MILAN BRIDGE HAER No. MN-139
(Minnesota Department of Transportation Bridge 5380)
Carries Trunk Highway 40 over the Lac qui Parle Reservoir (Minnesota River)
Milan Vicinity
Chippewa County and Lac qui Parle County
Minnesota

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Midwest Regional Office
601 Riverfront Drive
Omaha, NE 68102

HISTORIC AMERICAN ENGINEERING RECORD

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Large format photographs by Daniel R. Pratt, November 2018.

Scale stick in photographs is 4 feet long.

MN-139-1 SOUTH SIDE OF MILAN BRIDGE AND THE HIGHWAY 40 CAUSEWAY FROM THE EAST SHORE OF LAC QUI PARLE RESERVOIR, LOOKING NORTHWEST.

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MN-139-3 WEST SET OF GRANITE STEPS ON THE NORTH SIDE OF THE CAUSEWAY ABOUT 350 FEET WEST OF MILAN BRIDGE, LOOKING SOUTHWEST.

MN-139-4 DRY-LAID GRANITE RIPRAP ON THE SOUTH SIDE OF THE CAUSEWAY ABOUT 1,100 FEET WEST OF MILAN BRIDGE, LOOKING NORTHEAST.

MN-139-5 DRY-LAID GRANITE RIPRAP ON THE NORTH SIDE OF THE CAUSEWAY ABOUT 1,000 FEET WEST OF MILAN BRIDGE, LOOKING NORTHEAST.

MN-139-6 SOUTH SIDE OF THE HIGHWAY 40 CAUSEWAY ABOUT 1,000 FEET WEST OF MILAN BRIDGE, LOOKING NORTHEAST.

MN-139-7 WEST END OF THE HIGHWAY 40 CAUSEWAY AT THE WEST SHORE OF LAC QUI PARLE RESERVOIR, LOOKING SOUTHWEST.

MN-139-8 PUBLIC PARKING AREA SOUTHEAST OF MILAN BRIDGE, LOOKING NORTHWEST.

MN-139-9 HIGHWAY 40 APPROACHING MILAN BRIDGE AND THE LAC QUI PARLE RESERVOIR FROM THE EAST, LOOKING SOUTHWEST.

MN-139-10 MILAN BEACH SOUTHEAST OF MILAN BRIDGE, LOOKING WEST.

MN-139-11 BRIDGEHEAD PROTECTED BY MORTARED GRANITE RIPRAP AT THE NORTHEAST CORNER OF MILAN BRIDGE, LOOKING NORTH.

MN-139-12 NORTHEAST CORNER OF MILAN BRIDGE WITH MILAN BEACH RESORT IN VIEW, LOOKING NORTHEAST.

MN-139-13 MORTARED GRANITE RIPRAP AND EAST END OF HIGHWAY 40 CAUSEWAY WITH PUBLIC ACCESS DOCK IN VIEW, LOOKING SOUTHEAST.

MN-139-14 TERRACE ON BRIDGEHEAD AT THE NORTHEAST CORNER OF MILAN BRIDGE, LOOKING SOUTH-SOUTHWEST.

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MN-139-17 STEPS TO BRIDGEHEAD TERRACE AT THE NORTHEAST CORNER OF MILAN BRIDGE, LOOKING SOUTHWEST.

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MN-139-29 PANEL DETAILS ON SOUTH SIDE OF MILAN BRIDGE NEAR CENTER OF SPAN, LOOKING SOUTHEAST.

Construction plan sheets for the Milan Bridge (Bridge 5380) were prepared by staff of the Minnesota Department of Highways and approved by Bridge Engineer M. J. Hoffman, Construction Engineer O. L. Kipp, and Chief Engineer J. T. Ellison. Ellison dated his signature September 27, 1937. An original hard copy set of plans has not been located. The Minnesota Department of Transportation (MnDOT) Bridge Office in Oakdale, Minnesota, holds an electronic Portable Document Format (PDF) copy. 4" x 5" copy negatives of the most relevant sheets from this plan set are included as part of this HAER documentation. Printouts on 11" x 17" paper of the entire set are included in this HAER documentation's field records.

The final two 4" x 5" copy negatives (MN-139-42 and MN-139-43) reproduce loose drawings held in MnDOT's Bridge 5380 Archive File in the MnDOT Records Center in St. Paul, Minnesota.

MN-139-30 COVER SHEET FOR DEPARTMENT OF HIGHWAYS CONSTRUCTION PLAN FOR BRIDGE 5380.

MN-139-31 GENERAL PLAN AND ELEVATION; PLAN SHEET 1 OF 10.

MN-139-32 SUPERSTRUCTURE CROSS SECTION; PLAN SHEET 3 OF 10.

MN-139-33 DETAILS OF SUPERSTRUCTURE; PLAN SHEET 4 OF 10.

MN-139-34 DETAILS OF RAILING; PLAN SHEET 5 OF 10.

MN-139-35 DETAILS OF ABUTMENTS; PLAN SHEET 6 OF 10.

MN-139-36 DETAILS OF WEST ABUTMENT; PLAN SHEET 6A OF 10.

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MN-139-38 DETAILS OF ABUTMENT RAILING; PLAN SHEET 8 OF 10.

MN-139-39 PLAN & PROFILE OF CROSS-OVER; SUPPLEMENTARY SHEET NO. 1.

MN-139-40 SKETCH SHOWING LOCATION OF APPROACH FILLS.

MN-139-41 PLAN OF PROPOSED RIP-RAP FOR BRIDGE HEADS (APPROVED MAY 5, 1938).

MN-139-42 SCHEDULE OF RIP-RAP QUANTITIES FOR EACH ABUTMENT; UNDATED.

MN-139-43 LAC QUI PARLE RESERVOIR, MILAN BRIDGE CROSSING (HIGHWAY 40 CAUSEWAY SECTION DRAWN BY ADOLPH F. MEYER, CONSULTING HYDRAULIC ENGINEER, SEPTEMBER 1937).

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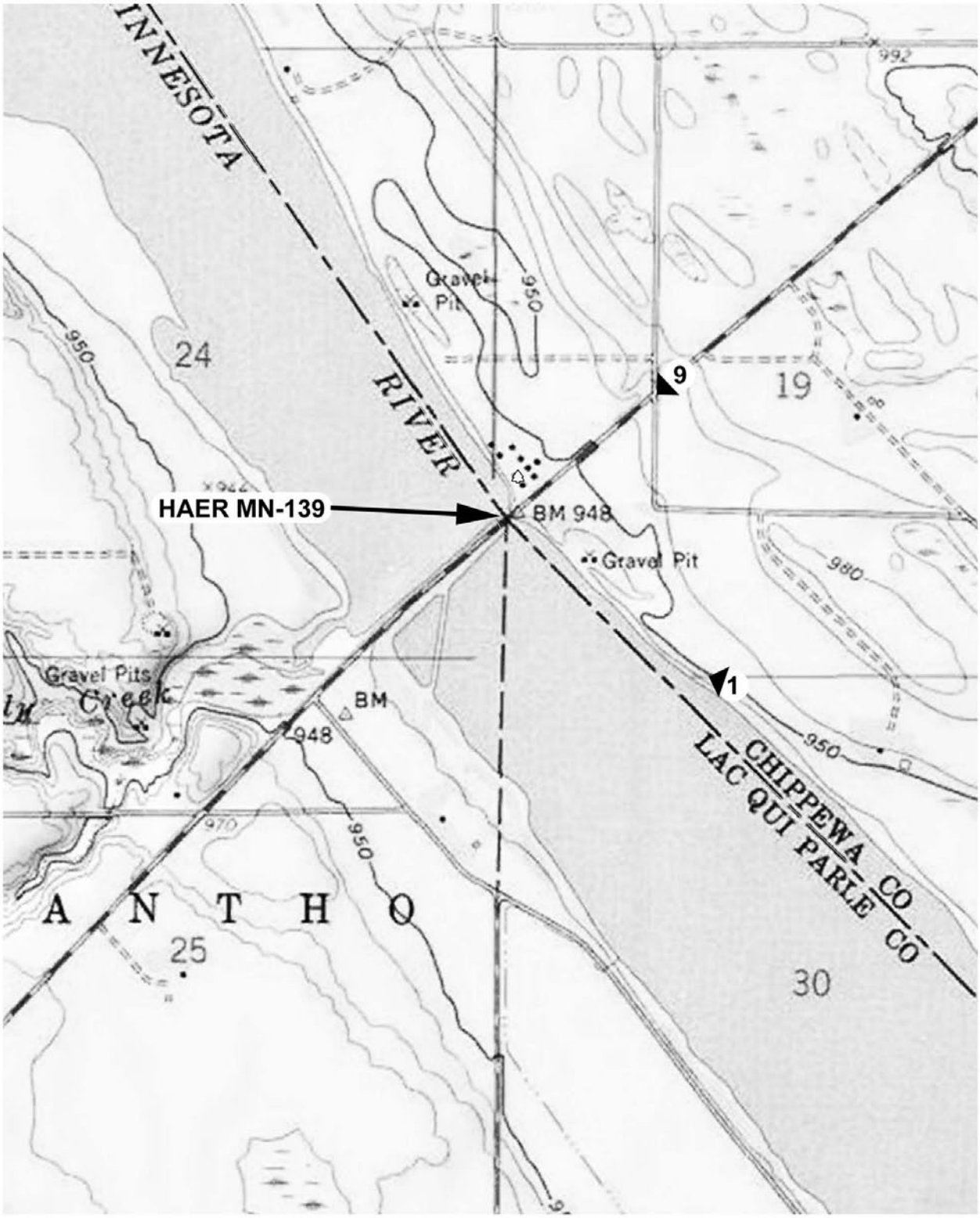

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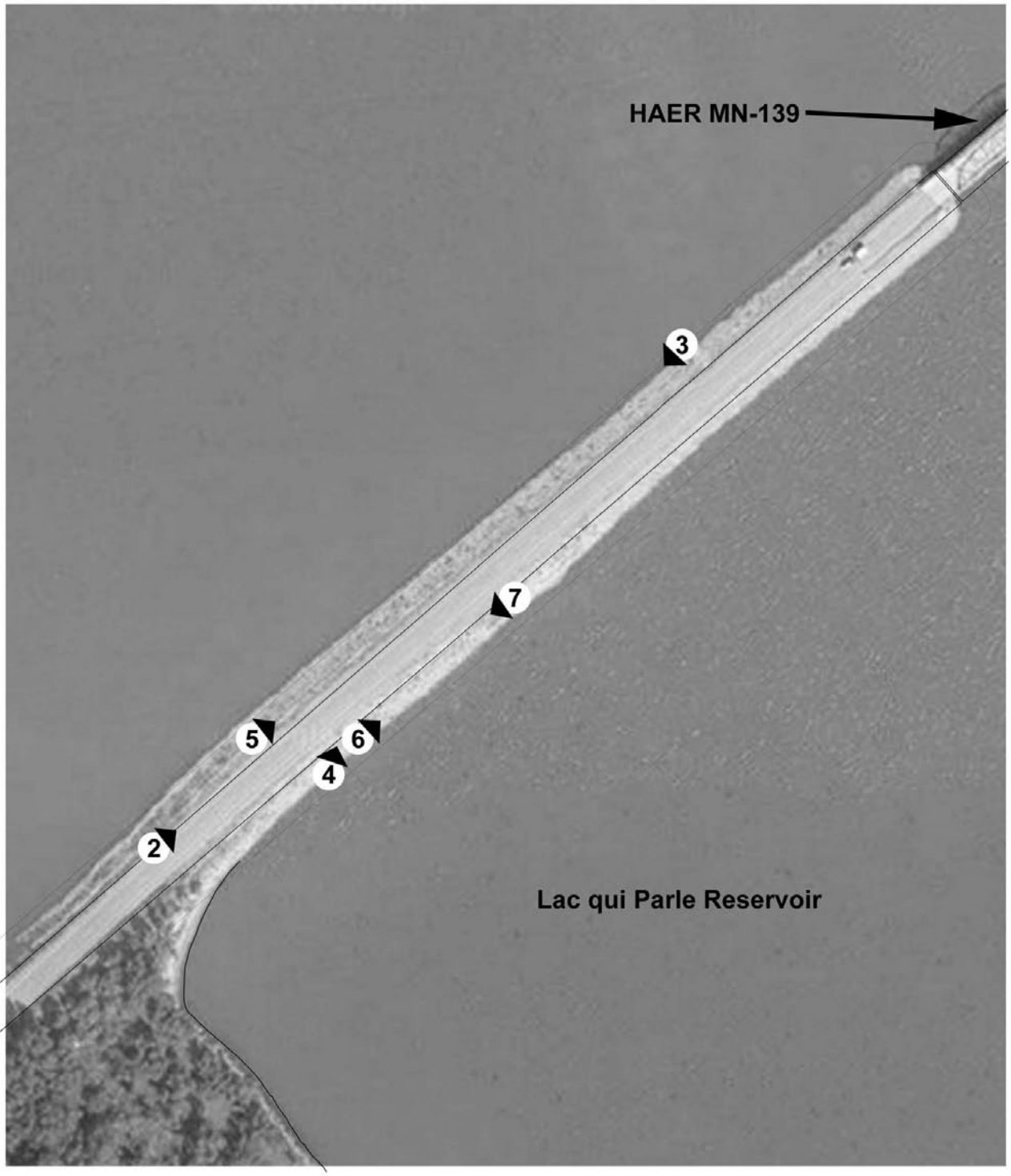

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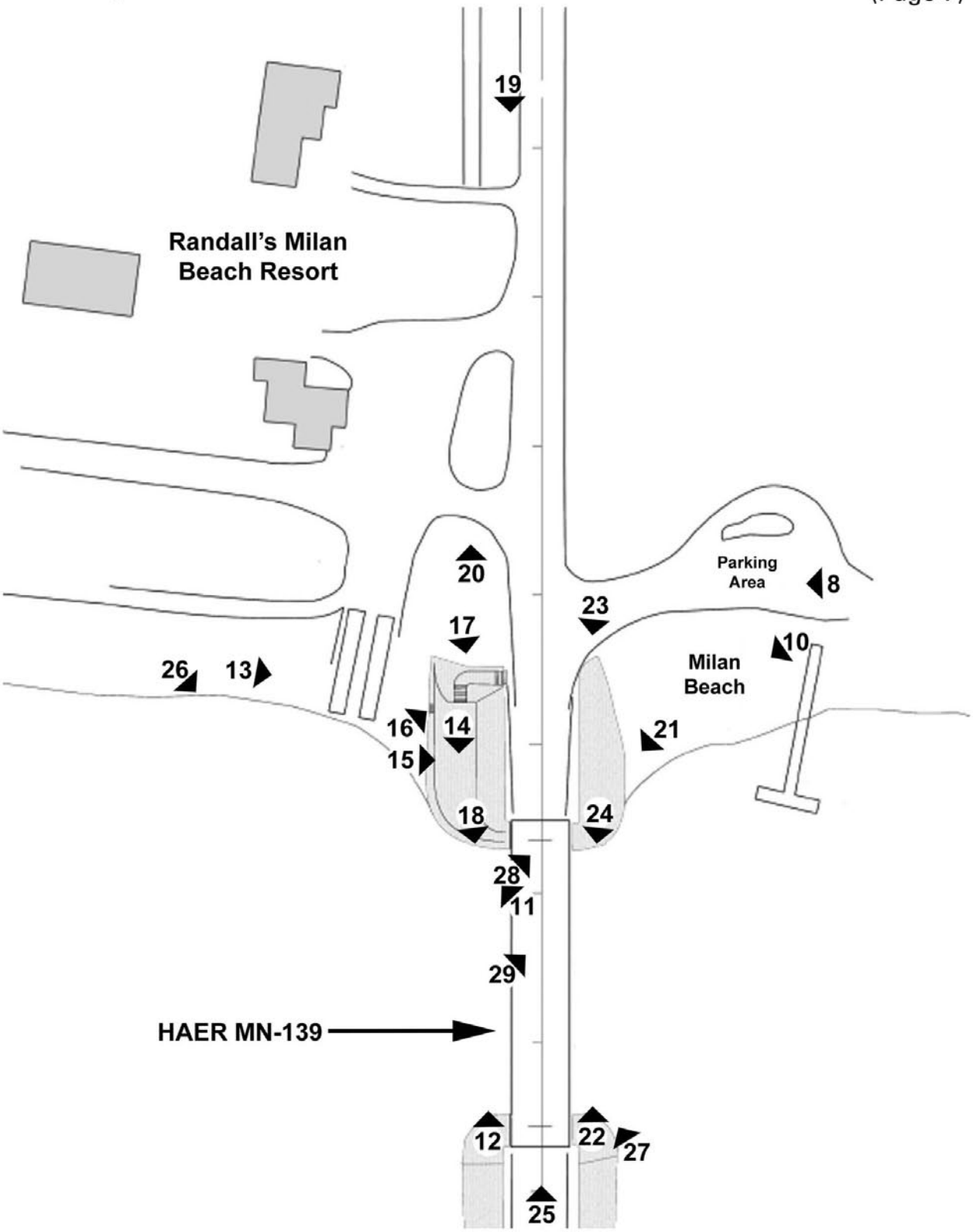

