

HISTORIC PRESERVATION STUDY REPORT

MILWAUKEE RIVER FLUSHING TUNNEL STATION

(Written Winter 1986/87)

I. NAME

Historic: Milwaukee River Flushing Tunnel Station

Common: Same

II. LOCATION

Street Address: 1701 North Lincoln Memorial Drive

Tax Key Number: 356-0145-200

Legal Property Description: Glidden & Lockwood's Addition in NW ¼ Sec 22-7-22 Milw River Flushing Tunnel Station betw N Lincoln Memorial Drive & A LI 270' SE & Par with SE LI N Summit Ave & Ext of (NE LI Lot 4 & SW LI Lot 2) Blk 9 Glidden & Lockwood's Add'n Ext SELY

III. CLASSIFICATION

Building

IV. OWNER

Patrick Marchese, Executive Director
Milwaukee Metropolitan Sewerage District
735 North Water Street
Milwaukee, WI 53202

V. YEAR BUILT

1888

Architect: Unknown

Builder: William Forrestal Company

VI. PHYSICAL DESCRIPTION

The Milwaukee River Flushing Tunnel Station is a one-story, Victorian utility building located at the intersection of Lincoln Memorial Drive and North Beach Drive across from the entrance to the McKinley Marina. It is constructed of cream brick laid in common bond with a steeply pitched gray slate hipped roof ornamented with pressed metal cresting. At the ridge is a louvered, arcaded cupola capped with a hipped, slate roof and cresting. The symmetrical facades are composed of arcaded fenestration divided into bays by brick piers and unified with belt courses of buff colored sandstone at the sill and lintel levels. At the eaves is a corbelled brick arcaded cornice and wooden box gutters. The windows are set in compound arches with sandstone sills. Much of the original sash has either been

replaced or covered with plywood. The main entries are located in the two end bays of the east façade and have arched transoms surmounted by sandstone keystones emblazoned with the date '1888' in raised numbers. The north entry on the east elevation has been widened by the removal of the brick wall abutments below the transom. On the south elevation it appears that a new entry was made by enlarging a former window opening.

The building contains two rooms, the larger of which originally served as the boiler room and the other as the engine room.

Some changes have been made to the building over the years. Attached to the rear of the main structure was the former coal storage room. It was a low, one story structure of cream brick with a flat roof and skylights. The elevations were divided by piers and ornamented with the same heavy brick corbelled cornice as the main building. It was razed in September of 1986. The flushing station originally had a 126 feet tall brick smoke stack that was removed when the engines were converted from steam to electricity. Although somewhat deteriorated, the flushing station appears to be mostly original on the exterior.

VII. SIGNIFICANCE

The Milwaukee River Flushing Station is significant as an example of nineteenth century sanitary engineering technology. Almost one hundred years after its construction, the flushing tunnel station is still used for its original purpose. It is architecturally significant as a rare surviving example of a fully architecturally treated Victorian era utility building.

VIII. HISTORY

The Milwaukee River Flushing Station was built to solve a health hazard and public nuisance by flushing sewage from the stagnant and foul smelling Milwaukee River into Lake Michigan. Milwaukee's first comprehensive sewerage system, built in 1869, was designed to empty directly into the three main rivers, the Milwaukee, Kinnickinnic and Menomonee. Theoretically, the waste was to be carried by the river currents out into Lake Michigan. Although the system was marginally successful for some years, by 1880 Milwaukee's population had grown to the point that the slow flowing rivers could not longer accept the daily input of sewage and flush themselves clean. As a result, they virtually became stagnant open sewers.

In 1881 an interceptor sewer was built to divert sewage from the Menomonee River, thus improving conditions in the Menomonee Valley and on the near southside. The public demanded that the same type of interceptor system be built to relieve pollution in the Milwaukee River, but the cost was so great that the City balked at the project. By 1887 conditions were so bad that the project could not longer be delayed and the state legislature authorized the city to sell bonds worth a half-a-million dollars for construction of the interceptor sewer. In that same year, however, City Engineer, George W. Benzenberg, recommended that a flushing tunnel would achieve the same results as the interceptor sewer at about one-half the cost. On August 1st the Common council approved the plan and on December 8th the largest city contract granted up to that time was given to the William Forrestal Company to building the flushing tunnel.

The tunnel, which is 12 feet in diameter and 2,500 feet long, extends from the shore of Lake Michigan under Kane Place to the Milwaukee River at a point below the North Avenue Dam. When it opened on September 14, 1888 the Milwaukee *Sentinel* reported it was equipped with the largest water pump in the world with the ability to pump 500 million gallons of water in a 24-hour period. Originally power was provided by steam driven, vertical compound Reynolds Corlis engines built by the E.P. Allis Company. The propeller wheel used to draw water into the tunnel from Lake Michigan was 14 feet in diameter.

