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SPECIAL USE

RIVERBANK STATE PARK

NEW YORK CITY

PROJECT TYPE

A 28-acre park, with 200,000 square feet of building space, located atop the North River Water Pollution Treatment Facility, situated adjacent to the Hudson River in West Harlem, Manhattan. Two bridges provide access to this year-round recreational facility containing an indoor swimming pool complex; multipurpose structures for athletic and cultural activities; playing fields; court games and a running track; picnic areas and a riverfront promenade; an amphitheater; and a restaurant with views up the river.

SPECIAL FEATURES

- Innovative construction
- State park with multipurpose facilities
- Resourceful land use
- Extensive neighborhood involvement

OWNER AND DEVELOPER

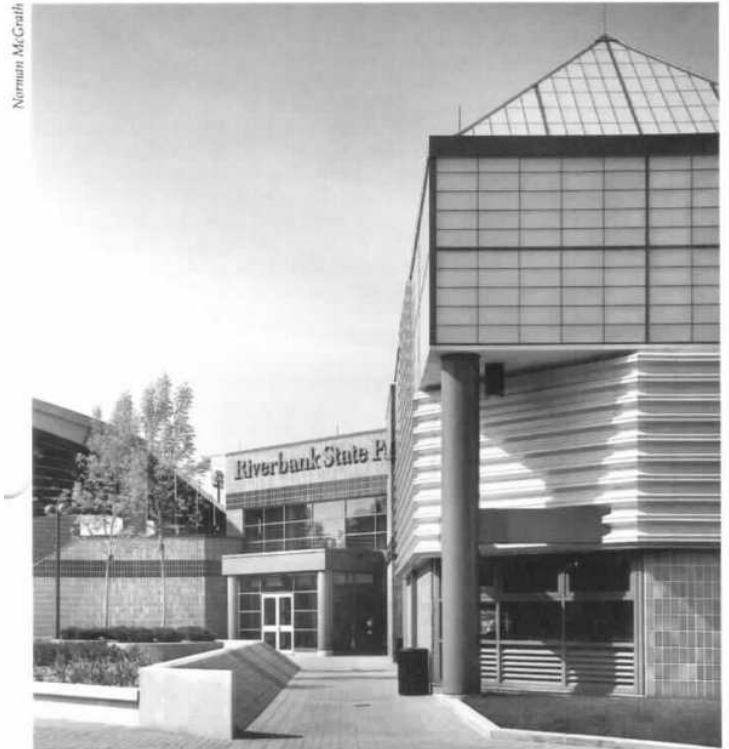
New York State Office of Parks, Recreation,
and Historic Preservation
Agency Building No. 1
Empire State Plaza
Albany, New York 12238
212-387-0271

ARCHITECT

Richard Dattner Architect P.C.
154 West 57th Street
New York, New York 10019
212-247-2660

LANDSCAPE ARCHITECT

Abel, Bainnson, Butz
80 Eighth Avenue
New York, New York 10011
212-206-0603



Building facades are wrapped in rust-colored brick tiles highlighted with a band of green, with red accents throughout. Fiberglass skylights cap four corners of all the buildings.

GENERAL DESCRIPTION

Riverbank State Park represents the transformation of an unwanted but necessary facility into a heavily used community resource. In 1965, when New York City was ordered to treat its raw sewage before discharging it into the Hudson, the city began the unpopular process of identifying a site for the plant, which ultimately was the western edge of Harlem, on the Hudson River. From the start, the state was committed to an extensive beautification process. By 1978, numerous "rooftop" park and open space development alternatives were evaluated, including Philip Johnson's plan to build a reflecting pool and several plans for elaborate recreational facilities. Ultimately, in 1980, architect Richard Dattner was chosen by a committee of state officials and community representatives to spearhead the design and development of a rooftop state park and recreational facility.

Opening in 1993, Riverbank State Park includes five major structures: a 50-meter pool that can be divided into three pool areas by two movable bulkheads; a covered skating rink with ice skating in the winter, roller skating in the summer; a cultural arts center; a multiuse athletic building designed for basketball, volleyball, gymnastics, and martial arts; and a 150-seat restaurant with a 100-seat outdoor terrace. Outdoor facilities include a 25-yard lap pool; an 18-foot-diameter wading pool; four basketball courts; four handball/paddleball courts; four tennis courts; a waterfront amphitheater; a running track surrounding a football/soccer field; a community garden and greenhouse; picnic areas; and a children's playground. The sewage treatment plant is located on a site owned by the city. The state, which owns and operates the park, secured an easement for the air rights above the plant in order to develop the park. The \$1 billion sewage treatment plant was in operation for six years before the park opened.