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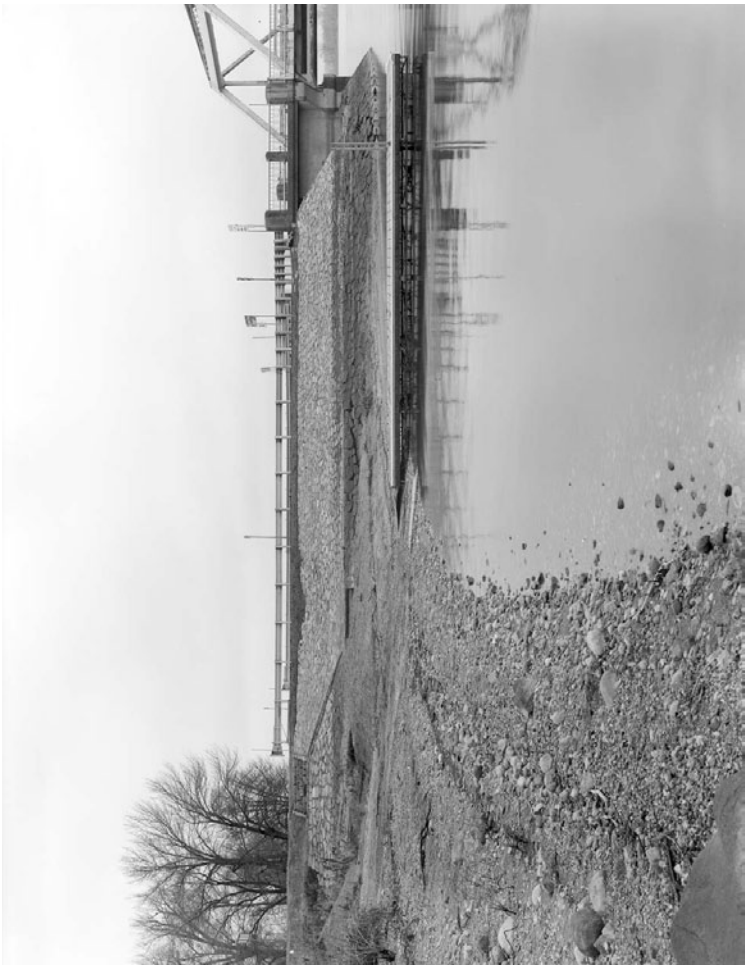

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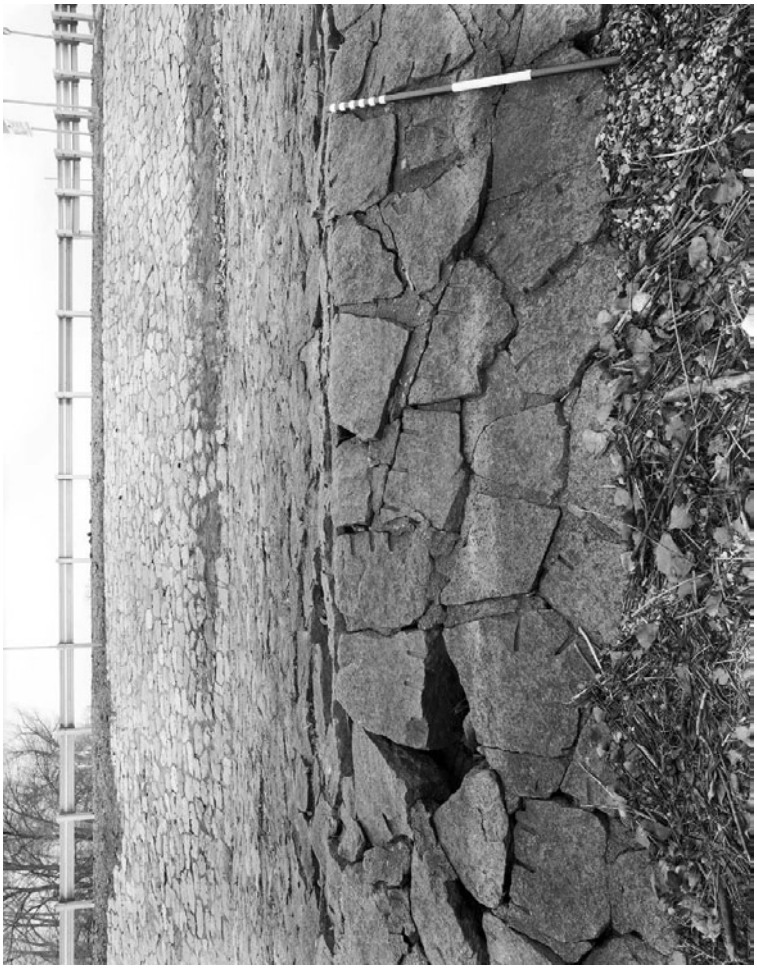

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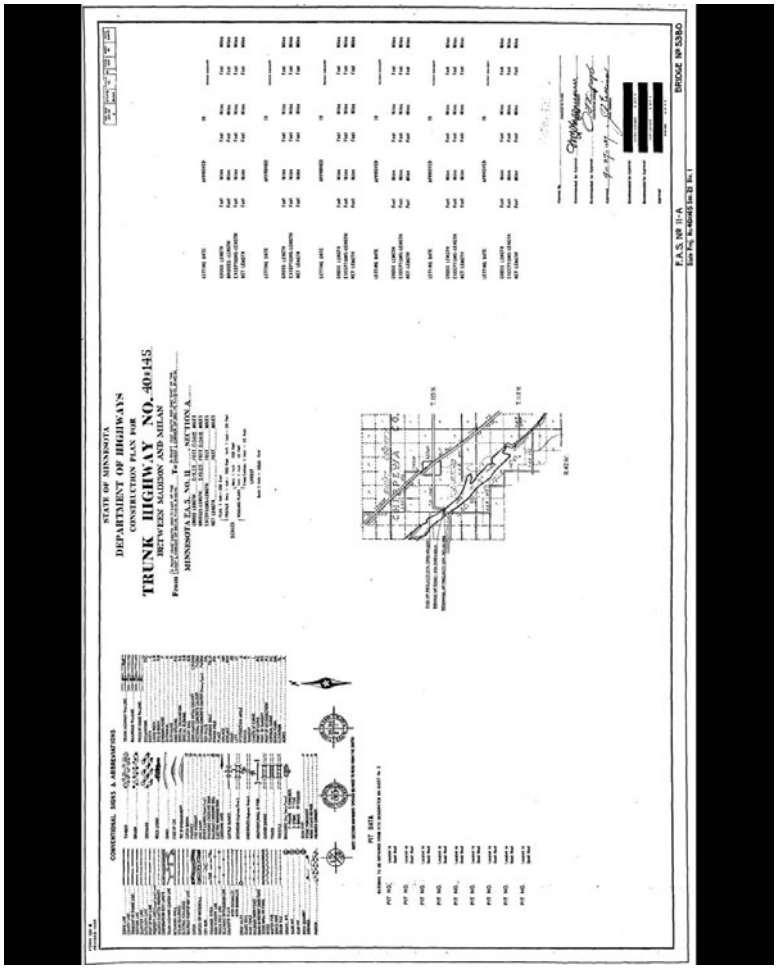

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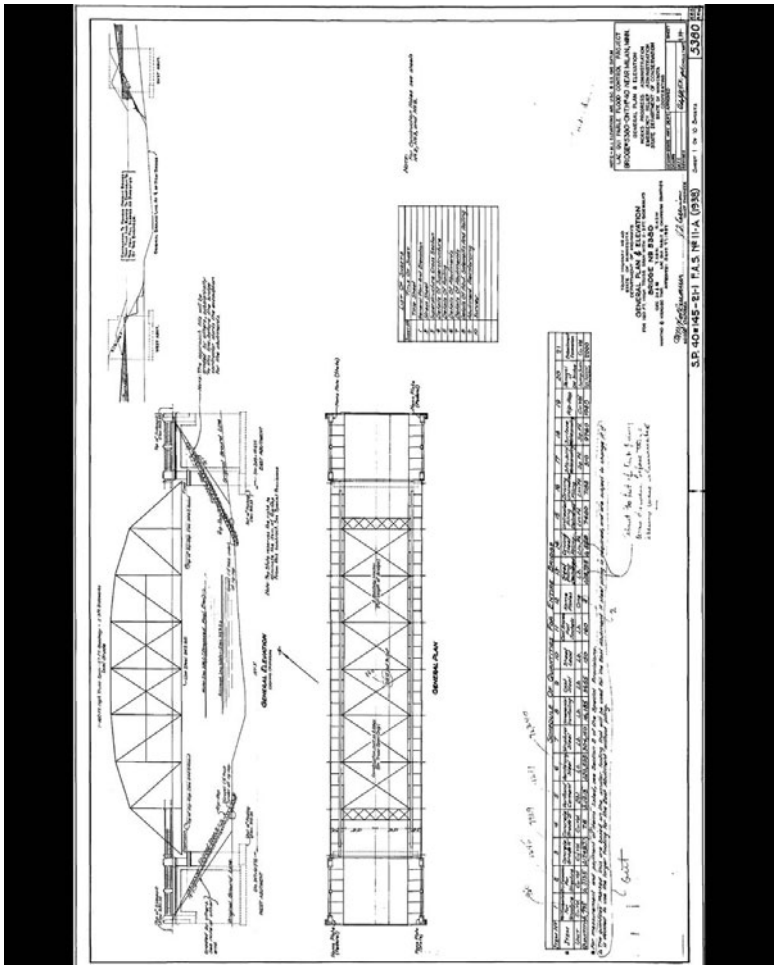

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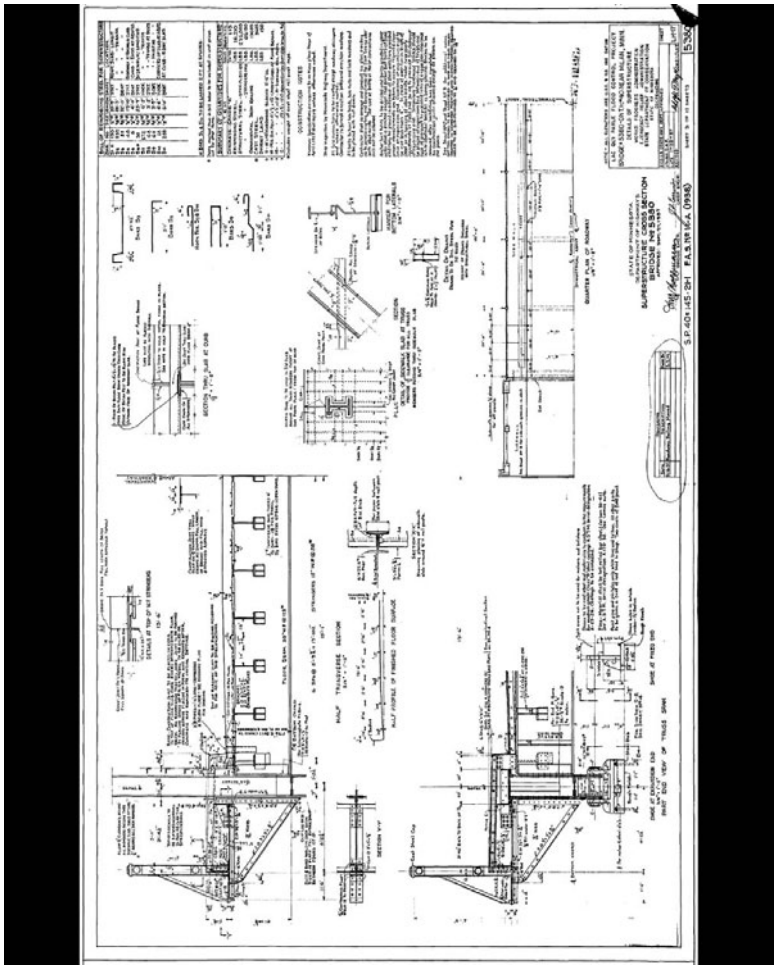

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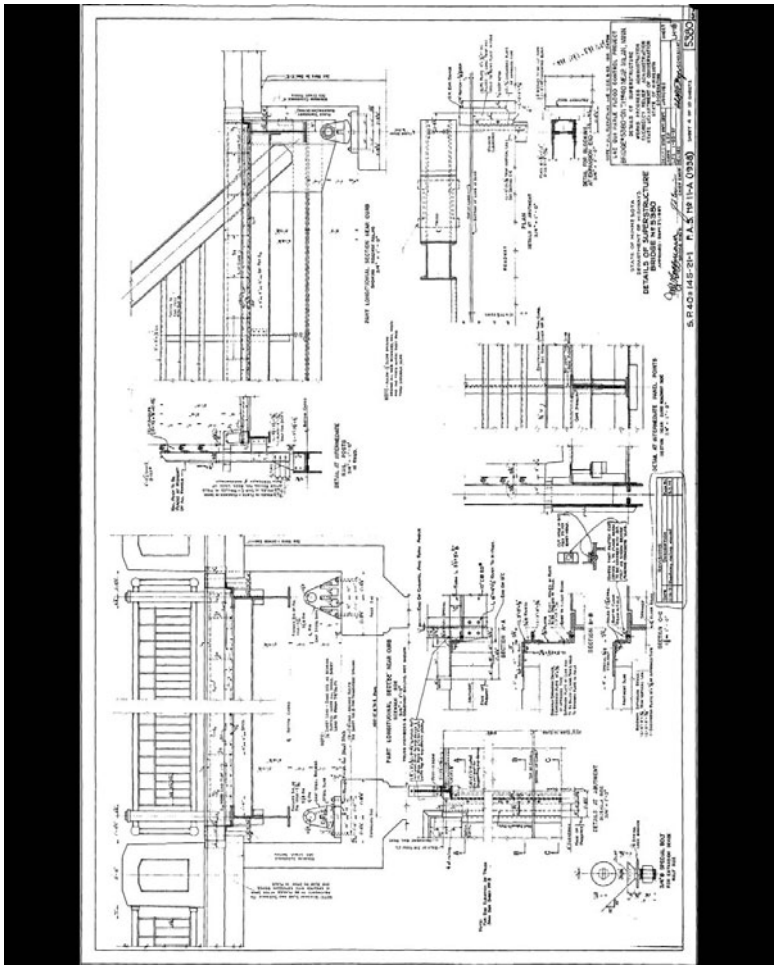

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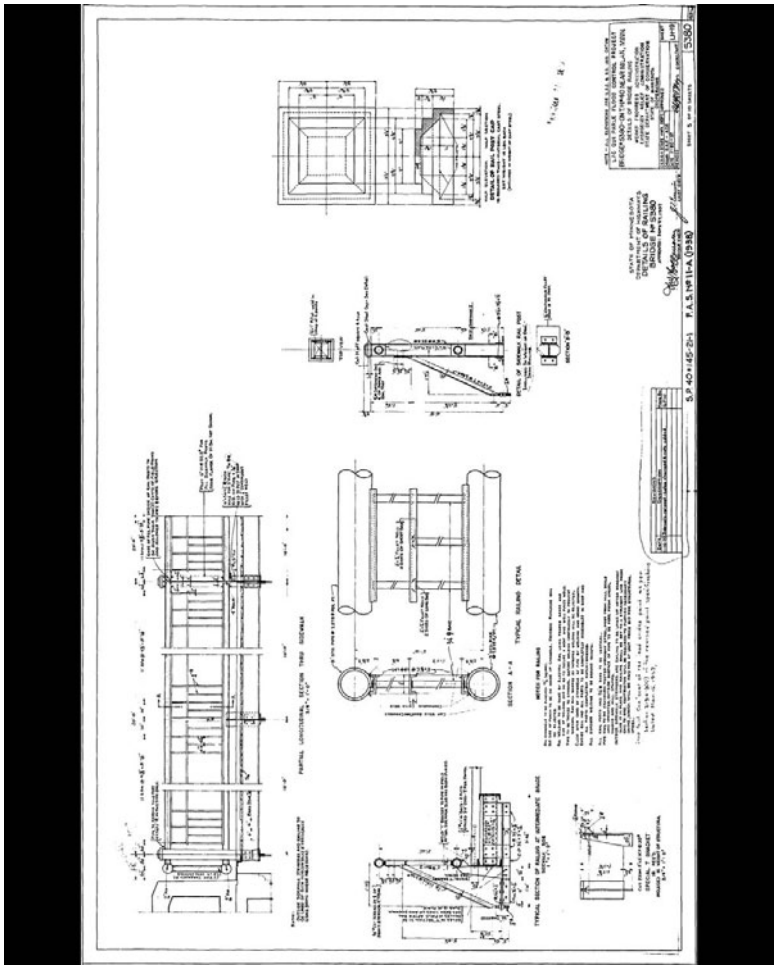

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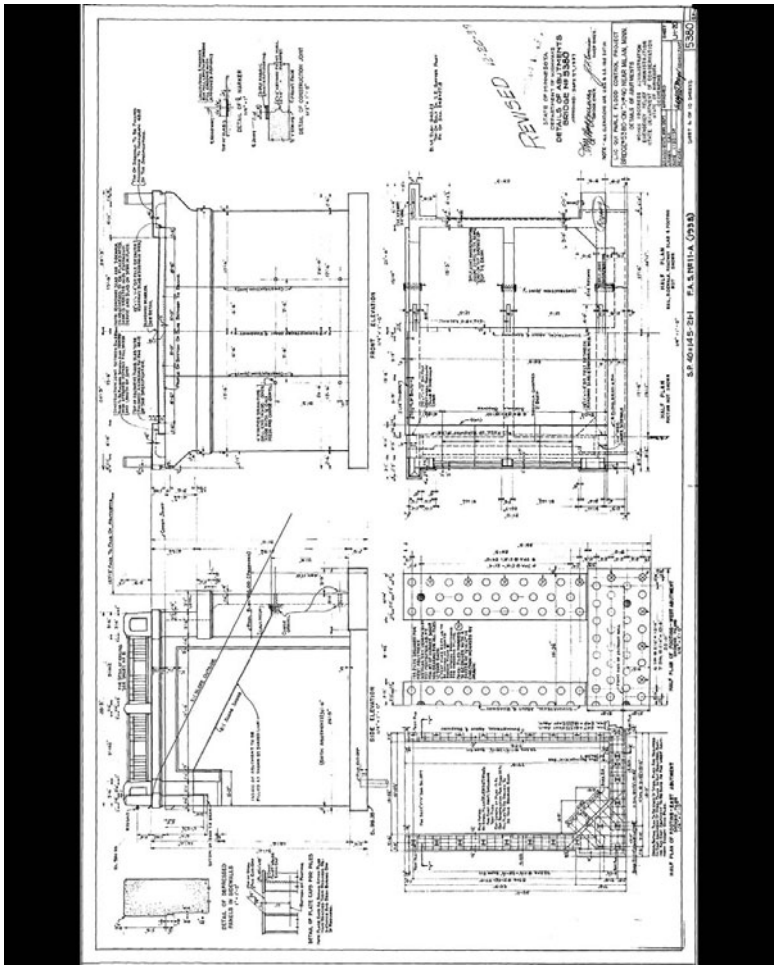

