

NOVEMBER 1951

# FRESH KILLS

 = 100 ACRES OF PARKS  
ARTERIALS PUBLIC WORKS

 LAND  
FILL

 = 100 ACRES FOR PRIVATE  
DEVELOPMENT

**CITY OF NEW YORK**

**BOROUGH PRESIDENT OF RICHMOND  
CONSTRUCTION CO-ORDINATOR  
DEPARTMENT OF SANITATION  
DEPARTMENT OF PARKS**

# REPORT TO MAYOR IMPELLITTERI AND THE BOARD OF ESTIMATE

## BOROUGH PRESIDENT OF RICHMOND

CORNELIUS A. HALL, President

## CITY CONSTRUCTION CO-ORDINATOR

ROBERT MOSES, Co-Ordinator

## DEPARTMENT OF SANITATION

ANDREW W. MULRAIN, Commissioner

## DEPARTMENT OF PARKS

ROBERT MOSES, Commissioner

## FRESH KILLS LAND-FILL

During the last three hundred years, land-fill operations have played an increasingly important part in the development of the area now comprising Greater New York. Early in the City's history, as population, trade and commerce grew, the shelving shores of lower Manhattan were raised and extended to provide wharves at deep water for ocean-going vessels and additional space for adjacent warehouses.

Under the economic pressures caused by this steady growth, swamps, ponds and streams in the interior of the Island were filled, so that new streets and building sites could be created and unsightly

and unsanitary waste lands made useful and profitable to match rising land values in surrounding districts. As the development of Brooklyn, Queens and the Bronx quickened, similar filling operations were undertaken there too, the process of making usable land being stimulated by the need of dumping space for material from demolished buildings, subway and cellar excavations, garbage collections, and other refuse of an expanding city.

For many years prior to 1934, however, more than one-half of New York City's refuse and garbage was dumped at sea. In that year, the U. S. Supreme Court handed down a decision that such



dumping created a public nuisance by littering the Long Island and New Jersey coasts and polluting off-shore waters. The Court ordered that the practice of dumping at sea be abandoned.

In the absence of adequate, modern, efficient incinerators, the City was forced to dispose of most of its refuse by land-fill methods within the city limits. The result was the establishment or expansion of vast and poorly controlled dumps which became malodorous, smoking, insect- and rat-infested nuisances whose existence was made known for miles with each shifting wind. Notorious examples of these conditions were the mountainous dumps at Corona in Queens and Riker's Island in the East River.

Finally, after vigorous and continued complaints by nearby residents, civic organizations, newspapers and the more farsighted city officials, steps were taken to end these old-style, unsanitary dumping operations. The Corona dump became the site of the 1939 World's Fair and the great piles of refuse were used to grade the remaining unfilled portions of the Flushing Meadow. This fill formed the base for the development of Flushing Meadow Park, temporary home of the United Nations General Assembly, gradually but steadily taking form as one of the City's most valuable central recreational developments. Similarly, the smoking hills of Riker's Island were lowered to provide fill for the construction of LaGuardia Airport, and the refuse remaining at the Island was regraded and covered. The extensive farm gardens of the City Penitentiary and a flourishing plant nursery of the Park Department now occupy the major part of the former Riker's Island dump.

War-time shortages of construction materials and manpower, and the reluctance of the City to spend the large sums necessary for new incinerators, forced the Department of Sanitation to continue waste disposal on low-lying lands, both public and private, but under increasingly improved and effective conditions designed to keep the operations inoffensive and nuisance-free. Since 1948, all such projects, with two exceptions, have been confined to public lands where public funds can be used for proper planning and equipment, clean cover material and adequate supervision. Through the cooperation of the Departments of Parks and Sanitation, outstanding examples of the permanent benefits derived from these improved methods of utilizing sanitation land-fill are now to be found in Marine Park, Brooklyn; Spring Creek Park, Queens; Great Kills Park, Richmond; and Ferry Point Park in the Bronx, where great areas of former swamp lands are being prepared for future large-scale recreation.

Important as these projects are, they are overshadowed by one of the world's largest sanitary land-fill operations at Fresh Kills, Staten Island. This reclamation work covers an area of 2,741 acres, mostly salt marsh, where approximately 6,000,000 cubic yards of refuse, household ashes and incinerator residue are being deposited annually. After settlement, displacement and compaction this produces about 2,500,000 cubic yards of fill. Upon the completion of the City's program of incinerator construction in about 1960, there will remain the problem of disposing of about 2,300,000 tons of coal ash and incinerator residue annually. About 60% of the material being deposited in Fresh Kills is collected in Manhattan and the remainder from northwest Brooklyn. No land suitable for sanitary land-fill operations is available in these sections of the City and the collected material must be carried to waterfront loading stations, placed in barges and towed to Fresh Kills. The life of the Fresh Kills project will be affected by the progress of the incinerator construction program. It is presently estimated that Fresh Kills will not be completely filled and finished until 1968.

Despite the fears of local civic organizations and neighboring residents prior to the start of the Fresh Kills undertaking, much praise and but few complaints have been heard in the three years the work has actually been under way. This is the result of rigid, undeviating compliance with the Sanitary Code of the City of New York and the plans of the Park Department and Borough President, with the addition of new techniques developed by engineers of the Department of Sanitation.

