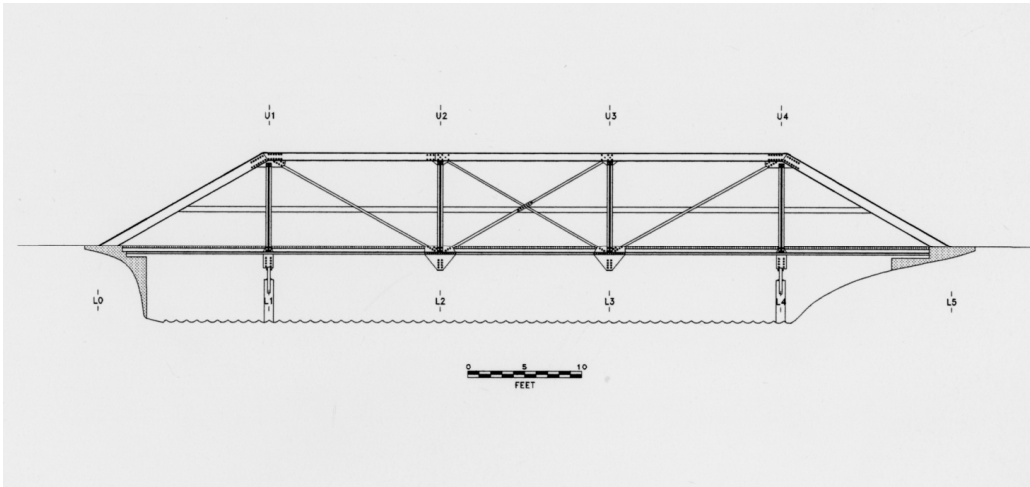


**Illinois Historic American Engineering Record  
Documentation Package  
For the  
Dresden Bridge (IL HAER No. GR-1999-1),  
Grundy County, Illinois**



by  
Christopher Stratton  
Fever River Research  
Springfield, Illinois

1999

Dresden Bridge  
Section 23  
Township 34 North, Range 8 East  
Aux Sable Township  
Grundy County  
Illinois

IL HAER No. GR-1999-1

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Illinois Historic American Engineering Survey  
Illinois Historic Preservation Agency  
1 Old State Capitol Plaza  
Springfield, Illinois 62701

ILLINOIS HISTORIC AMERICAN BUILDINGS SURVEY

DRESDEN BRIDGE  
ILLINOIS AND MICHIGAN CANAL STATE PARK

IL HAER No. GR-1999-1

- Location: USGS Minooka, Illinois Quadrangle (1980)  
UTM: 4,584,290m North / 16,392,150m East
- Present Owner: Illinois Department of Natural Resources  
524 South Second Street  
Springfield, Illinois 62701-1787
- Present Use: None. The bridge has been sealed off from vehicle traffic since 1984 and is scheduled for demolition.
- Statement of Significance: The Dresden Bridge is a single-span, steel pony Pratt truss bridge that carried vehicle traffic over the Illinois and Michigan Canal between ca. 1911 and 1984. The span is one of several Pratt truss bridges that were erected over the Illinois and Michigan Canal and nearby waterways in Grundy County during the early twentieth century and is representative of the evolution of bridge construction in the county and state during that period –a period that witnessed a transition from natural construction materials (i.e. stone and timber) to manufactured ones (i.e. steel and concrete), advances and uniformity in bridge design, and new structural requirements for automobile traffic. Although thousands of Pratt truss bridges were erected across the United States during the late nineteenth and early twentieth centuries, the number remaining is in increasing decline as those spans decay and are replaced with modern bridges capable of carrying heavier loads.