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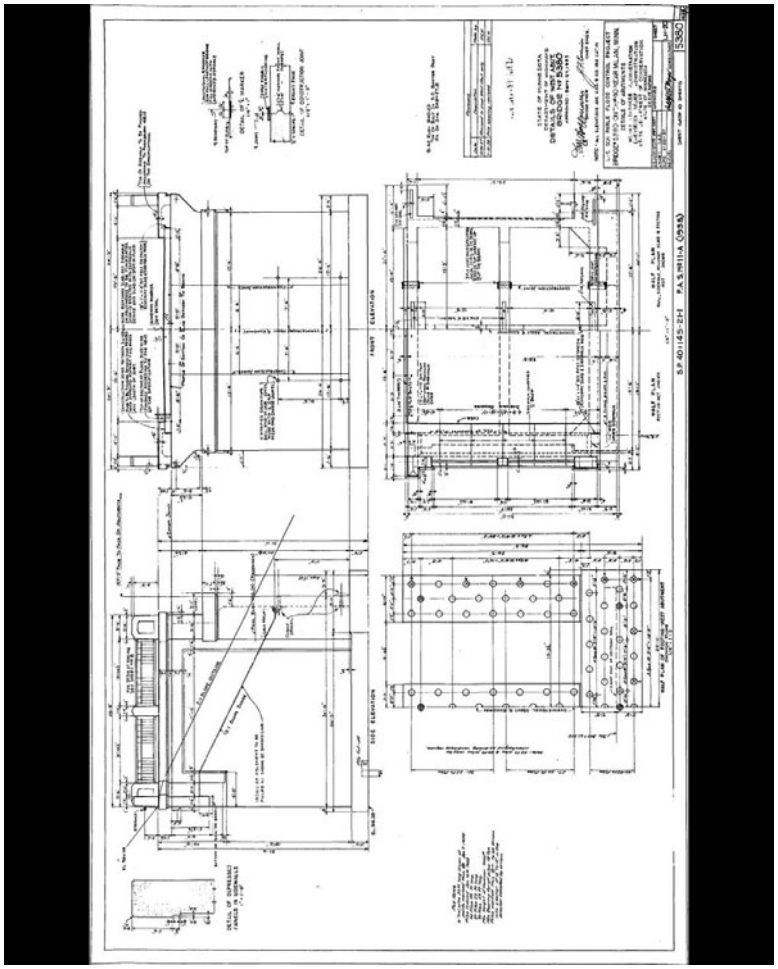

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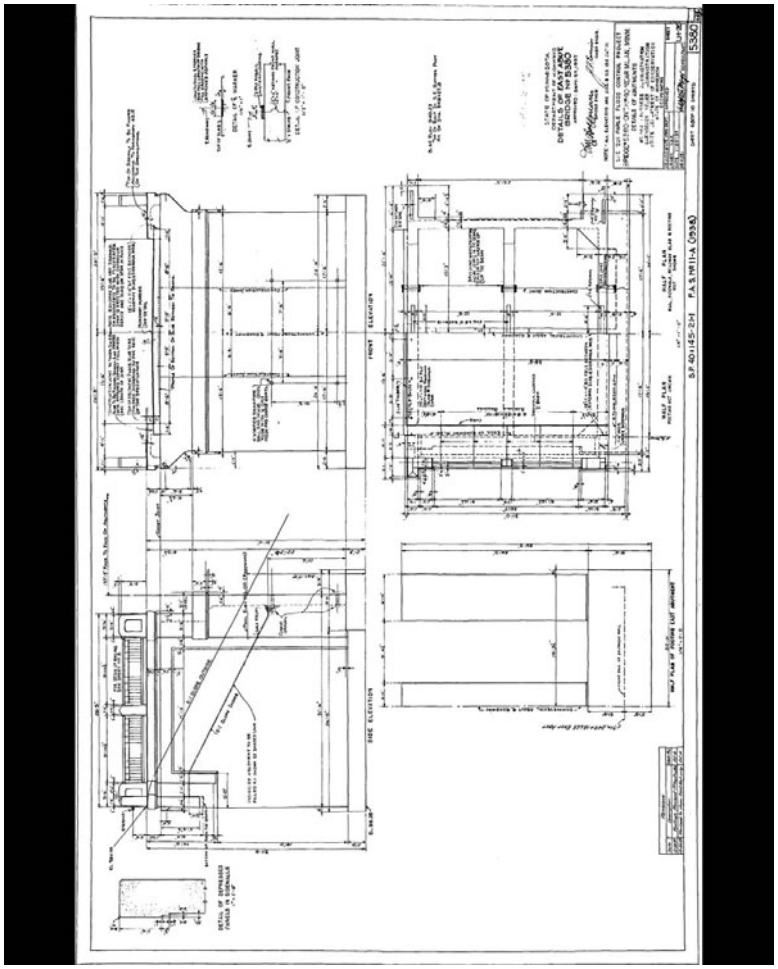

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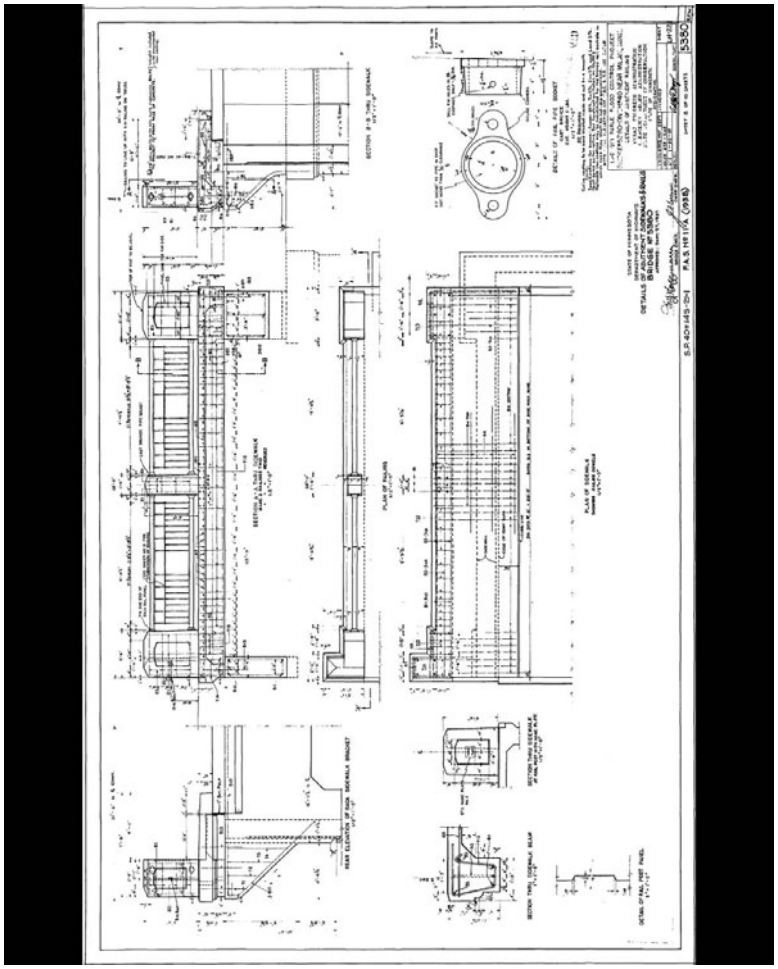

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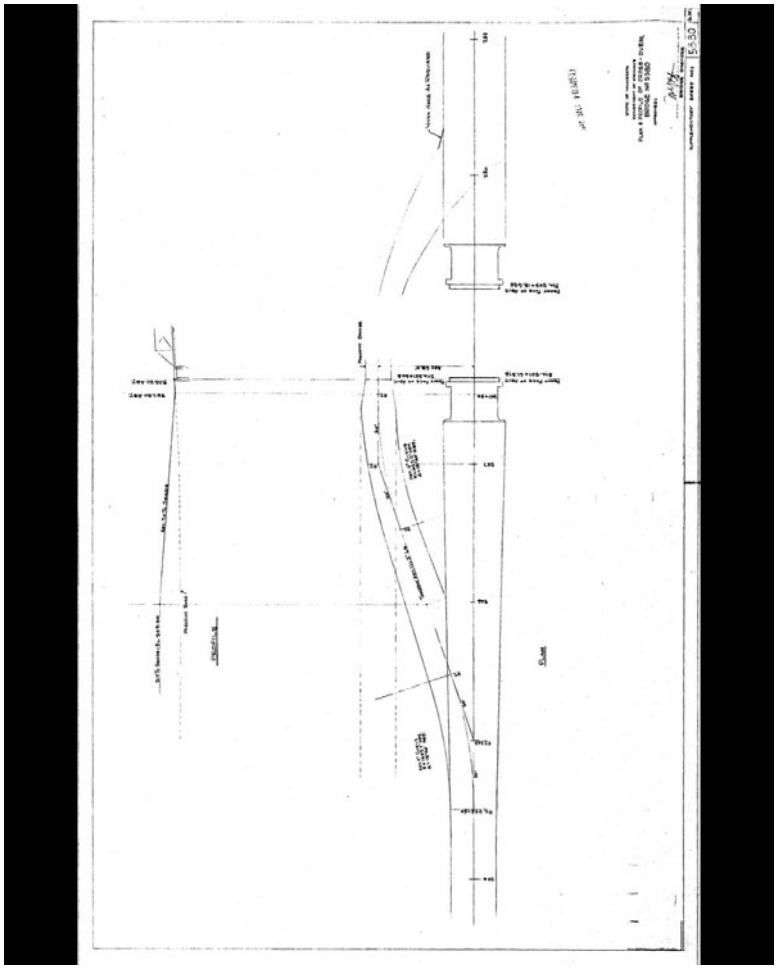

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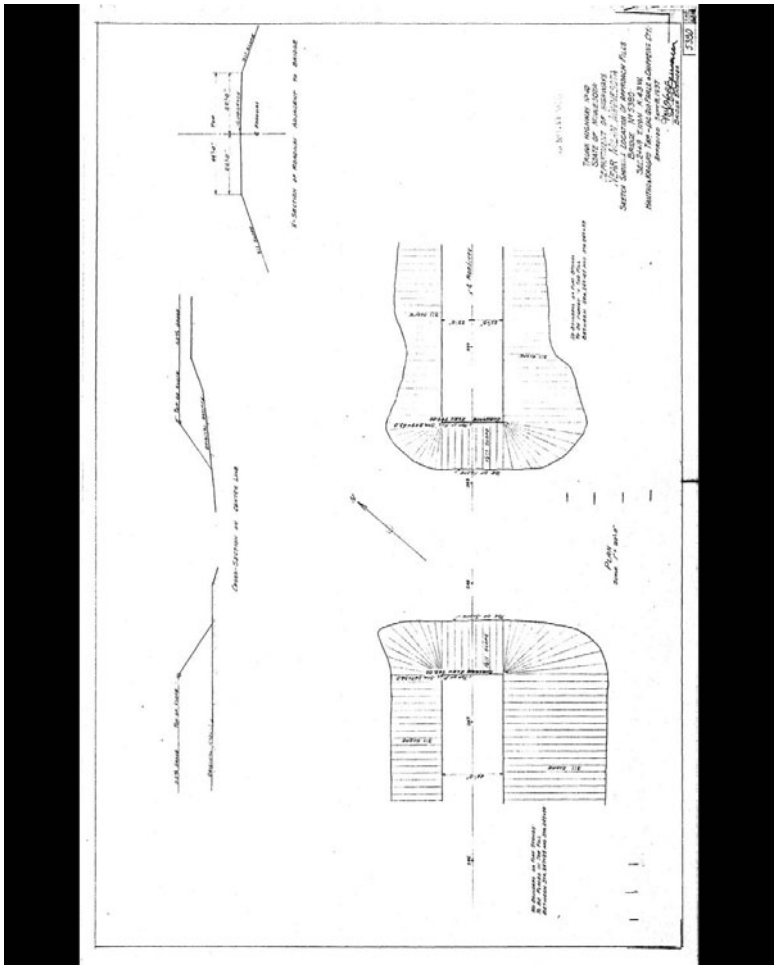

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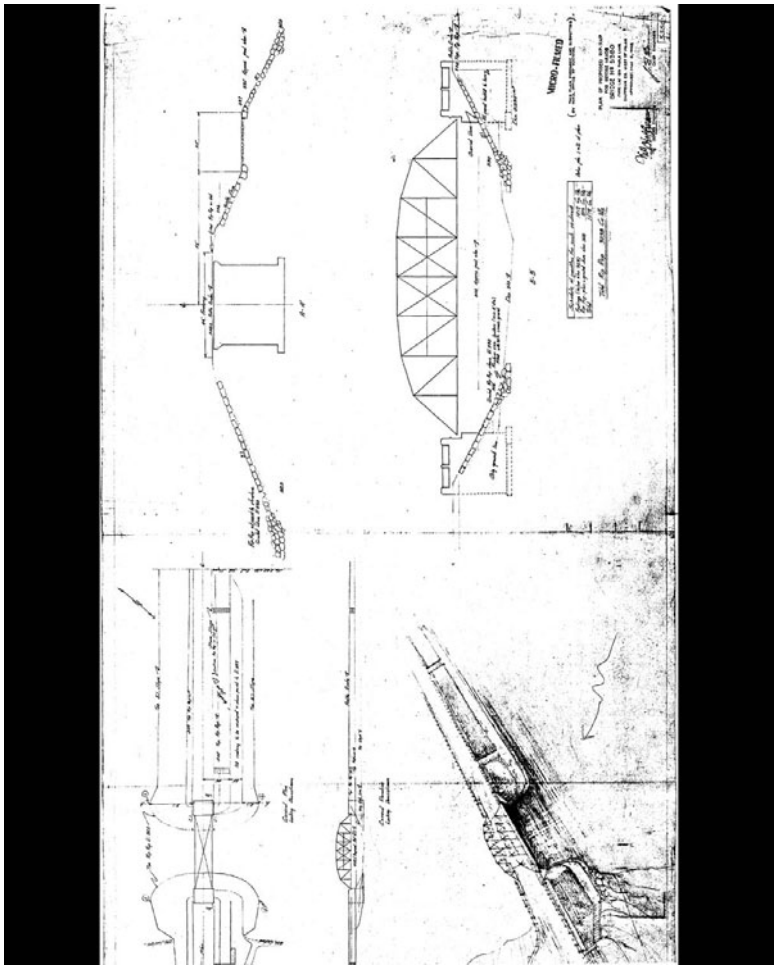

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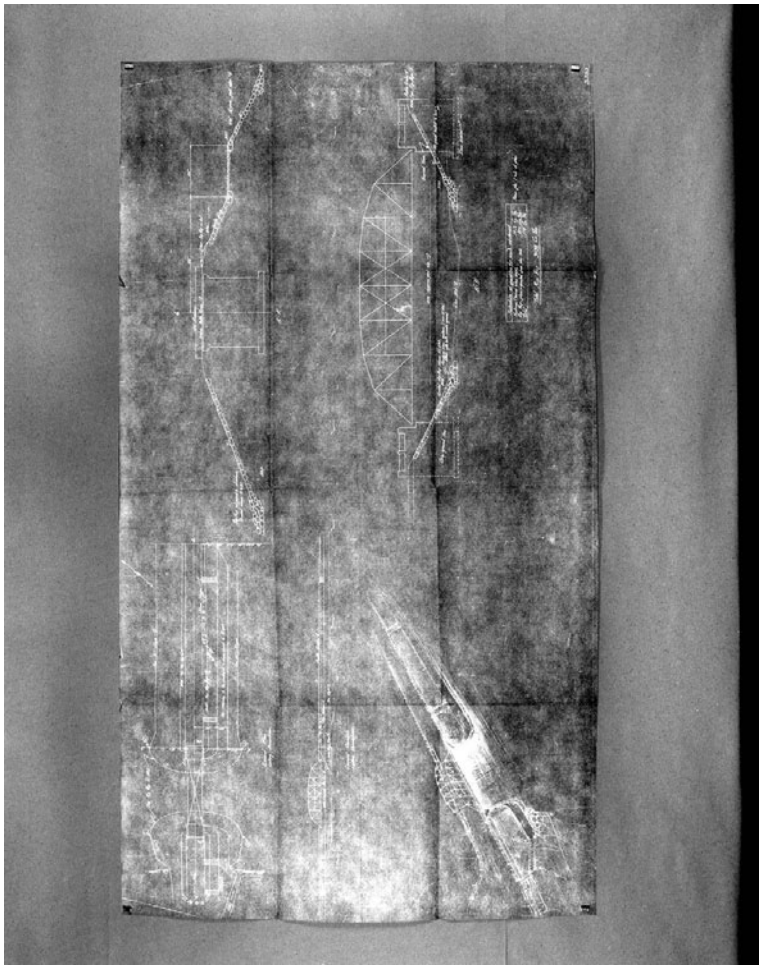

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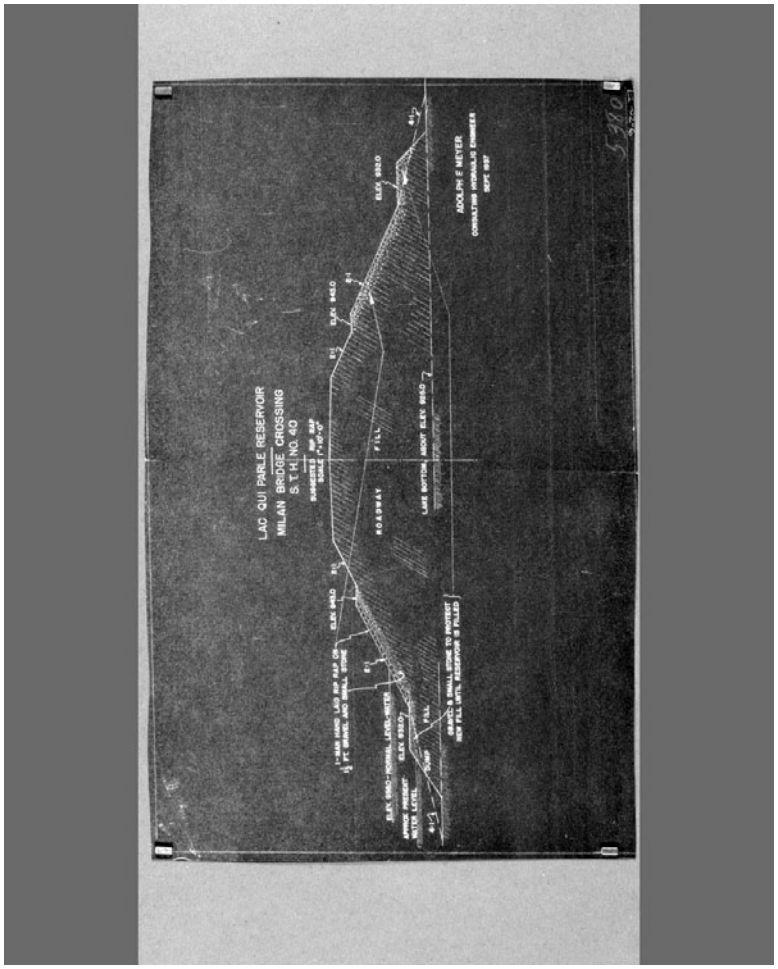

HISTORIC AMERICAN ENGINEERING RECORD

MILAN BRIDGE

HAER No. MN-139

Location: Carrying Minnesota Highway 40 over the Lac qui Parle Reservoir (part of the Minnesota River) about three miles west of the community of Milan in Chippewa County and Lac qui Parle County, Minnesota, U.S.A.

