number of buildings, each housing a limited number of industrial processes, enclosed within a fenced yard.<sup>19</sup> Such facilities often consisted of two-story structures in which kilns and brick-making machinery were located. In an attempt to make the facility as fireproof as possible, the ground floors of the buildings were paved with stone flagging. During the late nineteenth century, a one-story brick building (not included in this designation), used as a clay mixing room, was built west of the engine room and carpenter shop building.

The extent to which the Red Hook works was characteristic of operations of its kind, however, is difficult to determine since, of the several fire brick works located in the New Jersey-New York area during the late nineteenth century, the buildings of the Brooklyn Clay Retort and Fire Bricks Works are the only ones still standing.

Within the context of surviving mid-nineteenth century industrial buildings in New York City, the storehouse building, constructed using a local schist, is exceptional.<sup>20</sup> From the 1830s through the 1850s, local field stone, often gray dolomite or quartzite, was used frequently in the construction of textile mill buildings and other industrial buildings in the New England area, particularly in Rhode Island and the Berkshires. Stone, however, was not typically used for New York City industrial buildings. Not until around the time of the Civil War, did brick emerge as the most economical, fire-resistant, and desirable material for mill and industrial building construction. It seems likely that Joseph Brick, an engineer by profession, both designed the storehouse, and oversaw its construction. The use of ashlar on the principal facades suggests that concern for appearance was an important factor in the choice of building materials.

The storehouse of the Brooklyn Clay Retort and Fire Brick Works (c.1859) has a basilica-like form which was often used for industrial shops during the mid- to late nineteenth century. For example, the buildings of the Lidgerwood Manufacturing Company

(late 1870s), at the corner of Coffey and Ferris Streets in Red Hook, are shops of this type, executed in brick, and there are several late-nineteenth-century brick industrial shops near the Gowanus Canal. The clerestory monitor first appeared on American textile mill buildings during the second decade of the nineteenth century as an improved means of lighting the top story of those structures.<sup>21</sup> This form became common in other types of industrial buildings, especially industrial workshops. Wood posts or cast-iron columns, which divided the interior into bays, supported the walls of the taller central bay. A bull's eye window in the upper portion of the end wall and skylights supplemented the clerestory lighting of the interior, often too deep to be effectively lit by windows. The storehouse of the fire brick works is an important surviving mid-nineteenth-century example of this industrial building type.

#### Subsequent History

The Brooklyn Fire Brick Works offered BROOKLYN, BROOKLYN S.M., BROOKLYNNO. 1, and THERMITE fire brick, as well as FIRESEAL, FIRESEAL JR., and FIRE CONCRETE high temperature mortars and fire clay during its last years of production.<sup>22</sup> At some point the rear wall and roof of the rear section of the storehouse were altered. During the early 1930s, the American Molasses Company began using the slip and the buildings of the firm. In 1948 the factory building was altered for the storage of sugar; windows were blocked and a concrete floor was poured. Internal alterations made to the engine house and carpentry shop building in 1961 are reflected in the addition of doorways at the first story. A new building was built on the site of the clay retort factory at the eastern end of the block in 1982 (not included in this designation). In 1965, under the provisions of a long-term lease, the Sucrest Corporation acquired control of the property, which was vacant from 1985-1991. The building was restored in 1995-1996. All of the windows, including those of the monitor and the bull's eye window were replaced, the exterior masonry was repointed, the roof was repaired and the back wall, which had collapsed, was replaced. The owner installed a wrought iron fence around the property. The building is currently being used for produce distribution and glass manufacturing.

#### Description

The storehouse, 76-86 Van Dyke Street at the corner of Richards Street, is a one-story, 125-foot square structure. It is built mostly of roughly-coursed dark gray rubble schist although the non-historic rear

wall is brick. Interior cast-iron columns support the central third of the building, which rises above the side bays and breaks the broad expanse of gable roof. Non-historic windows in historic surrounds in the clerestory, skylights in the upper portion of the roof, and a bull's eye window with a red brick surround, centered in the upper wall of the central bay on Van Dyke Street, light the interior from above. Vehicular openings, with segmentally-arched brick heads and non-historic roll-down doors, give access to each bay of the Van Dyke Street facade and alternate with windows. Sandstone lintels and sills set off the windows in both street facades. The northwest side wall has no openings. The roof was repaired in 1995-

96 with roof rubber, and an air-conditioning unit is located on the roof.