## Part I. HISTORICAL INFORMATION

### A. Physical History:

1. Date(s) of Construction: Although the exact date of the bridge's construction is unknown, documentary research suggests that the bridge was constructed ca. 1911.<sup>1</sup>
2. Original and Subsequent Owners: During the period it was used for vehicular traffic, the bridge was maintained by Grundy County. Since its closure in 1984, the span has been managed by the State of Illinois, via its Department of Conservation and Department of Natural Resources.
3. Builders, Contractors, Suppliers: None have been identified.<sup>2</sup>
4. Original Plans and Construction: No original drawings or plans were able to be located.
5. Alterations and Additions: The bridge has experienced two principal modifications. The first of these occurred ca. 1929, when the original wood floor system is suspected to have been replaced with steel, I-beam stringers and new wood flooring. The second occurred in 1934 and involved the lowering of the bridge's elevation. As originally constructed, the bridge was raised high enough above the water level of the Illinois and Michigan Canal to allow the passage of boat below it. Following the official closing of the canal in 1933 it was not necessary to maintain the bridge at this elevated height. Early in 1934, the Civilian Conservation Corps (CCC) lowered the bridge. In order to do so, the upper portion of the original stone abutments were removed and the road grade at either

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<sup>1</sup> Due to the removal of the name plate on the bridge, there is some discrepancy in the construction date for the span. Gary Fitzsimons in *An Inventory of Historic Engineering and Industrial Structures within the Illinois and Michigan Canal National Heritage Corridor* ([Washington, D. C.: National Park Service, 1995], p.332) provides a ca. 1920 date. This date is based largely on the known construction date of several similar Pratt pony truss bridges spanning the Illinois and Michigan Canal and DuPage River in Channahon, Will County, Illinois. Frauenhoffer and Associates in its structural analysis report on the Dresden Bridge, however, indicates that the span was erected ca. 1911 –a date they derived from documents on file at Gebhard Woods State Park in Morris, Illinois (see Frauenhoffer and Associates, Structural Analysis: Dresden Bridge over the Illinois and Michigan Canal, Grundy County, Illinois [Report prepared for the Illinois Department of Natural Resources, February 1996]). The ca. 1911 date seems the more likely of the two, given that the bridge needed to be overhauled in 1929 –something that would be unlikely for a bridge constructed only nine years before, as suggested by Fitzsimmons.

<sup>2</sup> Fitzsimons (1995:332) speculates that the bridge was constructed by the Continental Bridge Company of Peotone, Illinois, based on that company's involvement in the construction of the Pratt pony-truss bridges spanning the Illinois and Michigan canal and DuPage River in Channahon. No connection has been established between the Continental Bridge Company and the Dresden Bridge, however.

end of the bridge cut down to match. The stone remaining abutments have been augmented with poured concrete.

B. Historical Context:

1. Illinois and Michigan Canal:

Transportation corridors have always played a significant role in the settlement of Illinois --whether during the prehistoric or historic period. Early travel between Lake Michigan and the Upper Illinois River Valley (which eventually opened into the Mississippi River and the Gulf of Mexico) required a short, but difficult portage across a low lying area located at the head of the Chicago River. Additionally, the shallow and rocky nature of the upper Illinois River hindered steamboat travel past the rapids located at the LaSalle-Peru region. In order to make the upper Illinois River navigable to commercial traffic and connect the Illinois River to the Great Lakes, a relatively long canal was needed.

In northern Illinois, the Illinois and Michigan Canal, which opened for navigation in the summer of 1848, connected the southern tip of Lake Michigan (and the port city of Chicago) with the upper Illinois River valley and greatly influenced the settlement of the northern region of the state. The construction of this commercial waterway helped transform the northern region of the state from a sparsely settled frontier district to a commercial, agricultural, and industrial region that supplied the port city of Chicago with a wide variety of commodities.

Interest in building a canal connecting these two waterways began immediately after the War of 1812. In 1816, Ninian Edwards negotiated the purchase from the Indians of a 100-mile strip of land along the Illinois River in hopes of constructing the canal. In 1822, in response to a petition from the Illinois legislature, Congress authorized construction of the Illinois and Michigan Canal. Although the state was expecting a large land grant to finance the construction project, they were granted only a 90-foot wide strip each side of the proposed canal right-of-way. This narrow strip of land each side of the canal, sufficient for a towpath, was needed for the operation of the canal. Although a private corporation received a charter to construct and operate the canal at that time, little was accomplished. In 1827, in response to the State's multiple pleas, Congress granted alternate sections of land for five miles on each side of the canal to the State to help finance the construction of the canal. During this transaction, the State received title to over 290,000 acres of land. A stipulation of this land grant was that the work must be initiated within five years, completed within 20 years and the Federal Government

