ENVIRONMENAL ASSESSMENT
MINNEHAHA CREEK, WPA WALLS,
MINNEAPOLIS, MINNESOTA
SECTION 14 STREAMBANK PROTECTION

SUMMARY

Major Findings and Conclusions

The purpose of this environmental evaluation is to assess the impacts of various measures to restore the walls along Minnehaha Creek in Minneapolis, Minnesota, while maintaining the historic integrity of the walls. The walls have shown signs of failure with two areas of the walls slumping into Minnehaha Creek. The high volume flows through this portion of the creek in the spring months could further degrade the walls to the point of complete failure. Alternatives considered to restore the walls included taking no action, complete rebuild of the walls, and the selected plan, stabilizing the walls by filling voids.

An environmental review of the proposed action indicates that the project would not result in significant effects to the quality of the human environment and that probable effects in the area would be short-term and minor. Therefore, an environmental impact statement will not be prepared. If the public review identifies significant issues, a revised NEPA document may be prepared. A 404(b)(1) evaluation has been prepared. A State Water Quality Certificate (Section 401) has been applied for and will be obtained before construction.

Relationship to Environmental Requirements

The proposed action would comply with Federal environmental laws, Executive Orders and policies, and State and local laws and policies including the Clean Air Act, as amended; The Clean Water Act, as amended; The Endangered Species Act of 1973, as amended; the Fish and Wildlife Coordination Act of 1958, as amended; the Land and Water Conservation Fund Act of 1965, as amended; the National Historic Preservation Act of 1966, as amended; the National Environmental Policy Act of 1969, as amended; Executive Order 11988 - Floodplain Management; and Executive Order 11990 - Protection of Wetlands. The proposed action would not result in the conversion of farmland to non-agricultural uses. Therefore, the Farmland Protection Policy Act of 1981 does not apply to this project.

NEED FOR AND OBJECTIVES OF ACTION

The project area consists of the area immediately upstream and downstream of Minnehaha Falls located on and adjacent to Minnehaha Creek in Minneapolis, Minnesota (Enclosure C). The project reach follows the creek and includes approximately 190 feet upstream of the falls and approximately 1,200 feet downstream from the falls including the area immediately downstream of the last pedestrian bridge.

The historic walls were constructed in the late 1930's by the government-funded Works Progress Administration (WPA). The walls line both sides of the creek extending from the base of the falls downstream to the second pedestrian arch bridge, more than 750 feet. The walls function as gravity retaining walls and create vertical sides to the creek channel. The wall construction consists of angular stone set in a mortar bed with a wall thickness estimated between 2-3 feet. The walls were constructed on a concrete footing that appears to average about 6 inches thick. While 95% of the wall structure (top of wall to bottom of footing) is intact and appears to be in very good condition, the entire length of the footing has been undermined to varying degrees. There have been some recent failures. A portion of the wall nearest to the falls has toppled over, and some areas downstream have sloughed due to the lack of structural support. Additional failures are imminent and prompt action needs to be taken to save this part of Minnesota's history.

The channel bottom has degraded, dropping 1-2 feet, leaving large portions of the footing unsupported along the entire length of the wall. The likely cause for the drop is that the channel bottom is of uneven thickness and does not prevent creek water from flowing through the underlying St. Peter Sandstone, a very erosion-prone rock.

ALTERNATIVES

a. No action. This would allow the erosion to continue and would lead to failure of the WPA walls, the loss of a piece of Minnesota's history and the loss of access to Minnehaha Falls and the Mississippi River.

b. Remove the Existing Wall and Rebuild. This would require that the wall be removed and replaced with a modern wall which would need to be faced with the stones used in the original historic wall to maintain the historic character. This would be an extremely labor intensive effort and would not be satisfactory to the State Historic Preservation Officer.

c. Place Riprap along wall and re-center flows. This alternative would place riprap along the wall and re-center the creek flows away from the wall. This alternative would not fix the underlying problem with the walls and due to the high velocities in the channel it was determined that using riprap would not be viable, due to the size of the riprap needed.

d. Stabilize Wall by Filling Voids. This alternative would fill in the gaps under the wall with grout and tie into the bedrock to form a solid base for the walls. In the areas where the walls failed, the existing wall would be removed and a reinforced concrete wall would be built to stabilize the banks, then the existing material would be reused as a facing on the wall in order to maintain the historical integrity. Materials used to reinforce the wall would need to be stained to maintain the appearance of the weathered wall. This alternative also includes some minor bank stabilization efforts on the downstream end of the project. Access would occur across existing City land on the downstream end of the project. This is the recommended plan.

No Action (Without-project Condition)

If nothing is done the erosion would be expected to continue to progress, leaving a deeper and wider gap under the wall footing, until ultimately the walls fail by toppling into the creek. This would essentially destroy the historic nature of the walls and the park itself; it would also limit the access to the falls, the lower trails, the historic mill sites, and the Mississippi River.

Currently pieces of the wall are starting to slump into the creek, where one approximately 20-foot section has already fallen into the creek. This will continue and eventually dam up the creek forcing the water to cut new paths around the obstruction eroding into the side hill, destroying the recreational trails and potentially causing the existing erosion protection structures (cribs) to fail.

Alternatives Not Selected

Several construction alternatives were considered but not selected. Removal of the wall to have it replaced with concrete forms was considered but not selected due to cost, and would not be satisfactory to the State Historic Preservation Officer. Placing large riprap along the base of the walls to re-center the flows was considered but this alternative would not fix the underlying problem with the walls and due to the high velocities in the channel it was determined that using riprap would not be viable, due to the size of the riprap needed.

Selected Plan

The WPA walls repair is for wall reaches above and below the Minnehaha Creek Falls on both sides of the channel. The estimated upstream reach repair is about 190 linear feet of wall reaches and the downstream reach repair is about 1200 linear feet of wall reaches.

The proposed repair consists of replacing about 100 linear feet of the fallen wall reaches and strengthening about 1290 linear feet of undermined foundation wall reaches.

Replacing wall reaches would consist of excavating the remaining alignment and constructing a reinforced concrete "T" wall with a façade wall constructed from Platteville limestone recovered from the creek or obtained to match the existing wall. The proposed replacement would require about 45 cubic yards of reinforced concrete and about 24 cubic yard of Platteville limestone.

Strengthening the wall reaches would require repairing the foundation of the wall. The repair would consist of excavating the undermined void to reach a sound foundation and filling the space with pumped reinforced concrete or grout. Very deep sections of the voids would require caissons drilled into the bedrock to provide underpinning support. The proposed strengthening would require about 150 cubic yard of reinforced concrete.

In addition to the above requirements there would be placement of about 300 cubic yards of riprap to protect the footing and to align the creek water flow properly.

The construction would require the use of an earthen cofferdam in order to excavate and place

the concrete on one side in the dry and to keep the water flowing on the other side. The work can be accomplished using compact construction equipment such as skid loaders and grout pumps and manual labor. There is difficulty using heavy equipment due to limited access to the creek

ENVIRONMENTAL SETTING

The historic WPA walls are located just upstream and downstream of Minnehaha Falls and provide bank stabilization on both sides of Minnehaha Creek. The walls were constructed in the 1930's and allow for access to Minnehaha Falls and the Mississippi River, it is estimated that there were nearly 800,000 visitors to Minnehaha Park and over 1,700,000 visitors to the Minnehaha Regional Trail in 2006.

Natural Resources

Introduction

Topography is gentle in most of the Minnehaha Creek riparian area, with the notable exception of the gorge below Minnehaha Falls which is where the WPA walls are located. Here the river is confined in a steep walled valley. Minnehaha Falls is about 40 feet high and 0.8 miles upstream from the mouth of Minnehaha Creek where it enters Pool 1 of the Mississippi River. Elsewhere, land usage is primarily residential, although the creek flows behind some commercial and light industrial operations. Several city parks are scattered along the upper two thirds of the stream course in Minnetonka, St. Louis Park, and Edina, while the lower third in Minneapolis is entirely parkland. Parkland is typically bluegrass lawn with an occasional thin buffer of trees along the stream. There are walkways along the creek which limit riparian habitat.

Water Quality

Water quality is generally good but sometimes carries an excess of surface runoff from storm sewer discharges into the creek. Erosion of the creek bank below the wall increases turbidity and sedimentation in the Mississippi River downstream of the mouth of the creek.

Aquatic Habitat

Flow from the source at Grey's Bay Dam is stopped for the duration of winter to prevent flooding. This likely limits wintertime oxygen levels in the stream. Numerous storm drains direct street runoff into the creek along its entire length, contributing pollution as well as causing a rather unstable hydrograph. Large portions of the lower third of the river have been channelized and confined by limestone walls constructed in the 1930's.

The fish community in sites above Minnehaha Falls is comprised mainly of lake species, owing to the prevalence of lakes that feed the stream. A majority of the fish present likely originated in these water bodies and migrated to the stream, where they were subsequently trapped due to the presence of fish barriers at lake outlets. Species in this category include bluegill, pumpkinseed, largemouth bass, walleye, yellow perch, bullhead species, northern pike and golden shiner. Also present are several species of minnows, white suckers and three darter species that are typically found in streams. Below the falls, the fish community reflects its proximity to the Mississippi River. Two species of redhorse, smallmouth bass, gizzard shad, blackside darter, and several

other species of minnows are a more typical riverine community.

Much of the channel has been altered by straightening and confinement by vertical stone walls. This has reduced channel heterogeneity and therefore fish habitat. The stream also receives storm runoff in numerous locations throughout its length. Of most concern is flow management from Grey's Bay Dam. Flows are maintained at a moderate level throughout the summer to facilitate canoeing opportunities. In the fall, flows are maintained at higher levels until Lake Minnetonka is drawn down to below its ordinary high water level. This allows a complete closure of the dam during the winter and storage to reduce flood peaks in the spring. However, the lack of flow in the winter likely causes low dissolved oxygen conditions in the stream, resulting in high mortality of oxygen sensitive species. This flow regime is said to mimic typical wintertime flow conditions in Minnehaha Creek prior to the dam, when flow from the lake still ceased in many winters. Therefore, an augmentation of flows (not part of this proposed project) during the winter might not mimic natural conditions, but would benefit the fish community present. However, it is unlikely that any changes would create a quality fishery above the falls. Any changes would mainly benefit the non-game component of the community. Below the falls, fishes are able to use the Mississippi River as a refuge from low oxygen conditions. Stream classification for Minnehaha Creek is Class II A (Warm water Gamefish—Smallmouth Bass) below Minnehaha Falls (R.M. 0-0.8) and Class III (Warm water Feeder) above Minnehaha Falls (R.M. 0.8-22.8).

Minnehaha Falls is a barrier that prevents riverine species from the Mississippi River from colonizing all but less than a mile of the total length of Minnehaha Creek. Therefore, the lower section has several more riverine species, including a fishable population of smallmouth bass, while the remainder has predominantly lake species that have entered the stream from connected water bodies.

Aquatic plants and filamentous algae:

Station no.	1	2	3
Date	8-22-03	8-22-03	8-21-03
Loc. (miles from mouth)	.3	1.8	4.7
Length of station	1000	1000	1000
Species	**Abundance**	**Abundance**	**Abundance**
Arrowhead spp.	R		
Blue Flag Iris	R		
Marsh Marigold	R		
Reed Canary Grass	O	C	
Filamentous Algae	R		R
Narrowleaf Pondweed		O	

R:Rare, O:Occassional, C:Common

Fishery Characteristics

Station no.	1	2	3
Date	8-22-03	8-22-03	8-21-03
Loc. (miles from mouth)	.3	1.8	4.7

Length of station	1000		1000		1000	
Species present (wt. in lbs.)	**No.**	**Wt.**	**No.**	**Wt.**	**No.**	**Wt.**
Bluegill	38	2.81	1	0.30		
Pumpkinseed			1	0.07		
Hybrid Sunfish			2	0.11	1	0.03
Green Sunfish			11	0.44	14	0.21
Smallmouth Bass	11	10.3				
Johnny Darter	1	<.01	5	0.02		
Logperch	3	0.09			3	0.06
Blackside Darter	3	0.02				
Yellow Bullhead			1	0.16		
Black Bullhead			97	8.58	5	0.18
Golden Redhorse	1	0.88				
Shorthead Redhorse	5	2.95				
White Sucker	3	0.70	26	12.5	3	0.99
Carp	15	10.5	40	25.5	1	0.02
Spotfin Shiner	72	0.33	8	0.07		
Bluntnose Minnow	3	.01	4	0.01		
Brassy Minnow	5	.04				
Creek Chub	7	0.07	19	0.54	4	0.04
Golden Shiner			5	0.04		
Emerald Shiner	51	0.27				
Gizzard Shad	52	2.02				
Largemouth Bass young-of-year	12	0.20	7	0.14	1	.01

Wetlands

There are no wetlands in the immediate project area.

Threatened and Endangered Species

No Federally listed species have been found in the project area. However, the winged mapleleaf (*Quadrula fragosa*) and Higgins Eye (*Lampsilis higginsii*) mussels have been found in Pool Two of the Mississippi River a short distance downstream of the mouth of Minnehaha Creek. The Minnesota Natural Heritage and Nongame database was reviewed. No rare plant or animal species or other significant natural features were found to be located within the Minnehaha Creek channel or within the proposed work limits.

Cultural Resources

The area around Minnehaha Falls (Falls) and the portion of Minnehaha Creek south of the Falls to its debouchure with the Mississippi River lies within the Minnehaha Historic District (Historic District). Immediately east of the Park is the Minnesota Soldiers Home Historic District. The Historic District essentially encompasses the entirety of Minnehaha Park (Park) which contains a variety of cultural resources. While various societies inhabited the area around the Falls for

approximately 12,000 years, the earliest cultural resources identified near the Falls date to the Historic Period. The upland areas around the Falls, as well as significant portions of the terrestrial corridor along Minnehaha Creek below the Falls have been extensively modified through landscaping and other projects to facilitate public use of the area since the mid Nineteenth century. Many of the public developments were constructed or repaired by Works Progress Administration (WPA) projects during the 1930s. While a number of subsequent design changes and restoration efforts have removed or otherwise altered some of the WPA features, portions of WPA works remain intact across the Park. The retaining walls below the Falls have long been credited with being constructed by the WPA. However, while not conclusive, available historic documents suggest that the walls were constructed sometime around 1961 and designed to mimic the Rustic Style architecture in vogue with WPA park construction facilities. While this circumstance, if valid, will negate the walls architectural significance in relation to their supposed association with the WPA, they are historic features nonetheless. Because of uncertainty over the walls age of construction, they will be treated as architecturally significant. The proposed project to repair the retaining walls along the creek below the Falls will ultimately restore the walls to their original design and function. However, the proposed project has the potential to adversely impact the historic walls and other cultural resources.