Report prepared by  
Betsy H. Bradley, Research Department

Report edited by  
Marjorie Pearson, Director of Research  
Mary Beth Betts, Director of Research

#### NOTES

1. The factory building, engine room and carpentry shop building, storehouse and portions of the sidewalk and streetbed of Van Dyke Street between the buildings and the sidewalk and streetbed of Beard Street, south of 106-116 Beard Street, extending to the opposite curbline of The Brooklyn Clay Retort and Fire Brick Works (LP-1196) had been considered for designation at a public hearing held on July 8, 1980; at that time the Park Slope Civic Council's History and Landmarks Committee spoke in favor of designation. At the request of the owner's representative the hearing was continued and on September 9 and November 18, 1980, the Commission heard testimony from the Landmarks Committee of Community Board Six, Wids DeLaCour of the American Institute of Architects, and Margot Gayle, representing the Metropolitan Chapter of the Victorian Society of America, in favor of designation and from representatives of the owner opposing designation. At the September 11, 1990 hearing representatives of the holder of a long-term lease on the property requested that the hearing be continued. Two people spoke at the hearing in support of designation. The Beard Street Association submitted petitions, signed by over 100 residents of Red Hook, supporting the proposed designation and several local residents wrote to endorse designation. At the continued hearing on December 11, 1990 five residents of Red Hook spoke in favor of designation. The Commission received communications in support of the proposed designation from Brooklyn Borough President Howard Golden, City Council Member Stephen DiBrienza and Community Board Six. Congressman Stephen J. Solarz and Eileen C. Dugan, member of the Assembly of the State of New York, have also expressed favorable interest in the proposed action.
2. This section draws upon information in Herman Sherman, "Red Hook Place Names," Thesis (Brooklyn College, 1965); Henry R. Stiles, Ed., *The Civil, Political, Professional and Ecclesiastical History and Commercial and Industrial Record of the County of Kings and the City of Brooklyn, New York from 1683 to 1884* (New York: W.W. Munsell & Co., 1884); William Perris, *Maps of the City of Brooklyn* (New York, 1855) and *Insurance Maps of the Warehouses, Etc. in Brooklyn from the Navy Yard to Partition Street* (New York: Perris & Browne, 1860-1861); *Insurance Maps, 1877, 1904, and 1915* (New York: Sanborn Map & Publishing Co.); and Brooklyn City Directories (J. Lain & Co.).
3. This section is based on descriptions of fire brick and the clay industry by Heinrich Ries including: "Technology of the Clay Industry" in *Clay* (Washington, D. C.: Government Printing Office, 1895); *Clays -- Their Occurrence, Properties, and Uses* (New York: John Wiley & Sons, 1906); Heinrich Ries and Henry B. Kummel, *The Clays and Clay Industry of New Jersey*, vol. 6 of the *Final Report of the State Geologist* (Trenton: Geological Survey of New Jersey, 1904); and Heinrich Ries and Henry Leighton, *The History of the Clay-Working Industry in the United States* (New York: John Wiley & Sons, 1909). *The Illustrated Catalog of the Queens Run Fire Brick Company* (Lock Haven, Pennsylvania, 1887); *Circular of the Troy Fire Brick Works, 1861*; and *Catalog of the Fiske & Coleman Fire Bricks Works* (Boston, 1878), all in the Architecture and Fine Arts Library, Columbia University, New York City and "Report on the Clay Deposits of Woodbridge, South Amboy and Other Places in New Jersey," *Geological Survey of New Jersey* (Trenton, 1878), 311-313

were also consulted.