could use the canal toll free for the life of the canal.<sup>3</sup>

Construction on the canal did not begin until July 1836. Using hand tools, animal power, and a large number of imported Irish laborers, construction initially proceeded quickly, only to be interrupted by the economic Panic of 1837. During the late 1830s and early 1840s, work on the canal proceeded slowly due to difficulty in raising funds. In 1842, work on the canal stopped completely. In 1845, under Governor Ford's leadership and with the levy of new taxes directed at repaying the canal debts, new loans were negotiated with British bondholders to complete the canal.<sup>4</sup>

The Illinois and Michigan Canal officially opened on April 23, 1848. By the end of the first 180-day navigation season, 162 canal boats had used the system and paid nearly \$88,000 in tolls.<sup>5</sup> The canal had taken 12 years to construct at a cost of nearly 6.5 million dollars. The Canal, which was 96 miles long, utilized 15 locks, multiple dams, aqueducts, bridges, canal basins, lock tenders houses, and towpaths. The canal, which had a basin 60' wide at the high water level and 36' wide at the bottom of the canal, was designed to maintain a 6' deep channel. As Robert Howard notes, "So great was the canal's help in developing northern Illinois that, of all man-made waterways in North America, only the Erie Canal surpassed it in importance."<sup>6</sup>

During the initial years of construction, settlement along the canal corridor was sparse, and contractors relied heavily on recruiting Irish immigrants for their work force. Many of the Irish workers were later to settle along the corridor, improving farms within the countryside and establishing businesses within the many communities that sprang up along the corridor. In contrast, with the opening of the Erie Canal in New York State, many New England families settled along the corridor, bringing a strong Yankee culture to the region. By the late 1830s, settlement along the Canal had intensified and many small communities had begun to develop in the region.

Stretching 96 miles in length, the Illinois and Michigan Canal maintained a 6-foot-deep channel, was minimally 60 feet in width at the top (and 30' in width at its base), and required 15 locks, numerous aqueducts, and multiple feeder canals to

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<sup>3</sup> Robert Howard, *Illinois: A History of the Prairie State* (Grand Rapids: William B. Eerdmans Publishing Company, 1972), pp. 193-196; John H. Krenkel, *Illinois Internal Improvements, 1818-1848* (Cedar Rapids, 1958); Theodore Calvin Pease, *The Frontier State, 1818-1848* (Springfield: Illinois Centennial Commission, 1922).

<sup>4</sup> Howard, *Illinois*, pp: 229-230.

<sup>5</sup> *Ibid.*, p. 239.

<sup>6</sup> *Ibid.* See also James William Putnam, *The Illinois and Michigan Canal: A Study in Economic History* (Chicago: University of Chicago Press, 1918) and Walter Howe, ed., *Documentary History of the Illinois and Michigan Canal: Legislation, Litigation and Titles* (Springfield, 1956).

operate. During the early years of navigation along the Canal, packet boats, traveling at the rate of 5 to 6 miles per hour, transported passengers as well as a wide range of small commodities, competing successfully with the overland stage and teamster service typical of the period. By the Civil War period, and the introduction of the competing railroad system that paralleled the Canal, the majority of the cargo hauled along the Canal was bulk commodities such as grain, coal, stone, and lumber. These boats traveled at a slightly slower rate of approximately 3 miles per hour.