There are no recorded precontact sites located within the Park. However, the recovery of Paleo age projectile points along the Mississippi River near the Washington Avenue Bridge upstream of the Park and at the Sibley House near the confluence of the Minnesota and Mississippi rivers downstream of the Park indicate that humans moved into the area as Wisconsin glacial ice retreated, approximately 12,000 years before present (BP)(e.g., Anfinson et. al., 2003). Other nearby archaeological sites contain Archaic (ca. 10,000- 2000 BP) and Woodland (ca. 2,000-1650 BP) cultural materials (e.g., Dobbs et. al., 1998; Johnson and Taylor 1956; Perkl et. al., 2001; Winchell 1911). While no precontact artifacts have been recovered from the Park, the Falls (created approximately 8,000 BP with the retreat of St. Anthony Falls [e.g., Wright 1972]), presumably held spiritual importance to the various groups inhabiting the area. It may be that the supposed sacred nature of the Falls rendered the area as off-limits for sustained encampments or other intensive activities. However, it is important to note that the Park has not been subjected to a comprehensive cultural resources survey.

Although French and subsequently British traders, missionaries and other adventurers entered the region in the middle of the Seventeenth Century, their records do not mention the Falls. Among the first written descriptions of the Falls date to the early Nineteenth Century and are associated with soldiers constructing or stationed at Ft. Snelling (blt. 1819-1824), approximately two miles downstream (e.g., Blegen 1975). The Falls were assessed for the location of a sawmill to build the fort although low water in 1820 obviated these plans and the sawmill was constructed upstream at St. Anthony Falls. In 1826 Joseph Brown laid claim to the north bank of the creek and built a cabin somewhere near its mouth (Massey's Landing) although he abandoned the claim and presumably the cabin after four years. Aware of the Falls and the surrounding countryside's aesthetics, by 1835 numerous tourists and others visited the area as part of "The Fashionable Tour" via steamboat from St. Paul that persisted into the 1850s. Around this time projects to improve access to the Falls likely occurred, such as the erection of fencing and

stairways. American colonization of the area happened in earnest following several treaties in the early 1850s with resident Dakota groups. Around 1852 Ard Godfrey built a sawmill and gristmill along the creek on Joe Browns old claim, with the Godfrey residence constructed where the Veterans Home is now located. Godfrey left the area in 1871 and the mill burned in 1879. Remains of the milldam are all that remain of these edifices, approximately 2,500 feet downstream of the Falls. Godfrey's Mill is a contributing property to the Historic District.

In 1855, Henry Wadsworth Longfellow poem *The Song of Hiawatha* brought additional attention to the Falls and solidified the area as a popular attraction. In 1865 the Minnesota Central Railway established a line running west of the Falls from Ft. Snelling to Minneapolis. With regular stops, a depot was constructed west of the Falls in 1870 to provide passenger facilities to the Park and a zoo established the upper glen. Minnehaha Station, also known as "The Princess Depot," with its Victorian architecture is another contributing property to the Historic District. In 1875, the Falls area was under consideration to become a state park. In 1889 the City of Minneapolis purchased the area and formerly established a public park and a variety of improvements were made, such as construction of the refractory building, walks, bridges and a picnic shelter. The John H. Stevens house was deposited in the Park in 1896, originally positioned near the current Veterans Home. The Greek-revival Stevens house was originally built in 1849 on the west bank of St. Anthony Falls and is considered instrumental in the development of Minneapolis. The house has been restored and moved several times, in its current position on the upper west plateau since 1984. The Stevens House is a contributing property to the Historic District.

The fourth contributing property to the Historic District consists of the Georgian style R.F. Jones (Longfellow) House, built in 1906 west of the Falls. This property includes a 2/3 replica of the aforementioned Longfellow's residence in Cambridge, Massachusetts and once included a garden and zoo that operated from 1906 to 1923. Following the death of Jones the Park acquired the property in 1936 and it was converted into a branch library until 1967. Since then, the house has been restored and moved to its current location following Trunk Highway 55 (Hiawatha Avenue) improvements and is operated by the Park Board as an interpretive center.

In the 1920s, the Minnehaha Auto Tourist Camp was constructed on the east plateau, the current location of the Wabun picnic area and above Lock and Dam 1 along the Mississippi River. This area included a log lodge and 25 smaller log cabins and operated until 1955, after which time these structures sold and removed and the area converted to the picnic grounds. Immediately south of the picnic area is the Minnesota Soldiers Home Historic District. A contributing property to this district includes the Soldiers Home Bridge (blt 1906), which spans the Park.

During the 1930s, the WPA repaired and constructed a number of features throughout the Park, including retaining walls, stairways, fencing, walks, roads, bridges, picnic tables and a toilet building in the upper glen (MPRB 1990; WPA 1937). The WPA was a federal relief program established in 1935 to provide jobs for the unemployed during the Great Depression and was responsible for the construction of numerous public buildings, roads, park facilities and other projects (Howard 1943). WPA park construction of social and recreational facilities, particularly within parks, was heavily influenced by the prevailing design philosophy of the National Park Service to utilize native materials to best blend in with the environment and is known as Rustic

Style architecture (e.g., Tweed et. al., 1977). To facilitate construction of facilities in the Park, the WPA quarried stone from an area in the lower glen-south of Godfrey's Mill and on the south slope of the gorge. Near the quarry on the south plateau, the WPA also built a rock crushing plant (1937) and an incinerator (1939). The incinerator was used until the early 1960s, is still visible and in good condition (MPRB 1990).

It is unclear when the retaining walls were originally constructed. In one scenario, the WPA may have repaired or constructed the retaining walls along the creek below the Falls between 1936 and 1941. WPA records indicate that retaining walls were constructed during this period along the creek above the Falls and around the spring in the lower glen (WPA 1937). While a number of plans from this period depict detailed drawings of stone-faced concrete stairways and bridges, no plans for retaining walls along the creek below the Falls are present (BPC 1940). As an aside, the WPA facilities extant within the Park should be considered architecturally significant for their unique and distinctive style and from their association with social, political and economic importance of the Great Depression Federal relief program responsible for their construction and may be recognized as a contributing property to the Historic District.

An alternative scenario places retaining wall construction below the Falls as post-dating 1961 (BPC 1961). Various plans from the Park Board detail renovations to the existing stairways on the north and south slopes near the Falls that connect with the upper bridge. In some cases, the existing WPA walls along the steps were covered by this new construction. These plans provide details of retaining walls that denote mortared joints and a concrete foundation that is consistent with the walls current condition and are clearly indicated as 'proposed walls.' The retaining walls below the Falls consist of angular limestone set in a mortar bed placed on concrete foundation. However, Rustic Style stonework retaining walls intended for erosion control were typically dry laid. In addition, in a 1941 photograph of the upper bridge below the Falls no retaining walls are evident along the creek (WPA 1937). A 1944 photograph of the lower bridge below the Falls also lacks retaining walls along the creek (Ibid.). As the WPA program ended in 1943, it appears that the retaining walls below the Falls were constructed after the WPA period and perhaps sometime around 1961. From the plans, it is apparent that the Rustic Style influenced the 1961 design although if constructed around 1961 the walls would not technically qualify for this style and their historic significance is somewhat lessoned. Coincidently, it appears that the concrete cribbing situated in various areas along the side slopes of the gorge in order to check colluvial erosion/creep date to this period.

The Park has since witnessed a number of other improvements since the 1960s. Plans to re-align Hiawatha Avenue (Trunk Highway 55) were formulated in the 1960s, although work was not initiated until the 1990s. In 1992 a renovation plan was advanced by the Park Board that influenced the entire Park. As implemented in the late 1990s, the stairways entering the bowl of the Falls and the upper bridge were reconstructed in addition to various improved along the plateaus. While the recent stone work in the bowl area attempts to mimic the Rustic Style, noticeable differences are apparent. Other modifications continue within the Park, such as current work occurring in the Wabun picnic area on the east plateau. In addition to the Historic District, accepted to the National Register of Historic Places in 1969, the Park is part of the Grand Rounds Scenic Byway and was designated as a State Scenic Byway in 1997 and a

National Scenic Byways in 1998.

In summary, the Park boundary coincides with the Minnehaha Historic District. Recognized contributing properties include the Godfrey Mill, Minnehaha Station, the John H. Stevens House and the R.F. Jones (Longfellow) House. Immediately east of the Park is the Minnesota Soldiers Home Historic District. The Park is also part of the two scenic byways. None of these properties are within the project's Area of Potential Effect (APE). Additional properties within the Park that may be considered as contributing properties include extant WPA facilities. While it appears that the retaining walls below the Falls were constructed in the early 1960s, rather than by the WPA, they are considered a historic feature. While, the proposed project to repair the retaining walls along the creek below the Falls will ultimately restore the walls to their original design and function, the proposed project has the potential to adversely impact the historic walls and other cultural resources.

Socioeconomic Resources

The proposed project area is located in the city of Minneapolis in east central Minnesota. The 2000 population of Minneapolis, the county seat of Hennepin County, is 382,618, an increase of 3.9% from 1990. Hennepin County's 2000 population totaled 1,116,200, an increase of 8.1% from 1990 and ranks 1st in total population of Minnesota's 87 counties.

The Minneapolis-St. Paul-Bloomington metropolitan area is the country's 16th largest metropolitan area and is composed of eleven counties in Minnesota and two counties in Wisconsin. The area grew by 16.9 percent from 2,538,776 in 1990 to over 2,968,806 in 2000.

Hennepin County's labor force totaled 673,406 in August 2007, with an unemployment rate of 4.1 percent, compared to 4.2 percent (unadjusted) for the State of Minnesota and 4.6 percent (unadjusted) for the United States. Employment by industry in Hennepin County is lead by educational, health, and social services, which accounts for 19.2 percent of total employment. Other significant industries in Hennepin County are manufacturing (13.8 percent of employed persons); professional, scientific, management, and administrative services (13.6 percent); and retail trade (12.0 percent).

Median household income is the mid-point at which one half of the households earn higher and one half earn less. According to information from the U.S. Census Bureau, the 1999 median household money income for the city of Minneapolis was $37,974, and for Hennepin County it was $51,711. This compares to $47,111 for the State of Minnesota and $41,994 for the United States.

Recreation

Currently there are some viewing points of the falls and some walking trails that follow the walls and the creek. In 2006 there were 782,000 visitors to this area; in addition there were 1,713,000 visitors on the Minnehaha Regional Trail which travels through the north end of the park. The

falls are one of the most photographed places in the Minneapolis/St. Paul metropolitan region and have become known by the locals as a symbol of the area.

The project area is entirely within the Minnehaha Historic District which is listed on the National Register of Historic Places. It is part of the Grand Rounds Scenic Byway which is both a National and State scenic byway and is connected to the Mississippi National River and Recreation Area.

ENVIRONMENTAL EFFECTS

Natural Resources

Introduction

An environmental assessment has been conducted for the proposed action, and a discussion of the impacts on habitat conditions follows. As specified by Section 122 of the 1970 Rivers and Harbors Act, the categories of impacts listed in Table 1 were reviewed and considered in arriving at the final determination.

Water quality

Although water quality is generally good, the project would reduce erosion of the creek banks and reduce sedimentation in the Mississippi River at, and below the mouth, of the creek. During construction a short-term minor increase in turbidity may occur during retrieval of the rocks from the creek bed. Turbidity increases would be moderated by the use of a cofferdam which would be constructed from impervious material.

Aquatic Habitat

The proposed action would remove fallen rock from the stream bed, and return the walls to their original cross section, reducing future erosion of the bank and sedimentation of the creek and the Mississippi River. This would restore the aquatic habitat of the reach to pre-failure conditions, a beneficial effect. There would be a short-term disruption of habitat for benthic organisms which would quickly recolonize after construction was completed.

Wetlands

No wetlands would be affected by the repair of the creek banks.

Terrestrial habitat:

Terrestrial habitat would be protected from damage from construction equipment during construction. There would be minimal disturbance to vegetation during the bank reconstruction because only the toe of the bank would be repaired in most places and there is minimal at the top of the walls. Vegetation would be removed where the wall requires reconstruction.

Threatened and Endangered Species:

The Minnesota Natural Heritage and Nongame database was reviewed. No rare plant or animal species or other significant natural features were found to be located within the Minnehaha Creek

channel or within the proposed work limits. During pre-construction contractors would be advised to adhere to construction limits as well as delineate sensitive areas, such as black ash seeps, and avoid them.

The winged mapleleaf (*Quadrula fragosa*) and Higgins Eye (*Lampsilis higginsii*) mussels have been found in Pool Two of the Mississippi River a short distance downstream of the mouth of Minnehaha Creek.

There would be limited potential for the release of concrete or other containment into Minnehaha Creek during construction. The contractors would use construction methods that would minimize the potential for contaminants entering the creek. The use of the coffer dam to keep flows away from the actual construction and the use of forms to hold the concrete/grout in place would also help to ensure that the materials are not released into the creek. It is also anticipated that materials being used would not be extremely liquid, therefore if there is a release it could be contained by the contractor relatively easily.

The quantities used in this project would be small and the amount of concrete that could be released at any one time would be extremely limited (due to the staging of construction). The plan would be to work on one side of the walls at a time, probably working from the upstream end to the downstream end in sections. The work would take place during the late fall and winter months (typically low flow) which would also minimize the potential of a release. It is anticipated that the entire project will take less than 195 cubic yards of concrete (150 under the walls and 45 to fix the failed sections).