DEVELOPMENT PROCESS AND FINANCING

Throughout the project's first year of design, planning sessions were held every other week with community residents, local elected officials, and representatives from the major federal, state, and city agencies that would oversee, construct, pay for, and operate the park. The design team inventoried existing parks and recreational facilities, defined public transportation opportunities, studied adjoining community facilities and land use patterns, analyzed the demographics, and studied the technical limits to construction at this difficult location.

The residents of West Harlem objected vociferously to the development of the sewage treatment plant, but when they realized that the plant was going to be built despite their objections, they turned their attention to the park itself, hoping to get the amenities the community needed.

Transportation and access issues were studied in detail as the site is located 400 feet from a major traffic artery, Riverside Drive, and 58 feet above ground level, requiring a bridge across a railroad right-of-way and the six-lane Henry Hudson Parkway. After extensive studies and meetings with neighborhood groups, a 50-foot-wide, two-lane vehicular bridge with a wide pedestrian walkway was built at West 145th Street. A second bridge, a 40-foot-wide, single-lane bridge for emergency vehicles and pedestrians, connected at West 138th Street, giving the park access at both ends of its nine-block length. Riverbank also can be reached via the 145th Street crosstown bus and a subway station one block east of Riverside Drive at Broadway.

Financing for Riverbank's development came from multiple public sources of which 19 percent were federal, 45 percent state, and 36 percent city. At various stages in the eight-year development process, the park was threatened by lack of funds and the state insisted that the project undergo the process of value engineering, which resulted in minor design changes that lowered the overall cost. The major design features and program areas were retained.

CONSTRUCTION

Most of the design and construction challenges of the site were related to the limited amount of weight that the building below the park could support. Concerns included the load-bearing

capacity of the plant's caissons, columns, and roof spans. Load equations also had to take into account expected live loads (people, vehicles, and snow). And much of the construction had to take place while the sewage treatment plant was fully operational, without interrupting its service, adding to the project's design and development challenges.

To comply with targeted load-bearing criteria, the park's buildings could only be made of lightweight steel with metal or tile-faced panels. Sections of the park requiring soil (for plantings) were lightened by using a honeycomb of environmentally friendly (non CFC) Styrofoam panels.

The 28-acre roof, which is almost a half-mile long, consists of 14 separate sections that move independently as the roof contracts and expands with changes in temperature. Each of the park's buildings is completely contained within one roof plate to avoid damage from movement at expansion joints. Every park building column is located directly over a corresponding sewage plant column below. Original plans called for the roof to carry 400 pounds per square foot throughout. However, the design team was able to shave off \$10 million from the project by selectively identifying the roof plates that needed to support up to a maximum of 400 pounds per square foot, and designing other areas for lighter loads.

Weight limitations also made it necessary to limit the depth of the pool to four feet, to use wood instead of concrete for the handball court walls, and to clad the facade in five-eighth-inch-thick prefabricated brick tiles instead of using whole bricks.

Because the project's pipes, drains, and electrical conduits had to run over the plant roof, utilities required special attention. Stormwater collected by the park's sophisticated drainage system is channeled through the sewage plant below for treatment.

DESIGN

The siting of the park's buildings had to take into account the treatment plant's location on the riverbank and the subsequent potential for flooding, wind exposure, views of the river, and the aim not to block river views from nearby buildings. Four major park buildings are clustered inward around a south-facing courtyard for protection against winter winds blowing off the Hudson. Fiberglass skylights are set in pyramids at the four corners of each building.

Delineating the bridges are decorative entrance gates that respect Frederick Olmsted's design of Riverside Park, which abuts the entrance. At the 145th Street bridge entrance, the first visible building will house a carousel. The only unfinished part of the park, the carousel is expected to be completed by August 1996. The nearby restaurant is encased by windows and features a large terrace with views up the Hudson River.

The cultural building was designed for maximum flexibility with three wings radiating from a central stage area. Motorized bleachers can be retracted or extended to create performance space. The building also houses the administrative offices for the park as well as dressing rooms, lockers, and storage.

The covered skating rink is not fully enclosed and is maintained as an ice facility from late fall to early spring. It also has a concrete surface for roller skating during warmer seasons. The rink has bleachers, lockers, skate rentals, and a food concession area.

The park is ringed by a promenade high above the Hudson. Knee-high striated concrete along the promenade discourages graffiti.

Fifty feet below the athletic building, at river's edge, is a boat landing and an outdoor amphitheater. This location below the park shields neighbors from noisy concerts and events. From there, the sewage treatment plant is highly visible. Its design is inconspicuous, clad in concrete with arched openings that respect the form of a nearby bridge.