The Milan Bridge is located at latitude: 45.0976850N, longitude: -95.9800952W. The coordinate represents the center of the structure. This coordinate was obtained on March 14, 2019, by plotting the bridge location on the Minnesota Department of Transportation's Right-of-Way Mapping and Monitoring interactive online mapping site. The accuracy of the coordinate is +/- 5 meters. The coordinate datum is North American Datum 1983. The bridge location has no restriction on release to the public.

Present Owner: State of Minnesota. The bridge is numbered Minnesota Bridge 5380 and managed by the Minnesota Department of Transportation (MnDOT). The Highway 40 Causeway and Milan Beach are also owned by the State of Minnesota.

Present Use: Bridge carrying Minnesota Highway 40 over the Lac qui Parle Reservoir (Minnesota River) on the border between Chippewa and Lac qui Parle counties.

Significance: The subject of this HAER documentation is the Milan Bridge (Bridge 5380) as well as adjacent landscape elements including stone-armored bridgeheads, the Highway 40 Causeway with stone revetments, and a small swimming beach called Milan Beach, among others. The bridge and associated landscape elements were built in 1938-1939 and are contributing resources within the Lac qui Parle Flood Control Project Historic District, which has been determined eligible for the National Register of Historic Places. The bridge and associated resources are located near the north-south midpoint of the Lac qui Parle Reservoir in the middle of the Lac qui Parle Flood Control Project Historic District (figures 2 through 5).

The area around the Milan Bridge and Highway 40 Causeway is one of the most intact component landscapes in the Lac qui Parle Flood Control Project Historic District.

The Milan Bridge is the historic district's most intact major bridge dating from the period of significance.[1] It was the only truss bridge built as part of the flood control project. Because of its height, the Milan Bridge is a visual landmark in the historic district.

The Highway 40 Causeway is one of the longest of several causeways built or improved as part of the flood control project. Because of its central location, the causeway was one of the most important river crossings in the flood control project.

The hand-fit granite riprap at the ends of the Milan Bridge and along the Highway 40 Causeway are the most extensive and complex examples within the Lac qui Parle Flood Control Project. Large amounts of hand-fit stone riprap are characteristic of the flood control project and are found at seven locations in the historic district. It is believed that stone riprapping of this magnitude does not appear elsewhere in Minnesota.

The five sets of stone steps at the Milan Bridge and on the Highway 40 Causeway are the most elaborate and well-preserved of several stone staircases built by the flood control project and surviving in the historic district.

Lac qui Parle Flood Control Project Historic District
The Lac qui Parle Flood Control Project Historic District extends about 60 miles along the Minnesota River from Odessa to

[1] Milan Bridge's individual eligibility for the National Register of Historic Places was evaluated in 1997 as part of the statewide historic bridge inventory conducted by MnDOT and the State Historic Preservation Office. The study recommended that, due to alterations to the truss portals, the bridge did not retain sufficient historic integrity to be individually eligible for the National Register for its engineering design. See Jeffrey A. Hess, "Bridge 5380," Minnesota Historic Bridge Inventory Form, 1997.

Granite Falls. The historic district encompasses about 25,000 acres, nearly all still publicly owned.[2]

The Lac qui Parle Flood Control Project was one of Minnesota's largest New Deal work relief projects. It was the largest flood control project ever undertaken in Minnesota in terms of cost, complexity, area, and manpower. At its peak in 1937-1938 the project was employing more than 1,000 men per month.[3]

Most of the project was built in 1933-1941 with final work occurring between the end of World War II (1945) and 1951. The project was a combined state and federal undertaking. It was designed to help alleviate flooding in the Minnesota and Mississippi river valleys as well as provide a reliable source of municipal water for downstream communities during drought. Another goal was to provide recreational amenities in west central Minnesota where lakes and rivers were not common. Like most New Deal-sponsored construction projects, the Lac qui Parle project was intended to both reduce poverty and build necessary public infrastructure.

The project was designed and built by the Minnesota Department of Conservation, the U.S. Army Corps of Engineers, the Works Progress Administration (WPA), and the Minnesota Department of Highways, working in cooperation with local governments and two railroad companies.

The Lac qui Parle project made engineering improvements to a 60-mile segment of the Minnesota River. Work occurred in five counties: Big Stone, Swift, Chippewa, Lac qui Parle, and Yellow Medicine. The project diverted two rivers; created two

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[2] The most comprehensive source on the Lac qui Parle Flood Control Project Historic District is Susan Granger and Scott Kelly, *Phase II Architecture-History Investigation of the Lac qui Parle Flood Control Project Conducted in Association with the Proposed Replacement of Bridge 5380 on TH 40 Over the Lac qui Parle Reservoir* (May 2010). This report was a principal source for this HAER documentation.

[3] Rolf T. Anderson, "Federal Relief Construction in Minnesota, 1933-1941," National Register of Historic Places Multiple Property Documentation Form (MPDF), Oct. 9, 1990 amended, F.17; E. E. Schaefer, "Putting a Harness on Flood Waters: Dams Built to Trap Excess Flow, Save Minnesota's Crops," *Minneapolis Tribune*, April 18, 1937.

reservoirs; built four dams and weirs as well as several dikes and diversion channels; built numerous bridges; raised the elevation of two railroads; raised the elevation of three state highways; and raised the elevation of several county, township, and private roads. The project developed 570 acres of park land and two swimming beaches as well as scenic roads and public hunting grounds. Thousands of acres of wildlife habitat were improved.

Many structures built by the Lac qui Parle Flood Control Project are excellent examples of the National Park Service Rustic Style.

Eligibility for the National Register of Historic Places. The eligibility of the Lac qui Parle Flood Control Project Historic District for the National Register of Historic Places was evaluated in 2010 within the Minnesota statewide historic context "Federal Relief Construction in Minnesota, 1933-1943."[4] The property is eligible for the National Register under Criterion A (broad patterns of history) in the areas of Politics/Government, Conservation, and Engineering. The Lac qui Parle Flood Control Project Historic District meets the registration requirements of the Federal Relief historic context, including the requirement that a National Register-eligible property demonstrate significance "by representing a particularly important project through the size and scope of the work involved, or by the number of people employed" and by representing "an accomplishment in the field of conservation through a significant effort to manage the state's natural resources."[5] The historic district's period of significance is 1933-1951. The level of significance is State.

Land within the Lac qui Parle Flood Control Project Historic District is comprised primarily of the State of Minnesota's original land acquisition for the flood control project – about 22,800 acres – plus about 2,500 additional acres historically associated with the project. The latter consists primarily of the

[4] Anderson 1990 amended.
[5] Anderson 1990 amended, F.20.

Minnesota River channel between Lac qui Parle Dam and the northern edge of Granite Falls, segments of roads and railroads, miscellaneous parcels of land acquired by the state by 1941, and other parcels associated with the flood control project but not owned by the state.

The northern one mile of the Lac qui Parle Flood Control Project has lost historic integrity and was excluded from the recommended boundaries of the National Register-eligible historic district. Within the historic district, spatial organization and land patterns, topography, circulation systems, water features, and structures and objects are generally preserved, as is the setting. Given the scope of the flood control project, relatively few structures have been removed, replaced, or added. Some structures have been altered. The 2010 National Register evaluation recommended that, within the recommended boundaries, the Lac qui Parle Flood Control Project Historic District retains good historic integrity and that additions and alterations made since the period of significance are not sufficient to disrupt the flood control project's ability to convey its historic design, function, associations, and significance.

Randall's Milan Beach Resort, which is located on the north side of Highway 40 just east of Milan Bridge (figures 4 and 5), predates the Lac qui Parle Flood Control Project. The resort has lost historic integrity and is ineligible for the National Register.

Historian: Researched and written by historian Susan Granger of Gemini Research, October 2019.

Project Information: The documentation was prepared by Susan Granger and Scott Kelly of Gemini Research. The photographer was Daniel R. Pratt of ARCH3, LLC.

The documentation was prepared on behalf of the Minnesota Department of Transportation (MnDOT) which is receiving a U.S. Army Corps of Engineers permit to replace the Milan

Bridge. The bridge replacement project will also alter the Highway 40 Causeway and other landscape elements near the bridge. Because the bridge and associated resources are contributing elements in the Lac qui Parle Flood Control Project Historic District, which is eligible for the National Register of Historic Places, the project will have an adverse effect to historic properties under Section 106 of the National Historic Preservation Act of 1966 as amended. Preparation of this HAER documentation was stipulated by a Section 106 Memorandum of Agreement between the U.S. Army Corps of Engineers, the Minnesota State Historic Preservation Office, MnDOT, and the Upper Sioux Community.

Part I. Historical Information

A. Physical History:

1. Date of Construction: 1938

2. Engineer: Minnesota Department of Highways (Milan Bridge and Highway 40 Causeway); Adolph F. Meyer and Sven A. Norling (Highway 40 Causeway and much of the rest of the Lac qui Parle Flood Control Project)

The Milan Bridge (Bridge 5380) was designed by the Minnesota Department of Highways in cooperation with the Minnesota Department of Conservation's Division of Drainage and Waters and the Works Progress Administration (WPA). Also signing the original bridge plans was Adolph F. Meyer, a prominent hydraulic engineer who led the design of the Lac qui Parle Flood Control Project. The Highway 40 Causeway and the Milan Bridge bridgeheads were designed by the same three agencies and Meyer. Meyer and hydraulic engineer Sven A. Norling led the design of the Lac qui Parle Flood Control Project.

Adolph F. Meyer

Adolph F. Meyer (1880-1962) was a prominent Minnesota hydraulic engineer, educator, author, and inventor.[6] He worked on many of the state's major water projects during the first half of the 20th century, making important contributions to flood control, hydroelectric power development, drainage, and water resources conservation. In the early 1900s, Meyer developed the methodology still used in Minnesota to determine the Ordinary High Water Level of lakes and other bodies of water. The dams in the Lac qui Parle project were evidently based on a design detail patented by Meyers.[7]

Meyer was born in Wisconsin in 1880 and earned civil engineering degrees from the University of Wisconsin in 1905 and 1909. He practiced as a consulting engineer in St. Paul for several decades. He also taught hydraulic engineering at the University of Minnesota and published several texts and technical papers. In the early 1950s, Meyer helped found what became Barr Engineering, today a multi-state engineering company.

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[6] This section's information on Meyer is from Granger and Kelly 2010, 4.19-4.21.

[7] Schaefer 1937.

Meyer designed a wide range of projects in at least nine states. He worked for railroad, paper milling, mining, and power companies as well as government agencies. His projects included Mississippi River locks and dams, hydroelectric power plants near the Minnesota-Canadian border, mining operations on Minnesota's Iron Range, and flood control and power generation on the Minnesota River.

Meyer and fellow hydraulic engineer Sven A. Norling designed much of the Lac qui Parle Flood Control Project. Meyer also worked on two nearby projects: the Minnesota River-Big Stone Lake Whetstone Diversion Project (1934-1948) and the Lake Traverse-Boix de Sioux Flood Control Project (completed in 1948). In 1909-1910 and 1919-1920, Meyer conducted Minnesota River studies that laid the groundwork for the Lac qui Parle Flood Control Project.

Sven A. Norling

Sven Norling reworked and drew many plans for the Lac qui Parle Flood Control Project. Norling was a hydraulic engineer who worked as a civil engineer for various state agencies, maintained a private practice in Minneapolis, and taught at the University of Minnesota. Norling was born in Sweden in 1894 and immigrated to the U.S. in 1920. He received an engineering degree from the University of Wisconsin. By 1930 he was working for the state of Minnesota as a civil engineer. He also consulted for cities such as Minneapolis and Rochester, Minnesota, on dam and lake projects.[8]

3. Contractor: Theodore Jensen Company (Milan Bridge); Works Progress Administration (WPA) (Milan Bridge bridgeheads, Highway 40 Causeway, Milan Beach, and other elements in the flood control project)

The Milan Bridge was built by a private contractor, Theodore Jensen Company, working in cooperation with the Minnesota Department of Highways and the WPA. The WPA, in cooperation with the highway department, built the Highway 40 Causeway and installed the extensive stonework at the bridgeheads and along the causeway's shoreline. The WPA built Milan Beach.

[8] This information on Norling is from Granger and Kelly 2010, 4.19.

The WPA and the state highway department cooperated on construction of the Highway Segment East of Milan Beach.

Theodore Jensen Company

Theodore Jensen was born March 25, 1894, in Aalborg, Denmark. He immigrated to the United States in 1913 at age 18. Jensen lived briefly in South Dakota and then moved to southeastern Minnesota where he began working as a drain tile installer. He established what became a successful construction business when he was in his early twenties. Jensen eventually began to specialize in steel and concrete bridges as well as sewage and water lines and sewage disposal plants. In 1928 the Jensen business and family moved from Tracy, Minnesota, to St. Cloud so the business would be more centrally located in Minnesota.[9]

In 1931, the Jensen Company was employing about 150 men each season and could work on several large projects simultaneously. The company's bridge work in the 1930s included repairs to the St. German Street Bridge over the Mississippi River in St. Cloud, partial construction of an international bridge over the Rainy River at Baudette, Minnesota (the project was halted due to the Great Depression), a combined railroad-state highway bridge in Austin, Minnesota, and a number of other bridges for state and county highway departments.[10] In 1941, Jensen and his family moved to Texas where he operated a contracting business. Theodore Jensen died in 1954 at age 60.[11]

Works Progress Administration

The Works Progress Administration (WPA) constructed much of the Lac qui Parle Flood Control Project including the landscape elements surrounding the Milan Bridge. The WPA consisted of two consecutive programs, both of which used the initials "WPA" for continuity. The first, the Works Progress Administration, operated from May 1935 through July 1939. The second, the Work Projects Administration, ran from July 1939 until June 1943. The combined WPA over its eight-year history was the New Deal's largest work relief program in both funding and scope.[12]

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[9] "Theodore Jensen," *St. Cloud Daily Times and Daily Journal Press*, Jan. 1, 1931.

[10] "Theodore Jensen" 1931; *St. Cloud Daily Times and Daily Journal Press*, scattered issues 1930s.

[11] "Theodore Jensen," *St. Cloud Daily Times and Daily Journal Press*, July 23, 1954.

[12] Information on the WPA in this section is drawn from Anderson 1990 amended, E.48-E.50, E.53, E.67.

The emphasis of the WPA was on long-term recovery rather than emergency help, and on providing relief in the form of real wages for useful work, rather than distributing money or food. More than 600,000 Minnesotans were ultimately employed by the WPA.

About 77% of WPA funds nationwide were spent on construction projects, particularly on roads, public buildings, parks and recreation, and public utilities. However, the scope of the WPA was the most broad of the New Deal work programs and, in addition to construction jobs, WPA enrollees worked in white collar fields such as education, health care, government administration, and the arts.

Enrollment in the WPA peaked in the fall of 1938. After Pearl Harbor was bombed in December of 1941, the WPA shifted many workers to defense-related projects. The WPA operated until June of 1943 when most New Deal programs were terminated. By the time the WPA ended, approximately 8.5 million people – or one-third of America's unemployed – had worked for the WPA.

4. Steel Fabricator: Minneapolis Moline Company (Milan Bridge structural steel); Wagner Iron Works of Milwaukee (Milan Bridge ornamental railings)

Minneapolis-Moline Company

The Minneapolis-Moline Company, also known as the Minneapolis-Moline Power Implement Company, was founded in 1929 by the merger of three companies, one of which was Minneapolis Steel and Bridge Company. Founded in 1902 by pioneering Minnesota bridge builders, Minneapolis Steel and Bridge Company was one of Minnesota's major bridge fabricators.[13] The company fabricated structural steel for bridges, industrial structures, and large public buildings across the Upper Midwest and elsewhere. Based in south Minneapolis, Minneapolis Steel and Bridge Company was also a significant manufacturer of agricultural and industrial equipment. After the 1929 merger, Minneapolis-Moline continued the tradition of steel fabrication and manufacture of industrial and agricultural equipment. The company remained in operation under the name Minneapolis-Moline until the early 1970s when it was purchased by the White Motor Corporation.

[13] Frederick L. Quivik, "Montana's Minneapolis Bridge Builders," *IA. The Journal of the Society for Industrial Archaeology*, v10, n1 (1984), 38.