Based on the above, it is concluded that the project would have no adverse on Federally-listed apecies. The U.S. Fish and Wildlife Service has concurred with this determination.

Air Quality

The proposed project would result in minor, short-term adverse effects on air quality during construction due to the operation of construction equipment. The contractor is required to properly maintain exhaust systems on construction equipment so air quality effects should be minimal and should return to normal levels after cessation of construction activities.

Socioeconomic Effects

There would be no significant social or economic impacts that would result from the implementation of the proposed project. Rather, reconstruction would have a positive impact on public health and safety, by reducing the risk of further collapse when visitors are present, and public facilities and services by restoring full function of the walls, in the area after the project is complete.

During wall reconstruction, possible short-term negative impacts would likely occur in the following areas: a temporary increase in noise levels because of the operation of construction machinery, and disruption of normal patterns of use of the trail at the base of the falls. These effects would be attenuated through the appropriate placement of construction and safety signage.

These effects would be short lived and terminate when construction is complete.

Cultural Resources

While the Park boundary coincides with the Minnehaha Historic District. Recognized contributing properties include the Godfrey Mill, Minnehaha Station, the John H. Stevens House and the R.F. Jones (Longfellow) House. Immediately east of the Park is the Minnesota Soldiers Home Historic District. The Park is also part of the two scenic byways. None of these properties are within the project's Area of Potential Effect (APE).

The proposed project has the potential to adversely impact historic walls below the Falls and other cultural resources. The retaining walls have been credited with being constructed by the WPA. While not conclusive, available historic documents suggest that the walls were constructed sometime around 1961 and designed to mimic the Rustic Style architecture utilized in WPA park construction facilities. If this hypothesis is correct, the retaining walls are not associated with the WPA and their architectural significance is diminished. However, the walls are historic by virtue of their age and their pseudo Rustic Style appearance. Because the date of construction has not been conclusively determined, the walls will be treated as significant architectural features.

The repair techniques to repair the retaining walls below the Falls will restore and maintain their historic character. The principal repair work will place cement underneath the eroded concrete foundations. The colors of the existing walls and concrete will be matched with a stain added to the new cement. In some areas the walls have collapsed or slumped. These will be rebuilt with the existing angular stone material. The grout will also be color and texture matched with the existing walls. The existing walls will not be demolished and no construction using new stone or uncolored cement/mortar will occur. This approach has been reviewed and concurred with by the Minnesota State Historic Preservation Office (SHPO) during a site visit in January 2008.

Access to the area adjacent to the retaining walls below the Falls is problematic. Some heavy equipment may be able to negotiate the ca. ten-foot wide pedestrian trail on the south side of the creek. If this trail is utilized and requires re-grading, a cultural resources survey, and additional investigations as needed, will be completed prior to construction activities.

The proposed project to repair the retaining walls along the creek below the Falls will ultimately restore the walls to their original design and function providing a positive effect to the historic walls. Following the above provisions-to tint the cement poured under the foundations and to rebuild potions of the walls using existing materials with matched color and mortar- the Corps has determined that the proposed project will have No Adverse Effect on the historic walls or other cultural resources.

Executive Orders

The provisions of Executive Orders 11988 (Activities in floodplains) and 11990 (Wetland protection) would be satisfied. The project would prevent damage to existing facilities rather than

encourage floodplain development. There are no wetlands in the vicinity of the proposed project. Only creek bank would be protected. The provisions of Executive Order 12898 (Environmental Justice) would be satisfied because the project would not have adverse effects on any particular group but would benefit all local residents equally.

Cumulative Effects

The proposed action would reduce cumulative effects of human use of the Mississippi River Gorge by restoring rock protection to reduce erosion and stabilize creek banks.

COORDINATION

The Minnesota Department of Natural Resources and the U.S. Fish and Wildlife Service were contacted regarding their potential concerns. After discussion, neither had conditions for the proposed plan.

The proposed project to repair the retaining walls along the creek below the Falls will ultimately restore the walls to their original design and function providing a positive effect to the historic walls. Following the above provisions-to tint the cement poured under the foundations and to rebuild potions of the walls using existing materials with matched color and mortar- the Corps has determined that the proposed project will have No Adverse Effect on the historic walls or other cultural resources. This determination was coordinated with the SHPO. The Minnesota SHPO concurred with this determination.

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Table 1. Environmental Assessment Matrix

Section 122 of the River and Harbor and Flood Control Act of 1970 (Public Law 91-611)														
	No Action Alternative							Preferred Alternative						
	BENEFICIAL				ADVERSE			BENEFICIAL				ADVERSE		
PARAMETER	SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT	SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT
A. SOCIAL EFFECTS				X							X			
1. Noise Levels				X								T		
2. Aesthetic Values				X							X			
3. Recreational Opportunities				X							X			
4. Transportation				X							X			
5. Public Health and Safety						X			X					
6. Community Cohesion (Sense of Unity)				X							X			
7. Community Growth and Development				X							X			
8. Business and Home Relocations				X							X			
9. Existing/Potential Land Use				X							X			
10. Controversy				X							X			
B. ECONOMIC EFFECTS														
1. Property Values				X							X			
2. Tax Revenue				X							X			
3. Public Facilities and Services						X			X					
4. Regional Growth				X							X			
5. Employment				X							X			
6. Business Activity				X							X			
7. Farmland/Food Supply				X							X			
8. Commercial Navigation				X							X			
9. Flooding Effects				X							X			
10. Energy Needs and Resources				X							X			
C. NATURAL RESOURCE EFFECTS														
1. Air Quality				X								T		
2. Terrestrial Habitat				X							X			
3. Wetlands				X							X			
4. Aquatic Habitat				X								T		
5. Habitat Diversity and Interspersion				X							X			
6. Biological Productivity				X							X			
7. Surface Water Quality				X								T		
8. Water Supply				X							X			
9. Groundwater				X							X			
10. Soils				X							X			
11. Threatened or Endangered Species				X							X			
D. CULTURAL RESOURCE EFFECTS														
1. Historic Architectural Values						X			X					
2. Prehistoric & Historic Archeological Values				X							X			

T: Temporary Effect

Enclosure A

Section 404(b)(1) Evaluation

Section 404(b)(1) Evaluation
WPA Walls Repair, Minnehaha Creek
Minneapolis, Minnesota

I. PROJECT DESCRIPTION

A. Location - The proposed fill activity would take place in Minnehaha Creek in Hennepin County, Minnesota immediately upstream and downstream of the Minnehaha Falls (Enclosure C). Fill activities would occur below the mean high water level of the Mississippi River for the repair of historic walls constructed by the Works Progress Administration (WPA).

B. General Description - This evaluation addresses the impacts resulting from the placement of fill material in waters of the United States in compliance with Section 404 of the Clean Water Act, as amended. The proposed fill activities would consist of placing rock, pumping in grout, and restoring historic bankside walls. The principal areas included in the project are portions of Minnehaha Creek in Hennepin County, Minnesota immediately upstream and downstream of Minnehaha Falls. There is almost 100 percent erosion under the walls which threatens the stability and foundations of the walls. A 100 foot section of the wall has sloughed into the creek. There is also bank erosion downstream of the walls.

C. Authority and Purpose - Federal authority for this project is provided in Section 14 of the 1946 Flood Control Act. The purpose of the project is bank stabilization. The fill and grout is intended to reduce potential erosion.

D. General Description of Dredged or Fill Material

1. General Characteristics of Material - In all cases, the fill material would consist of clean rock of various sizes, and pumped grout for footings under existing wall sections. A cofferdam would be constructed in reaches as each section of the wall would be repaired. It is expected that an inflatable bladder or sandbags wrapped in plastic membrane would be moved from reach to reach. No loose material would be used for cofferdams (Enclosure C).

2. Quantity of Material - The fill material would be placed along the shore of the 1390 linear feet of Minnehaha Creek (190 feet upstream and 1200 feet downstream) to protect the river bank from further erosion. The fill material would consist of 150 cubic yards of concrete to fill the gap under the walls. Approximately 300 cubic yards of riprap, 45 cubic yards of concrete and 24 cubic yards of Platteville limestone would be used to reconstruct and stabilize the failed wall section.

3. Source of Material - The fill would be obtained by reclaiming rocks in the creek from the failed wall and from an existing quarry if additional material would be required.

E. Description of the Proposed Discharge Sites

1. Location - The proposed fill activities would take place along the banks and in the bed of the Minnehaha Creek. The goal is to restore the historic walls to their original appearance and function.

2. Size - The total area to be affected by the fill activities would be approximately 1390 feet. The walls vary in height from 42-60 inches.

3. Type of Site - The fill activities would take place in a riverine setting. Most of the concrete would be placed in a 12-18 inch void below the 10-12 inch footing. For the failed wall sections, the material would be placed from the bottom of the riverbed to the top of the bank, approximately 42-60 inches.

4. Types of Habitat - The habitat is creek bank and shallow creek bottom with a medium to coarse substrate of material from the failed wall. No wetlands would be affected by the action.

5. Timing and Duration - Subject to approval, construction could begin in the year 2008.

F. Description of Disposal Method – The material would be moved and placed mechanically or by hand as necessary to restore the original appearance of the wall. Because of the limited access, compact construction equipment would be used.

II. FACTUAL DETERMINATIONS

A. Physical Substrate Determinations

1. Substrate Elevation and Slope - The fill material would be placed mechanically or by hand to the original configuration of the historic walls with side slopes of 1 vertical on 2 horizontal. The fill material would extend from the riverbed to the top of the bank.

2. Sediment Type - Sediment in the proposed fill area is sand and rock .

3. Dredged/Fill Material Movement - The fill material for the sloughed wall would be placed directly on a new foundation at the toe of the bank and grouted. The eroded areas would be filled with concrete. Neither would be expected to move.

4. Physical Effects on Benthos - Organisms in the placement area would be disturbed but the area would be expected to recolonize rapidly.

5. Actions Taken to Minimize Impacts - Standard construction procedures in compliance with Federal and State requirements would be employed to minimize impacts. Because the placement of the material would affect a small area and have minimal impacts, no special actions to minimize adverse impacts would be taken.

B. Water Circulation, Fluctuation, and Salinity Determinations

1. Water

a. Salinity - The fill activities would not affect salinity.

b. Water Chemistry - The use of clean fill material and hand and mechanical placement procedures would preclude any significant impacts on water chemistry.

c. Clarity - Some minor, short-term decreases in clarity are expected from the proposed fill activities.

d. Color - The proposed fill activities should have no impact on water color.

e. Odor - The proposed fill activities should have no impact on water odor.

f. Taste - The proposed fill activities should have no impact on water taste.

g. Dissolved Gas Levels - The proposed fill activities should have no impact on dissolved gas levels in the water.

h. Nutrients - The proposed fill activities should have no impact on nutrient levels in the water.

i. Eutrophication - The proposed fill activities should have no impact on the level or rate of eutrophication of the water.

j. Temperature - The proposed fill activities would have little impact on water temperature.

2. Current Patterns and Circulation

a. Current Patterns and Flow - Because the proposed fill activities would restore historic walls using material from the creek bed, current patterns and flow in the creek would be restored to pre-failure conditions.

b. Velocity - The proposed fill activities would restore pre-failure water velocity.

c. Stratification - The proposed fill activities would have no effect on the development of stratified conditions in the river.

d. Hydrologic Regime - The proposed fill activities would have little impact on the hydrologic regime.

3. Normal Water Level Fluctuations - The proposed fill activities would have no effect on normal water level fluctuations.

4. Salinity Gradient - The fill activities would have no effect on the salinity gradient.

5. Actions Taken to Minimize Impact - Standard construction procedures in compliance with Federal and State requirements would be used. The material would be placed mechanically or by hand.

C. Suspended Particulate/Turbidity Determination - Turbidity and suspended solids may increase during construction. This effect would be short-term until the walls are rebuilt.

1. Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site - Although minor temporary increases in suspended particulates and turbidity would occur during project construction, the long-term effect would be to reduce erosion and turbidity.

2. Effects on Chemical and Physical Properties of the Water Column - No effects are expected on light penetration, dissolved oxygen, toxic metals and organisms, pathogens, or the aesthetics of the water column after the project is in place.

3. Effects on Biota - Biota would be disturbed during the placement of the fill material. The underwater portions of the fill would quickly recolonize and provide a more stable and diverse substrate.

4. Actions Taken to Minimize Impacts - No special actions are anticipated. Because of limited access, fill would be placed by compact equipment such as skid loaders and utility vehicles.

D. Contaminant Determinations - The fill material would be large clean rock and would not introduce contaminants into the aquatic system. Neither the material nor its placement would cause relocation or increases of contaminants in the aquatic systems.

E. Aquatic Ecosystem and Organism Determinations - Approximately 1390 feet of bank would be repaired.

1. Effects on Plankton - Increases in turbidity and suspended solids near the fill activities would have a localized suppressing effect on phytoplankton productivity. However, these local effects are not considered significant. The plankton populations should recover quickly once the fill and other construction activities have ceased.

2. Effects on Benthos - Those benthic communities in the area of the proposed fill activities would be disturbed. However, immigration of benthic organisms would occur, and the submerged portions of the fill would be recolonized.

3. Effects on Nekton - None expected.

4. Effects on Aquatic Food Web - The long-term effect on total productivity of the area is expected to be a minor increase, although the existing aquatic biota would be temporarily disrupted.

5. Effects on Special Aquatic Sites - No special aquatic sites are located in the project area.

6. Threatened and Endangered Species - No Federal or State listed species would be affected by the project.

7. Other Wildlife - The fill activities would not result in the significant loss of aquatic or terrestrial habitat. The general diversity and productivity of the affected areas would be maintained or possibly increased by the creation of a more stable habitat.

8. Actions Taken to Minimize Impacts - No special actions are required.

F. Proposed Disposal Site Determinations

1. Mixing Zone Determination - The proposed fill activity would have a minimal mixing zone. The mixing zone would be small and would not constitute a significant problem because of the nature of the fill material and its placement by mechanical means. No liquid material would be discharged during construction. For these reasons, the mixing zone was not analyzed further.