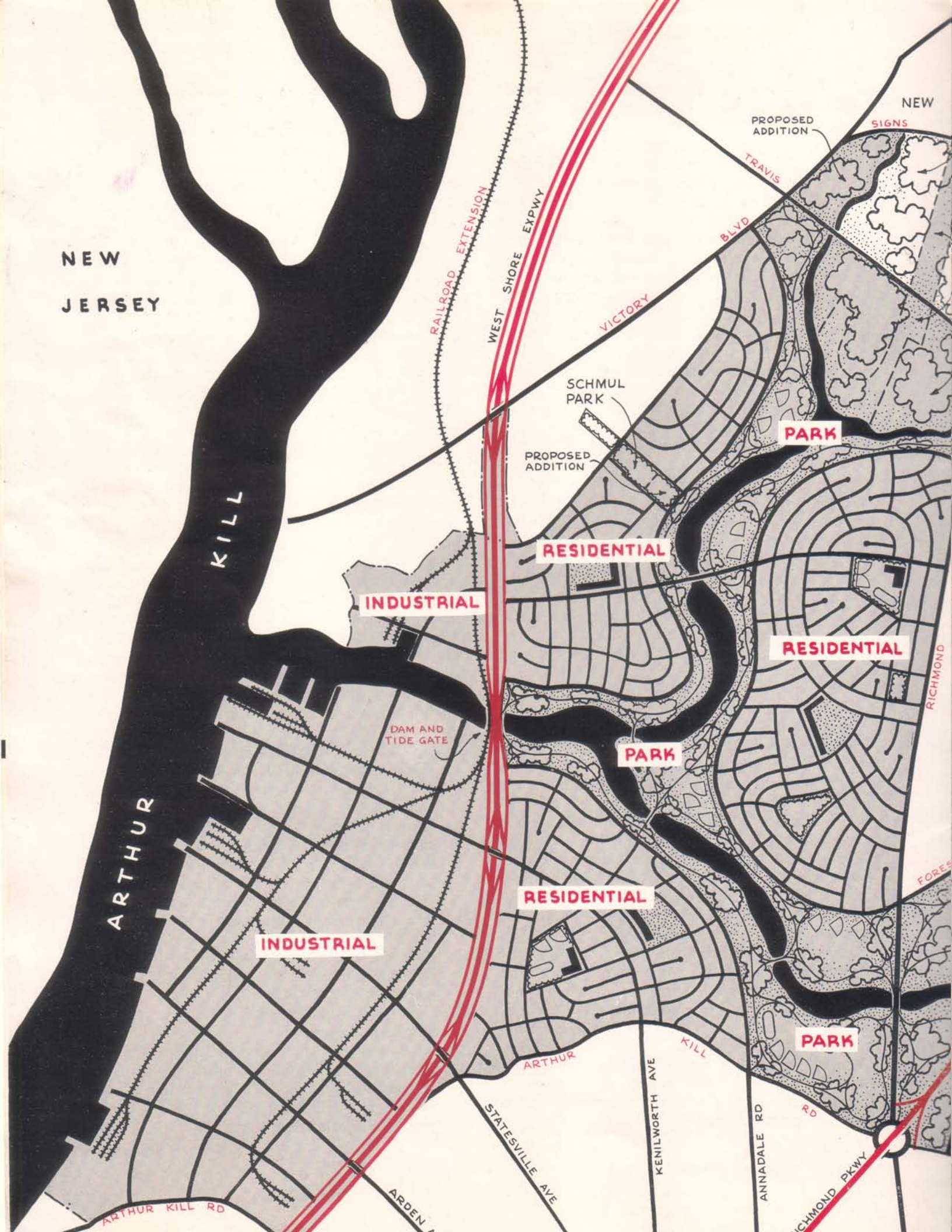
The Sanitary Code governing land-fills requires:

1. Operations planned as an engineering project, with general supervision by a sanitary engineer.
2. Face of fill kept narrow to expose minimum area of refuse.
3. Prompt coverage of exposed surfaces, and complete coverage of surface and face of fill at close of each day's operations.
4. Sufficient standby equipment to prevent delays in covering fill.
5. Bulky material likely to harbor rats not used for final surface or side slopes but promptly incorporated within the fill.
6. Final cover for surface and side slopes twenty-four inches deep.
7. Sand and gravel filled ditch at the toe of boundary side slopes of finished fill, to prevent crumbling of the toe with consequent exposure of waste material and to obviate puddles by absorbing seepage.