But, the canal era in Illinois was not to last long. Although interest in a railroad system in the State had also been developed with the internal improvement plans of the 1830s, it was not realized until the early 1850s with the construction of the Illinois Central Railroad. By the early 1850s, the Chicago, Rock Island, and Pacific Railroad had established a line from Chicago to Rock Island that effectively competed with the Illinois and Michigan Canal, particularly for the passenger traffic.<sup>7</sup> Revenue collected by the Canal Commissioners peaked in 1866 and declined throughout the remaining decades of the nineteenth century, picking up slightly during the period 1908 through 1918. The greatest tonnage hauled on the Illinois and Michigan Canal occurred in 1882.<sup>8</sup>

Although the late nineteenth century was a period of gradual decline in the use of the canal, it continued to transport a wide range of bulk commodities along the corridor.<sup>9</sup> Nonetheless, by the late 1880s, the competition from the railroads had taken its toll and the tonnage hauled along the Canal quickly declined. The economic collapse of 1893 dramatically affected the volume of grain sales, and thus the volume of traffic along the canal declined never fully recovering.<sup>10</sup> Coupled with the fact that revenue was declining, the state put little money into canal maintenance during the late nineteenth century, and the canal became clogged with silt hindering transportation. By the middle 1890s, most of the canal boats that had been in use on the Canal had been relocated to duty along the Illinois River. Although several studies were conducted during the late nineteenth century to revitalize and/or expand the Canal, they ultimately resulted in limited improvements to the waterway with a greater percentage of the Canal traffic being relegated to pleasure boating and leisure activity.

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<sup>7</sup> Ibid, p. 246.

<sup>8</sup> Putnam, *The Illinois and Michigan Canal*, p. 161.

<sup>9</sup> See Jack Monckton, Intra-regional Town Differentiation: Commodity Flows on the Illinois and Michigan Canal (Paper presented at the Illinois History Symposium, Springfield, Illinois, 1995).

<sup>10</sup> Michael Benedetti, "Urban and Municipal Development, 1836-1900," in *Lockport Legacy: Themes in the Historical Geography of an Illinois Canal Town*, ed. by Michael P. Conzen and Adam R. Daniel (Chicago: Committee on Geographical Studies, University of Chicago, 1990), p.12.

One of the final blows to the economic viability of the Illinois and Michigan Canal was the construction of the Chicago Sanitary and Ship Canal (which was initially designed to transport raw sewage from Chicago to the Mississippi River). Beginning in the early 1870s, the City of Chicago had reversed the flow of the Chicago River, depositing the City's sewerage into the Canal. Although this increased the flow of water through the canal, it did not succeed in eliminating the City of Chicago's waste problems. Construction of a new, larger canal to remove the City's sewage down the Illinois and Mississippi Rivers was opposed by many down river communities as well as the Illinois and Michigan Canal Commissioners. Nonetheless, a new canal was constructed and the main channel of the Sanitary and Ship Canal opened for navigation in January 1900. This channel was extended from Lockport to Joliet between 1903 and 1907. The opening of the Calumet-Sag Canal in 1906 cut through the upper reaches of the Illinois and Michigan Canal forcing canal boat traffic along the upper reaches of the Illinois and Michigan Canal to travel along the Chicago Ship and Sanitary Canal.<sup>11</sup>

By the late 1910s, canal boat traffic along the Illinois and Michigan Canal had all but ceased. One of the last efforts to commercially utilize the canal was by the Morton Salt Company, which transported salt over the canal for three years beginning in the spring of 1912. At that time, the firm used "three old canal boats." Although the water levels were low in the canal, which was heavily silted up at the time and hindered their ability to fully load their boats, the firm was pleased with their efforts and continued transporting salt over the canal through 1914.<sup>12</sup> Nonetheless, the last commercial use of the Illinois and Michigan Canal occurred in 1914 with the run of William Schuler's canal boat *Niagara*.<sup>13</sup> As R. F. Burt, General Superintendent of the Illinois and Michigan Canal noted after the 1916 season "while there was not commercial boating of importance on the Canal this season there is no telling to what extent nor how many miles pleasure and motor boats used the Canal."<sup>14</sup>

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<sup>11</sup> Kamish, Allysa, "The Chicago Sanitary and Ship Canal: Its Construction and Effects," in *Lockport Legacy: Themes in the Historical Geography of an Illinois Canal Town*, ed. by Michael P. Conzen and Adam R. Daniel (Chicago: Committee on Geographical Studies, University of Chicago, 1990).