4. Ries and Leighton, 138-139.
5. The New York Fire Brick and Clay Retort Works was located at Goerck and Delancy Streets and the Manhattan Fire Brick and Enameled Clay Retort Works, described in *New York Illustrated* (New York: D. Appleton & Co., 1876), 69, was located on East 15th Street near the East River. Henry Maurer learned the fire clay manufacturing business in his uncle's firm, Maurer & Weber, and then established his own firm which relocated from New York and Staten Island to Maurer, New Jersey, in 1874.
6. E.H. Van Schoick notes that there were twenty-seven relatively standard shapes in addition to the circle brick and the standard nine-inch straight in his "Notes on the Design of Fire Clay Shapes," *American Refractories Institute Technical Bulletin No. 16.*, October, 1927.
7. For descriptions of brick making, see *Bricks and Brick Making, An Historical, Technical and Descriptive Sketch* (Birmingham: Hall & English, 1878); Charles Thomas Davis, *A Practical Treatise on the Manufacture of Bricks, Tiles, Terra-Cotta, Etc.* (Philadelphia: Henry Carey Baird & Co., 1884 and 1895 editions); Benjamin Park, Ed. *Appleton's Cyclopaedia of Applied Mechanics* (New York: D. Appleton & Co., 1881) vol. 1. s.v. "Brick-Making Machinery," 243-260; and Ries's works.
8. This section draws upon information in Samuel Hughes, *Gas Works: their Construction and Arrangement and the Manufacture and Distribution of Coal Gas*, 7th ed. revised by William Richards, (London: Crosby, Lockwood & Co., 1886); Samuel Clegg, *A Practical Treatise on the Manufacture and Distribution of Coal-Gas* (London: John Weale, 4th ed., 1866); David Brownlee, "The Early History of the Coal Gas Process," *The Newcomen Society Transactions* 3 (1922-23), 57-68; and Benjamin Park, Ed. *Appleton's Cyclopaedia of Applied Mechanics*, (New York: D. Appleton & Co., 1881), vol. 1. s.v. "Gas, Illuminating, Apparatus for," 901-911; and J.W. Watson, "Gas and Gas-Making," *Harpers New Monthly Magazine* 26 (1862-63), 14-28.
9. Brownlee makes this point.
10. J. K. Brick & Co. advertisements, *American Gas-Light Journal* 1 (Dec. 1, 1859), 97 and 2 (July 2, 1960), 266. The retorts made in Brooklyn required support only at the ends (rather than along the entire length), thus exposing more of the retort surface to the flame of the furnace; this method provided savings, not only in materials and labor in installation, but also in the use of fuel. The Manhattan Gas Company's works is described by Watson, 20.
11. Hughes, 102.
12. *New York Illustrated*, 69 and Stiles, 806.
13. This section is based on descriptions of the company in Stiles, 806-807; *Half Century's Progress of the City of Brooklyn -- the City's Leading Manufacturers and Merchants* (New York: International Publishing Co., 1886), 96; *Industries and Wealth of Brooklyn* (New York: American Publishing & Engraving Co., 1890), 149; John [sic] K. Brick Obituary, *Mining and Petroleum Standard and American Gas-Light Journal* 9 (Aug., 16, 1867), 57; "Death of a Wealthy and Respected Citizen," *Brooklyn Daily Eagle*, Aug. 13, 1867, p. 2; and W. Woodford Clayton, Ed., *History of Union and Middlesex Counties, New Jersey, with Biographical Sketches of Many of Their Pioneers and Prominent Men* (Philadelphia: Everts & Peck, 1882), 857.
14. Stiles asserts that Brick introduced the fire clay retort, 807. Ries and Leighton state that "In New York the making of gas retorts commenced in 1854," 40, and "It is known definitely that gas-retorts, probably the first in America, were made in Brooklyn in 1854," 153. J.K. Brick & Company won medals, for the second time, for its fire brick, fire tile, and retorts at the 1856 American Institute exhibition (*Transactions of the American Institute* [New York, 1856], 130). However, Robert M. Baylies presents a counter claim in his *History of Richmond County, (Staten Island) New York, From its Discovery to the Present Time* (New York: L.E. Preston & Co., 1887), 73-733; he states that in 1860 after the B. Kreisler & Sons works was enlarged, the manufacture of clay gas retorts was introduced, and asserts that the Kreisler facility was the first place where gas retorts of clay were manufactured in America. This claim is repeated in *King's Handbook of New York* (Boston: Moses King, 1892), 880.
15. *American Gas-Light Journal* 1 (Mar., 1960), 168.

16. This section draws on Kings County, Office of the Register, Libers, Deeds and Conveyances; historic maps of Brooklyn; and Stiles.
17. The company's advertisement appeared in *The Brooklyn City Directory* (J. Lain & Co., 1859), opposite 416.
18. See Kings County, Office of the Register, Liber 504, pages 345 and 471 and Liber 686, page 279.
19. The facilities of the New York (Kreischer), Jersey City, and Philadelphia & Kensington fire brick and clay retort works were pictured in advertisements in *The American Gas Light Journal* and *Chemical Repertory* during the late 1860s. The Henry Maurer & Son works in New Jersey c.1880 are pictured in the firm's 1927 *Catalog of Refractory Fireclay Products*.
20. The use of stone ashlar in industrial building construction in New York City may have been less unusual during the ante-bellum period than the few remaining examples suggest. The use of stone in mill building construction is documented by William Harvey Pierson, Jr. in his "Industrial Architecture in the Berkshires," Ph.D. dissertation (Yale University, 1949), 155-156.
21. Pierson, 59-61.
22. The "BROOKLYN S.M." brand was registered from 1900 to 1922, the "BROOKLYN" brand from 1921 to 1927, and the "BROOKLYN NO. 1" brand from 1927-30. The company's products were listed in the 1935 *Directory of the Refractories Industry* issued by the American Refractories Institute, 26. Karl Gurcke includes brand names for the firm in his *Bricks and Brick Making -- A Handbook for Historical Archaeology* (Moscow: University of Idaho Press, 1987), 210.