2. Determination of Compliance with Applicable Water Quality Standards - The nature of the fill material and the type of construction should avoid violation of State water quality standards by project-related activities. The long-term environmental or water quality effects of the placement of fill material would be a reduction in erosion and associated turbidity.

3. Potential Effects on Human Use Characteristics - Because of the present and projected human use characteristics, the existing physical conditions, the proposed construction methods, and the nature of the fill material, this proposed action would have no significant effects on human use characteristics.

G. Determination of Cumulative Effects on the Aquatic Ecosystem - Implementation of the proposed action would cause no significant cumulative impact on the aquatic ecosystem.

H. Determination of Secondary Effects on the Aquatic Ecosystem - No significant secondary effects would be expected.

III. FINDING OF COMPLIANCE WITH RESTRICTIONS ON DISCHARGE

The proposed fill activity would comply with Section 404(b)(1) guidelines of the Clean Water Act, as amended. No significant adaptations of the guidelines were made for this evaluation. As discussed in the Environmental Assessment, the placement of fill for the proposed project is required to achieve the project purpose of stabilizing the walls at Minnehaha Creek. The other alternatives or other locations for fill material are not practicable alternatives to achieve the project purpose.

The proposed fill activities would comply with all State water quality standards, Section 307 of the Clean Water Act, and the Endangered Species Act of 1973, as amended. The proposed fill activity would not have significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife would not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity, and stability and on recreational, aesthetic, and economic values would not occur. Stabilization of the eroded site would not harm any endangered species or their critical habitat.

The purpose of the action is to stabilize the bank and reduce the potential for erosion. Minor and short-term impacts are associated with the placement of the fill material. The long-term effects would be a reduction in erosion and turbidity. Since the proposed action would result in few adverse effects, no additional measures to minimize impacts would be required.

On the basis of this evaluation, I specify that the proposed action complies with the requirements of the guidelines for discharge or placement of fill material.

14 Jul 08
Date

Jon L. Christensen
Colonel, Corps of Engineers
District Engineer

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Enclosure B

Correspondence

RECORD OF TELEPHONE CONVERSATION

February 06, 2008

PERSON CALLING: John T. Shyne	MVPPM-E	651-290-5270
PERSON CALLED: Wayne Barstad	MNDNR	651-259-5738

Subject: Minnehaha Creek, WPA Walls Repair, Section 14

1. I described the bank failure and the nature of the proposed action to Mr. Barstad.

2. He said that he had no concerns for either repair or reconstruction.

3. He reminded me to check the Natural Heritage Database. I said that I would contact him if I found anything on the list that would be affected by the project.

From: Shyne, John T MVP
Sent: Tuesday, April 22, 2008 1:40 PM
To: Nick Rowse (Nick_Rowse@fws.gov)
Subject: Minnehaha Creek WPA Walls

Nick,

The Corps has been asked to repair the walls that line Minnehaha Creek below the falls. They have failed completely in two areas and the foundation is undercut along most of the length. The walls were constructed in the 1930s by the WPA and as such are historic. We will rebuild the footings and restore the failed sections with recovered rocks and blend in new if we don't find all the original material on the creek bottom.

We will use a reusable cofferdam in the creek. Since we are using compact equipment and not disturbing the banks or surrounding habitat, there would be no adverse effects.

The Minnesota Natural Heritage Database did not show any species of concern within the work limits and there would be no Federally listed species within the work area. Therefore we have concluded that there would be no adverse effect on threatened or endangered species.

We will be issuing an EA shortly.

If you have any comments or concerns, please contact me.

Thanks,

John

John T. Shyne
Fishery Biologist
St. Paul District, Corps of Engineers
CEMVP-PM-E
190 Fifth St. East, Suite 401
St. Paul, MN 55101-1638
Phone: 651.290.5270 Fax: 651.290.5258

From: Nick_Rowse@fws.gov
Sent: Tuesday, April 29, 2008 5:28 PM
To: Shyne, John T MVP
Subject: Re: Minnehaha Creek WPA Walls

John T. Shyne
Fishery Biologist
St. Paul District, Corps of Engineers
CEMVP-PM-E
190 Fifth St. East, Suite 401
St. Paul, MN 55101-1638

Dear John:

This responds to your proposal for rebuilding footings and failed sections of wall lining sections of Minnehaha Creek below Minnehaha Falls, which lies approximately 4,000-feet upstream of the Minnehaha Creek confluence with the Mississippi River. You anticipate there would be limited potential for the release of concrete or other containment into Minnehaha Creek during construction and that the contractors will use construction methods to minimize the potential for contaminants entering the creek. The use of the coffer dam to keep flows away from the actual construction and the use of forms to hold the concrete/grout in place will also help to ensure that the materials are not released into the creek. Materials being used would not be extremely liquid, therefore if there is a release it would be contained by the contractor. Quantities being used in this project are small and the amount
of concrete or containments that could be released at any one time would be extremely limited (due to the staging of construction). The plan would be to work on one side of the walls at a time, probably working from the upstream end to the downstream end in sections. The work would take place during the late fall and winter months (typically low flow) which would also minimize the potential of a containment release. It is anticipated that the entire project will take less than 195 cubic yards of concrete (150 under the walls and 45 to fix the failed sections).

Based on this information, we concur with your determination that the proposed construction activity along Minnehaha Creek at these locations is not likely to adversely affect any federally threatened or endangered species. If project plans change, additional information on listed or proposed species becomes available, or new species are listed that may be affected by the project, consultation should be reinitiated. This concludes section 7 consultation for proposed construction at the above three locations. Thank you for your cooperation in meeting our joint responsibilities under section 7 of the Endangered Species Act. If you have any further endangered species questions, please contact me at (612) 725-3548 x210.

Sincerely,

Nick Rowse
Fish and Wildlife Biologist
Twin Cities ES Field Office
U.S. Fish and Wildlife Service
4101 American Blvd. E.
Bloomington, MN 55425-1665
612-725-3548 x 2210

From: Birkenstock, Terry MVP
Sent: Wednesday, May 28, 2008 2:58 PM
To: Shyne, John T MVP
Subject: FW: Minnehaha Falls - WPA Walls Repair EA

John,

FYI - let me know if I need to provide any response back to Mr. Wieland. Share with Aaron as necessary.

Thanks,

Terry

-----Original Message-----
From: Ronald Wieland [mailto:Ronald.Wieland@dnr.state.mn.us]
Sent: Wednesday, May 28, 2008 2:37 PM
To: Birkenstock, Terry MVP
Cc: John Gleason; Lisa Joyal; Steve Colvin; Wayne Barstad
Subject: Minnehaha Falls - WPA Walls Repair EA

Dear Mr. Birkenstock:

The Department of Natural Resources (DNR) has reviewed the Environmental Assessment for the Minnehaha Creek, WPA Walls Repair Project, Minneapolis, Minnesota.

The DNR does not anticipate any significant impacts resulting from project developments that were outlined in the Environmental Assessment.

The DNR provides the following information to assist you in the future permitting process.

This project falls under the jurisdiction of DNR Public Waters Work rules. However, Minnehaha Creek Watershed District may be able to permit this under the 'Retaining Wall' provision of the General Permit that the DNR has issued to the District.

For additional coordination on this permit, please contact:

John (Jack) Gleason,
Area Hydrologist -West Metro,
MN DNR Waters
1200 Warner Road
St. Paul, MN 55106
651-259-5754 (W)
651-772-7977 (F)
John.Gleason@dnr.state.mn.us

Thank you for the opportunity to provide comments on the Environmental Assessment. Please feel free to contact me with any questions or comments.

Sincerely,

Ronald Wieland
Ronald Wieland, Senior Planner
Environmental Review Program Division of Ecological Resources Department of Natural Resources
St. Paul, Minnesota 55155-4025
651-259-5157

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
SIBLEY SQUARE AT MEARS PARK
190 FIFTH STREET EAST, SUITE 401
ST. PAUL MN 55101-1638

June 6, 2008

Planning, Programs and Project Management Division
Environmental and Economic Analysis Branch

SUBJECT: Restoration of Historic Retaining Walls along Minnehaha Creek, Minnehaha Park, Hennepin County, Minnesota.

Mr. Dennis Gimmestad
State Historic Preservation Office
Minnesota Historical Society
345 Kellogg Boulevard West
St. Paul, Minnesota 55102

Dear Mr. Gimmestad:

The U.S. Army Corps of Engineers, St. Paul District (Corps), in cooperation with the Minnehaha Creek Watershed District, is planning to implement a restoration and rehabilitation project of historic retaining walls along Minnehaha Creek in Minnehaha Park, Hennepin County, Minnesota. Significant portions of the walls above and below Minnehaha Falls are undermined from erosion and are subject to failure.

The Works Progress Administration (WPA) constructed portions of the walls circa 1937 to 1941 in Rustic Style architecture. The WPA walls have been repaired at various times, and new wall sections were constructed in the 1950s and 1960s. These repairs and new construction continued the Rustic Style appearance in design and materials. The Corps has determined that the walls are eligible for listing on the National Register of Historic Places (NRHP). The restoration and rehabilitation project will maintain the walls' historic character by using color matched cement and mortar and the existing stone materials to retain the Rustic Style design. The Corps has determined that the project will have No Adverse Effect to historic properties.

The project area is situated within Minnehaha Park in Hennepin County, Minnesota (Figure 1). The project's Area of Potential Effect (APE) includes portions of the walls within and immediately adjacent to the creek above and below the falls and site access areas (Figure 2). The park boundary coincides with the Minnehaha Historic District. Recognized contributing properties in the historic district include the Godfrey Mill, Minnehaha Station, the John H. Stevens House and the R.F. Jones (Longfellow) House. The falls are listed on the NRHP as a landscape feature. Immediately east of the park is the Minnesota Soldiers Home Historic District. The Grand Rounds Scenic Byway and the Great River Road pass through the northern and western portions of the park and

connect with the Mississippi National River and Recreation Area to the east. Abutting with the park's southern boundary is the Fort Snelling Historic District. Aside from the walls, none of the contributing properties or other historic properties and natural resources is within the project's Area of Potential Effect (APE).

The WPA began constructing retaining walls along the creek within the park in 1937. The WPA proceeded to make a variety of other improvements within the park through 1941. Major WPA projects, documented in various reports, are outlined in the following table. See Figure 3 for general locations and features within the park.

Major WPA Projects within Minnehaha Park, 1937 to 1941

Year	Project	Location
1937	Retaining walls along creek completed	Above the falls (between Minnehaha Avenue and railroad bridge)
1938	Toilet building/sewers started, stone crushing plant operation begins (south rim of lower glen below Godfrey Mill)	Lower glen
1939	Bridge above the falls completed, bridges in upper and lower glens started, complete toilet building/sewers, incinerator completed (south rim of lower glen below Godfrey Mill), foot paths along north and south banks (upper glen) widened	Above the falls, upper glen, lower glen
1940	Three stairways completed to upper glen, fourth stairs under construction (not specified), walls along top of bowl started	Bowl, upper glen
1941	Stairs at incinerator completed, walls along top of bowl completed	Bowl, lower glen
1942	No work by WPA	N/A

Aside from the 1937 construction of retaining walls along the creek above the falls, mentioned in the *Minneapolis Park Board 55th Annual Report* and a *Minneapolis Tribune* article, no other written documents (identified to date) indicate when retaining walls along the creek below the falls (upper glen) were built. Importantly, when the walls above the falls were constructed in 1937, water levels along the creek were low, seemingly the only period during the WPA activities in the park when water levels were low. Therefore, it is likely that portions of the walls along the creek below the falls in the upper glen were built in 1937. Prior to this time, none of the available written and photographic documentation indicates that retaining walls existed along the creek within the park.

Several photographs from the early 1940s reveal segments of the retaining walls along the creek in the upper glen. Two photographs depict the upper glen from various angles. While none of the photographs have associated dates, they are believed to have been exposed circa 1938-1941. Figure 4, by Monroe Killy, clearly shows retaining walls

along the creek during a high water event (i.e., after 1937). Looking downstream (east/southeast) from the south end of the upper bridge in the upper glen, the walls are along the north bank and at a bend along the south bank. It is not clear if the walls along the south bank extend to the bridge. The walls in this image appear to be recently constructed and the path (no longer extant) along the north bank is visible. Figure 5, by Gordon Ray, depicts the upper glen looking downstream from the rim of the north slope of the bowl. While difficult to see from the scanned image, examination of a companion original photograph from a slightly different aspect (scanned image unavailable), demonstrates that the walls are present at the bend along the south bank and a wall segment along the north bank. This image appears to date from 1940 or 1941, during or near the end of stair construction. The upper reach of the stairway to the upper glen along the south slope of the creek has yet to be faced with stone, and construction barrier fencing is present along the north bank immediately upstream of the bridge. A third photograph (Figure 6) exposed in 1942 from the *Minneapolis Times* depicts an individual sitting on what appears to be a retaining wall on the north bank of the upper glen. This image shows the upper bridge in the upper glen. Note that walls to do not extend along the north bank to the bridge, and they are not present along the south bank below the bridge.

From the available evidence, the WPA constructed retaining walls along the creek above the falls in 1937. It is probable that the WPA constructed segments of retaining walls along the creek in the upper glen. Because flows in the creek were high or at normal levels between 1938 and 1941, it appears that the walls along the creek in the upper glen were built in 1937 during a period of low flow. WPA construction of social and recreational facilities within parks, and present within the park, was heavily influenced by the prevailing design philosophy of the National Park Service to use native materials to best blend in with the environment and is known as Rustic Style architecture. Typically, WPA constructed retaining walls were dry laid, although some walls along stretches of the creek upstream from the park were "laid in cement to prevent dislodgement from current or children" (*Minneapolis Park Board 57th Annual Report 1939*). It is not clear if the WPA walls within the park were originally dry laid, although incorporating cement in walls along the creek would have been prudent to arrest erosion.