<sup>12</sup> Jay Morton to Lieut. Col. W. V. Judson, 15 November 1915, in *The Illinois and Michigan Canal: A Study in Economic History*, by James William Putnam (Chicago: University of Chicago, 1918), pp. 175-180.

<sup>13</sup> John Lamb, "Canal Boats on the Illinois and Michigan Canal," *Journal of the Illinois State Historical Society*, Vol. 71 No. 3 (1978): 224.

<sup>14</sup> R. F. Burt, "General Superintendent's Report (November 25, 1916)," in *The Canal Commissioners of the State of Illinois to Governor Edward F. Dunne* (Springfield: Illinois State Journal Company, 1917).



The last attempt at retrofitting the canal for commercial traffic occurred in 1918. This overhaul was spurred by the acute transportation shortage following America's entry into the First World War and focused on the section of canal between LaSalle and Joliet. According to the *Morris Daily Herald*, traffic resumed on the canal on September 22, 1918<sup>15</sup> The canal's wartime service was short-lived, however, for on November 11 the Armistice ending the war was signed. The extent of traffic of the canal after 1918 was inconsequential.

The final death blow to the canal was the Federal construction of the Illinois Waterway System which consisted of a series of locks and dams that maintained a 9-foot channel for navigation on the Illinois River. The Illinois Waterway System opened in 1933 to a much larger series of tow boats. With the opening of the Illinois Waterway System in 1933, the Illinois and Michigan Canal ceased to operate as a canal.

## 2. Metal Bridge Construction in Grundy County:

The earliest bridges in Grundy County presumably were constructed of timber and/or stone. One of the more notable stone arched bridges in the county spanned Aux Sable Creek a short distance north of the aqueduct carrying the Illinois and Michigan Canal across that stream. This bridge, which had three arches, was constructed in 1873 with stone drawn from the adjacent Aux Sable quarries.<sup>16</sup> Although bridges of this sort typically were well-built and had long service records, they required a large amount of construction material and considerable labor to erect.

In the 1890s, Grundy County went through a transition from constructing craftsman-designed stone and timber bridges to erecting wrought-iron and steel truss bridges that were pre-fabricated and marketed by non-local bridge companies. At least five wrought-iron truss bridges are known to have been built in the county between 1892 and 1894 alone. In 1892, the Western Bridge Company of Chicago erected an iron king-post truss bridge in Nettle Creek Township (along present-day Airport Road). This bridge was only 20' long and remained in use until 1980.<sup>17</sup> In July 1893, the Grundy County supervisors let a contract to the Wrought Iron Bridge Company for the construction of two bridges located at Teator's Ford and the County Poor Farm. Together, these bridges were

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<sup>15</sup> *Morris Daily Herald*, 31 December 31 1918, p. 8, col. 5. The *Herald* reported that on September 22, 1918, "Traffic ... resumed on Canal after ten years." The editor apparently was unfamiliar with, or had forgotten, Morton Salt's use of the canal in 1914.

<sup>16</sup> Virginia Sparr Brown, ed., *Grundy County Illinois Landmarks* (Morris: Grundy County Historical Society, 1997), p. 48.

<sup>17</sup> *Ibid*, p. 26.

to cost \$4,411.44.<sup>18</sup> In September of that same year, the supervisors arranged for the construction of a “low truss” bridge over Johnny Run in Highland Township that was to be 54’ long and have a 14’ driveway. The superstructure of the bridge was to be built by Jayne Bridge Company for \$480, while the stone abutments were to be built by another contractor for \$517.<sup>19</sup> In December 1894, the supervisors let out contracts to the Chicago Bridge and Iron Company and the Sante Fe Stone Company for the construction of a new bridge over Collins Run in Aux Sable Township. The iron and stone for this bridge was estimated to cost \$964 and \$600, respectively.<sup>20</sup>

Another iron truss bridge erected in Grundy County spans the Mazon River in Section 25 of Wauponsee Township. Constructed at an unknown date, this bridge is a through-truss Pratt that measures 150’ long and 15’ wide. As of 1997, this structure was still in service, --albeit with a 3-ton limit and allowing only one lane of traffic at a time.<sup>21</sup>