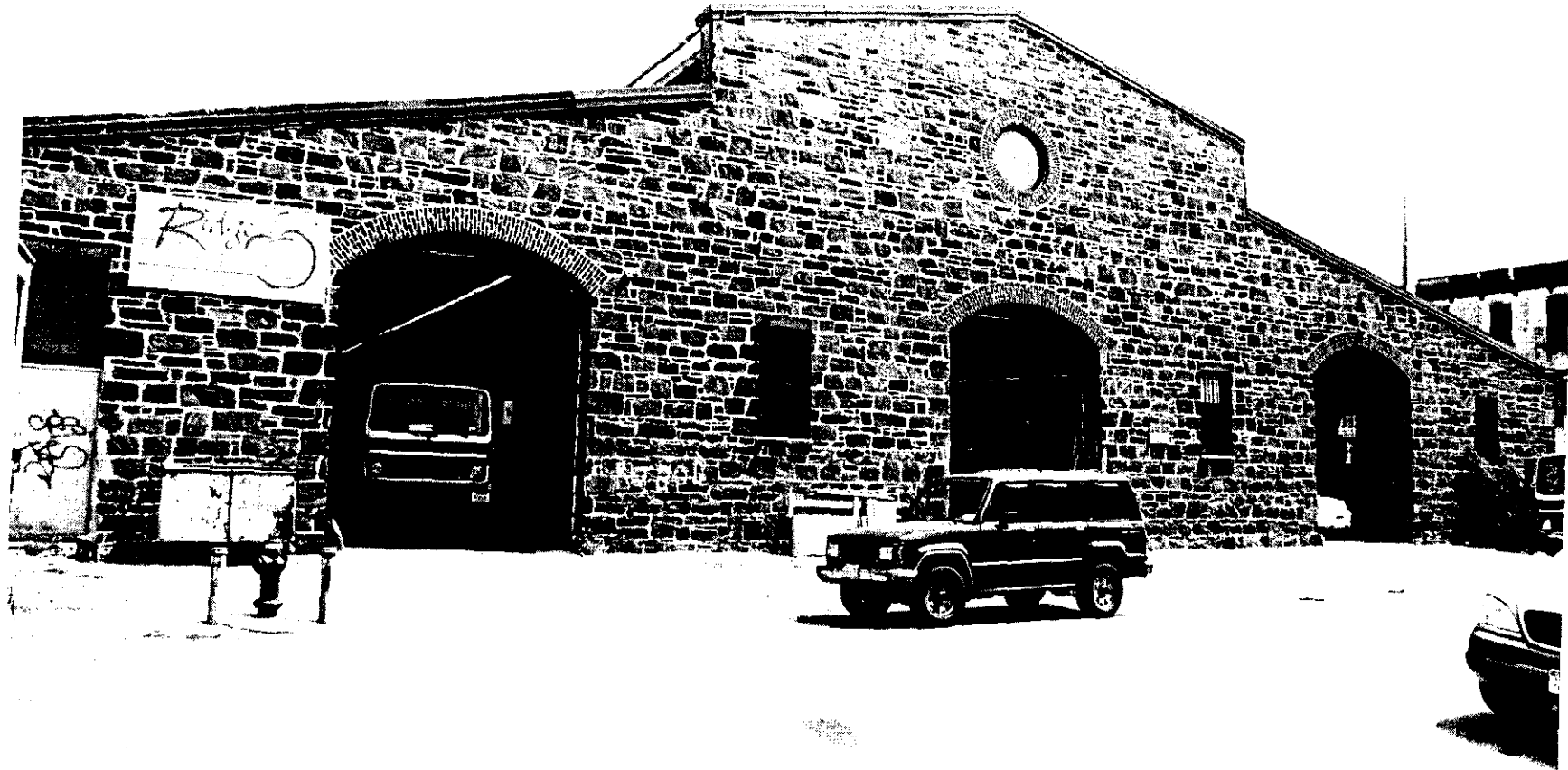


## FINDINGS AND DESIGNATION

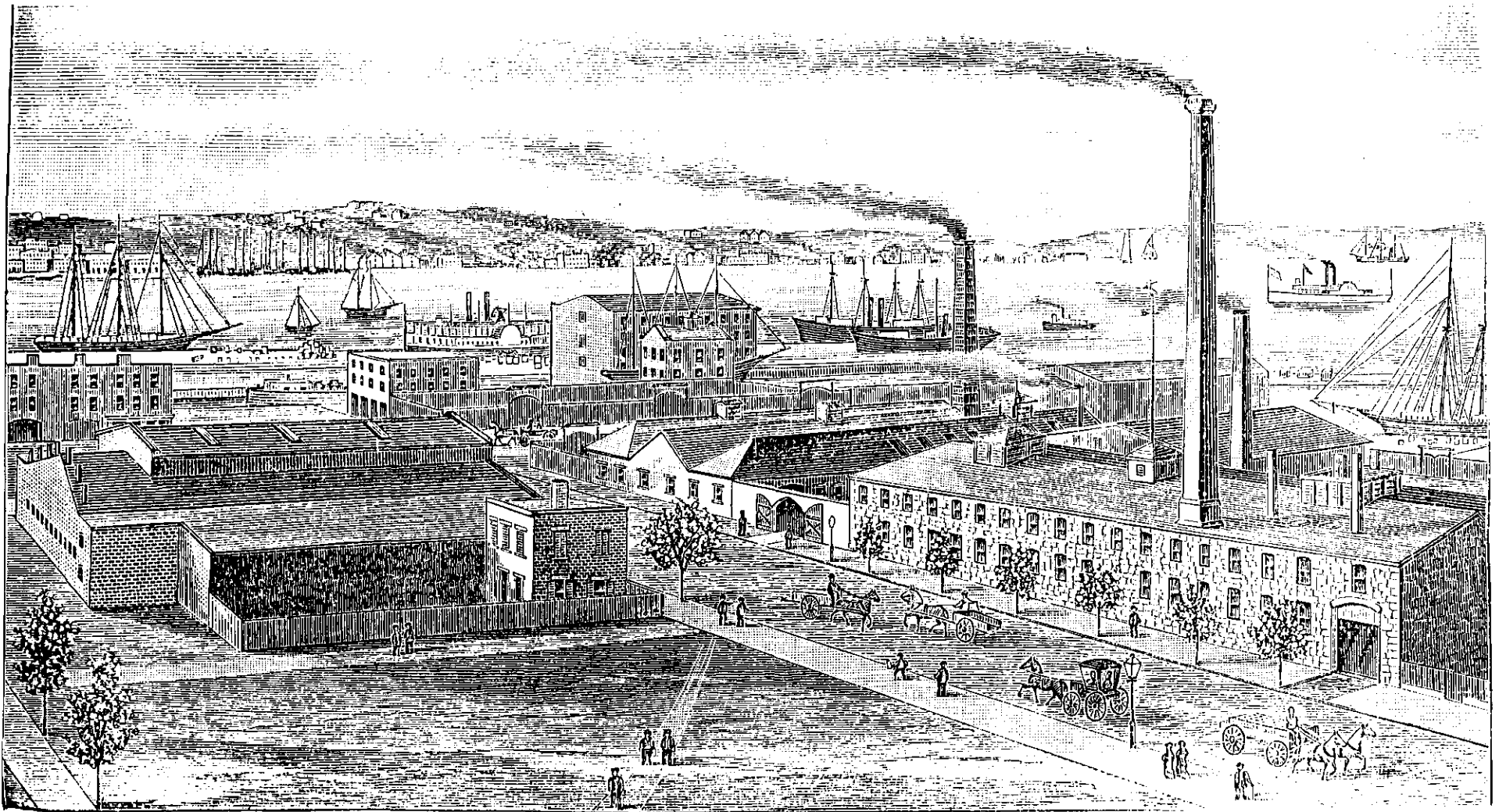
On the basis of a careful consideration of the history, the architecture, and other features of this building, the Landmarks Preservation Commission finds that the Brooklyn Clay Retort and Fire Brick Works Storehouse has a special character, special historical and aesthetic interest, and value as part of the development, heritage, and cultural characteristics of New York City.

The Commission further finds that, among its important qualities, the Brooklyn Clay Retort and Fire Brick Works Storehouse, constructed c. 1859, is a significant mid-nineteenth century industrial building and is part of a complex established during the first era of development of Red Hook for shipping and industry and advantageously located with access to a slip in the Erie Basin; that J.K. Brick & Company was founded by Joseph K. Brick in 1854 to manufacture products used in the production of illuminating gas; that Joseph Brick is credited with introducing the fire-clay retort in the United States and his firm may have been the first in this country to manufacture retorts of fire clay, the use of which made the production of illuminating gas economically feasible; that, as a manufacturer of fire brick, the company, which became known as the Brooklyn Clay Retort and Fire Brick Company, offered a full line of refractory bricks used in various industrial capacities including the lining of iron furnaces; that during the nineteenth century the New York - New Jersey area was one of the major fire brick manufacturing centers in the United States and that today the Brooklyn Clay Retort and Fire Brick works are the only extant buildings in the area associated with this once-significant industry; that the storehouse, probably designed by Brick, is particularly distinctive with main facades of roughly-cut and coursed ashlar of a local dark gray schist, detailed with brick and sandstone; that it has the distinctive basilica-like form of mid- and late nineteenth-century industrial workshops and, characteristic of such buildings, a clerestory of windows, skylights, and a bull's eye window in the Van Dyke Street facade light the interior from above and arched entrances correspond to the three-bay interior space.