Wagner Iron Works

Wagner Iron Works began as a small blacksmithing business founded in 1850 in Milwaukee, Wisconsin. By the 1920s, it had become one of Milwaukee's largest industrial plants. The company fabricated and supplied steel, ornamental iron, and other metal products for transportation, industrial, public, and residential projects including bridge and viaduct railings. The company is still in business as Wagner Companies, based in Milwaukee.[14]

5. Original Plans and Construction:

Construction plans for the Milan Bridge (Bridge 5380) were prepared by staff of the Minnesota Department of Highways and approved by Bridge Engineer M. J. Hoffman, Construction Engineer O. L. Kipp, and Chief Engineer J. T. Ellison. Ellison signed the plans on September 27, 1937. The bridgeheads and Highway 40 Causeway are addressed on a few of the plan sheets (figure 1). An original hard copy set of the plans has not been located. The Minnesota Department of Transportation (MnDOT) Bridge Office in Oakdale, Minnesota, holds an electronic Portable Document Format (PDF) copy. 4" x 5" copy negatives of the most relevant sheets from this plan set are included as part of this HAER documentation. Printouts on 11" x 17" paper of the entire set are included in this HAER documentation's field records. Also included in the field records is a paper copy of two plan sheets from the 1967 alteration of the truss portals and sway bracing.

Two loose drawings of the Milan Bridge and Highway 40 Causeway are located in MnDOT's Bridge 5380 Archive File in St. Paul. 4" x 5" copy negatives of these drawings are included as part of this HAER documentation. One is a drawing indicating riprap quantities for the bridgeheads (photo MN-139-42). The other is a cross-sectional drawing of the causeway entitled "Lac qui Parle Reservoir, Milan Bridge Crossing." It was prepared by Adolph F. Meyer and is dated September 1937 (photo MN-139-43).

Three very good historic photos of the riprapped bridgehead at the northeast corner of the Milan Bridge exist in the Minnesota Works Progress Administration Collection in the manuscripts collection of the Minnesota

[14] "Wagner History: A Family Legacy Rich in Tradition," Wagner Companies website, www.wagnercompanies.com.

Historical Society in St. Paul. The negative numbers are 7624, 7626, and 7627. The collection is: Photograph and Negative Collection, Minnesota Works Progress Administration Collection, Minnesota Historical Society, St. Paul.

6. Additions and Alterations:

Milan Bridge (Bridge 5380)
In 1967, the Minnesota Department of Highways altered the bridge portals and the lower part of the sway bracing to raise the vertical clearance from 14' to 16' (photo MN-139-25).

The bridge was originally painted black and silver.[15] Today most of the steel is painted blue except for the railings, portals, and angled end posts which are painted silver.

There were originally post and cable guardrails extending from the ends of the bridge railings. These have been replaced by modern, steel, post and beam-style guardrails.

Bridgeheads (With Stone Terrace and Staircases)
Stones are displaced, missing, and buried at the northern edge and northeast corner of the stonework at the northeast corner of the bridge. The elevation of the beach sand/gravel is higher in this area than it was in 1938, burying some of the stonework. A stone-paved ditch bottom and stone culvert at the northern edge are extant but buried.

At the northwest and southwest corners of the bridge, the mortared stonework is obscured by a layer of concrete grout that extends from the river channel westward about 30' (photos MN-139-18 and MN-139-24).

Highway 40 Causeway (With Stone Staircases)
In the 1980s, a set of 4'-wide concrete steps with a pipe railing was added to the north side of the causeway about 125' west of the bridge.

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[15] From photos dated 1951-1961 filed with MnDOT Bridge Inspection Reports, 1972-1991, MnDOT, St. Paul. The original construction plans specify that most of the bridge was to receive a coat of red lead primer, a coat of brown paint, and then a coat of black paint. The railings, portals, and end posts were to receive a coat of primer, a coat of grey paint, and then a coat of aluminum paint.

On some parts of the causeway the hand-fit riprap has been covered in recent decades by a layer of loose granite riprap (photos MN-139-35 and MN-139-36). The causeway's east staircase, located about 80' west of the bridge (figure 5), is currently covered by a layer of this loose riprap but is believed to be otherwise unaltered.[16]

Milan Beach

A modern timber fishing pier has been installed near the south end of Milan Beach.

Milan Beach Parking Area

A small informal gravel parking area immediately east of Milan Beach was enlarged circa 1980 to about 120' x 250'. The parking area is still gravel and its shape is still informal.

Highway Segment East of Milan Bridge (With Stone Culvert Headwall)

A small structure known as the Milan Bridge Public Access boat ramp was added to the lakeshore just north of the Milan Bridge circa 1980. It consists of a simple concrete boat ramp and a small portable dock that is seasonally installed. The boat ramp is accessed via a gravel driveway shared with Randall's Milan Beach Resort.

Granite paving stones that once lined the north highway ditch east of the Milan Bridge have been covered by accumulated soil.

The west entrance to Randall's Milan Beach Resort retains a stone culvert headwall. The headwall on the east side of this driveway is missing. There is believed to have been a similar set of headwalls on the next driveway to the east; there are none there today.

A third driveway to the resort was added circa 1970. It is the easternmost of the three driveways on the north side of the highway east of the bridge.

[16] MnDOT's Milan Bridge replacement project will rehabilitate these steps.

In 1976, a 10'-wide bituminous-paved bicycle-pedestrian trail was built between the town of Milan and the Lac qui Parle Reservoir. The west end of the trail is located north of the highway ditch east of the bridge.

B. Historical Context:

Early Euro-American Settlement

The Lac qui Parle Flood Control Project is located along the Minnesota River in five west central Minnesota counties: Big Stone, Chippewa, Lac qui Parle, Swift, and Yellow Medicine.[17] The Minnesota River, which extends 340 miles across southern Minnesota from Browns Valley to St. Paul, is a major tributary of the upper Mississippi River.

Euro-Americans first arrived in the five-county area in significant numbers in the late 1860s. Much of the early settlement was prompted by the establishment of railroad service in the 1870s and 1880s, which enabled people and supplies to reach the area and allowed farm products to be shipped to market. Most of the settlers were of Norwegian and Swedish descent, with Irish, Germans, and Dutch also represented in fairly large numbers.

Farms in west central Minnesota, like those in most of the state, first operated on a subsistence level and then grew wheat as their first cash crop. Around the turn of the 20th century, farms diversified into oats, corn, hay, dairy cows, and hogs. Sugar beets, feeder-cattle, and feeder-pigs became important after World War II.

Many towns in west central Minnesota were platted between 1870 and about 1905. Most were located along railroad lines and developed as small agricultural trade centers that supported surrounding farms. Most industries were focused on agriculture. They included flour and grist mills, creameries, and a substantial canning factory at the town of Ortonville.

West central Minnesota also had a small recreational hunting and fishing industry along the Minnesota River.

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[17] This historical overview is largely drawn from Granger and Kelly 2010, 4.1-4.19. The Granger and Kelly report was based on extensive research using primary sources; see that report's References.

One of the few non-agricultural industries was granite quarrying. A set of quarries opened in the 1880s in southern Big Stone and northern Lac qui Parle counties. Located near the northwestern end of the flood control project, some quarries were evidently still operating in the 1930s although demand for stone had been severely reduced by the Great Depression. The Lac qui Parle Flood Control Project used local granite to build park buildings and for extensive riprapping that protects bridges, dams, dikes, ditches, and other structures from flowing water.

In the 1920s, area farmers were hard hit by a multi-year statewide agricultural depression. Then, in the 1930s, west central Minnesota suffered some of the state's worst drought conditions. Droughts were especially severe in 1930, 1931, 1934, 1936, 1939, and 1940.

In 1940, the five-county area was at its population peak. Thereafter the population began to decline as some farms failed and others mechanized (reducing labor needs), and as the World War II industrial boom attracted residents to jobs in larger cities. The population decline never reversed and the five-county area remains sparsely populated today.

Purpose and Need

The Lac qui Parle Flood Control Project had four major goals: flood control; drought mitigation; recreation and wildlife conservation; and poverty relief.

Flood Control. The project was designed to control severe flooding of the Minnesota River, which contributed to flooding of the Mississippi River, by collecting flood water in two large reservoirs and releasing it downstream in a controlled manner. The Lac qui Parle project was by far the largest component in the largest flood control and water conservation program ever attempted in Minnesota, according to a 1935 state press release. The other major component of the cited program was the Whetstone River Diversion Project at the head of the Minnesota River several miles northwest of the Lac qui Parle project.[18]

Floods had been a constant menace to farms and towns along the Minnesota River. There had been 16 damaging floods during the 18-year period from 1903 to 1920, with an estimated 100,000 acres of farmland flooded. According to project planners, "The flood which occurred in 1908 reached and contaminated the water

[18] "Lac qui Parle Project is Biggest in State," *Montevideo News*, June 7, 1935.

supplies of the city of Mankato causing a typhoid epidemic with loss of life. The most persistent and damaging inundation perhaps occurred in 1919 when, because of a succession of high flood peaks, the greater portion of the entire [Minnesota River] valley was under water for more than 90 days, washing out a number of bridges, flooding large portions of the business sections of Mankato, New Ulm, Montevideo, Granite Falls, and [causing] backed water to flood the city of Marshall."[19] The 1919 flood was one of the most damaging ever recorded.

At the federal level, Congress began to formulate serious plans for comprehensive flood control after Mississippi River floods in 1917 and 1922, and was spurred to greater action after the Great Mississippi Flood of 1927 – one of the worst peacetime disasters in U.S. history.

The Lac qui Parle Flood Control Project was based on two earlier engineering studies of the Minnesota River. Hydraulic engineer Adolf F. Meyer was lead engineer for both. The first was a navigational study conducted in 1909-1910 for the U.S. Army Corps of Engineers, which proposed a dam above Montevideo. The second was a flood control study conducted by the State of Minnesota in 1919-1920 after the 1919 flood. Following the 1919-1920 study, the state improved roads across the Minnesota River including the Highway 40 Causeway, and built a small dam about one mile north of the eventual location of the Lac qui Parle Dam.

Water Conservation. Drought was as serious a problem as flood, and the Lac qui Parle project was designed to conserve water during dry periods and slowly release it downstream. According to planners, "The cities of Appleton, Montevideo, and Granite Falls are directly dependent on an uninterrupted flow in the Minnesota River for sewage disposal purposes and to a large extent for water supplies [for drinking, fire control, and other purposes]. . . . In 1934 and 1935 the water supply for Granite Falls had all but been exhausted with no new source of supply in sight except through rains. The city of New Ulm situated farther down the valley was [also] facing a problem of water supply as a result of an almost complete cessation of flow in the Minnesota River."[20]

Recreation and Game, Fish, and Waterfowl Habitat. Improving recreational opportunities and game habitat was also important to the project. This goal

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[19] E. V. Willard (Chief Engineer and Deputy Commissioner, Minnesota Department of Conservation), "Lac qui Parle Flood Control Project Physical Characteristics," typescript, circa Jan. 1, 1939.
[20] Willard 1939.

reflected both the New Deal's emphasis on recreation and conservation, but also new federal policies that emphasized multi-dimensional water projects with the potential for flood control, power generation, recreation, and conservation all considered.

The Lac qui Parle project was built in a part of Minnesota with few lakes and rivers but significant public demand for water-based recreation. Hunting and fishing were already popular, but there were no large public parks or similar facilities, and the Minnesota River and its tributaries sometimes ran nearly dry. The Lac qui Parle project created two lakes, parks, scenic drives, swimming beaches, fishing access, and a public hunting ground – all designed to be community and regional assets.[21]

From the beginning, planners consistently expressed their intention that land acquired for the flood control project would remain public. This notion was challenged periodically when it was suggested that land be sold to recoup project costs or to boost private development, or when members of the public approached the state asking to buy lakeshore lots for cabins or resorts. In the words of the Department of Conservation: "we feel it would be unthinkable to allow these lands to again revert to private ownership, with attendant hunting and fishing privileges for a select few. Soon it would be lined with taverns and club houses, and plastered with 'No Trespassing' signs. Its scenic value would be destroyed. Upland game and waterfowl, most of which do best when undisturbed, would soon diminish in numbers."[22]

Poverty Relief. In the minds of many, alleviating poverty was the most important goal of the Lac qui Parle project. By the early 1930s, severe drought on top of many years of low farm prices had created an emergency in western Minnesota. Much of the local population was impoverished. The situation was also dire nationwide as the country slipped further into the Depression. In 1933, when President Roosevelt's "New Deal" was established, conditions were at a low point with the U.S. employment rate at 25% and nearly half of all banks having failed. Poverty continued even after New Deal work agencies such as the WPA were operating; the wages paid by such programs were usually just enough to keep a family from destitution.

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[21] Willard 1939.

[22] Division of Game and Fish, Minnesota Dept. of Conservation, "Subject: Lac qui Parle Project," typescript, Fall 1939.

Sponsorship and Government Agencies

The Lac qui Parle Flood Control Project was planned and built by a complex array of state and federal agencies. The tasks of planning, coordinating, funding, acquiring land, finding materials, hiring labor, and supervising the work over this vast project in such a remote rural area must have been daunting.

The federal government paid for most labor and materials, while the State of Minnesota acquired the land and paid for most parks and roads. Flowage rights and the flood control structures were eventually "purchased" by the federal government as a form of reimbursement to the state. By agreement finalized in 1950, the federal government took permanent ownership of the flood control structures (e.g., dams, weirs, and control works), but the State of Minnesota retained ownership of most of the 22,800 acres of land it acquired for the project.

The U.S. Army Corps, ultimately responsible for flood control functions, assisted with planning, approved major designs, and inspected the project, but passed its construction responsibilities to federal relief agencies. The Army Corps, using private contractors, built parts of the project in 1941-1942 and 1950-1951. The Army Corps became responsible for flood control operations in 1950.

The State of Minnesota was the non-federal sponsor. Several state agencies were involved as described below:

The Minnesota Executive Council, comprised of the governor and other top officials, held legal authority, ran the finances, provided overall coordination, and communicated with the legislature and the federal government.

The Minnesota Attorney General's office sorted out the complex legal matters, prepared deeds, and guided land acquisition through the courts.

The State Emergency Relief Agency (SERA) was the state agency responsible for Depression relief programs. The SERA was the state's primary interface with federal relief agencies, worked on funding, and was initially in charge of land acquisition. Until the WPA became involved in 1936, the SERA employed the workers.

The Minnesota Department of Conservation (now Minnesota Department of Natural Resources) was the lead state agency. The department's Division of Drainage and

Waters planned most of the project, supervised construction, and operated the dams until 1950. Hydraulic engineers Adolph P. Meyer and Sven A. Norling designed most of the project for the division along with engineers such as S. A. Frellsen. Sumner L. Moyer, a civil engineer who lived in Montevideo near the project, was resident engineer.

The Department of Conservation's Division of State Parks designed and supervised construction of the parks and beaches built by the project. The Division of State Parks also designed the scenic drive called South Park Road (Lac qui Parle County Highway 33).

The Department of Conservation's Division of Game and Fish planned and supervised the improvement of wildlife habitat and public hunting grounds.

The Minnesota Department of Highways assisted with right-of-way acquisition, designed and supervised the construction of roads, and designed and built state highway bridges, some with help from the WPA and some under private contract.

The federal government's Works Progress Administration or WPA (after 1939 the Work Projects Administration) provided labor from 1936-1942. The most intense period of WPA involvement was 1936-1939. In addition to employing laborers and several administrators, the WPA hired engineers and supervisors to oversee the work and also operated the project's two large work camps.

National Park Service designers contributed to the design of two of the parks, Lac qui Parle State Park and Watson Scenic Wayside (now called Lions Park).

Land Acquisition

In 1935, the State of Minnesota believed it needed to buy 17,000 acres for the project. The number ultimately grew to 22,800 acres. Buying the land was a monumental task that took more than 11 years between 1934 and 1945, when some disputed cases were finally settled by the Minnesota Supreme Court. The Army Corps of Engineers acquired some additional land between 1950 and 1961.

In general the state tried to minimize its land purchase, closely following the 945' (above sea level) contour elevation in most areas and thus creating the project's complex boundary. Land was purchased for inundation (both permanent and occasional) and for dikes, roads, parks, and borrow pits. The acquisition boundary

twisted and turned along the 945' contour line rather than following orthogonal lines. For some farmers this resulted in fields cut in half or pastures marooned from barns. The WPA had to build miles of fencing to close gaps in fence lines created by the state buying oddly-shaped parcels.

When negotiations began, disputes over land value arose almost immediately. Many farmers and local newspaper editors protested that the state's appraisals were too low. State officials appealed to the public to resist hiking prices, arguing that if the cost of land rose too high the project would be canceled and thousands of relief jobs would not materialize. In the end, most of the land was acquired through condemnation because agreement on terms could not be reached.

Labor Force

The first laborers on the Lac qui Parle project were employed by the SERA. The WPA took over employment in the spring of 1936. According to 1937 newspaper coverage, "Most of the men were hardy laborers accustomed to eight or ten hours of hard work" each day. Workers who lived in west central Minnesota gathered at key locations up and down the project and were then transported to the job. Many local farmers worked on the project during winter months when fields were fallow.[23]

Because west central Minnesota did not have sufficient manpower to build the massive flood control project, the WPA employed hundreds of men from the Twin Cities who worked on the project over a three-year period from August 1936 through October 1939. Many were so-called transients, or homeless men. Others were veterans and married men who had registered for work in St. Paul and Minneapolis.[24] The men worked in shifts and were housed in two 250-man WPA work camps, similar to the work camps of the Civilian Conservation Corps.[25] One of the camps was located near Lac qui Parle Dam and the other about 17 miles to the north near Marsh Lake Dam.

According to an account in the *Appleton Press*, the WPA employed an average of 1,000 men per month on the project between May 1936 and October 1939, with peak employment being 1,400 workers. According to the article, the men were

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[23] Schaefer 1937.
[24] "Can Use 9,000 More Men, Says Christgau," *Minneapolis Star*, Jan. 27, 1938.
[25] Schaefer 1937.

drawn from relief rolls in 22 counties.[26] The payroll was highest in 1937 and 1938. In September of 1936, workers at Lac qui Parle, along with WPA workers throughout western Minnesota, went on strike demanding wages consistent with those being paid to WPA workers in the Twin Cities.[27]

Despite the employment of hundreds of workers from around the state, maintaining a sufficiently large labor force was a continual problem throughout the span of the Lac qui Parle project.[28]

Construction Overview

Construction of the flood control project occurred from 1934-1942, then paused during World War II and while a transfer agreement between state and federal government was being negotiated, and was then completed in 1950-1951.