Because of the urgency of the situation, the pumps were immediately put into operation and the engine house and coal room were built around them. Since the engine house was the only publicly visible component of what was one of the city's most costly and innovative public works projects up to that time, care was lavished on its design. The resulting structure reflects the Victorian Romanesque Revival style in its pronounced use of the round arch and heavy arcaded corbelling. This style was often used for engineering structures in the late nineteenth century. The original 1874 North Point Pumping Station of the water works (now demolished) located to the north of the flushing tunnel station was similar in design.

In 1911 the Bureau of Efficiency and Economy at the Refuse incinerator recommended to the Common Council that the excess steam produced by the incinerator could be used to drive a turbine to provide electricity to operate the flushing tunnel pumps. Council approved this recommendation and in 1912 the steam engines were replaced by Allis-Chalmers, three-phase, 440-volt induction motors that operated at 435 revolutions per minute.

At present, the flushing station is operated by the Milwaukee Metropolitan Sewerage Commission. The pumps run from June to October when the dissolved oxygen in the river drops below two parts per million. This has ranged from two to five days per week and eight to sixteen hours per day.

IX. STAFF RECOMMENDATION

Staff recommends the flushing station be designated as a City of Milwaukee Historic Structure as a result of its fulfillment of criteria one, five, seven and nine of Historic Preservation Ordinance, Section 2-335(2)(e).

X. PRESERVATION GUIDELINES

The following preservation guidelines represent the principal concerns of the Historic Preservation Commission regarding this historic designation. However, the Commission reserves the right to make final decision based upon particular design submissions. These guidelines shall be applicable only to the Milwaukee River Flushing Tunnel Station. Nothing in these guidelines shall be construed to prevent ordinary maintenance or restoration and/or replacement of documented elements.

A. Roofs

Retain the roof shape. Dormers, skylights and solar collector panels may be added to roof surfaces if they are not visible from the street. Avoid making changes to the roof shape that would alter the building height, roofline or pitch.

B. Materials

1. Masonry

- a. Unpainted brick or stone should not be painted or covered. Avoid painting or covering natural stone and unpainted brick. This is historically incorrect and could cause irreversible damage if it was decided to remove the paint at a later date.
- b. Repoint defective mortar by duplicating the original in color, style, texture and strength. Avoid using mortar colors and pointing styles that were unavailable or were not used when the building was constructed.

- c. Clean masonry only when necessary to halt deterioration and with the gentlest method possible. Sandblasting brick or stone surfaces is prohibited. This method of cleaning erodes the surface of the material and accelerates deterioration. Avoid the indiscriminate use of chemical products that could have an adverse reaction with the masonry materials, such as the use of acid on limestone.
- d. Repair or replace deteriorated material with new material that duplicates the old as closely as possible. Avoid using new material that is inappropriate or was unavailable when the building was constructed.

2. Wood/Metal

- a. Retain original material, whenever possible. Avoid removing architectural features that are essential to maintaining the building's character and appearance.
- b. Repair or replace deteriorated material with new material that duplicates the appearance of the old as closely as possible. Avoid covering architectural features with new materials that are inappropriate or were unavailable when the building was constructed.

C. Windows and Doors

- 1. Retain original window and door openings. Retain the existing configuration of panes, sash, surrounds, sills, doors and hardware, except as necessary to restore the building to its original condition. Avoid making additional openings or changes in existing fenestration by enlarging or reducing window or door openings to fit new stock window sash or new stock door sizes. Avoid changing the size or configuration of windowpanes or sash.
- 2. Respect the building's stylistic period. If the replacement of doors or window sash is necessary, the replacement should duplicate the appearance and design of the original window sash or door. Avoid using inappropriate sash and door replacements. Avoid the filling-in or covering of openings with inappropriate materials such as glass block or concrete block. Avoid using modern style window units such as horizontal sliding sash in place of double-hung sash or the substitution of units with glazing configurations not appropriate to the style of the building.

D. Trim and Ornamentation

There shall be no changes to the existing trim or ornamentation except as necessary to restore the building to its original condition. Replacement features shall match the original member in scale, design and appearance.

E. Additions

The south, north and east elevations are integral to the structure's architectural significance. Additions require the approval of the Commission. Approval shall be based upon the addition's design compatibility with the building in terms of height, roof configuration, fenestration, scale,

design, color and materials, and the degree to which it visually intrudes upon the principle elevations.

F. Signs/Exterior Lighting

The installation of any permanent exterior sign shall require the approval of the Commission. Approval will be based on the compatibility of the proposed sign with the historic and architectural character of the building.

G. Site Features

New plant materials, fencing, paving and lighting fixtures shall be compatible with the historic architectural character of the building.