*Continued on page 4*



NEW  
JERSEY



KILL

ARTHUR

INDUSTRIAL

RESIDENTIAL

PARK

RESIDENTIAL

PARK

RESIDENTIAL

PARK

INDUSTRIAL

ARTHUR

STATESVILLE AVE

KENILWORTH AVE

ANNADALE RD

RD

RICHMOND PKWY

ARDEN

ARTHUR KILL RD

RAILROAD EXTENSION

WEST SHORE EXPWY

VICTORY

BLVD

TRAVIS

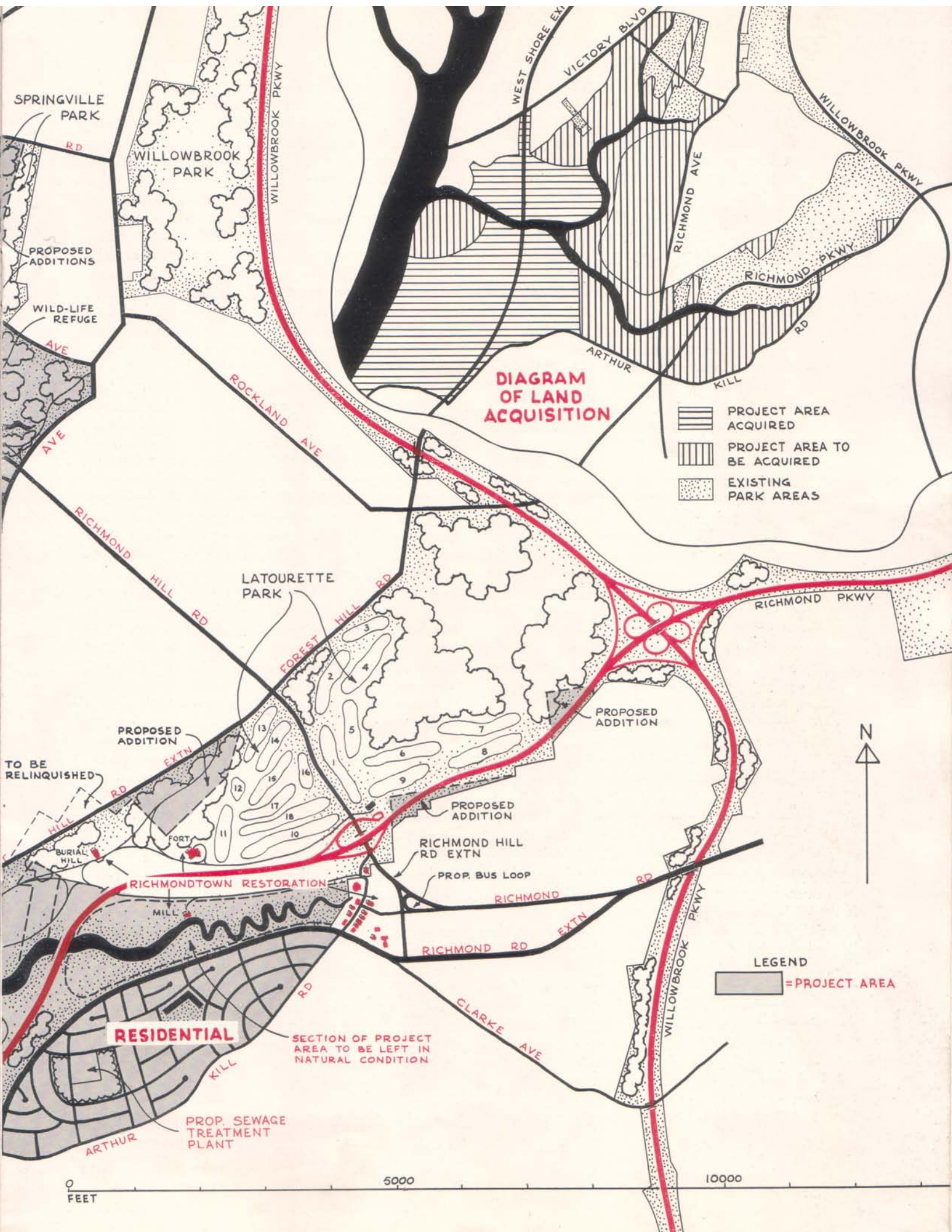
PROPOSED  
ADDITION

NEW  
SIGNS

RICHMOND

FOREST







8. Exposed waste material sprayed, when necessary, to allay dust.
9. Layers of refuse not to exceed fifteen feet in depth after initial compacting. Deeper fills carried on in stages.
10. Snow fences to control blowing of papers.
11. Water under pressure available for fire fighting. Scavengers supervised.
12. Collections of surface water drained, filled or sprayed with chemicals to prevent disagreeable odors and the breeding of mosquitoes.
13. Waste material prevented from floating into open water.
14. Inspection for and control of rodents maintained until fills are stabilized.
15. Maintenance program continued until fills are stabilized to insure prompt repair of cracks, depressions and erosion.

In addition to these measures, other precautions peculiar to this site are required:

1. As a precaution against mud waves into the adjoining streams from the newly placed overburden, the toe of slope of the refuse bank is placed at least 35 feet from edge of stream and the slope is limited to one on three.
2. Special drainage ditches and culverts are built not only to intercept existing drainage channels subjects to filling, but also for surface drainage from the newly created filled areas.
3. Some filling is made in single stages to depths greater than 15 feet in order to conserve cover material now available in limited quantities.
4. Floating booms are made to surround continuously the barge unloading so as to confine the refuse dropped inadvertently into the water during the unloading operation. This refuse is skimmed off periodically to avoid littering the main stream.

At Fresh Kills, all but the small quantity of refuse originating on Staten Island arrives by barge at one of the two unloading plants where it is transferred to tractor-drawn wagon trains. Material is dumped by the wagons at the working face of the fill where it is then pushed down the bank by bulldozers. The continual travel of the heavy wagon trains and bulldozers serves to compact the fill. The completed fill measures from fifteen to thirty-five feet in depth. The refuse deposited compacts to about 40% of its original volume. Some of this reduction may be due to settlement of the marshy foundation and the gradual displacement of water from mud voids.

Before covering, the refuse is sprayed with a larvicide for insect and dust control. A layer of

clean native sand and gravel is placed upon the completed bank as soon as possible, and in any event at the close of each day's operations. The tightly compressed material cannot harbor rats, the cover prevents them from burrowing, and the insecticide and cover reduce the danger of odor and insect nuisances. It is intended eventually to cover the completed fill with a two-foot layer of clean earth now available in sufficient quantities on the site if used frugally. The completed surface is finished generally to a 2% slope to provide proper drainage, necessary ditches are dug, and culverts and drains installed. Topographical layouts and drawings showing the grades, drains and sequence of operations are prepared in advance and adhered to during operations.