By the early twentieth century, wrought-iron truss bridges had been abandoned in favor of steel ones in Grundy County. During the first two decades of the century many older spans across the Illinois and Michigan Canal were replaced with new steel ones. In 1909, a Pratt pony-truss bridge was constructed across the Illinois and Michigan Canal at Brandon Road, just south of Joliet in neighboring Will County.<sup>22</sup> In 1912, the Canal Commissioners signed a contract with the Joliet Bridge and Iron Company for the construction of four identical steel truss bridges over the I & M at Lockport, Morris, Marsailles, and Ottawa. These four spans each measured 16’ x 75’ and together cost \$3,340 to fabricate.<sup>23</sup> It was around this same period that the Dresden Bridge and an identical steel truss bridge located at Aux Sable (2.5 miles west of Dresden) are believed to have been erected.<sup>24</sup> Most, if not all, of these new bridges seem to have replaced antiquated spans at the same locations. They also appear to have been largely uniform in respect to design and dimension. All of the previously cited examples, for instance, were single-span,

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<sup>18</sup> Grundy County, County Supervisors’ Record, Book E, p. 10. Records on file at County Clerk’s Office, Morris, Illinois.

<sup>19</sup> *Ibid.*, p. 23.

<sup>20</sup> *Ibid.*

<sup>21</sup> Brown, *Grundy County Illinois Landmarks*, pp. 70-1.

<sup>22</sup> Walter M. Smith to W. L. Sackett, 23 May 1924, File No. 501, Illinois and Michigan Canal Archives from the Illinois Department of Natural Resources, Illinois State Archives.

<sup>23</sup> Joliet Bridge and Iron Company to Leon McDonald, 29 November 1912, File No. 375, Illinois and Michigan Canal Archives from the Illinois Department of Natural Resources, Illinois State Archives.

<sup>24</sup> The Aux Sable bridge has been rehabilitated as a foot bridge by the Illinois Department of Natural Resources.

Pratt pony truss bridges measuring 16'x75.' A later single-span, Pratt pony-truss bridge was erected across the I & M canal at Channahon, in Will County, in 1918. Located just east of the latter was a two-span, Pratt pony-truss bridge spanning the Du Page River.<sup>25</sup>

3. Dresden Bridge: The Dresden Bridge receives its name from an abandoned town that was platted by Salmon Rutherford in 1838. In 1833, Rutherford built a tavern approximately one-quarter mile south east of the bridge site, located adjacent to the stagecoach road between Peru and Chicago. Soon afterward, Antoine Peltier erected a combination tavern/store just east of Rutherford's that later served as a post-office (the first in what is now Grundy County). These taverns formed the nucleus of a small hamlet, whose prosperity was principally based on catering to stagecoach passengers and travelers passing through. Additional growth to the community was no doubt expected once the Illinois and Michigan Canal was completed. Envisioning this future growth and perhaps caught up in the land speculation of the period, Rutherford platted out the town of Dresden in 1838. Containing sixty-three city blocks, the town covered an area extending over one-mile east-west and over one-quarter mile north-south. The Illinois River delineated the southern boundary of the town, while the Illinois and Michigan Canal passed diagonally through it. The future site of the Dresden Bridge was located a short distance northeast of the town plat's northwest corner. Although the Illinois and Michigan Canal did indeed pass through it, Dresden never developed much beyond its hamlet roots, and the community declined following the construction of the Chicago and Rock Island Railroad several miles north of it in 1852. Commercial interests in the surrounding township coalesced around the town of Minooka, which was platted out alongside the railroad several miles northeast of Dresden.<sup>26</sup>

The site of the Dresden Bridge is believed to have been a bridge crossing since the construction of the Illinois and Michigan Canal. The old stagecoach road predates the canal itself, and it was at this point that the two transportation routes intersected. East of the bridge site, the stagecoach road lay on the north side of the canal, while to the west it ran on the south side of the canal. Atlases of Grundy County published in 1863, 1874, 1892 and 1909 all illustrate the bridge crossing at the same location, which suggests that the positioning of the bridge experienced very little –if any--change through that period.<sup>27</sup> It is reasonable to

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<sup>25</sup> Fitzsimons, *An Inventory of Historic Engineering and Industrial Structures*, pp.324-5.