Following WPA rehabilitation projects in the park, the extant retaining WPA walls were repaired and new wall segments were constructed. In 1959, during a modernization program at the park, "...new protection walls along the creek channel from the falls downstream for a distance of approximately 400 ft..." were constructed (*Minneapolis Park Board 77th Annual Report, 1959*). This work appears to have taken place along the north bank of the creek. When measured, this stretch terminates in the approximate area where the WPA walls along the north bank visible in Figures 4 and 5 are situated. In 1961, continued rehabilitation activities in the park denote "Improvement of the south bank of creek from the falls downstream" (*Minneapolis Park Board 79th Annual Report, 1961*). Plans from 1961 clearly illustrate an area along the south bank near the upper bridge for "proposed walls" (Figure 7). These walls apparently extended to the WPA segments visible in Figures 4 and 5 near the bend along the south bank. The 1961 plans also include a cross section of the retaining walls along the creek resting on a

concrete foundation (Figure 8). The appearance of the current walls throughout the upper glen conforms with this cross-section. It is not clear if the original WPA walls rested on a concrete foundation; however, the overall materials and design from the 1959 and 1961 construction/repair activities continued the Rustic Style architecture.

Because portions of the retaining walls along the creek within the park were constructed by the WPA in 1937 and subsequent repairs or new construction matched the Rustic Style architecture used by the WPA, the Corps has determined that the walls are eligible for listing on the National Register of Historic Places (NRHP) under Criterion A: association with Federal Relief Construction in Minnesota 1933-1941 and Criterion C: incorporation of Rustic Style Architecture. In addition, the walls may be considered as a contributing property to the Minnehaha Historic District.

Erosion is undermining the stability of the walls on both sides of the creek in areas above and below the falls. Currently the walls have gaps of 1 to 2 feet underneath the concrete footing that is supporting the walls. The walls have experienced some recent failures with a portion of the wall closest to the falls toppling over, and some areas downstream have sloughed due to the lack of structural support. The project intends to restore the walls to their original function and design, ultimately providing a positive effect to the walls. The project will replicate the walls' original construction both in architectural design and materials (i.e., Rustic Style). To this end, the principal repair work will be done by placing cement underneath the eroded concrete foundations. A stain will be added to the new cement to match it with the color of the existing walls. In areas were the walls have slumped, they will be rebuilt with the existing angular stone material, and the grout used in this process will be tinted, like the cement, to match the existing wall color and will also be texture matched to the existing walls. Figure 9 illustrates a typical section of the current walls. The area of protection will include approximately 1,390 feet of the walls, which are located on both sides of the creek along with an area immediately downstream of the walls that is experiencing bank erosion (see Figure 2). A typical cross section for the proposed rehabilitation is included in Figure 10. On January 10, 2008, members of your office and Corps staff formulated and concurred with the approach for the repairs during a visit to the project area.

Site access and staging areas will not impart ground disturbing activities. Erosion control in the upper reach of the lower glen will include filling of eroded areas; subsurface cultural deposits will not be affected. Access to the area adjacent to the walls below the falls is problematic. While most of the work will be completed by hand, some heavy equipment may need to enter the upper glen. It is envisioned that the work will not impact subsurface sediments in areas other than the creek bed. However, some grading of the path along the south bank of the creek may be necessary. If grading is needed, a cultural resources survey will be completed before construction starts, and additional investigations will be conducted as needed. Beyond repairing the walls and restoring them to their historic appearance, the project will have no indirect visual impacts to historic properties.

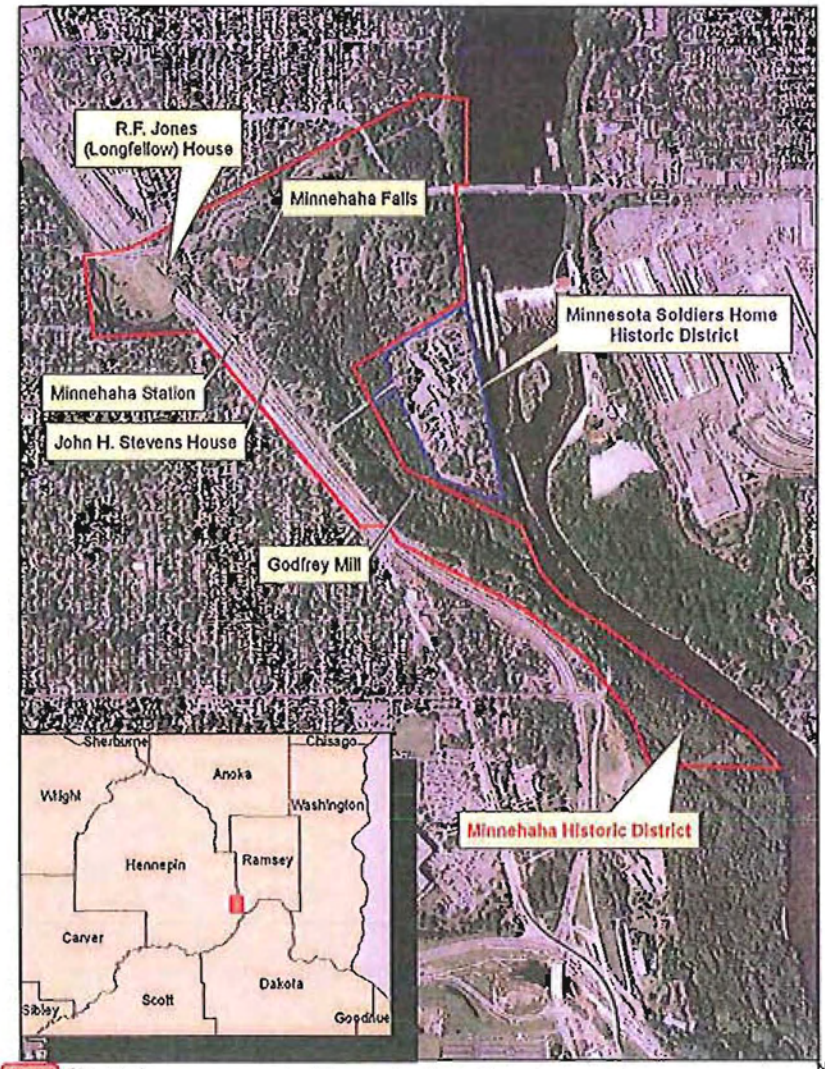
The project will maintain the walls' historic character by using color matched cement/mortar/texture and will use existing stone materials to retain the walls' Rustic Style design. No direct or indirect impacts will occur to other historic properties within the APE or the park. Outside of creek bed excavation, no earth moving activities will occur within the APE, and no archaeological resources will be affected. Therefore, the Corps has determined that the project will have No Adverse Effect to historic properties.

Please review the above and provide your comments as soon as possible. If you have any questions, please contact Mr. Bradley Perkl, Corps archaeologist, at 651-290-5370.

Sincerely,

Terry J. Birkenstock
Chief, Environmental and Economic
Analysis Branch

Enclosures



St. Paul District
Cultural
US Army Corps
of Engineers

Figure 1. Minnehaha Park Historic Retaining
Wall Rehabilitation Project Location

0.125 0.25 0.5 0.75 1
Miles

N

ben 6-4-09

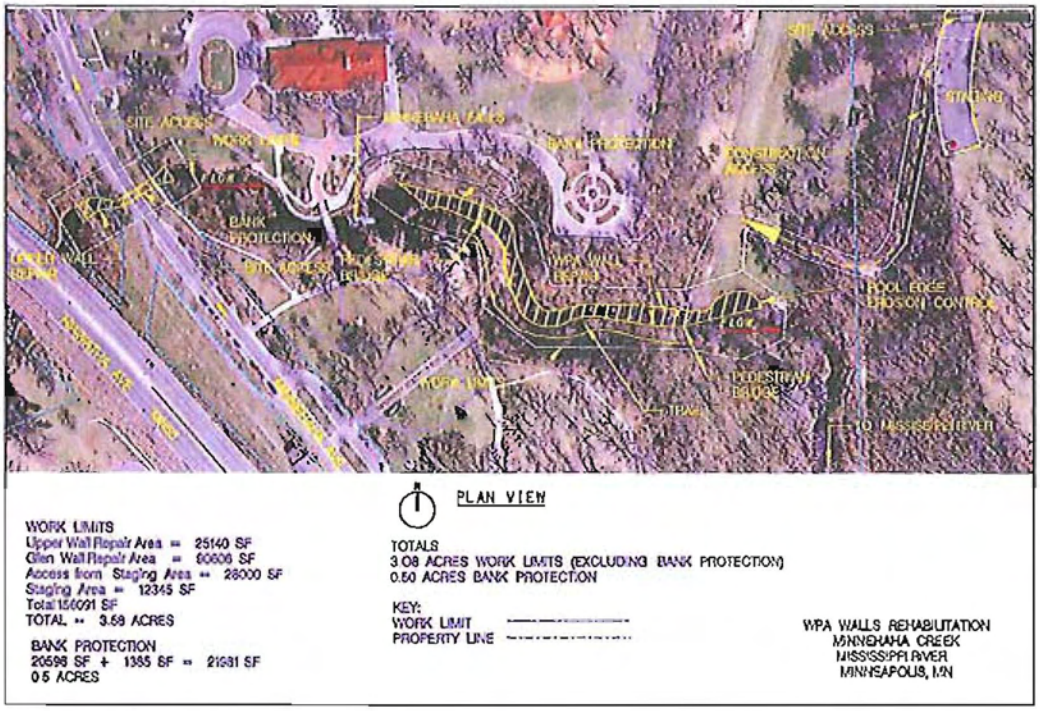
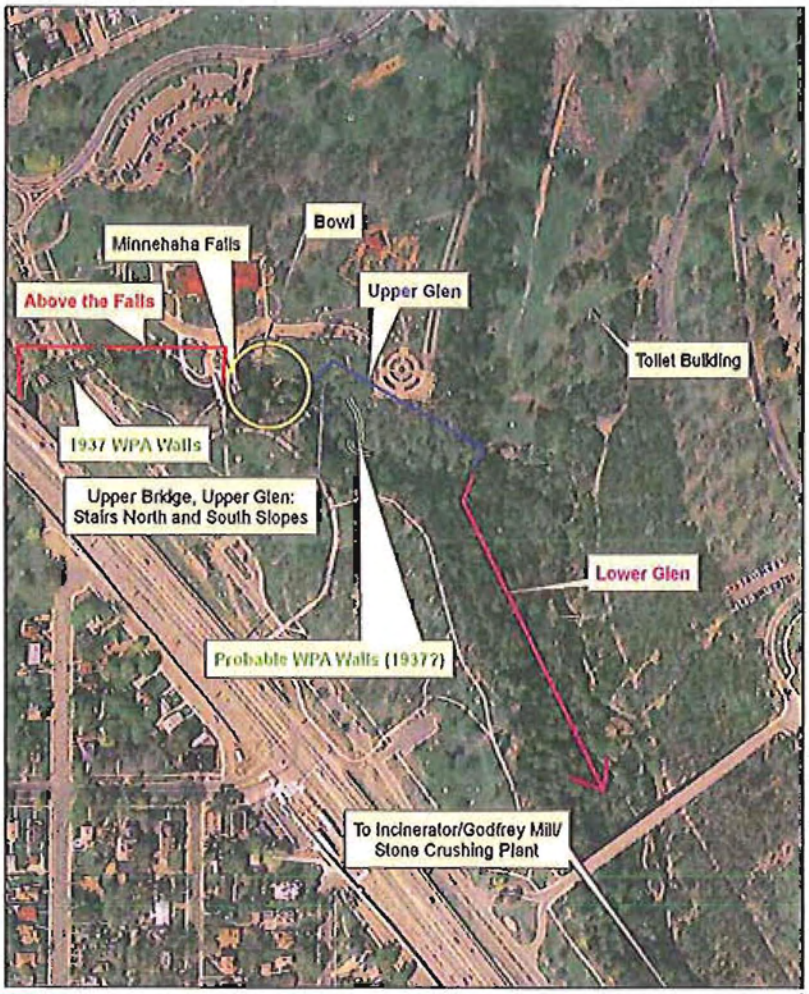


Figure 2. Project Area APE.