The Fresh Kills project extends along the east shore of Arthur Kill opposite New Jersey for approximately one and two-thirds miles, and includes most of the undeveloped area within the limits of Arthur Kill Road, Old Mill Road, Richmond Avenue, Travis Avenue and the eastern edge of the community of Travis. The fill boundaries exclude certain park lands and private properties to be preserved in their present condition, but include other areas for proper drainage along the borders, to facilitate operations or round out property lines of existing parks. Twelve hundred thirty-six acres, or a little less than half of the total property involved, has been acquired by the City. The balance of the property, approximately 1,505 acres with an assessed value of \$1,391,475, will be acquired next year.

Great Fresh Kills and its two main branches which traverse the fill are navigable waters under the jurisdiction of the Department of the Army. The West Shore Expressway, preliminary studies for which are now being prepared by the engineering firm of Howard, Needles, Tammen & Bergendoff, roughly parallels Arthur Kill and connects Richmond Parkway at Outerbridge Crossing with proposed Clove Lakes Expressway near Goethals Bridge. This Expressway will cross Fresh Kills, and previous proposals provided for a very expensive high-level bascule bridge to carry this artery over the Kills. The present plan, however, is much more economical. It will close Fresh Kills to navigation above the point of crossing by the West Shore Expressway. This can be done only if the City acquires title to all lands fronting on presently navigable waters above the mouth of Great Fresh Kills. Once this property is acquired it will be possible to close the Kills to navigation and to build a tide gate and dam on which the West Shore Expressway and the Railroad will cross. The cost of such a structure will be much less than the