The Lac qui Parle project was built using labor-intensive techniques that would provide wages to large numbers of men. Local farmers were also paid to use their own teams of draft horses to help with grading, hauling, and other work. Because of the scale of the project, heavy equipment was also used including several steam shovels and a steam-powered suction dredge. Planners used non-critical tasks such as park construction to help absorb and utilize a work force whose numbers rose and fell through time.

Most construction materials were obtained on site. Sand and gravel were mined from several borrow pits along the length of the project. Concrete culverts and fence posts were made by the WPA within the gravel pits. Stone for buildings and riprap was purchased from local quarries.

The amount of simultaneous construction was staggering, especially during the most intense period of 1936-1939. The WPA's work was divided into about 30 separate jobs or tasks, each based on separate applications filed with the WPA.

When construction began in 1934-1935, the first physical tasks were confined to land already owned by the state since most land had not yet been acquired. SERA

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[26] "Lac qui Parle Project was Early Settlers' Dream," *Appleton Press*, Sixtieth Anniversary Edition, 1880-1940, May 10, 1940.
[27] "WPA Strike on Flood Control Project Ended," *St. Cloud Daily Times and Daily Journal Press*, Sept. 21, 1936.
[28] "Lack of Men, Near Completion of Planned Work on Project Brings Close of Appleton WPA Camp," *Appleton Press*, July 28, 1939.

workers prepared the Lac qui Parle and Marsh Lake basins for inundation by clearing them of rock outcrops, brush, and timber. The SERA also started work on the Highway 40 and Highway 119 causeways. Both carried gravel roads that were being added to the trunk highway system in 1934 and would provide important east-west access across the flood control project. The SERA built at least eight small construction shacks in the Lac qui Parle basin to use as tool sheds and warming houses. The shacks were used at several locations throughout the project as needed.

In the spring of 1936, construction ramped up as the first WPA funding arrived. WPA workers began to build structures related to the diversion of the Chippewa River including the Chippewa River Control Works, Watson Sag Weir, and the Chippewa River Diversion Channel.

In August 1936, when the first contingent of Twin Cities men arrived, WPA workers began in earnest to build Lac qui Parle Dam and Dike. These structures were built in 1936-1939.

In the spring of 1937, the second WPA camp opened and workers began to divert the Pomme de Terre River and build Marsh Lake Dam and Dike. These structures were built in 1937-1938.

Also in 1937-1938, the WPA, Minnesota Department of Highways, and the Chicago, Milwaukee, St. Paul and Pacific Railroad (CMSPP) worked together to raise the elevation of the CMSPP railroad tracks and Minnesota Highway 7 over the Watson Sag (a river segment) and across the Chippewa River Diversion Underpass.

In 1937-1939, the WPA coordinated with the state highway department to build the bulk of the Highway 40 Causeway including its extensive revetments. The state used a private contractor, Theodore Jensen Company, to build the Milan Bridge itself while the WPA built the elaborate stone bridgeheads.

By the spring of 1939 the principal flood control structures were basically operable and the Lac qui Parle and Marsh Lake reservoirs were first flooded.

In 1938-1939, the WPA concentrated on ongoing tasks as well as building roads such as the scenic South Park Road (Lac qui Parle County Highway 33) and segments of Chippewa County Highways 9, 13, and 32. These roads linked the

flood control structures, provided public access to the Lac qui Parle Reservoir, and served local farmers.

In 1938-1939, many of the project's recreational properties were built including Milan Beach and a small set of tourist cottages on the southwest shore of Lac qui Parle Reservoir (razed). Construction also occurred at Watson Scenic Wayside (now Lions Park), and at Lac qui Parle State Park at the south end of Lac qui Parle Reservoir.

In 1938-1939, the WPA also worked on several miscellaneous jobs such as tree planting for wildlife habitat and building a miles-long fence with cast concrete fence posts along the part of the west boundary of the project north of the state park. Some miscellaneous projects such as a game bird farm and a fish rearing pond were never built.

By the summer of 1938, the state knew it would soon exhaust its ability to provide the local sponsor's match. Fortunately, in June of 1938, Congress passed the Flood Control Act of 1938, which reduced the financial burden on states by removing requirements that states pay for land acquisition. The federal government then agreed to reimburse the State of Minnesota for its share of land costs related to the flood control portion of the project.

In August of 1938, the state submitted a request for $1.6 million (1938 dollars) representing a 70% reimbursement for its costs to acquire land, raise the elevation of the two railroads, and build roads and bridges. The state planned to use the reimbursement as match for more WPA funding to complete the project. Left undone at that point were necessary improvements to three of the four dams, deepening the river channel between Lac qui Parle Dam and Granite Falls, raising the Great Northern Railroad tracks, completing the Correll-Louisburg Road, and raising additional local roads threatened by potential flood waters.[29]

In 1939-1942, the WPA and the Minnesota Department of Conservation built short segments of road to maintain access to farmsteads and fields. This occurred after the land was inundated so planners could better determine reconstruction needs and final roadway elevations.

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[29] Barbara Kooiman and Christina Slattery, "Lac qui Parle Dam [DRAFT]," National Register of Historic Places Registration Form, Aug. 2, 1994.

By June of 1939, project organizers were seeking additional funds to continue the project beyond the fall of 1939 when WPA funds were scheduled to run out. In July 1939, Congress appropriated $85,000 for channel improvement from the Lac qui Parle Dam downstream to Granite Falls. The Army Corps of Engineers would do the work using a private contractor.[30] In September of 1939, the Department of Conservation applied for a $300,000 project ($250,000 in WPA funds and a $50,000 state match) to continue unfinished road-building and park development.[31] In October and November of 1939, the *Appleton Press* described a proposed WPA project that would employ 600 to 700 relief workers and complete five unfinished tasks: 1) straightening the Minnesota River channel between the Lac qui Parle Dam and Granite Falls; 2) building numerous short sections of road; 3) building four concrete bridges; 4) straightening the Minnesota River channel between Marsh Lake and Ortonville, and 5) "other smaller items of improvement."[32] This application was evidently not funded.

In 1939-1941, the WPA, Army Corps, state highway department, and Department of Conservation completed the parks, built roads, raised the Great Northern railroad, and worked on the water control structures. In June 1941, the *Appleton Press* reported that the Lac qui Parle project was 85% complete and "will now be taken over by the Army engineers and completed."[33]

In 1940-1942, the WPA completed Lac qui Parle State Park, built Lac qui Parle Mission Wayside, and collaborated with Chippewa County to build a scenic road, Chippewa County Highway 32, near the Mission Wayside.

In 1941 through early 1942, after WPA funding ended and U.S. involvement in World War II began, the Army Corps of Engineers built the Marsh Lake Dam's emergency spillway and added two gauging stations; dug the Marsh Lake Dam outflow channel; helped raise the elevation of the Great Northern railroad tracks; worked on the Lac qui Parle Dam and its outflow channel and gauging station; and improved the Minnesota River channel south of Lac qui Parle Dam.

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[30] "Lack of Men" 1939.
[31] "Lac qui Parle Project to Close by Nov. 1 – New Project Asks Road Building, Park Work," *Appleton Press*, Oct. 6, 1939.
[32] "Five County Groups Urge Completion of Lac qui Parle Project Slated to Stop Oct. 31," *Appleton Press*, Oct. 27, 1939.
[33] "Army Engineers to Take Charge of, Complete Lac qui Parle Control Project," *Appleton Press*, June 27, 1941.

In 1945-1946, the state highway department reinforced and riprapped the Highway 119 Causeway, which had evidently sustained water or ice damage.

After World War II, in 1948-1951, the Army Corps and the Minnesota Department of Conservation built final roads and bridges, repaired and reinforced a damaged Marsh Lake Dam and a weakened Lac qui Parle Dam, installed a Tainter gate on the Chippewa River Control Works, and finished improving the river channel south of Lac qui Parle Dam.

In September 1950, the state and federal governments reached agreement that the U.S. government would pay the state for flowage rights and to obtain the flood control structures, and the Army Corps of Engineers would take over flood control operations.

The U.S. Army Corps of Engineers still owns and operates the flood control structures and adjacent dam recreation areas. The State of Minnesota still owns and operates the parks and the vast Lac qui Parle wildlife management area located on both sides of the river.

Construction Details for Milan Bridge, Highway 40 Causeway, and Milan Beach
Construction of the Milan Bridge was WPA Job No. 19. Construction of the Highway 40 Causeway was WPA Job No. 20. Construction of Milan Beach was WPA Job 4A.

The Highway 40 Causeway replaced a previous causeway that crossed the marshy Lac qui Parle Lake on the north side of the current causeway. The previous causeway was built in 1923 following the 1919 flood. The truss bridge that preceded the current Milan Bridge was built in 1901.[34] The current Highway 40 Causeway and Milan Bridge were built about 8' higher than their predecessors to accommodate the new water levels.[35]

In early December 1934, a crew of SERA workers started preliminary work on one end of the Highway 40 Causeway. This was part of the first physical work associated with the Lac qui Parle project, and was confined to land that was

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[34] J. J. Idzorek, (Minnesota Dept. of Highways Project Engineer), letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer), Jan. 29, 1934.
[35] "Lac qui Parle Flood Control Project Showing the Dams, Dykes, Bridges, and Parks in the Project, Jan. 1, 1939," typescript with photographs, Jan. 1, 1939.

already state-owned since the majority of land needed for the flood control project had yet to be acquired.

In July 1936, there was construction on the southwest end of the causeway by SERA or WPA workers.

On December 1, 1936, construction of the causeway and the Milan Bridge was about 5% complete according to a WPA progress report.[36]

A WPA application initiated in August 1937 to continue construction of the causeway estimated labor needs as 132 unskilled laborers, 9 dumpmen, 50 riprappers, 2 air compressor operators, 12 hand drill operators, 2 blasters, 3 stonecutters, 1 superintendent, 2 foremen, and 1 timekeeper. Equipment needs were estimated as 3 gasoline-powered shovels, 30 trucks, and 1.5 tons of dynamite. The application indicates there were already 2,800 cubic yards of road gravel and 1,350 cubic yards of riprap in place on the causeway, but the date of this snapshot is unclear because the application had been revised and is dated both August 2, 1937 (original) and May 15, 1938 (revision).[37]

In November of 1937, the State of Minnesota advertised for bids for the construction of the Milan Bridge.[38] The successful bidder was Theodore Jensen Company of St. Cloud.

By the end of 1937, according to state highway department construction logs, Highway 40 on the causeway was graded to a width of 30' to 44' with a 30'-wide gravel driving surface.[39]

Riprapping of the Highway 40 Causeway was in progress in the spring of 1938.[40]

The ornamental railings for the Milan Bridge were being fabricated in May 1938 at the A. F. Wagner Iron Works plant in Milwaukee, Wisconsin.[41] The bridge was

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[36] *Lac qui Parle Flood Control Project Progress to December 31, 1936*, annotated map, Jan. 12, 1937.
[37] Works Progress Administration (WPA), project proposals for WPA Project 2848, 1935-1938.
[38] "Highway Chief Asks Bids for New Projects," *St. Cloud Daily Times and Daily Journal Press*, Nov. 2, 1937.
[39] Minnesota Department of Highways, Construction Project Log Records for Trunk Highway 40.
[40] Walter S. Olson (Minnesota Dept. of Conservation Director of Drainage and Waters), letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer), May 2, 1938.
[41] G. M. Robinson (Wagner Iron Works Chief Draftsman), letter to Albert Larkin (Minnesota Dept. of Highways), May 5, 1938.

completed and the old bridge removed in the late spring or early summer of 1938. Riprapping of the bridgeheads was in progress in July 1938.[42]

An August 1938 aerial photo shows the new causeway and Milan Bridge in place. Also visible is the previous causeway, which had not yet been removed although the old truss bridge was gone. The photo was taken before the Lac qui Parle Reservoir was first flooded in the spring of 1939.

A January 1, 1939, WPA progress report indicates that construction of the causeway was the third most-costly among 42 WPA project tasks listed. The report indicates that the causeway was 86% complete. The report estimates that 300 man-months of work remained and that the causeway would be finished by May 15, 1939.[43]

In 1941, according to state highway department construction logs, the highway on the causeway was paved with bituminous to a width of 24' to 26'. It had gravel shoulders 2' to 3' wide.[44]

Milan Beach, located on the east shore of Lac qui Parle Reservoir at the east end of Milan Bridge, was built in 1939. Among those lobbying the State of Minnesota for a beach at this location was the Milan Boosters Club, which argued that residents of Milan – the closest town at three miles away – had no swimming facilities for the children.[45] Sand for the beach was probably dug from one of the large borrow pits the state was using along Highway 40. According to a January 1, 1939, WPA progress report, 150 man-months of labor were allocated to the beach construction.[46]

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[42] Adolph F. Meyer (Consulting Hydraulic Engineer), letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer), July 26, 1938.
[43] "Record of Federal, State, and County Allotments to Lac qui Parle Project," typescript, Jan. 1, 1939.
[44] Minnesota Department of Highways, Construction Project Log Records for Trunk Highway 40.
[45] Milan Boosters, letter to Harold W. Lathrop (Division of State Parks, Minnesota Dept. of Conservation), Jan. 28, 1939.
[46] "Record of Federal, State, and County" 1939.

Part II. Structural/Design Information

A. General Statement:

1. Character:

The Milan Bridge and associated landscape elements were built as part of the Lac qui Parle Flood Control Project, largely by the WPA.

The Milan Bridge is a single-span, riveted steel, 8-panel Parker through truss with concrete slab approach spans. The concrete abutments have Classical Revival detailing and curving corbel-like forms that support the truss and approach spans. The bridge is 220' long. (The main span is 162'.) The bridge has two walkways – elements incorporated into this rural bridge because it was located at one of the best fishing spots in the area.[47]

The bridgeheads, designed in the National Park Service Rustic Style, are curved earthen structures armored with closely-fit, mortared granite riprap. At the northeastern corner of the bridge, the bridgehead incorporates a pedestrian terrace with three sets of granite steps.

The Highway 40 Causeway is a 1,700'-long earthen causeway whose sides are armored with closely-fit, dry-laid stone riprap in the National Park Service Rustic Style. There are two wide granite staircases on the north side of the causeway west of the bridge, one of which is currently concealed by a layer of loose granite riprap (location noted on figure 5).[48]

Milan Beach is a small swimming beach located immediately southeast of the Milan Bridge.

The Milan Beach Parking Area is located immediately east of Milan Beach.

The Highway Segment East of Milan Beach extends from the east end of the Milan Bridge about 900' eastward to the east boundary of the Lac qui Parle Flood Control Project Historic District (figures 4 and 5).

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[47] J. J. Idzorek (Minnesota Dept. of Highways Project Engineer), letters to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer), Jan. 29, 1934 and Feb. 28, 1935.
[48] MnDOT's Milan Bridge replacement project will rehabilitate these steps.

Character-defining features of the Milan Bridge include:

- A 162'-long steel Parker through truss with riveted connections, gusset plates, box-shaped top chords, inclined end posts at the same angle as diagonals, vertical and diagonal members, lateral struts and sway bracing, and floor beams and stringers.
- Concrete abutments and wing walls with curving corbel-like forms and classically-inspired detailing.
- Steel railings with vertical pickets and capped metal posts, and, on the approach spans, wide concrete posts with recessed detailing.
- Extensive areas of sloping stone revetment at the ends of the bridge. The stonework at the northeast corner creates a pedestrian concourse with three sets of stone steps. The bridgeheads are formal in shape but also rustic due to the use of rough-textured local stone.
- A location on the east end of the Highway 40 Causeway across the Lac qui Parle Reservoir near the center of the Lac qui Parle Flood Control Project Historic District.

Character-defining features of the area around the Milan Bridge and Highway 40 Causeway include:

- Transportation structures and recreational amenities.
- A landscape dominated by broad views, open water, the Lac qui Parle Reservoir shoreline – including Milan Beach – as well as low hills and deciduous trees near the water's edge.
- Few manmade structures other than the Highway 40 Causeway and highway segment, Milan Bridge, and, within the setting of the historic district but outside of the historic district boundaries, Randall's Milan Beach Resort.
- A linear causeway crossing the reservoir at its midpoint, interrupted by the river channel and bridge.
- Milan Bridge, a landmark in the area because of its truss structure, height, and popularity as a fishing spot.
- Extensive, hand-placed granite riprap that armors the causeway and bridge abutments, formalizes the landscape design, creates pedestrian access to the water, and showcases local stone and labor-intensive craftsmanship.
- Wide granite stairways that provide aesthetic interest and public access.

Character-defining features of the overall Lac qui Parle Flood Control Project Historic District include:

- Large collection of resources, most publicly-owned.
- Resources mostly built for water control and conservation, transportation, recreation, and game and fish management.
- Water features and water control elements – including dams, weirs, diversion channels, reservoirs, and ditches – that form a comprehensive flood control and water conservation system.
- Transportation structures – including roads, railroads, causeways, and bridges – built to raise roads and railroads above the water and provide recreational access.
- Recreation and wildlife conservation elements – including parks, beaches, and wildlife management areas – designed to make use of the excess purchased land to provide public amenities in a part of the state that had few such facilities.
- Structures designed in the National Park Service Rustic Style and built by WPA crews.
- Structures built with indigenous materials such as locally-quarried granite.
- Structures displaying labor-intensive construction and a high level of craftsmanship.
- Extensive use of hand-placed granite riprap to protect embankments, causeways, dams, and ditches from the effects of the water.
- A landscape dominated by expansive views, bodies of water, bridges and causeways, rolling hills, wetlands, cropland, and deciduous woods.

Design Consistency

Many of the structures built by the Lac qui Parle Flood Control Project share design consistency that helps make the project visually cohesive. The four major dams were built of poured concrete with utilitarian forms, simple pipe railings, and little if any ornamentation other than stone riprap. Bridges also had simple designs made more interesting with open metal railings. The Milan Bridge, the only truss bridge built by the project, is the most intact of the major bridges and remains a visual landmark within the project.