St. Paul District
Cultural
US Army Corps
of Engineers

Figure 3. General Park Locations and Features

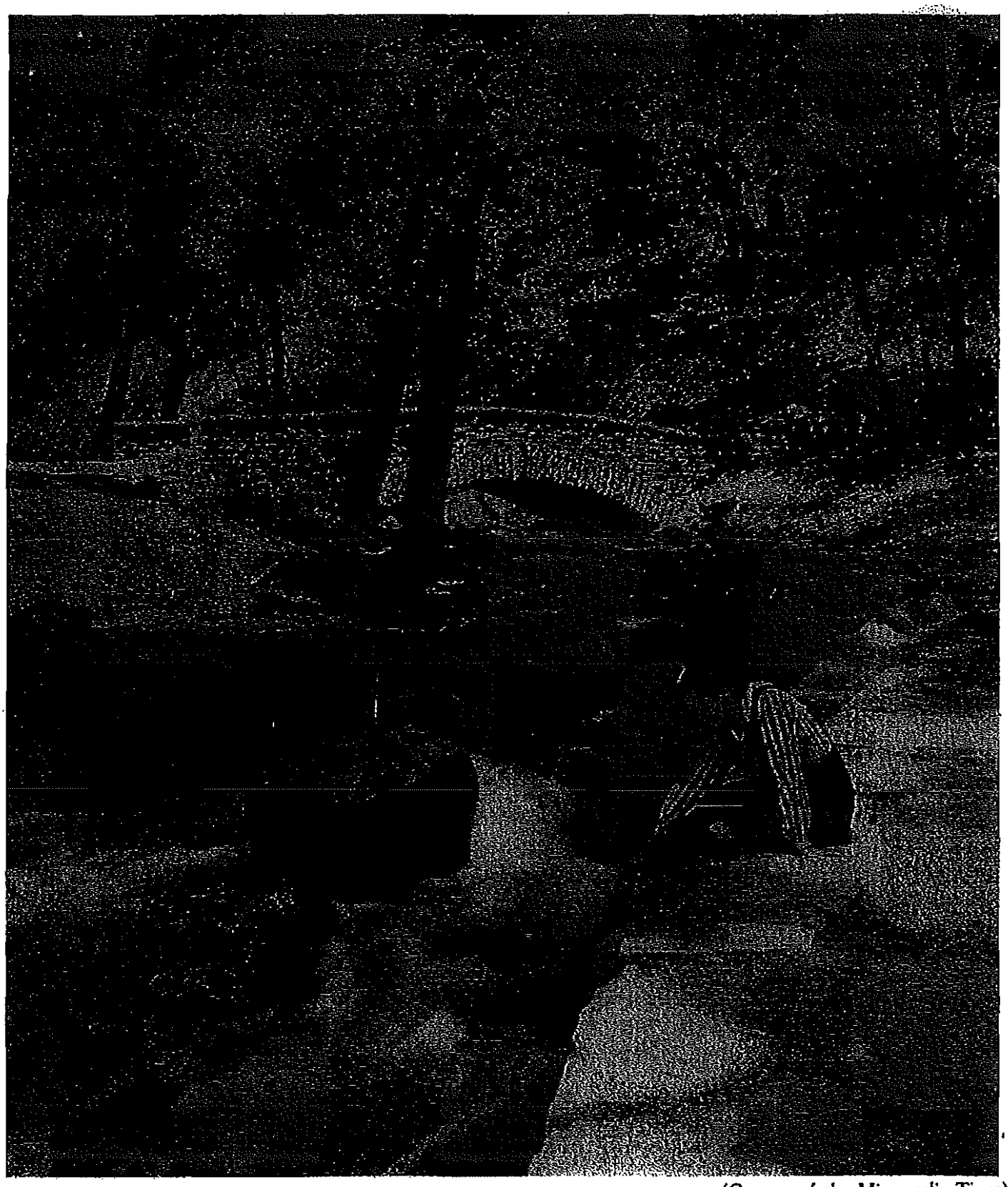
0 0.025 0.05 0.1 0.15 0.2
Miles

N

hep 8-5-03

Glen ca. 1940 Figure 4

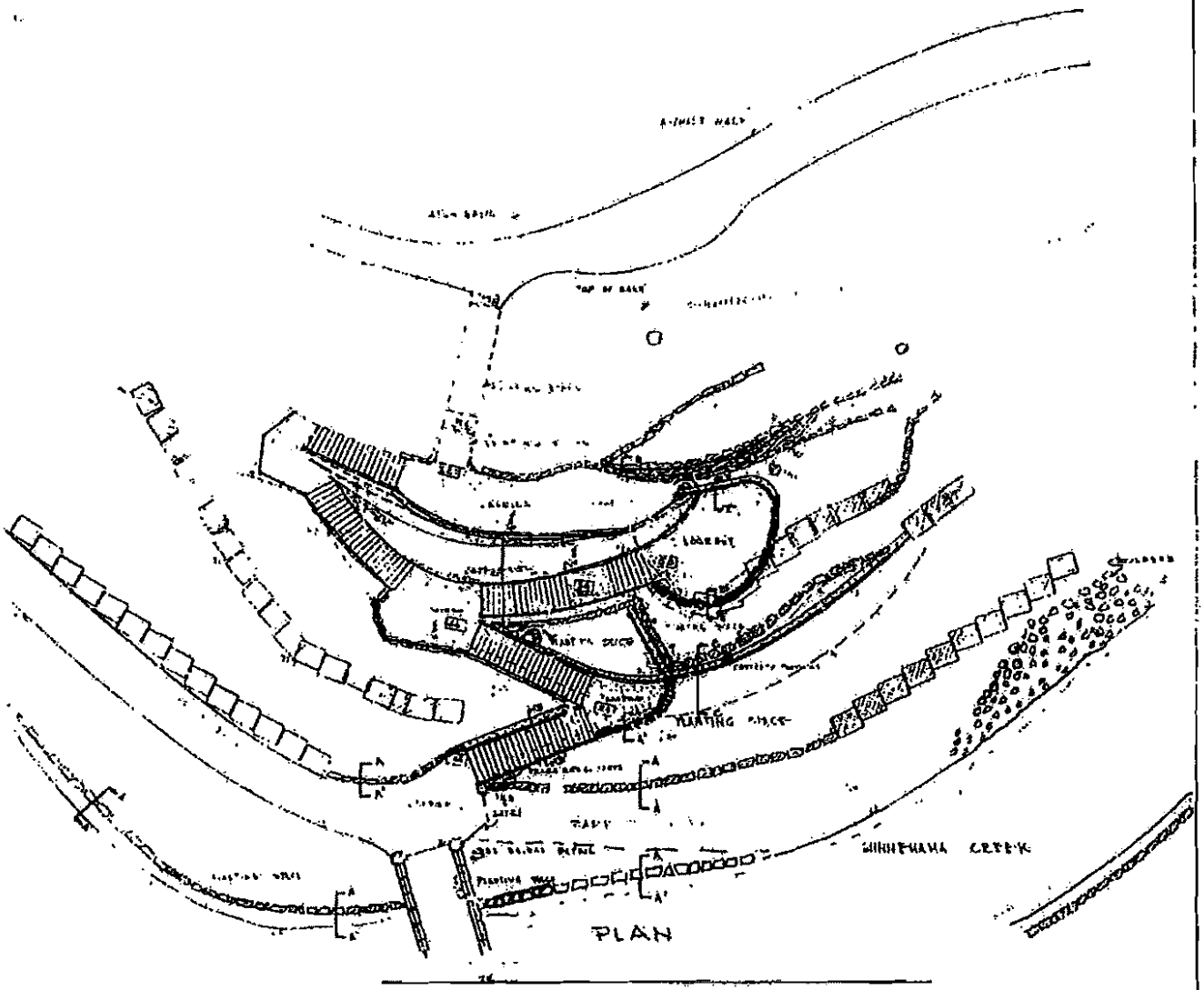
Figure 5

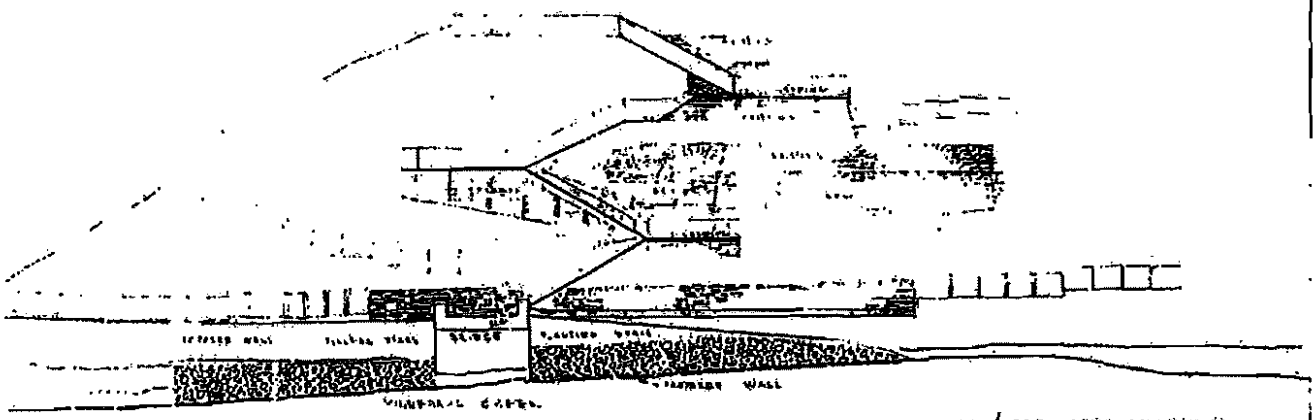


(Courtesy of the Minneapolis Times)

Minnehaha Creek in Longfellow Glen Below the Falls
1942

Figure 6.





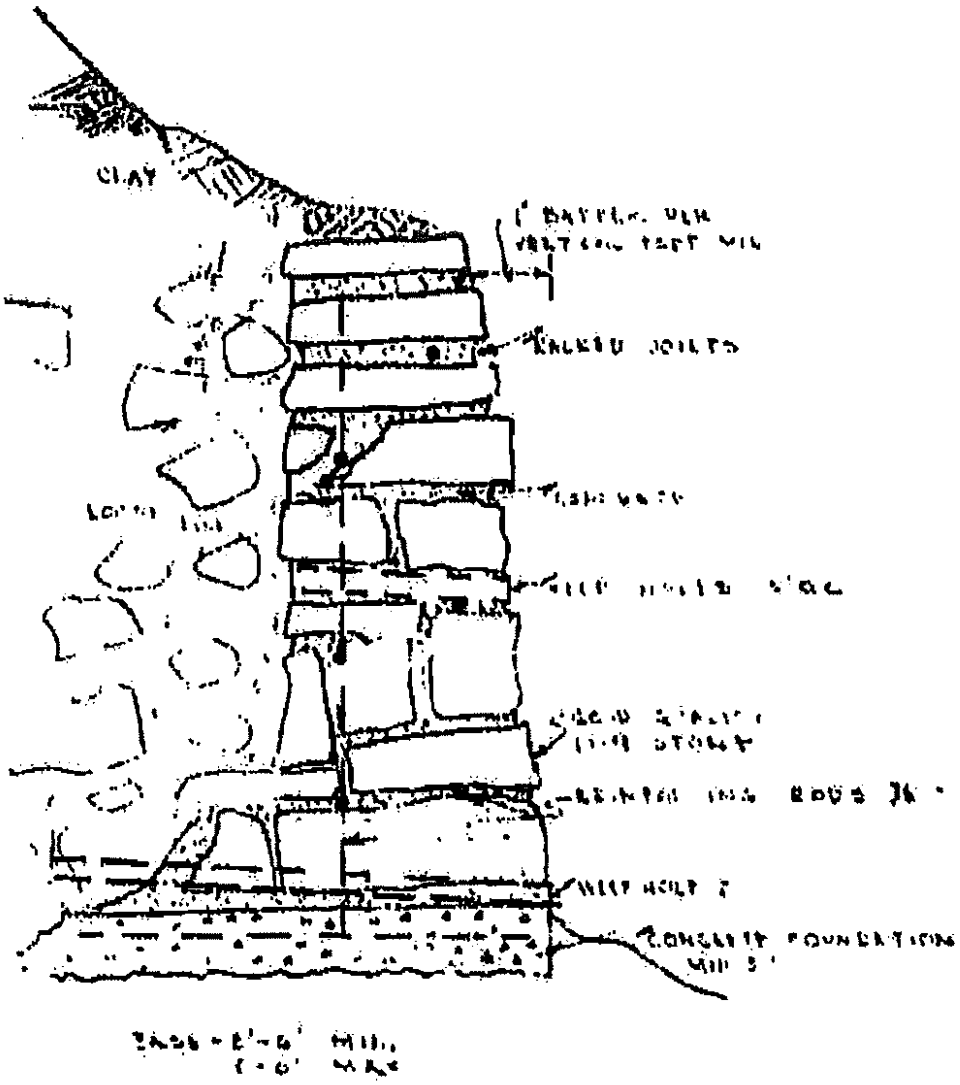
NOTE: SEE DETAIL SECTIONS

LOWER GLEN CONSTRUCTION DETAILS
MINNEHAHA PARK

BOARD OF PARK COMMISSIONERS
MINNEAPOLIS, MINNESOTA

Mhaha-D-Page-3 Figure 7.

0127-3



SECTION A-A'

NOTE: SEE ENGR DRAWING FOR STEEL DETAIL

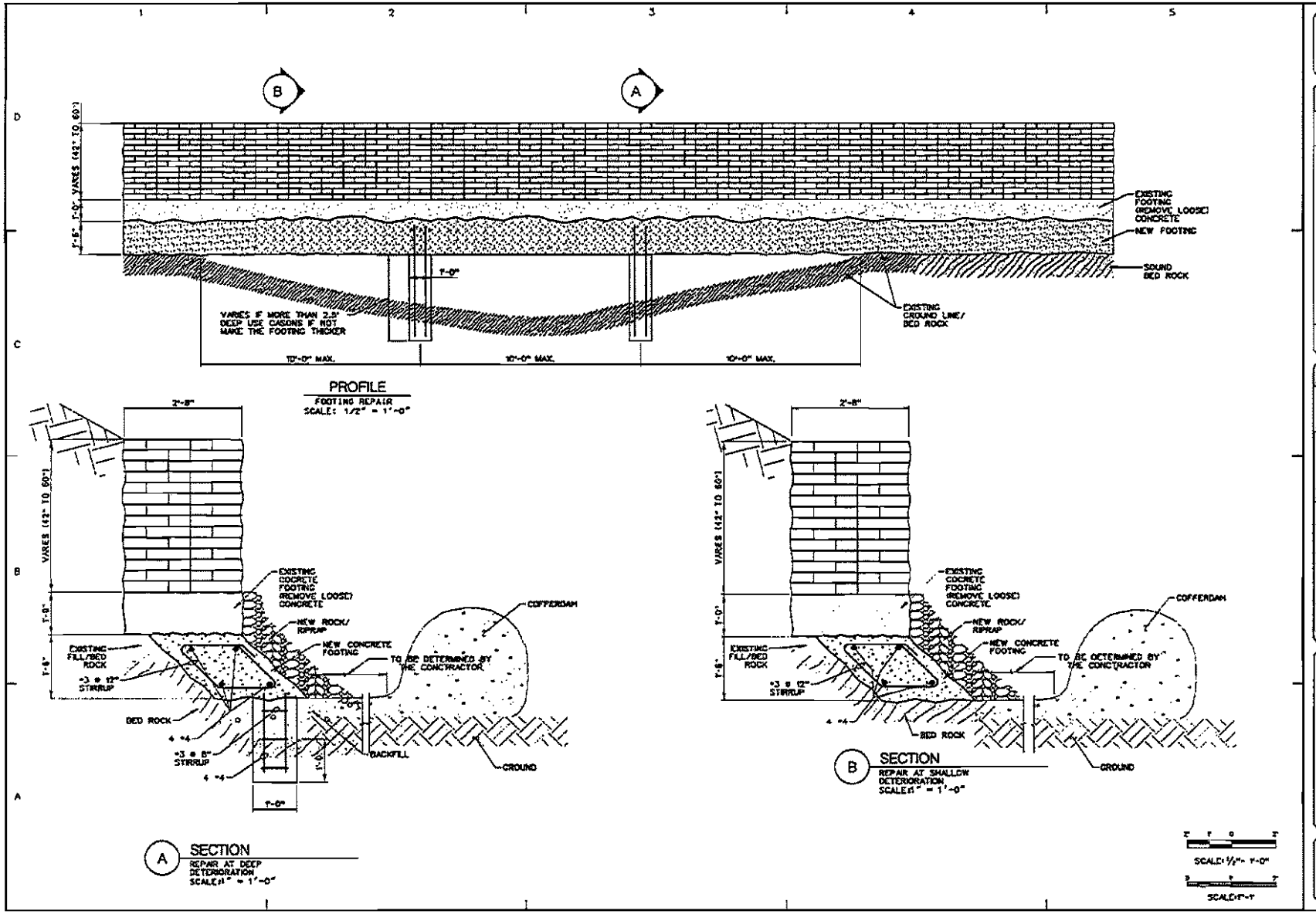
CONSTRUCTION PLANS 90 LOWER GLEN
MINNEHAHA PARK

BOARD OF PARK COMMISSIONERS
MINNEAPOLIS MINNESOTA

HOWARD I. MOORE - SUPT	T. K. DUNNING - LAND AREA ADM
E.D. BRADBURN - PARK ENGR	
	SCALE 1"=10' INLET 2'6"
	DRAWN BY KEV KEEFE — DA 895

Figure 8.