*Continued on page 8*



UPPER  
BAY

N



NEW  
JERSEY

BAYONNE  
BRIDGE

TERR

RICHMOND

FOREST  
CLOVE

LAKES

EXPWY

BLVD

EXPWY

VICTORY  
TRAVIS AVE

LATOURETTE  
PARK

RICHMOND

RD

PKWY

BLVD

WILLOWBROOK

GREAT  
KILLS  
PARK

HYLAN

LOWER  
BAY

NARROWS  
BRIDGE

ARTHUR  
KILL

ARTHUR  
WEST

SHORE  
KILL

RICHMOND

OUTERBRIDGE  
CROSSING

MILES

5

10



NEW  
JERSEY

WEST SHORE  
EXPRESSWAY

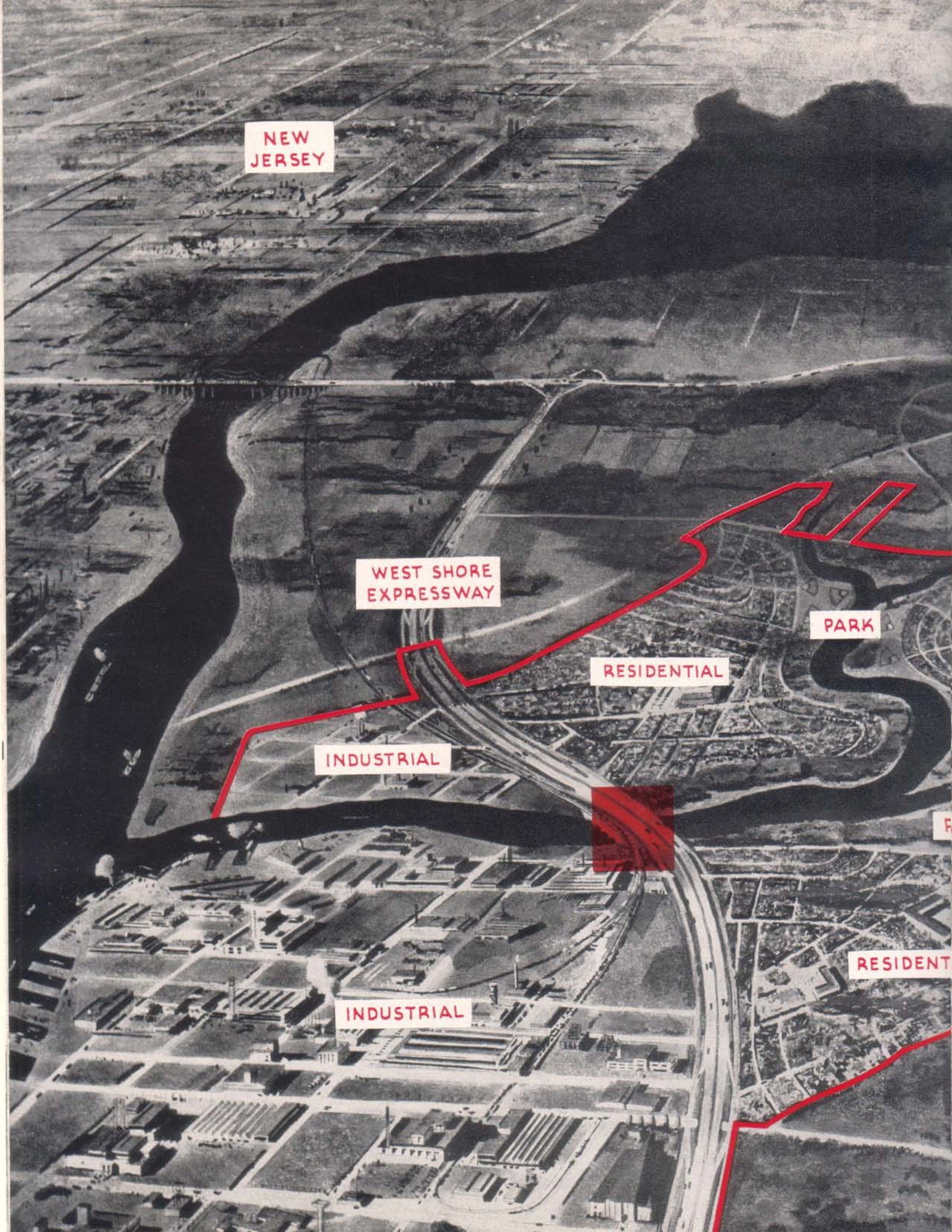
PARK

RESIDENTIAL

INDUSTRIAL

INDUSTRIAL

RESIDENT





MANHATTAN

RESIDENTIAL

LATOURETTE  
PARK

RICHMONDTOWN

RESIDENTIAL

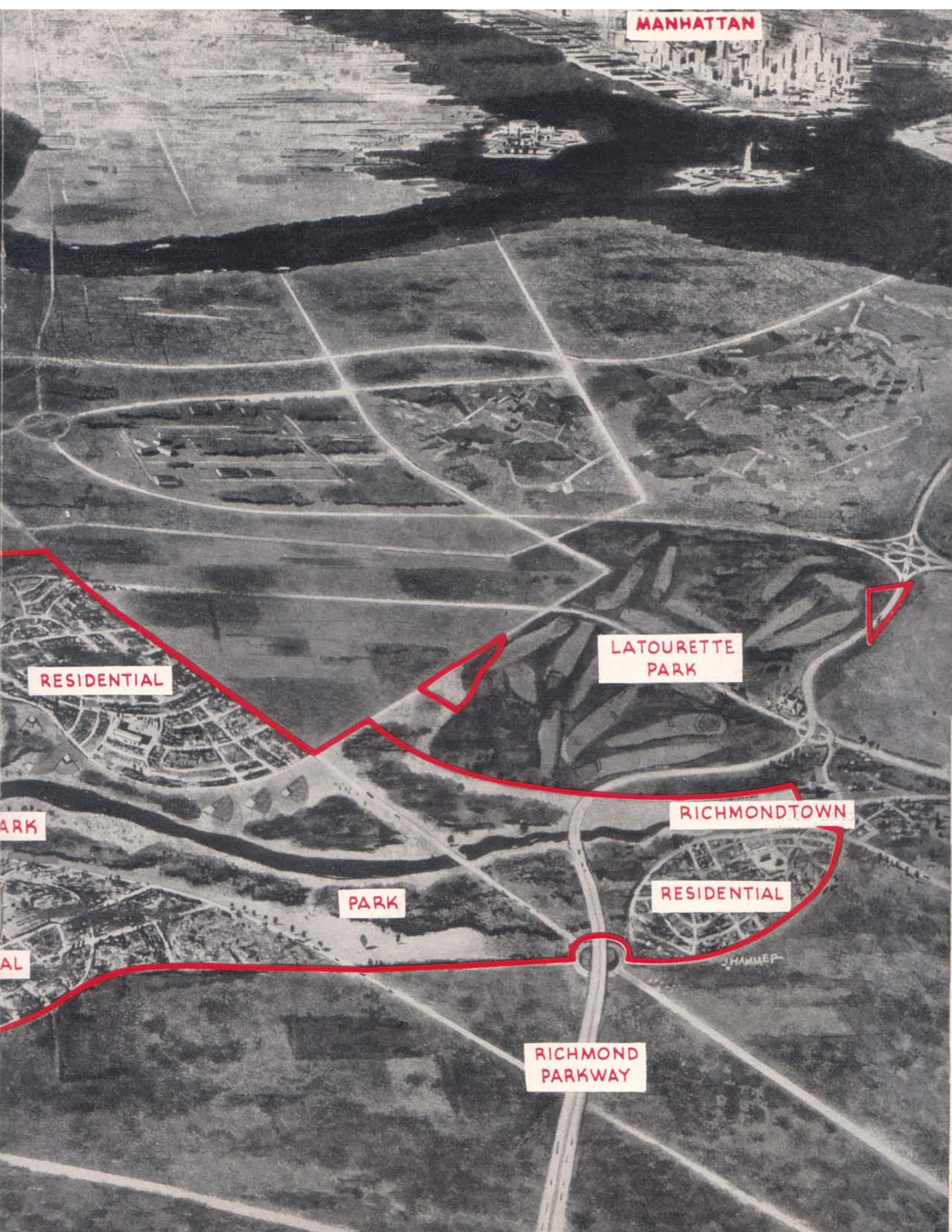
PARK

RICHMOND  
PARKWAY

ARK

AL

HAMMER





cost of the bridge previously proposed. Furthermore, it will make possible the extension of the Railroad to industrial property south of Fresh Kills between the West Shore Expressway and Arthur Kill. The Railroad could not be extended south of the Kills if a separate movable span permitting navigation were installed. Damming the Kills is also an essential part of the plan for the ultimate development of the reclaimed area inside the West Shore Expressway. The tide gate and dam will maintain a constant level slightly above mean high water and, since the creeks serve as the final storm water outfall for this section of Staten Island, they will become fresh water lakes admirably adapted to recreation. A constant water level will eliminate the unsightliness and unpleasant odors of muddy shores exposed at low tide and will add greatly to the values of the adjacent land by making it usable and desirable for park and residential purposes.

Schmul, New Springville and LaTourette Parks, comprising 790 acres of existing park property, lie partially within the limits of Fresh Kills. The creation of fresh-water, constant level lakes in this area will double the acreage devoted to recreation. The major part of this additional park area will lie entirely within the land-fill limits and will consist of a continuous belt of park lands, varying in width and bordering the waterways on both banks. The property between these park belts and the boundaries of the Fresh Kills project will eventually be sold by the City, after fill operations are completed, and will be returned to the tax rolls for residential and commercial development. Preliminary zoning studies for the project anticipate a total area of approximately 1,068 acres restricted to residential use, 45 acres set aside for retail use, 18 acres zoned for business, and 875 acres of unrestricted industrial and commercial area between the West Shore Expressway and Arthur Kill.