Three of the parks – Lac qui Parle Mission Wayside, Watson Scenic Wayside (now Lions Park), and Lac qui Parle State Park – are examples of the National

Park Service Rustic Style. The latter two have timber and granite buildings and structures that form a cohesive set across both parks.

Large amounts of hand-fit stone riprap are characteristic of the Lac qui Parle project. The use of indigenous materials is typical of the National Park Service (NPS) Rustic Style and helps the manmade structures blend with the natural environment. NPS Rustic Style construction often involved labor-intensive methods that were feasible because of the large work force available through New Deal relief programs. Some of the flood control project's riprap is made from lake boulders gathered on site, but most is made of waste rock purchased from local granite quarries and split by jackhammer and chisel.

2. Condition of Fabric:

Milan Bridge (Bridge 5380)
The Milan Bridge is in poor condition. The condition of individual elements is described below.[49]

Abutments and Approach Spans. The west abutment has moved westward about 9.5". About half of this movement occurred almost immediately after the bridge was built. Most of the west abutment's fill was removed in 1939 as part of a repair project to stabilize the abutment. Today the front face of the abutment is tipped west about 1" out of vertical and displays vertical cracking. The abutment's parapet have some spalling, delamination, minor vertical cracks, light map cracking, and concrete scaling.

The east abutment's interior fill matches that of the original plans. The abutment's front face is plumb. The concrete surfaces have some map cracking, delamination, and spalling.

The approach span slabs have numerous transverse cracks and minor spalls with exposed reinforcement; spalling is more severe on the east approach span.

[49] The information on bridge condition is from SEH and Gemini Research, *Alternative Analysis for MnDOT Bridge 5380, TH 40 over Lac qui Parle Lake, Milan, Minnesota* (2017), which largely drew its condition information from Scott Theisen, *2016 Fracture Critical Bridge Inspection Report, Bridge #5380* (MnDOT, 2016).

Truss Span. Most of the truss members display extensive paint loss and surface corrosion.

Upper chord members are generally in fair condition. The lower chords display pack rust and loss of section. Vertical legs of the lower chord are cupped at connection points indicating pack rust is bending the legs inward.

Vertical and diagonal truss members are in poor condition with section loss, particularly on lower areas near the deck. On several vertical members the web has severe section loss from the sidewalk level down, and the bottom 10" of web has rusted away.

Upper gusset plates on both trusses are in good condition. The edges of some plates have minor bowing. The lower gusset plates are in worse condition. They display bowing from pack rust, pitting, and minor section loss. Rivets are corroded at several upper and lower gusset plates.

The horizontal diagonal bracing (both upper and lower), the sway frames, and the portal frames are generally in good condition.

The floorbeams are in poor condition. Pack rust has formed on the top of the flanges causing the concrete deck to be lifted up by as much as 1". Bottom flanges are pitted. The stringers are also in poor condition. Several stringers have section loss on the top flange and at the top of the web at floorbeam connections. Pack rust on the top flange of several stringers is forcing the deck to lift. The interior sidewalk stringers have severe section loss and through-corrosion in the web.

The rocker expansion bearings at the west abutment are not functioning properly. They are tipped 3.5" because the west abutment has moved westward. The rocker casting is now in contact with the gusset plates and the pintels have sheared off allowing the rocker plate to slide freely. The fixed bearings at the east abutment have paint failure and surface corrosion. The lead sheet is working its way out from below the base casting.

Deck. The concrete deck is in poor condition. Full-depth repairs were made in 2009. The upper surface displays scaling and numerous repaired areas. Transverse cracks have been sealed but are beginning to fail. The south

gutter line has spalls. About 15% of the concrete on the underside of the deck is spalled and/or delaminated. In several areas the reinforcement rod is exposed and rusting. The deck drains are functioning. The west deck joint is missing, adhesion has failed, and the joint material has been pushed down leaving a 3"-wide opening. The east deck joint is open about 1". Spalled concrete at the south half of this joint has been repaired.

Walkway and Railings. The bridge walkways have spalls and other concrete deterioration. The railing is covered with rust and has scalloping along the top angle of the bottom rail. There is pack rust and pitting of the verticals at all railing connections.

Bridgeheads (With Stone Terrace and Staircases)
Mortar joints are cracked and mortar is missing throughout the stonework.

The three sets of steps are in good condition.

At the northwest and southwest corners of the bridge, the mortared stonework has been covered with a layer of concrete grout that extends from the river channel westward about 30' (photos MN-139-18 and MN-139-24).

The mortared stonework has some undermining at the southwest, northeast, and southeast corners of the bridge. In these areas soil has washed out from the base of the stonework (at the water's edge) and stones have been displaced. In some places this has created moderately large holes in the revetment.

Stones are displaced, missing, and buried at the northern edge and northeast corner of the stonework at the northeast corner of the bridge. The elevation of the beach sand/gravel is higher in this area than it was in 1938, burying the north edge of the stonework. Among the buried stonework is a stone-paved drainage ditch (an extension of the highway's north ditch) that ends at a small stone culvert structure (located at the bottom of the northern set of steps).

Highway 40 Causeway (With Stone Staircases)
On some parts of the causeway the hand-fit, dry-laid riprap has been covered in recent decades by a layer of dumped granite riprap. In other areas, some

original stones have tipped or been heaved out of position, likely by water and ice.

The causeway's east staircase, located about 80' west of the bridge, is currently covered by a layer of dumped riprap but is believed to be otherwise intact. The west staircase is in good condition.

Milan Beach
The beach is in fair to good condition.

Milan Beach Parking Area
The parking area is in fair condition.

Highway Segment East of Milan Bridge (With Stone Culvert Headwall)
Original granite paving in the floor of the north ditch has been covered by accumulated soil. All but one of the original culvert headwalls have been lost. It is believed there were originally four stone headwalls at the two west driveway entrances to Randall's Milan Beach Resort.

B. Description:

Lac qui Parle Reservoir
Lac qui Parle Reservoir, also called Lac qui Parle Lake, is a dominant feature of the Lac qui Parle Flood Control Project and is contributing to the Lac qui Parle Flood Control Project Historic District. The reservoir is impounded by the Lac qui Parle Dam located about nine miles south of the Milan Bridge and the Highway 40 Causeway. Lac qui Parle is one of two large reservoirs created by the flood control project; the other is Marsh Lake Reservoir. Both provide water storage as well as being recreational lakes. The reservoirs were first flooded in 1939.

Lac qui Parle Reservoir is about 17 miles long and about .8-mile wide at its widest point. The Highway 40 Causeway crosses the reservoir at its approximate north-south midpoint.

Before the flood control project, Lac qui Parle Lake and Marsh Lake were shallow, marshy widenings of the Minnesota River. The name Lac qui Parle or "Lake that Speaks" is a French translation of a Dakota Indian name for the lake.

Milan Bridge (Bridge 5380)

The current Milan Bridge, built in 1938, replaced a smaller truss bridge built in 1901. The deck of the current bridge was built about 8' higher than the deck of the earlier bridge.

Abutments and Approach Spans. The substructures consist of reinforced concrete abutments that each support a 29'-long concrete slab approach span. Each hollow U-shaped abutment is composed of a reinforced concrete front wall on which the truss bears, two sidewalls, transverse beams, and a concrete slab spanning the front wall and beams. The abutments are ornamented with a classically-inspired cap or coping as well as curving corbel-like forms that support the truss and approach spans (photo MN-130-27).

The approach span slabs are 11"-thick reinforced concrete slabs. Unlike the deck on the truss span, the approach span slabs are a structural element, meaning they are designed as primary load-carrying members between the front and back walls of the abutments.

Truss Span. The truss span is a 162'-long Parker through truss (photo MN-130-26). It has eight panels with panel point spacing of 20'. The north and south trusses are 30' apart, measured center to center. The upper chords consist of two channels with cross-lacing and cover plates. The lower chords are made of four angles with battens. The vertical and diagonal members are single I-beams. Truss members are connected at panel points with riveted gusset plates. The bridge has approximately 16' of vertical clearance from its overhead truss portal to the top of the deck. The portal bracing, which dates from 1967, has a box configuration made up of wide flange beams and plates. Overhead sway bracing is made of riveted angles.

The eight floor beams consist of W33 x 128 wide-flange beams that frame into the trusses at lower chord panel points. A set of longitudinal stringers that frame into floor beams supports the concrete deck. The stringers consist of W12 x 28 wide-flange beams.

The truss bears on expansion rocker bearings on the west abutment and on fixed bearings on the east abutment.

Cast metal nameplates are bolted to the trusses' northeast and southwest end posts. The northeast plate reads "Federal Aid Project 11-A Minnesota 1938." The southwest plate reads "Minnesota Highway Dept. Bridge No. 5380, 1938."

Deck. The bridge has a reinforced concrete deck about 6.75" thick. The roadway is 27' wide between the concrete curbs. (The edges of the sidewalk slabs create the curbs.) There is a deck joint at each end of the truss span.

Walkways and Railings. There is a 3'-wide concrete sidewalk cantilevered off each side of the bridge. The sidewalk stringers are supported by triangular brackets attached to the truss (photo MN-130-27).

There are 40"-tall ornamental metal railings on the outside of the sidewalks. The railings have round handrails and vertical pickets. On the truss spans, the railings are supported by capped steel posts that are 6" in cross-section. On the approach spans, the railings are supported by monumental concrete posts with recessed panel detailing. The final posts at the ends of the bridge are L-shaped.

There are also simple steel safety railings attached to the roadway side of the trusses to help separate sidewalk users from the traffic, and to protect the trusses from vehicle damage. Each railing consists of two horizontal rails attached to the truss and to intermediate steel posts.

Steel post and beam-style guardrails extend from the ends of the railings. The guardrail is about 90' long at the northeast corner of the bridge, 75' long at the southeast corner, and 125' long at both the northwest and southwest corners.

Bridgeheads (With Stone Terrace and Staircases)

The bridgeheads at the ends of the Milan Bridge have a distinctive flattened- or elliptical-arch shape in plan view. The bridgeheads have uniform, symmetrical

slopes and curves consistent with the formality of the bridge's Classical Revival aesthetics.

The bridgeheads are protected by extensive sloping rock revetments or riprap installed by the WPA in 1938 (photos MN-139-11 through MN-139-15, and MN-139-21 through MN-139-23). The stonework consists of closely-fit, hand-placed, mortared pieces of granite that are irregular in shape. The stones were installed to create a smooth, uniform surface. The riprap extends down the slope below the water level to an unknown depth. The stonework was designed to be inundated during times of high water and to withstand the action of high waves and ice. The stonework at the bridgeheads is similar to that along the Highway 40 Causeway except the Highway 40 causeway riprap is not mortared.

The stonework at the bridgeheads and along the causeway is made of waste rock purchased from local granite quarries and split by jackhammer and chisel. The stones display hues of pink, red, gray, and black. Many of the rocks are 12" x 12" or 12" x 20". Most are 10" to 12" thick. Each stone has a flat upper surface. Many display drill marks from quarrying.

At the northeast corner of the bridge, the stonework extends from the river channel eastward about 120'. Here the designers created an unusual pedestrian terrace with three flights of stone steps to bring visitors from the roadway to the terrace and from the terrace northward to the sandy shoreline (photos MN-139-16 and MN-139-17). The southern two sets of steps, which are perpendicular to one another, are joined by a curved stone landing with stringers. These steps and landing are about 9' wide. The northern (lowest) set of steps is shorter (three steps and a lower landing) and is about 6' wide.

At the southeast corner of the bridge, the mortared stonework extends from the river channel eastward about 100'.

At the northwest and southwest corners of the bridge, the mortared stonework has been covered with a layer of concrete grout that extends west from the river channel about 30'.

Highway 40 Causeway (With Stone Staircases)

The Milan Bridge is located at the northeast end of a long causeway across Lac qui Parle Reservoir that was built by the WPA and the Minnesota Department of

Highways in 1938 as part of the flood control project (photo MN-139-2). The current causeway replaced a previous causeway (lower and more narrow) that crossed the marshy lake just north of the current causeway. The previous causeway was built in 1923 following a devastating flood in 1919.

The Highway 40 Causeway is one of the longest of several causeways built and improved as part of the Lac qui Parle Flood Control Project. The causeway is about 1,700' long and about 100' wide. The Milan Bridge carries the highway over the Minnesota River channel near the causeway's east end.

Both sides of the causeway, for its entire length, are protected with sloping stone revetments – that is, hand-fit, granite riprap – installed by the WPA (photos MN-139-4 through MN-139-6). The rocks are large – most are 12" x 12" or 12" x 20" in surface area and 10" to 12" thick. Each stone has a flat upper surface. The riprap was installed to form a smooth, uniform surface. The riprap extends down the slope below the water level to an elevation of approximately 934' (above sea level). The stonework was designed to be inundated during times of high water and to withstand the action of high waves and ice. Except for being unmortared, the causeway riprap is similar to the mortared stone at the bridgeheads. On some parts of the causeway, the hand-fit riprap has been covered in recent decades by a layer of loose granite riprap.

Along the north side of the causeway west of the bridge are two gracious granite staircases that lead from the roadway to the water's edge (photo MN-139-3). Each staircase is about 10' wide and 30' long. Each has wide shallow steps edged with stone stringers. The west staircase, which is located about 350' west of the bridge, is well-preserved. The east staircase, located about 80' west of the bridge, is currently covered by a layer of loose riprap but is believed to be otherwise intact.[50]

In the 1980s a set of concrete steps (integrally colored a pinkish-tan) was added to the north side of the causeway about 125' west of the bridge (figure 5). The steps are about 4' wide and extend from the roadway to the water's edge. They have a simple pipe railing.

[50] Gemini Research found no evidence of steps on the south side of the causeway either in documents or in the field.

Milan Beach

Milan Beach, immediately southeast of the Milan Bridge, is a small public swimming beach built by the WPA in 1939 as part of the flood control project (photo MN-139-10). The beach is about 150' long, north to south. It generally retains historic integrity except that, at the south end, a modern timber fishing pier has been installed. Milan Beach is one of two swimming beaches constructed by the WPA on Lac qui Parle Reservoir. The second is at the south end of the lake at Lac qui Parle State Park.

Milan Beach Parking Area

Immediately east of Milan Beach is a public parking area surfaced with gravel. (photo MN-139-8). It has an informal (roughly rectangular) shape and measures about 120' x 250'. It serves Milan Beach, Milan Bridge (historically a very popular fishing spot), and the Milan Bridge Public Access boat ramp. The current parking area represents a circa 1980 enlargement of an informal late-1930s parking area.

Highway Segment East of Milan Bridge (With Stone Culvert Headwall)

The Lac qui Parle Flood Control Project included reconstruction of Highway 40 and its ditches both west and east of Lac qui Parle Reservoir.

East of Milan Bridge, water in the north ditch flows westward. The water passes through corrugated metal culverts under the driveway approaches to Randall's Milan Beach Resort, and then flows along the north edge of the bridgehead stonework before emptying into the lake (photo MN-139-19). (Two of the driveway approaches were built as part of the Lac qui Parle project; the eastern approach was added circa 1970.)

The west side of the west driveway approach has a simple culvert headwall made of granite (photo MN-139-20). Three other headwalls are missing. The extant headwall measures about 10' north to south. The floor of the ditch west of the headwall is paved with granite, but the paving stones are now buried in sediment. The granite-paved ditch or swale extends across the north edge of the bridgehead stonework to prevent erosion as the water from the ditch flowed to the lake.

Highway 40 has been paved with bituminous since 1941. East of Milan Bridge the pavement is divided into two 12'-wide travel lanes and two 4' to 6'-wide shoulders.

C. Site Information:

The Milan Bridge, Highway 40 Causeway, and associated landscape elements are located near the north-south midpoint of the Lac qui Parle Reservoir near the center of the Lac qui Parle Flood Control Project.

The flood control project is located in a sparely populated agricultural setting. The landscape is characterized by a few small towns; widely-spaced farmsteads; pastures and tilled fields; and thousands of acres of wildlife management and waterfowl production areas, most state- and federally-owned.

Much of the land along the Minnesota River – naturally a grassland biome – was being tilled or grazed in the 1930s when it was acquired for the flood control project. Today the area within the flood control project is dominated by water – reservoirs, rivers, streams, and seasonal wetlands – as well as grasslands, row crops planted for wildlife feed, and large plantings of shrubs, all managed by the State of Minnesota as part of Lac qui Parle Wildlife Management Area. In the river bottoms are stands of deciduous trees including cottonwood, willow, American elm, silver maple, green ash, bur oak, American linden, and boxelder. There are exposed rock outcrops in selected areas.

The west and east shores of Lac qui Parle Reservoir near the Milan Bridge and Highway 40 causeway are wooded with cottonwood, willow, American elm, silver maple, green ash, American linden, and boxelder trees as well as deciduous shrubs, all or most of which have "volunteered" to the site. The stand of trees closest to the Milan Bridge is located southeast of the bridge. The shore of the reservoir north and south of Milan Bridge is dominated by gravel and small rocks, except at Milan Beach itself where sand was hauled in.

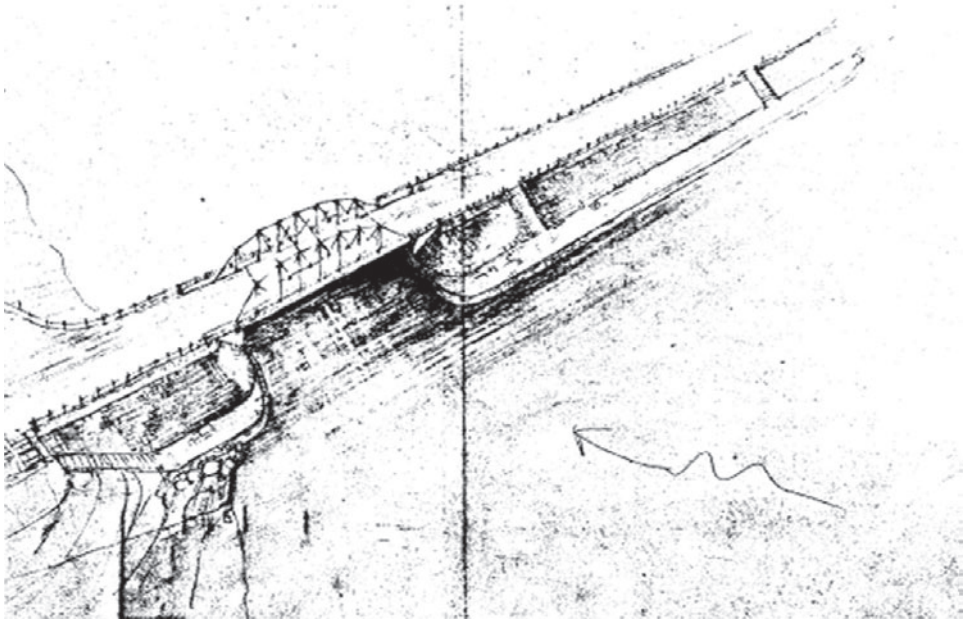

Figure 1. Detail from the original construction plans showing the Milan Bridge, the Highway 40 Causeway, the bridgeheads with the pedestrian terrace, and stone staircases. This plan sheet is photo-duplicated in this HAER documentation as photo MN-139-41 (see the Index to Photographs for more information).