Figure 9



New Construction Detail Figure 10

United States Department of the Interior

NATIONAL PARK SERVICE
Mississippi National River and Recreation Area
111 E. Kellogg Blvd., Ste. 105
St. Paul, Minnesota 55101-1256

IN REPLY REFER TO:

June 13, 2008

Colonel Jon L. Christensen
District Engineer
St. Paul District, Corps of Engineers
190 Fifth Street East, Suite 401
St. Paul, MN 55101-1638

Dear Colonel Christensen:

I am writing to encourage the St. Paul District, Corps of Engineers to implement its recommended plan for stabilizing and reconstructing the historic retaining walls along Minnehaha Creek, in Minneapolis, Minnesota. The creek is the signature feature within Minnehaha Park. As you know, the park lies within the Mississippi National River and Recreation Area (MNRRA), a unit of the National Park system. Minnehaha Falls and Creek are among the nationally significant resources in this park unit that Congress hoped to preserve, enhance and interpret for the American people by establishing MNRRA.

The plan recommended in the "Environmental Assessment, Minnehaha Creek, WPA Walls, Minneapolis, Minnesota, Section 14 Streambank Protection" will ensure the preservation of nationally significant natural, cultural and socio-economic resources. Minnehaha Falls and Creek have been identified for potential listing as a National Natural Landmark, and MNRRA is pursuing that designation. The WPA walls are associated with important events in American history that played out locally. The rustic style architecture represented by the walls ties this place to many WPA sites throughout the United States. Through his "Song of Hiawatha," the falls and creek are intimately tied to Henry Wadsworth Longfellow. In 2006, Minnehaha Park received nearly 800,000 visitors, including people from around the country and world. Loss of the walls would adversely affect public health and safety and diminish the visitor experience.

If you have any questions regarding our concerns, please call me at 651-290-3030, extension 222.

Sincerely,

Paul R. Labovitz
Superintendent

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 1-800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us

June 9, 2008

Terry Birkenstock, Chief
Environmental and Economic Analysis Branch
U.S. Army Corps of Engineers
190 Fifth Street East
St. Paul, MN 55101-1638

RE: U.S. Army Corps of Engineers Environmental Assessment for Proposed Repair of Historic Walls at Minnehaha Falls near the Mississippi River in Minneapolis, Hennepin County, Minnesota; and Section 401 Certification Waiver.

Dear Mr. Birkenstock:

This letter is submitted by the Minnesota Pollution Control Agency (MPCA) under authority of Section 401 of the Clean Water Act (33 USC 1251 et seq.), Minn. Stat. chs. 115 and 116, and Minn. R. 7001.1400-.1470. The proposed project, as detailed in the Environmental Assessment and attached cover letter dated April 29, 2008, proposes to: a) provide bank stabilization, using concrete grout, of approximately 1,390 linear feet of eroding foundation of historic walls constructed by the Works Progress Administration along the Minnehaha Creek in Minneapolis, Minnesota; and b) repair approximately 100 linear feet of collapsed wall using original materials and concrete. During construction, a short-term minor increase in turbidity may occur during retrieval of the original material from the creek bed; however, mitigative measures (e.g., using an earthen cofferdam, silt fencing, performing work during low flow conditions) will be employed to minimize this impact.

The MPCA waives its Section 401 authority to certify the referenced project application. However, this action does not eliminate, waive or vary the applicant's responsibility of complying with all water quality standards and requirements contained in Minn. R. 7050 and all other applicable MPCA statutes and rules regarding water quality in the construction, installation and operation of the project. In addition, this action does not waive MPCA's authority to take necessary actions, including enforcement actions, to ensure that the applicant and the project's construction, installation and operation comply with water quality standards and all other applicable MPCA statutes, rules and permits governing water quality.

The MPCA decision to waive its Section 401 authority to certify the referenced project application is made, in part, on the applicant's representations that environmental review under the Minnesota Environmental Quality Control Board's rules, Minn. R. ch. 4410 is not needed for the project or, alternatively, that all necessary environmental reviews and related decisions have been completed and made. If environmental review for this project is necessary and has not concluded, this MPCA waiver decision is null and void and of no legal effect.

In that situation, the MPCA reserves the right to make a section 401 decision when the environmental review process is completed.

This action does not release the applicant from any liability, penalty or duty imposed by Minnesota or federal statutes, regulations, rules or local ordinances and it does not convey a property right or an exclusive privilege. For further information, please contact Kevin Molloy at 651-297-7572.

Sincerely,

David Richfield
Municipal Division

DR/KM:jgo

cc: John Shyne, U.S. Corps of Engineers St. Paul District
Kevin M. Pierard, U.S. Environmental Protection Agency
Dan Stinnet, Field Supervisor, U.S. Fish and Wildlife Service
Kent Lokkesmoe, Director, DNR Waters
Steve Colvin, Ecological Services, Environmental Review, MDNR
Judy Mader, MPCA

State Historic Preservation Office

July 10, 2008

Mr. Terry Birkenstock
Chief, Environmental & Economic Analysis Branch
U.S. Army Corps of Engineers
190 5th Street East
St. Paul, MN 55101-1638

Re: Restoration of Historic Retaining Walls along Minnehaha Creek, Minnehaha Park
Minneapolis, Hennepin County
SHPO Number: 2008-2412

Dear Mr. Birkenstock:

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the Advisory Council on Historic Preservation (36CFR800), and to the responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

We concur with your determination that the stone walls lining Minnehaha Creek in Minnehaha Park are contributing elements in the Minnehaha Historic District, which is listed on the National Register of Historic Places.

On the basis of the description of the proposed work to rehabilitate these walls, we concur with your determination that the project will have **no adverse effect** on the historic district. This finding is made with the following conditions:

1. All new mortar used in the project should match the historic mortar in terms of color, texture, composition, hardness, and joint profile. Samples of the historic mortar should be tested as a basis for the specifications of the new mortar. The results of the testing and the new specifications should be submitted to our office for review and concurrence.

2. The Structural Profile Specifications (Sheet S-002, included with your submittal as Figure 10) illustrate a wall with precise regular patterning of the stone, quite different than the historic walls that are in place. Based on your narrative, we assume that the drawing on Sheet S-002 is not a precise depiction of how the walls are to be reconstructed, but that the historic patterning will serve as the basis for reconstruction (as you indicate on page 4 of your letter, with reference to figure 9).

3. We note that you have indicated that an archaeological survey will be completed for any work areas where ground disturbance is necessary. If any sites are identified, we should be consulted with regard to evaluation and treatment. Please ensure that there are adequate provisions in the construction contract to accommodate adequate time for this consultation, should it be necessary.

Contact us at 651-259-3456 with questions or concerns about our review of this project.

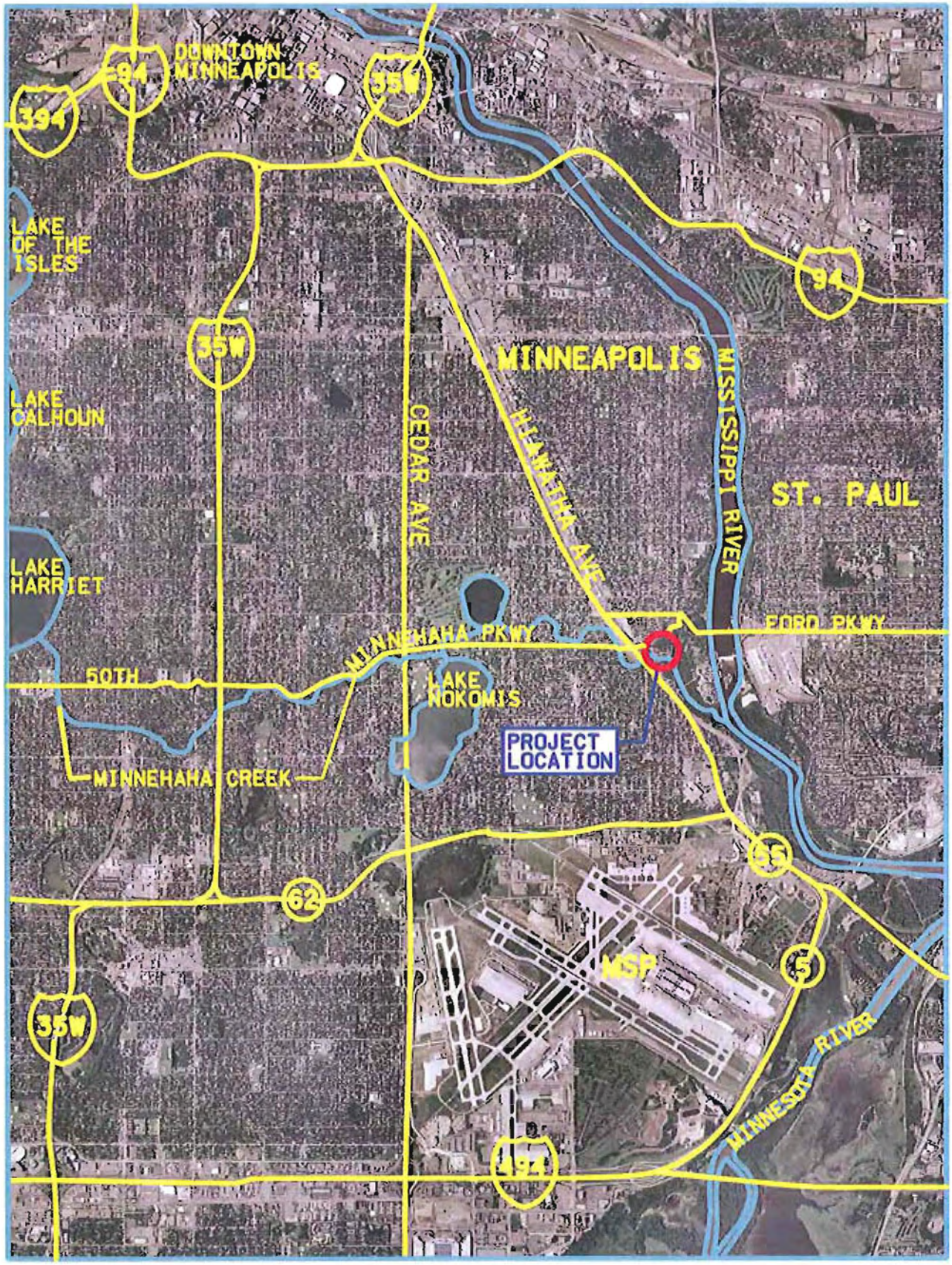
Sincerely,

Britta L. Bloomberg
Deputy State Historic Preservation Officer

cc: Judd Rietkerk, Minneapolis Park and Recreation Board
Jack Byers, Minneapolis Heritage Preservation Commission