The land area in the park additions will total 575 acres and the new lakes under park jurisdiction will approximate 160 acres. The proposed park belts will provide for baseball, softball and other organized sports, playgrounds, picnicking, boating and fishing. Pedestrian bridges will cross the streams at convenient points to provide easy circulation throughout a system of tree-shaded paths along the water's edge. Ample space will be available for bicycle and bridle paths. The project includes a small addition to Schmul Park so that residents of Travis will have a connecting corridor to the varied facilities of the new Fresh Kills park system.

New Springville Park with its fine old woodlands

is at present divided into two almost equal parts by a long narrow strip of privately owned cultivated land. This property will be made part of the park and additional purchases will be made to extend the park boundaries west to Victory Boulevard. There is an existing bird sanctuary in New Springville Park south of Travis Avenue and it is planned to enlarge this to include all the park area between Travis Avenue and the fork of Main and Springville Creeks in a protected wild-life refuge.

Within the section of Fresh Kills, which includes the southern part of LaTourette Park and extends along Arthur Kill Road from Richmond Avenue to the Town of Richmond, fill operations will be severely limited and will require greater care in execution. This section contains features of historic and scenic interest which should be preserved, as far as is practicable, in the conditions which have prevailed for more than two and a half centuries.

Fill operations in this portion of the project will be divided into two parts by the right of way of the proposed Richmond Parkway. This parkway connects Outerbridge Crossing with Hylan Boulevard in the vicinity of Grasmere and provides connections via the proposed Willowbrook Parkway and Clove Lakes Expressway with the Goethals and Bayonne Bridges. Richmond Parkway enters the Fresh Kills project limits at the intersection of Richmond Avenue and Arthur Kill Road and proceeds northward through a proposed addition to LaTourette Park, across Richmond Creek and through the present LaTourette Park to Willowbrook Parkway. When all land for the Fresh Kills project has been acquired, the City will own the entire right of way of Richmond Parkway from Willowbrook Parkway to Arthur Kill Road.

One fill operation in this area will be bounded by the west side of Arthur Kill Road and by the proposed alignment of a new thoroughfare which will leave Arthur Kill Road in the vicinity of Getz Avenue and curve northeast to form an extension of Clarke Avenue, so planned as to by-pass and preserve the narrow streets in the heart of the old town of Richmond. The other operation will be in the triangle bounded by Richmond Parkway, Richmond Avenue and a proposed extension of Forest Hill Road. Intersected by Richmond Creek and Ketchum's Brook, a tributary stream, much of this low and marshy tract already forms a part of LaTourette Park. The remainder will be incorporated in the future park development. The Department of Parks will assist the Department of Sanitation in the preparation of grading studies and in the supervision of operations in this area so that the existing features of natural and historic interest

*Continued on page 12*



COVERED BARGE

LOADING ATHEY WAGONS

ATHEY WAGONS BEING DUMPED



REFUSE FROM VARIOUS SECTIONS OF NEW YORK IS LOADED ON BARGES AT CAREFULLY CONTROLLED LOADING STATIONS FOR TRANSPORTATION TO FRESH KILLS. AFTER COVERING, THE BARGES ARE TOWED BY TUGBOAT TO ONE OF THE TWO SCIENTIFICALLY DESIGNED PLANTS WHERE SPECIAL MACHINERY UNLOADS THE BARGES AND LOADS ATHEY WAGONS, BEST SUITED FOR CONTROLLED DUMPING. BULLDOZERS THEN SHAPE THE CONTOURS FOR THE DAILY SPRAYING AND THE DAILY PLACING OF THE RODENT AND INSECT PROOF COVER OF SAND AND CLAY. AS THE AREAS GROW IN SIZE A FINAL 24 INCH COVER OF EARTH PREPARES THE SITE FOR FUTURE FINAL DEVELOPMENT.