Figure 2. Overview map showing the Lac qui Parle Flood Control Project Historic District (Gemini Research sketch).

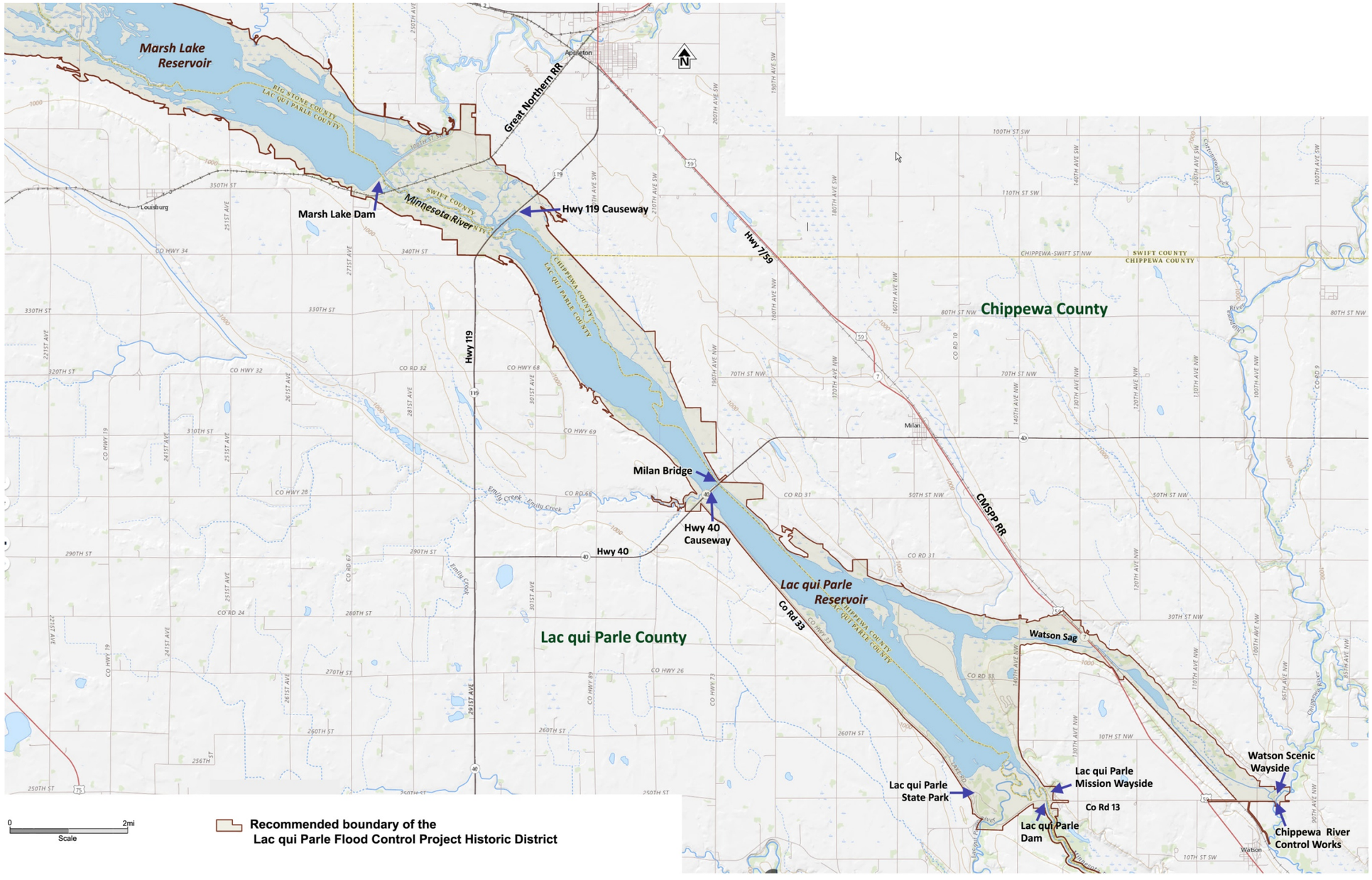

Figure 3. Center of the Lac qui Parle Flood Control Historic District, from Marsh Lake Reservoir to Lac qui Parle Dam and Chippewa River Control Works. Milan Bridge and the Highway 40 Causeway are near the north-south midpoint of Lac qui Parle Reservoir (Gemini Research sketch map using a base map in the public domain from *The National Map*, United States Geological Survey (USGS) website, http://nationalmap.gov).

Figure 4. The area around the Milan Bridge and Highway 40 Causeway (Gemini Research sketch map using a 2009 aerial photograph in the public domain from the Aerial Photography Field Office (APFO) of the U.S. Department of Agriculture's Farm Service Agency (FSA)).

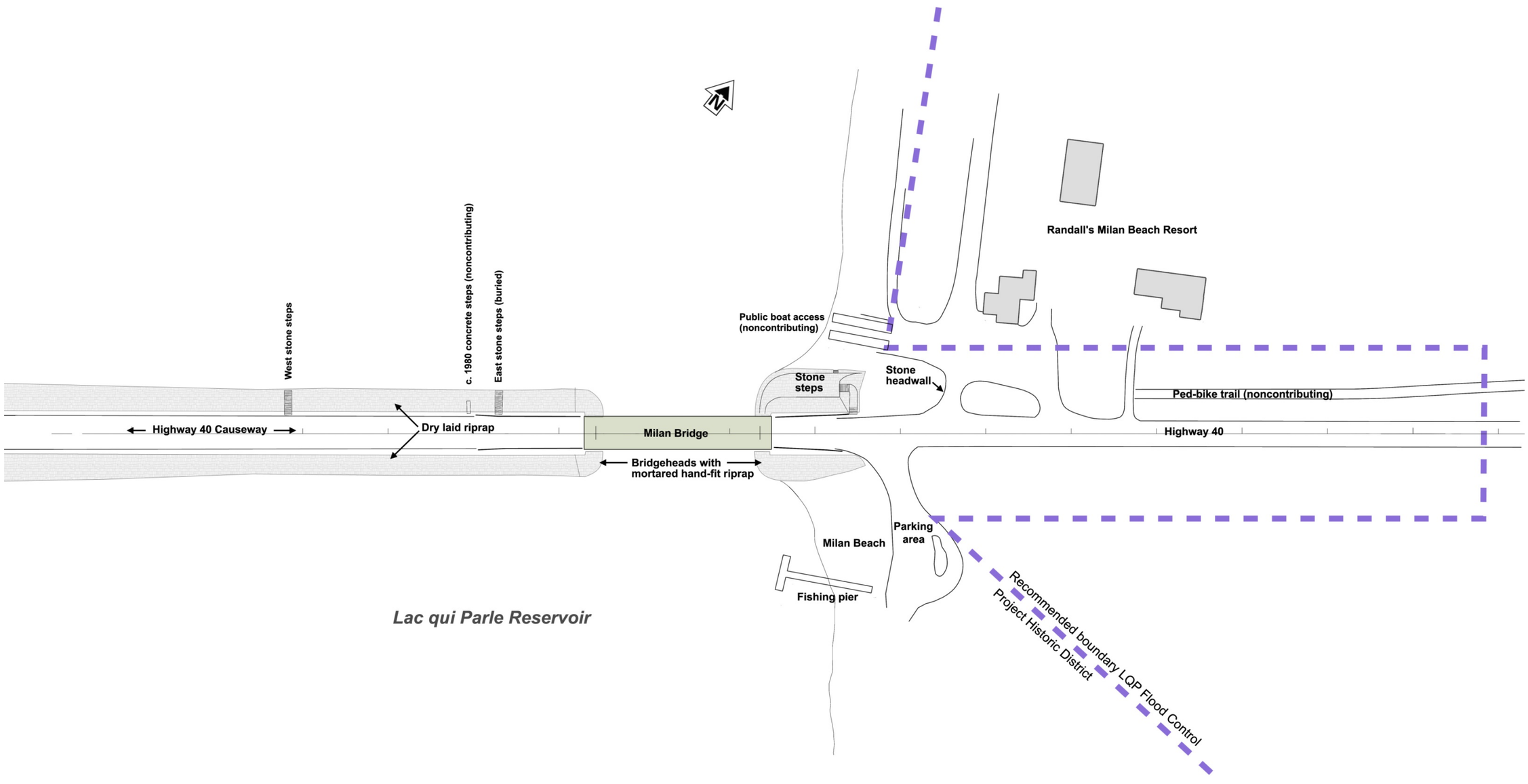

Figure 5. Detail view of the area around the Milan Bridge. Resources within the historic district are contributing unless otherwise indicated (Gemini Research sketch map).

Part III. Sources of Information

A. Primary Sources:

"Army Engineers to Take Charge of, Complete Lac qui Parle Control Project." *Appleton Press*, June 27, 1941.

"Can Use 9,000 More Men, Says Christgau." *Minneapolis Star*, Jan. 27, 1938.

"Crew of Two Hundred Men Starts Work on Chippewa River and Watson Sag Unit of Lac qui Parle Water Control Project." *Montevideo News*, May 1, 1936.

Division of Game and Fish, Minnesota Dept. of Conservation. "Subject: Lac qui Parle Project." Typescript, Fall 1939. Minnesota Executive Council, Lac qui Parle Flood Control Project Files, Correspondence, 1935-1955. State Archives, Minnesota Historical Society, St. Paul.

"Five County Groups Urge Completion of Lac qui Parle Project Slated to Stop Oct. 31." *Appleton Press*, Oct. 27, 1939.

"Highway Chief Asks Bids for New Projects." *St. Cloud Daily Times and Daily Journal Press*, Nov. 2, 1937.

Hoffman, M. J. (Minnesota Dept. of Highways Bridge Engineer). Letter to E. R. Boyce (Minnesota Dept. of Highways Project Engineer). Sept. 30, 1937. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

_____. Letter to Victor Christgau (State Administrator, WPA). April 22, 1938. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

Idzorek, J. J. (Minnesota Dept. of Highways Project Engineer). Letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer). Jan. 29, 1934. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

_____. Letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer). Feb. 28, 1935. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

"Jensen Firm is Moved to City." *St. Cloud Daily Times and Daily Journal Press*, Feb. 27, 1928.

Lac qui Parle Flood Control Project Progress to December 31, 1936. Annotated map, Jan. 12, 1937. State Auditor, Executive Council Files, 1931-1942, Lac qui Parle Flood Control Project, 1935-1942. State Auditor, Minnesota Historical Society, St. Paul.

"Lac qui Parle Flood Control Project Showing the Dams, Dykes, Bridges, and Parks in the Project, Jan. 1, 1939." Typescript with photographs, Jan. 1, 1939. State Auditor, Executive Council Files, 1931-1942, Lac qui Parle Flood Control Project, 1935-1942. State Archives, Minnesota Historical Society, St. Paul.

"Lac qui Parle Project is Biggest in State." *Montevideo News*, June 7, 1935.

"Lac qui Parle Project was Early Settlers' Dream." *Appleton Press*, Sixtieth Anniversary Edition, 1880-1940, May 10, 1940.

"Lac qui Parle Project to Close by Nov. 1 – New Project Asks Road Building, Park Work." *Appleton Press*, Oct. 6, 1939.

"Lack of Men, Near Completion of Planned Work on Project Brings Close of Appleton WPA Camp." *Appleton Press*, July 28, 1939.

Meyer, Adolph F. "Lac qui Parle Reservoir, Milan Bridge Crossing." Cross-sectional drawing of Highway 40 Causeway. Sept. 1937. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

_____. Letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer). July 26, 1938.

Milan Boosters. Letter to Harold W. Lathrop (Minnesota Dept. of Conservation). Jan. 28, 1939. Attorney General, Lac qui Parle Flood Control Project Files, 1922-1963. State Archives, Minnesota Historical Society, St. Paul.

Minnesota Department of Highways. Construction Project Log Records for Trunk Highway 40. Minnesota Dept. of Transportation, St. Paul.

Minnesota Department of Transportation (MnDOT) Bridge Inspection Reports, 1972-1991 with eight photos from 1951-1969. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

Minnesota Works Progress Administration. Three photographs of the riprapped bridgehead at northeast corner of Milan Bridge. Photograph negative numbers 7624, 7626, and 7627. Photograph and Negative Collection, Minnesota Works Progress Administration Collection. Minnesota Historical Society, St. Paul.

Olson, Walter S. (Minnesota Dept. of Conservation Director of Drainage and Waters). Letter to M. J. Hoffman (Minnesota Dept. of Highways Bridge Engineer). May 2, 1938. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

"Record of Federal, State, and County Allotments to Lac qui Parle Project." Typescript, Jan. 1, 1939. State Auditor, Executive Council Files, 1931-1942, Lac qui Parle Flood Control Project, 1935-1942. State Archives, Minnesota Historical Society, St. Paul.

Robinson, G. M. (Wagner Iron Works Chief Draftsman). Letter to Albert Larkin (Minnesota Dept. of Highways). May 5, 1938. Bridge 5380 Archive File, MnDOT Records Center, St. Paul.

Schaefer, E. E. "Putting a Harness on Flood Waters: Dams Built to Trap Excess Flow, Save Minnesota's Crops." *Minneapolis Tribune*, April 18, 1937.

"Theodore Jensen Returning to Denmark to Visit Native Land." *St. Cloud Daily Times and Daily Journal Press*, Jan. 1, 1931.

"Theodore Jensen." *St. Cloud Daily Times and Daily Journal Press*, July 23, 1954.

"Water Control Pushed to Fight Dangers of Drought and Flood." *Minneapolis Tribune*, Jan. 3, 1937.

Willard, E. V. (Chief Engineer and Deputy Commissioner, Minnesota Department of Conservation). "Lac qui Parle Flood Control Project Physical Characteristics." Typescript, circa Jan. 1, 1939. State Auditor, Executive Council Files, 1931-

1942, Lac qui Parle Flood Control Project, 1935-1942. State Archives, Minnesota Historical Society, St. Paul.

"Work of the WPA." *St. Cloud Daily Times and Daily Journal Press*, Feb. 17, 1939.

Works Progress Administration (WPA). Project proposals for WPA Project 2848. 1935-1938. Project Folders (WP 2848), Records of the Work Projects Administration, 1922-1944. National Archives, College Park, MD.

"WPA Strike on Flood Control Project Ended." *St. Cloud Daily Times and Daily Journal Press*, Sept. 21, 1936.

B. Secondary Sources:

Anderson, Rolf T. "Federal Relief Construction in Minnesota, 1933-1941." National Register of Historic Places Multiple Property Documentation Form (MPDF). Oct. 9, 1990, plus amendments. Minnesota State Historic Preservation Office, St. Paul.

Granger, Susan, and Scott Kelly. *Assessment of Potential Effect to Architecture-History Properties: Preliminary Design Phase Lac qui Parle Bridge (Bridge 5380) Replacement Project*. Submitted to MnDOT, Feb. 28, 2018.

_____. *Phase II Architecture-History Investigation of the Lac qui Parle Flood Control Project Conducted in Association with the Proposed Replacement of Bridge 5380 on TH 40 Over the Lac qui Parle Reservoir (SP 1209-22; TH 40)*. Submitted to MnDOT by Gemini Research, May 2010.

Hess, Jeffrey A. "Bridge 5380." Minnesota Historic Bridge Inventory Form, 1997. Minnesota State Historic Preservation Office, St. Paul.

Kooiman, Barbara, and Christina Slattery. "Lac qui Parle Dam [DRAFT]." National Register of Historic Places Registration Form. Aug. 2, 1994. Minnesota State Historic Preservation Office, St. Paul.

Quivik, Frederick L. "Montana's Minneapolis Bridge Builders." *IA: The Journal of the Society for Industrial Archaeology*, v10, n1 (1984): 35-54.

SEH (Short, Elliot, Henderson) and Gemini Research. *Alternative Analysis for MnDOT Bridge 5380, TH 40 over Lac qui Parle Lake, Milan, Minnesota*. Prepared for MnDOT District 8, July 26, 2017.

Theisen, Scott. *2016 Fracture Critical Bridge Inspection Report, Bridge #5380*. MnDOT Bridge Office, July 27, 2016.

"Wagner History: A Family Legacy Rich in Tradition." Wagner Companies website. <www.wagnercompanies.com/about-us/history/> Accessed 2019.

C. Likely Sources Not Yet Investigated:

Primary sources related to the Lac qui Parle Flood Control Project are voluminous and were not exhaustively searched during preparation of either this HAER documentation or the report *Phase II Architecture-History Investigation of the Lac qui Parle Flood Control Project Conducted in Association with the Proposed Replacement of Bridge 5380 on TH 40 Over the Lac qui Parle Reservoir* (Granger and Kelly 2010). The Minnesota State Archives at the Minnesota Historical Society contain the papers of many state agencies that include correspondence, memos, and other documents related to the Lac qui Parle project. No research was conducted in any U.S. Army Corps of Engineers records. Some documents were obtained from the WPA papers in the National Archives in College Park, Maryland, but those archives may contain more material. Only a sampling of articles from local newspapers in Appleton, Milan, Madison, Montevideo, and other communities near the Lac qui Parle project have been examined.