OPERATION AND MANAGEMENT

Riverbank State Park has become the second most heavily used New York State Park—over 3 million park users visited it in 1994. It is operated and managed by the state. Security is provided by state park police, but thus far has not been a notable problem. Closed circuit televisions monitor the entrances and other areas of the park. Though not planned as such, the limited access to the park has proven to be a security bonus as comings and goings can be easily monitored.

While the park is not always odor free, when there is a slight odor, it is not one of raw sewage, but rather of chlorine. Originally known as the "smelly park," the odor seems to have decreased as various adjustments to the treatment process have been made, and most of the open tanks have been covered.

EXPERIENCE GAINED

- Careful work with the community, although time consuming, resulted in a park that met the needs of the neighborhood and that has become a popular meeting spot for children and adults.
- A week of value engineering analysis with the design team and outside engineers led to an \$8 million savings while retaining the basic character of the project.
- Although seemingly incompatible uses, a recreational park and a sewage treatment facility can provide a community with multiple benefits, neutralizing the NIMBY factor.
- Original plans had called for a full-service restaurant that would draw people to the park to enjoy the views of the Hudson River. However, the first vendor was unsuccessful causing the State Parks and Recreation Department to reconsider its objectives for the restaurant, and to seek a new concessionaire.

PROJECT DATA

LAND USE INFORMATION

Site Area: 28 acres¹

Gross Building Area: 196,900 square feet

LAND USE PLAN

<i>Components</i>	<i>Square Feet</i>	<i>Acres</i>	<i>Percent of Site</i>
Buildings	196,900	4.5	16.1%
Athletic building	34,460	-	-
Swimming pool	48,000	-	-
Cultural center building	43,200	-	-
Skating rink building	50,240	-	-
Restaurant	9,000	-	-
Maintenance	12,000	-	-
Softball playing field	-	5.0	17.8
Childrens playground	-	1.0	3.6
Running track and field	-	5.0	17.8
Community garden and picnic area	-	2.0	7.1
Amphitheater	-	2.0	7.1
Surface parking	-	0.5	2.0
Roadways	-	2.5	8.9
Miscellaneous walkways	-	5.5	19.6

SOURCES OF FUNDS

	<i>Amount (In Millions)</i>	<i>Percent</i>
Federal Funding Sources	\$23.85	19%
USEPA	-	-
Cleanwater Aesthetic Treatment	-	-
<i>State Funding Sources</i>	58.17	45
NYS Pure Water Bond Fund	4.77	-
NYS Parks	53.4	-
<i>New York City Funding Sources</i>	46.98	36
NYC Department of Clean Water	3.18	-
Plant construction funds	<u>43.8</u>	-

Total	\$129	100%
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DEVELOPMENT COST INFORMATION (IN MILLIONS)

Site Acquisition Costs N/A²

Site Improvement Costs

Sewer/water/drainage	\$7.0
Paving/curbs/sidewalk	10.2
Landscaping/irrigation	6.3
Roof strengthening	<u>16.0</u>
Total	39.5

Construction Costs

Superstructure	48.7
HVAC	3.3
Electrical	4.1
Plumbing/sprinklers	4.0
Graphics/specialties	0.2
Access bridges	<u>20.2</u>
Total	80.5

Soft Costs

Architecture/engineering	5.0
Project management	<u>4.0</u>
Total	9.0

Total Development Costs \$129.0

Notes:

¹The entire park is located on the rooftop of a 2.2 million-square-foot sewage treatment plant.

²New York State secured an easement from New York City for the air rights 59 feet above the site for the development of the park.

DEVELOPMENT SCHEDULE

Site Purchased: 1968

Planning Started: 1968

Construction Started: 1988

Park Opened: 1993

Project Completed: 1993

DIRECTIONS

Directions from LaGuardia Airport: Go west on the Grand Central Parkway to the Triborough Bridge. Turn west on 125th Street and follow to Broadway. Go north on Broadway to West 135th Street. Follow 135th Street one block north to Riverside Drive. Go north on Riverside Drive to entrance at 145th Street.

Driving Time: Twenty-five minutes in non-peak-hour traffic from LaGuardia Airport.

The Project Reference File is intended as a resource tool for use by the subscribers in improving the quality of future projects. Data contained herein were made available by the Development team and constitute a report on, not an endorsement of, the project by ULI - The Urban Land Institute.