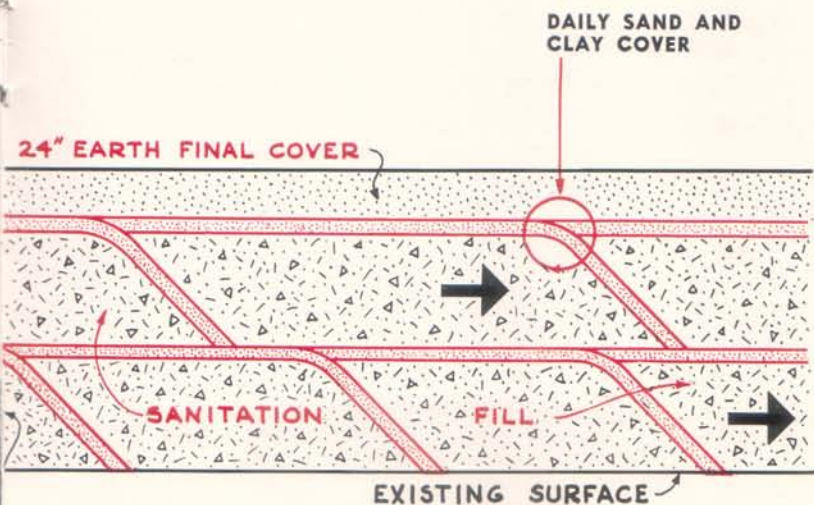
BULLDOZING



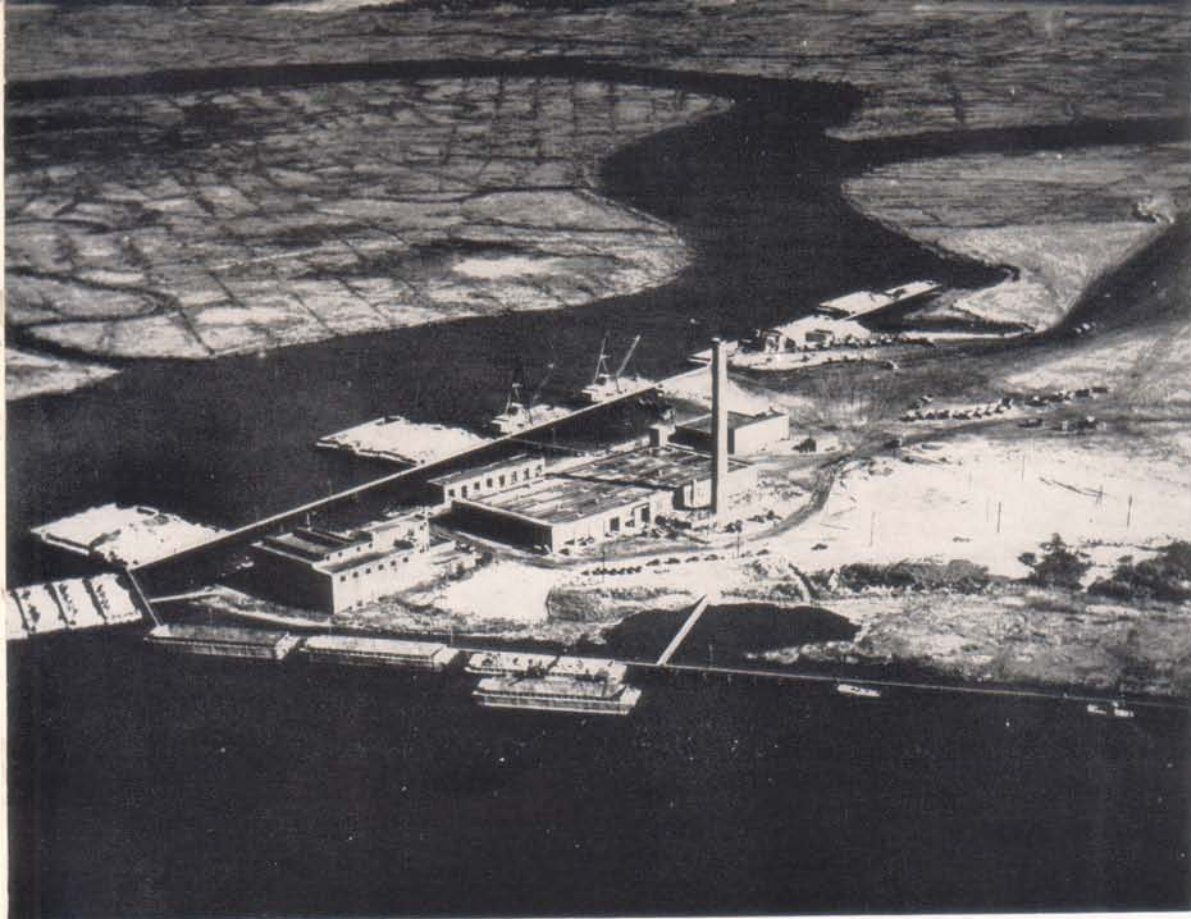
SPRAYING



COVERING







LOADING AND UNLOADING AT PLANT NUMBER ONE







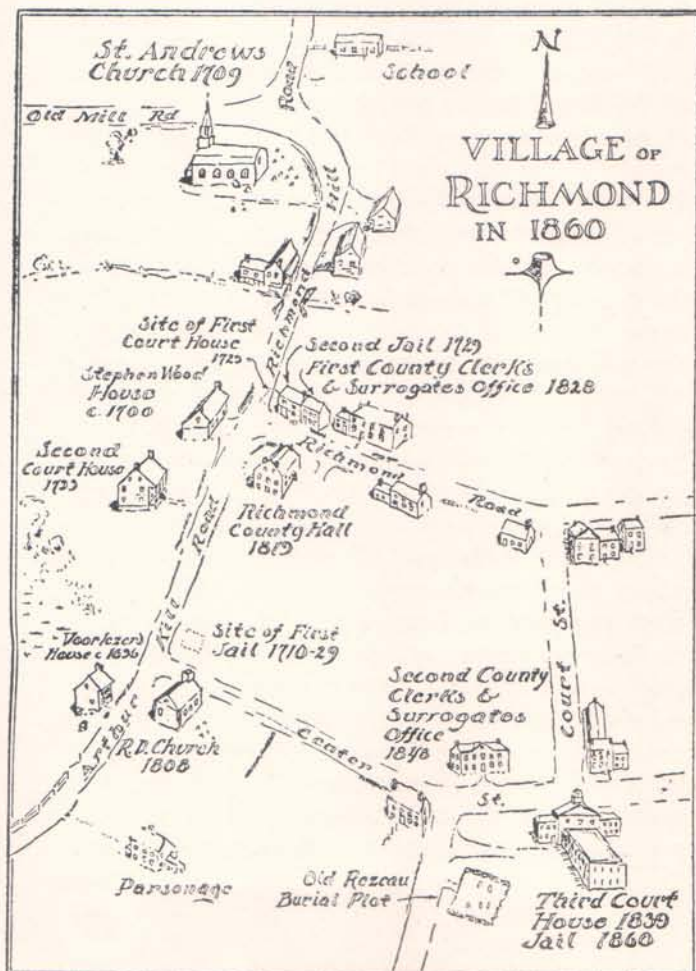
THE HISTORICAL MUSEUM

THE EARLY COLONIAL VILLAGE OF RICHMOND TOWN LIES AT THE EAST END OF THE FRESH KILLS PROJECT AND CONTAINS A REMARKABLE NUMBER OF HISTORIC SITES AND BUILDINGS, SUCH AS THE VOORLEZER'S HOUSE BUILT IN 1696, ST. ANDREW'S CHURCH, BUILT IN 1709, THE SECOND COURT HOUSE OF 1793, THE STEPHEN WOOD OR TREASURE HOUSE OF 1700 AND THE THIRD COURT HOUSE OF 1836. THE OLD COUNTY CLERK'S OFFICE OF 1848 IS NOW THE MUSEUM OF THE STATEN ISLAND HISTORICAL SOCIETY.

## RICHMONDTOWN



SECOND COURT HOUSE



THE VOORLEZER'S HOUSE



will be retained wherever possible, and a harmonious blending of existing topography, parkway and newly made land insured. The new fill will be placed at a level not higher than that of the parkway profile so that the broad sweep of meadows and waterways seen from the north will remain unbroken.

To preserve further this expanse of marsh and stream, celebrated in the history of Staten Island and of the Town of Richmond for 250 years, no fill operations will be permitted in the central area on either side of Richmond Creek between the Parkway and Richmondtown, from Old Mill Road on the west to the proposed extension of Clarke Avenue on the east. Within this central area were the old public docks, where schooners landed their goods and loaded the products of Richmond's flour mills, tanneries and farms. Here also remain the foundations of the old tide mill, the miller's house and the dam where the tidal waters were impounded. Generations of Staten Islanders came here for fishing, swimming, trapping and other pastimes, and the preservation of this fine historic spot within the LaTourette Park development will provide a valuable contrast with the rolling meadows, hills and woods which comprise the remainder of the Park.

No other community on Staten Island has so rich and significant a history as the village of Richmond, which served for almost two hundred years as the county seat of Richmond County. Many of the buildings which helped to make the old town the political, social and religious center of the Island are still standing; the remains of others still exist; and additional sites of historic interest lie free from encumbrances and ready for restoration. Among the existing buildings are the Voorlezer's House (1695), erected to serve as a church, school and home, St. Andrew's Episcopal Church and graveyard (1709), the County Court House (1836-37), the County Clerk's and Surrogate's Office (1848), and the County Jail (1860). There are foundations and other remains of such structures as the redoubts of a fort built by the British during the War of Independence, old houses, mills and taverns. The old Town Bridge, a stone structure, is still in use.

The Staten Island Historical Society, which has restored the Voorlezer's House and the County Clerk's office and maintains them as museums, has envisioned the preservation and gradual restoration or rebuilding of the principal buildings which formerly composed the village of Richmond. To carry out these plans the Society has established the Richmondtown Foundation and steady progress is being made in the acquisition of sites and in