Enclosure C

Maps and Drawings

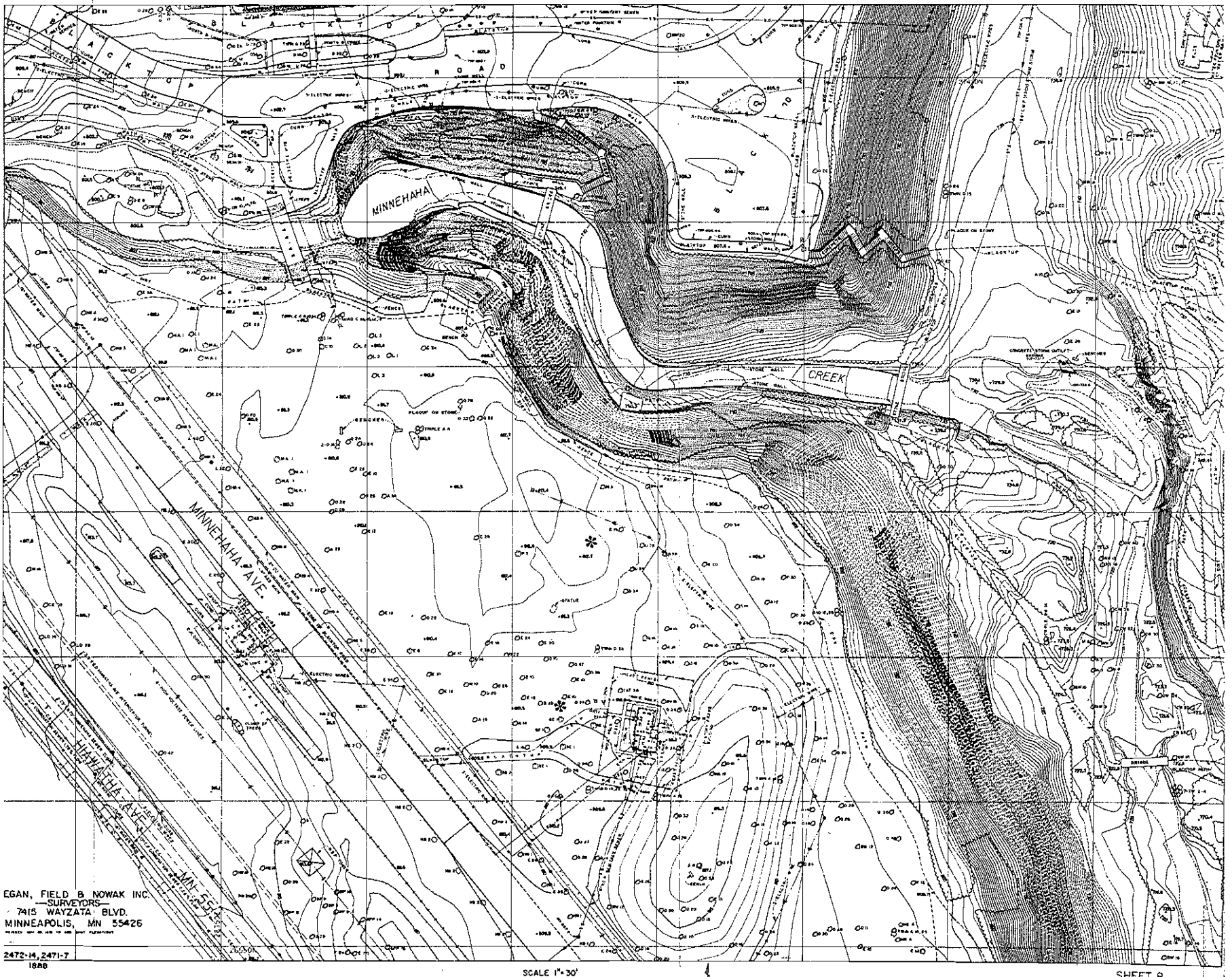


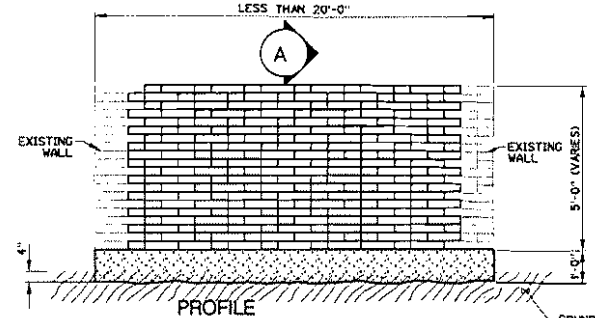
N

MINNEHAHA PARK
WPA WALLS
VICINITY MAP

Minnehaha Park

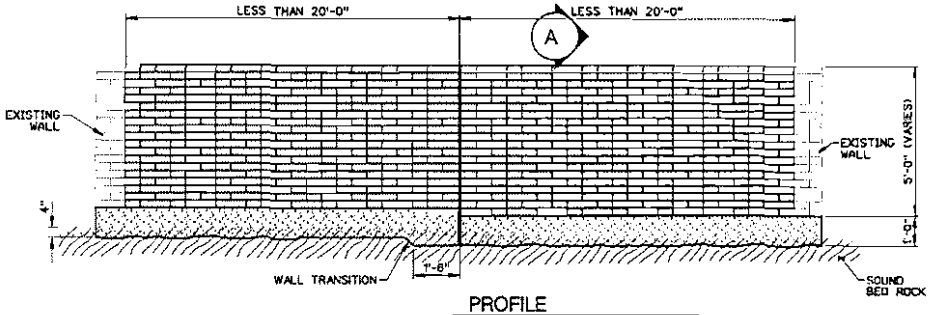
50 25 0 50 Feet


BLACKTOP ROAD
MINNEHAHA
CREEK
MINNEHAHA AVE.
HIAWATHA AVE.
MN 55
EGAN, FIELD & NOWAK INC.
—SURVEYORS—
7415 WAYZATA BLVD.
MINNEAPOLIS, MN 55426
2472-14, 2471-7
1888
SCALE 1"=30'
N
SHEET 8
5127-78



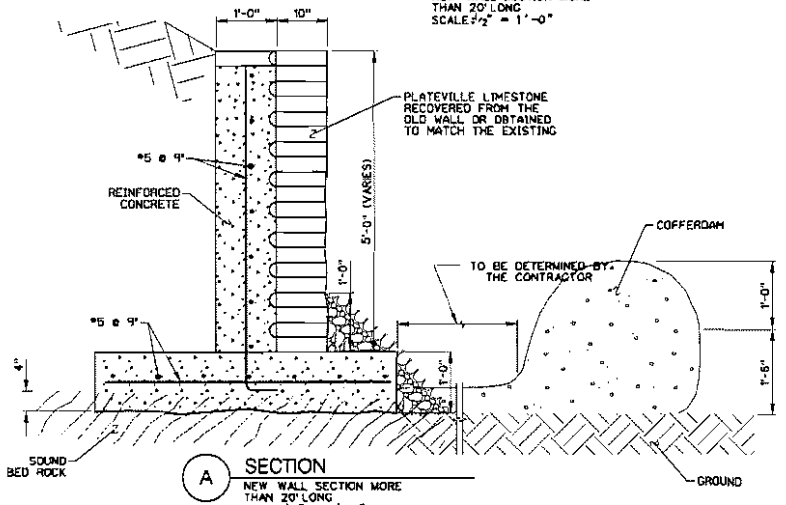
PROFILE

NEW WALL SECTION LESS THAN 20' LONG
SCALE: 1/2" = 1'-0"



PROFILE

NEW WALL SECTION MORE THAN 20' LONG
SCALE: 1/2" = 1'-0"



A SECTION

NEW WALL SECTION MORE THAN 20' LONG
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

CONCRETE:

1. EXPANSION JOINTS SPACED AT 20' INTERVALS (OR AS INDICATED)
2. WALL MONOLITH PLACEMENTS ARE LIMITED TO 20 LINEAR FEET.
3. ALL CONCRETE TO BE 4000 PSI AT 28 DAYS.
4. ROUGHEN TOP OF WALL FOOTING BETWEEN STEM DOWELS TO A MINIMUM AMPLITUDE OF 1/4".

REINFORCEMENT:

1. ALL BAR SPACING SHOWN ARE IN INCHES AND ARE THE MAXIMUM SPACING FOR THE BARS.
2. REINFORCING BARS NOT DETAILED AT OPENINGS AND EMBEDDED ITEMS SHALL BE SHIFTED, BENT OR CUT AS DIRECTED BY THE CONTRACTING OFFICER.
3. REINFORCING BARS SHALL BE PLACED TO PROVIDE 2" OF COVER UNLESS OTHERWISE NOTED (2" COVER ON TOP SLAB).

SCALE: 1"=1'

SCALE: 1/2"= 1'-0"

US Army Corps of Engineers St. Paul District

Symbol	Description	Date	Appr.

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT
CORPS OF ENGINEERS
ST. PAUL, MINNESOTA

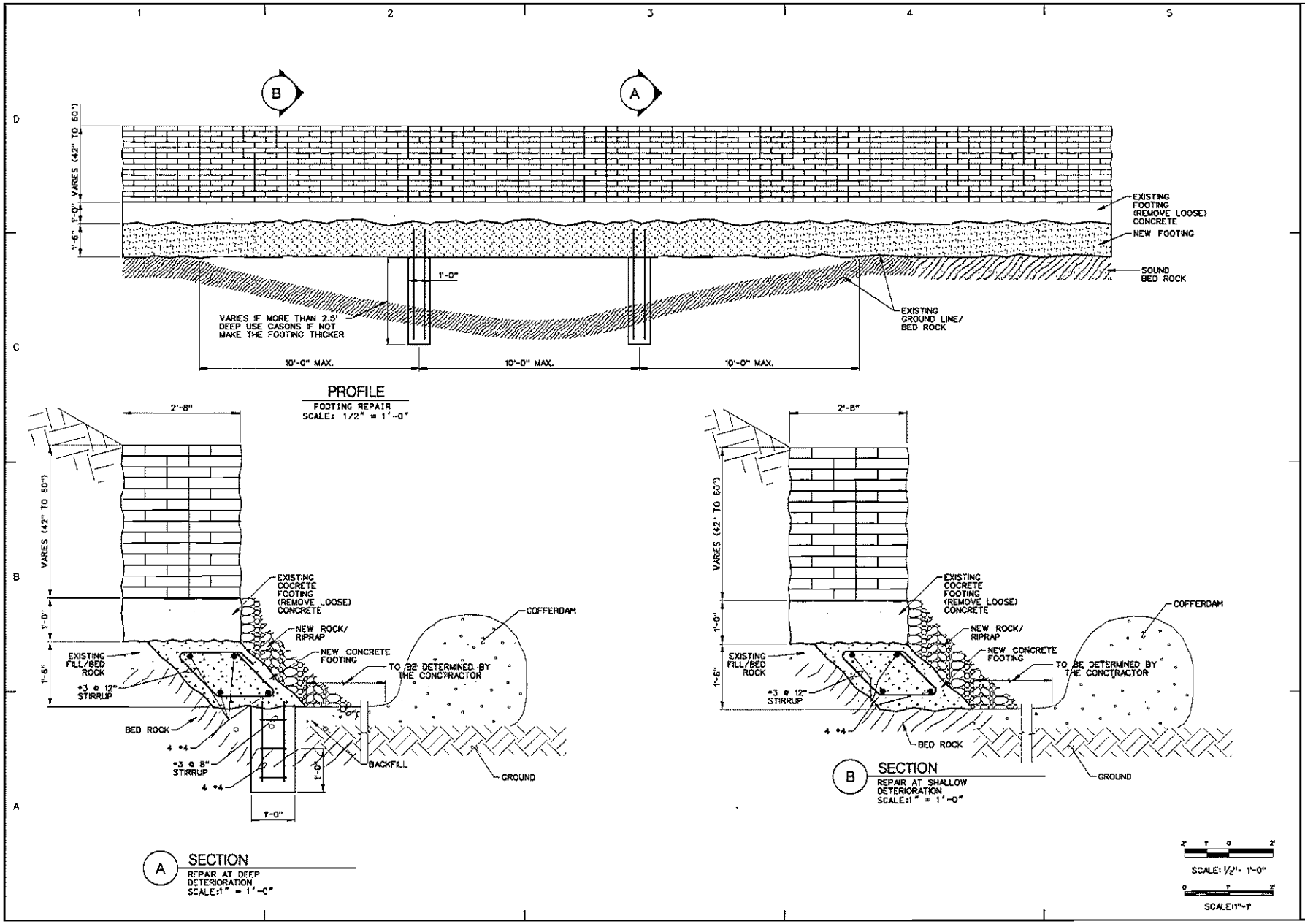
Designed by: TJP | Date: January 2003 | Rev.
Dwn by: | Ckd by: | Submitted:
Authority: PROJECT NUMBER | Drawing Number: 8.8.W.P.-10-006
Coordinates: Minnesota State Plane Zone, NAD 1983, US Survey Ft. Vertical Datum: Mean Sea Level, NGVD 1929
Plot Scale: 1:1 | Plot Date:

CONSTRUCTION DRAWINGS
MINNEHAHA CREEK, MN - LAKE MINNETONKA
MINNEAPOLIS, MINNESOTA

STRUCTURAL PROFILES SECTION

Sheet reference number: S-001

Sheet 1 of 2



US Army Corps of Engineers
St. Paul District

Symbol	Description	Date	Appr

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT
CORPS OF ENGINEERS
ST. PAUL, MINNESOTA

Designed by: TP | Date: January 2008 | Rev.
Dwn by: | Ckd by: | Submitted by: Project Manager
Authority: Project Authority | Project Number: 84842-02-000
File Name: P:\5000_FY07\Cedar Rapids\
Plot Scale: As Shown | Plot Date:

Project's Coordinate System
UTM ZONE 15 SURVEY FT
NAD 1983, US SURVEY FT
Vertical Datum: NAVD 1988
MSL 1929 Not Used

CONSTRUCTION DRAWINGS
WINONAH CREEK, WPA WALL
WINONAH CREEK, NO. 1 LAKE MINNETONKA
MINNEAPOLIS, MINNESOTA

STRUCTURAL
PROFILE
SECTIONS

Sheet reference number:
S-002
Sheet 2 of 2

Enclosure D

Finding of No Significant Impact

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
SIBLEY SQUARE AT MEARS PARK
190 FIFTH STREET EAST, SUITE 401
ST. PAUL, MN 55101-1638

REPLY TO
ATTENTION OF

Environmental and Economic Analysis Branch
Planning, Programs and Project Management Division

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act, the St. Paul District, Corps of Engineers, has assessed the environmental impacts of the following project:

BANK STABILIZATION,
MINNEHAHA CREEK WPA WALLS
MINNEAPOLIS, HENNEPIN COUNTY, MINNESOTA

The intent of this project is to provide bank stabilization along Minnehaha Creek in Hennepin County at Minneapolis, Minnesota. The proposed project involves the protection, using concrete grout, of about 1,390 linear feet of eroding foundation of historic walls constructed by the Works Progress Administration. It also includes the repair with concrete and original materials of about 100 linear feet of collapsed wall. This finding of no significant impact is based on the following factors: the project would have no adverse impacts on fish and wildlife resources; the project would have short-term minor impacts on the social environment and on air and water quality; and the project would have no impact on the cultural environment. The project would substantially benefit public health and safety and public facilities and services. Continued coordination would be maintained with appropriate State and Federal agencies.

The environmental review process indicates that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

14 Jul 08
Date

Jon L. Christensen
Colonel, Corps of Engineers
District Engineer