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 Landmark the Brooklyn Clay Retort and Fire Brick Works Storehouse, Borough of Brooklyn and designates Tax Map Block 598, Lot 30, as its landmark site.



Brooklyn Clay Retort and Fire Brick Works Storehouse  
76-86 Van Dyke Street (aka 224-234 Richards Street)  
*Photo: Carl Forster*



Brooklyn Clay Retort and Fire Brick Works

Aerial View of Complex with Storehouse to the left (please note rendering of water in relationship to the streets is not accurate)

Source: Henry R. Stiles, Ed., *The Civil, Political, Professional and Ecclesiastical History and Commercial and Industrial Record of the County of Kings and the City of Brooklyn* (1884), p. 806



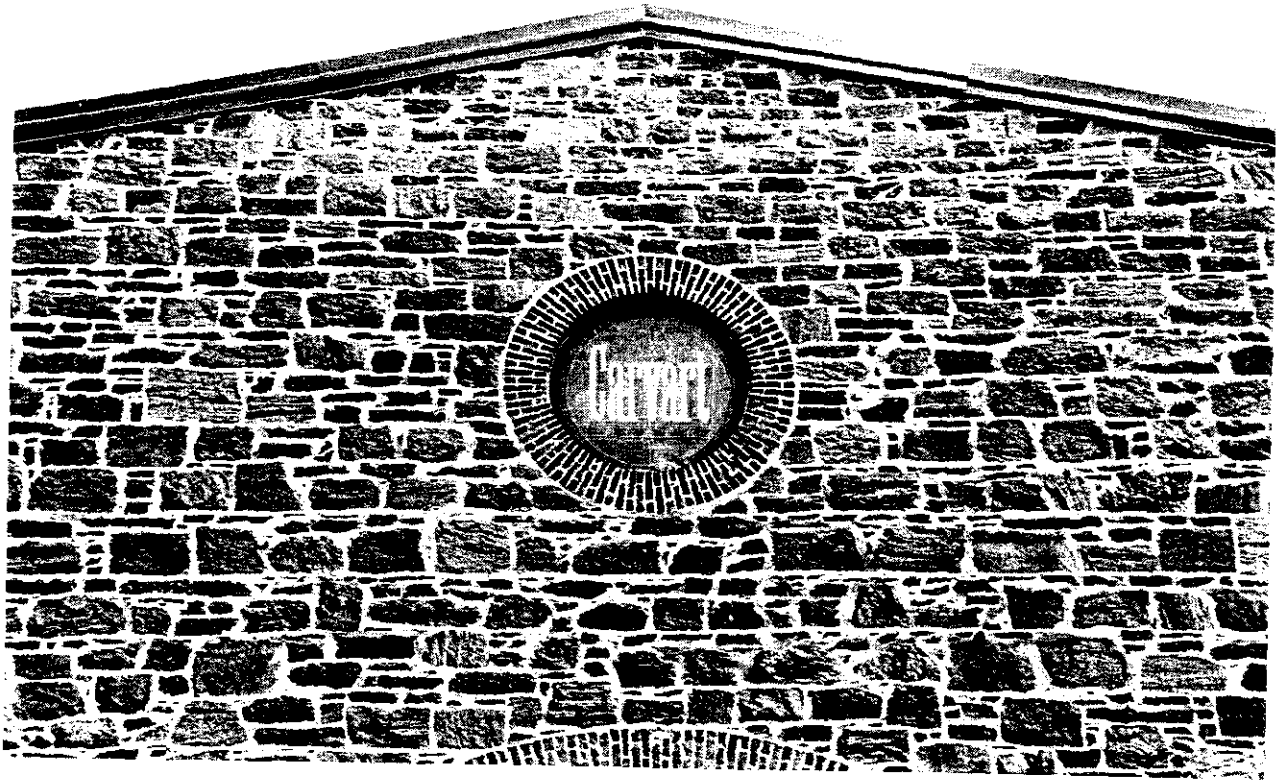
Van Dyke and Richards Streets Facades

Brooklyn Clay Retort and Fire Brick Works Storehouse

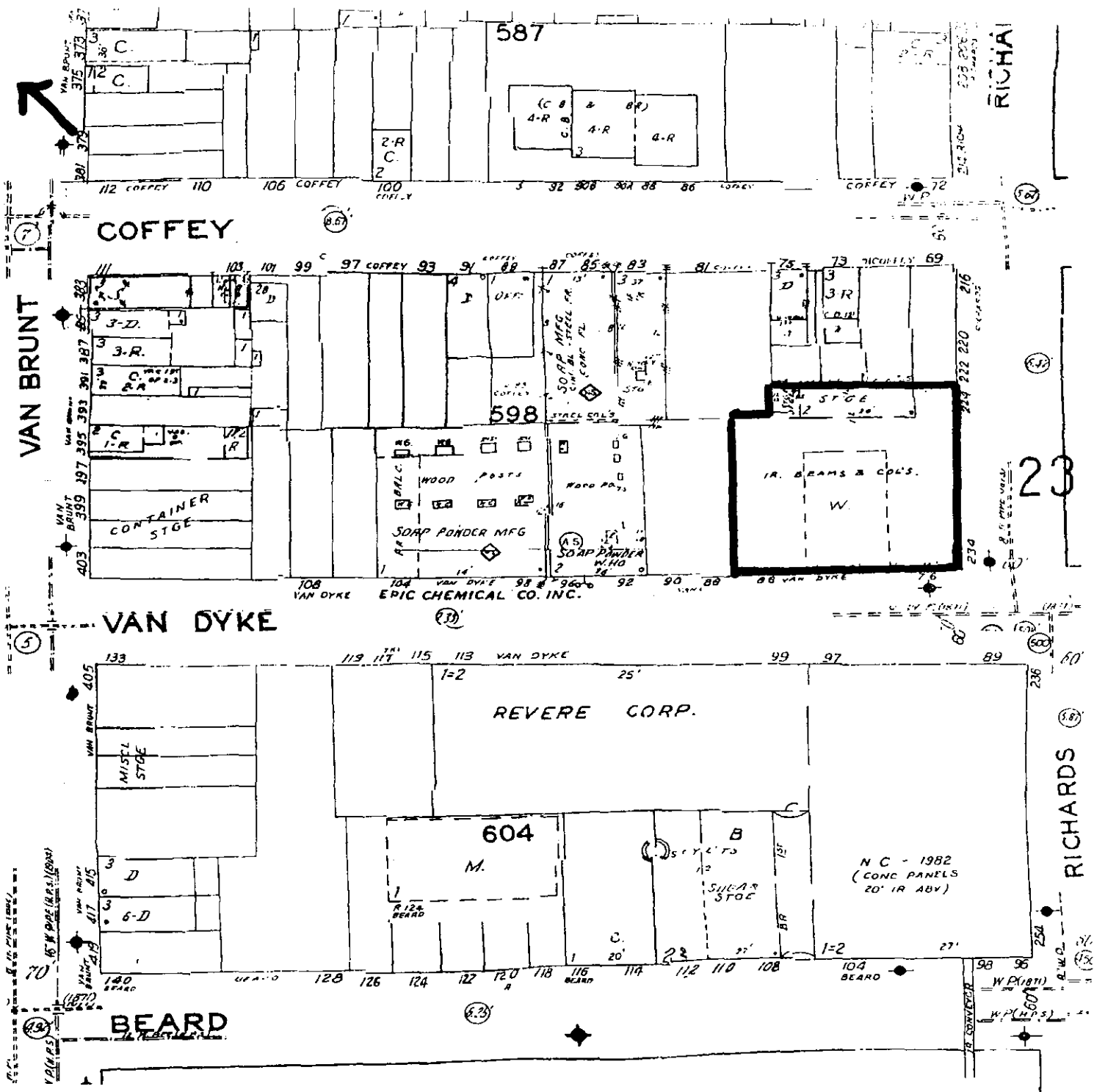
Richards Street Facade



*Photos: Carl Forster*



Van Dyke Street Bull's Eye Window Detail  
Brooklyn Clay Retort and Fire Brick Works Storehouse  
*Photo: Carl Forster*