planning for the future. Unlike more widely known restorations such as New Castle, Delaware, Williamsburg, Virginia, and Sturbridge Village, Massachusetts, Richmondtown is easily accessible to the residents of the largest metropolitan population center in the world. Historically, the project presents a rare opportunity to preserve for posterity the last remaining example of the early Colonial and Federal village and county center from which our present great city grew.

To permit the retention of the quiet, narrow streets in the heart of Richmondtown, the office of the Borough President of Richmond is preparing plans to divert through-traffic. One of these proposals involves the extension of Clarke Avenue south to Arthur Kill Road and the construction of a new street connection north of the village which will divert Richmond Road traffic into Clarke Avenue and by-pass the center of Richmondtown. A further proposal is to build a connection from Richmond Hill Road, in LaTourette Park, to Richmond Road, by-passing the village on the west, and including a bus turnaround for the Richmond Road buses.

Since many historic sites outside the village proper lie within the limits of LaTourette Park, most of them can be preserved and suitably marked even though all may never be restored. Burial Hill with its fine views should become a park overlook, and the thirty-foot square burial ground of the Bedell family should be suitably fenced and its pre-revolutionary headstones, now in the possession of the Historical Society, once more set up. The dam, pond and waterfall at the site of Ketchum's Freshwater Mill should be restored and made a feature of the park development. This part of the project will involve the construction of a culvert under Richmond Parkway to carry the water from the mill-race. A pedestrian underpass or overpass will also be needed to provide easy access for visitors. There are many other sites, some of which lie in the path of Richmond Parkway and cannot be preserved, but the majority can be set aside as part of an impressive record of the past.

The Fresh Kills land-fill project cannot fail to affect constructively a wide area around it. It is at once practical and idealistic. The historic village of Richmond will be one of the neighborhoods most vitally affected. Through careful and practical planning and the cooperation of public officials, civic groups and interested citizens not only of Staten Island but of the entire City, Richmondtown, an important relic of past years, will be preserved, restored and revitalized for the instruction, inspiration and pleasure of present and future generations.



The Fresh Kills project is not merely a means of disposing of the city's refuse in an efficient, sanitary and unobjectionable manner pending the building of incinerators. We believe that it represents the greatest single opportunity for community planning in this City. The cooperation of the Borough President of Richmond, the Departments of Sanitation and Parks, the City Planning Commission and Board of Estimate will create enough valuable new property in this presently fallow and useless area to pay the cost of the project many times over and to produce a well rounded and diversified community, practically planned, to meet the future needs of Staten Island.