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1025 Thomas Jefferson Street, N. W. Ste. 500w, Washington, D. C. 20007-5201

DOCUMENT IMAGES

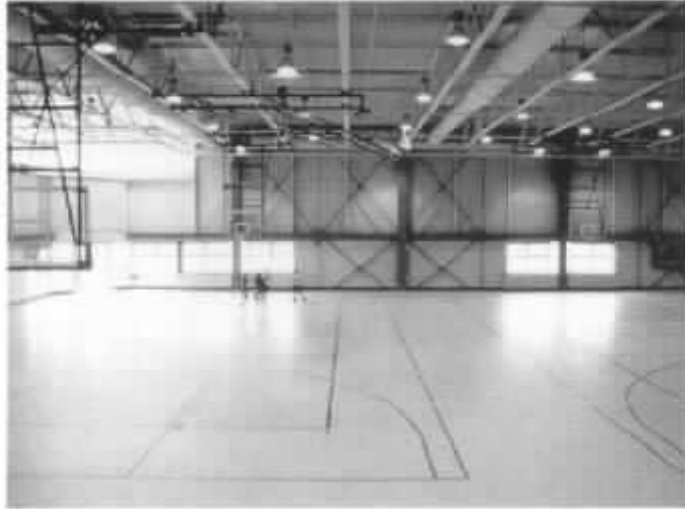
Norman McGrath



Building facades are wrapped in rust-colored brick tiles highlighted with a band of green, with red accents throughout. Fiberglass skylights cap four corners of all the buildings.



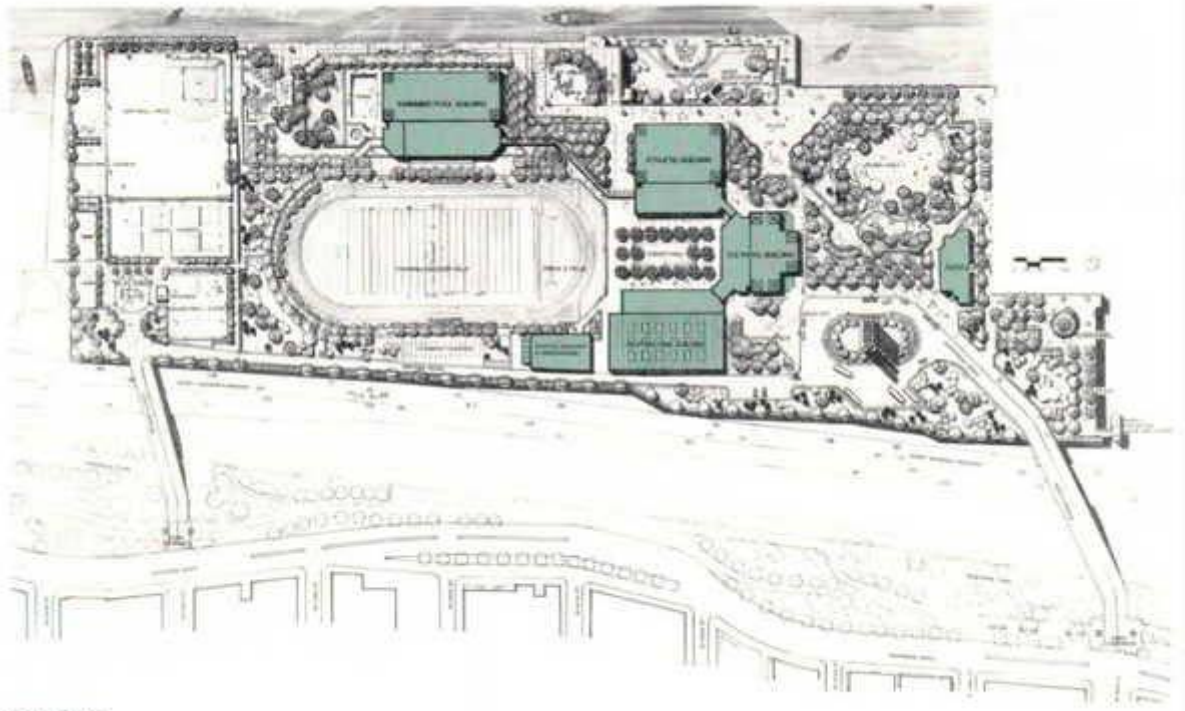
The swimming complex contains one 50-meter pool with two movable bulkheads, as well as an outdoor 25-yard pool, a wading pool, and large terraces, located near the river to take advantage of summer breezes and views of the Hudson.



The athletic building was designed to house a wide range of athletic activities to maintain flexibility as trends change. A large gymnasium can be divided into several different areas and adjoins a two-story wing containing exercise rooms, classrooms, lockers, and other activity areas. The indoor facilities all contain easy-to-maintain rubberized floors.



At the same level as the buildings is a 400-meter, eight-lane synthetic running track surrounding a football/soccer playing field surfaced with AstroTurf™. One level above the soccer field are a softball field, basketball courts, and tennis courts, as well as a children's play area.



Site Plan