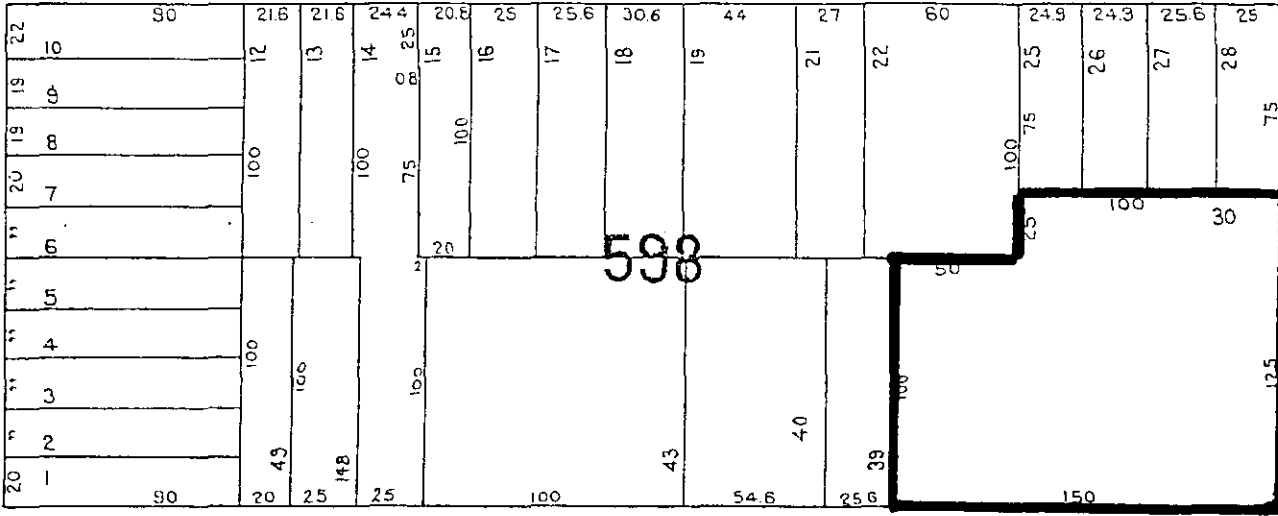


Brooklyn Clay Retort and Fire Brick Works Storehouse  
 76-86 Van Dyke Street (aka 224-234 Richards Street), Brooklyn  
 Landmark Site: Borough of Brooklyn Tax Map Block 598, Lot 30  
 Source: *Sanborn Building & Property Atlas*, 2000-01, Brooklyn, NY vol. 1, pl. 19



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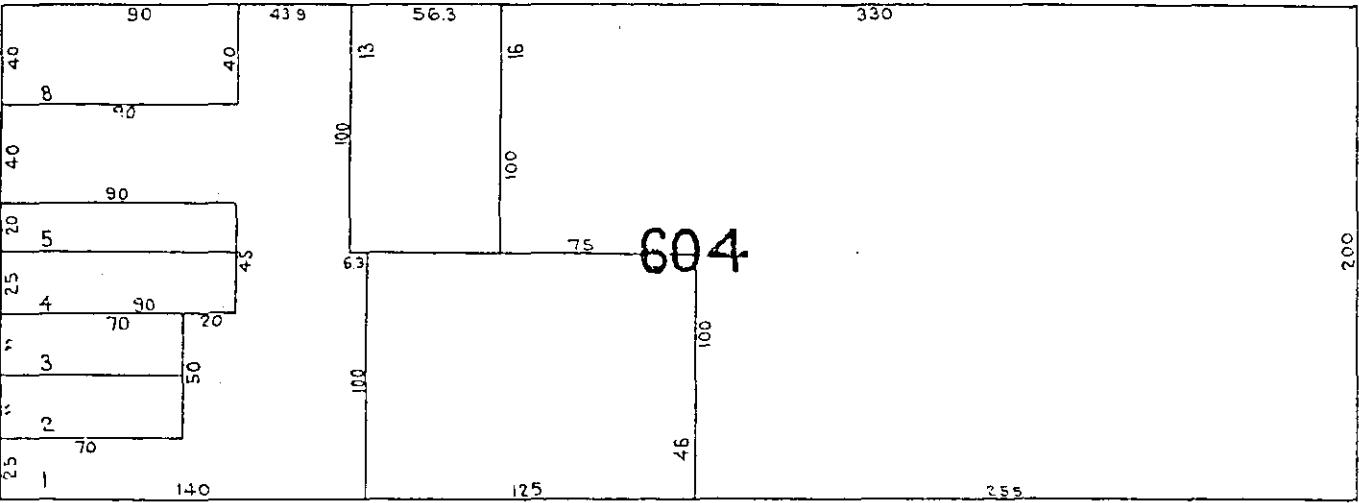
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Brooklyn Clay Retort and Fire Brick Works Storehouse  
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