<sup>26</sup> Brown, *Grundy County Illinois Landmarks*, pp. 50-2.

<sup>27</sup> Thomas Doran, *Map of Grundy County, Illinois* (Chicago, 1863); Warner and Beers, *Atlas of Grundy County and the State of Illinois* (Chicago, 1874); George A. Ogle and Company, *Plat Book of Grundy County, Illinois* (Chicago, 1892); George A. Ogle and Company, *Standard Atlas of Grundy County, Illinois* (Chicago, 1909).

believe that the bridge crossing, once established, remained fixed. There may have been multiple generations of bridges at that location, however, prior to the erection of the steel truss Dresden Bridge in ca. 1911. The span that was replaced by Dresden Bridge reportedly was raised 12' above the level of the canal and had 45' between its abutments.<sup>28</sup>

At the time the Dresden Bridge was constructed, the canal was still open for navigation (albeit used primarily by leisure craft), and as such, its deck was raised quite high above the water surface. Historic photographs of the bridge indicate that its abutments were constructed of cut stone. These abutments were spaced over 20' further apart than those of the bridge it had replaced. By 1929, the wooden floor system in the bridge had deteriorated to the point where it was considered unsafe for vehicular traffic. A structural investigation conducted on the bridge that year found that several of the floor stringers were broken and others were severely rotten. It also found the steelwork "very badly rusted, not having been painted for many, many years." The latter comment suggests that the bridge had been in service for some time and corroborates the ca. 1911 date suggested for its construction. The engineer's report recommended that the floor system of the bridge be rebuilt to accommodate heavier loads and that the steel frame be sandblasted and repainted.<sup>29</sup> The work called for in the report presumably was done soon after the engineer's report was filed.

In 1933, the I & M Canal was officially closed to navigation. Early in the following year, the Civilian Conservation Corps lowered the elevation of the Dresden Bridge. This work entailed the partial demolition of the original stone abutments and the lowering of the road grade at both ends of the bridge. The Corps may have also have poured part—or all—of the concrete curtain walls that presently cover the original stone foundations.<sup>30</sup> The Dresden Bridge continued to be used for vehicular traffic until 1984, when it was replaced by a modern concrete slab bridge located a short distance (approximately 75') west of it. Due to its deteriorated condition, the Dresden Bridge has been slated for demolition.

## Part II. ENGINEERING INFORMATION

### A. General Statement:

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<sup>28</sup> Bridges across the Illinois and Michigan Canal, n.d., File No. 628, Illinois and Michigan Canal Archives from the Illinois Department of Natural Resources, Illinois State Archives.

<sup>29</sup> Walter M. Smith to L. D. Cornish, 7 March 1929, File No. 590, Illinois and Michigan Canal Archives from the Illinois Department of Natural Resources, Illinois State Archives.

<sup>30</sup> Civilian Conservation Corps, Camp Reports for Illinois and Michigan Canal State Park, March 1934. On file with Record Group 79, CCC Project Reports, National Archives, College Park Maryland.

The Dresden Bridge is an early twentieth-century example of a steel Pratt pony truss bridge. The Pratt truss is a panel type parallel-chord truss whose distinguishing structural elements are its vertical compression members and diagonal members acting in tension. This truss type was patented in 1844 by the father-and-son team of Thomas and Caleb Pratt. The diagonals used in the original Pratt design were iron rods, while the chords and verticals were wood, thus making the reverse of the Howe truss. Patented only four years before the latter, in 1840, the Howe truss utilized wood diagonals acting in compression and vertical iron rods acting in tension. This equal reliance upon wood and iron structural members distinguished the Pratt and Howe trusses from the earlier truss types used in the United States (the Burr, Town, and Long trusses, for example), which used iron sparingly and in an ancillary capacity (such as bolts and chord couplings). Although the Pratt truss was widely used in timber bridge construction, it never achieved the popularity of the Howe truss in this area. However, it did prove to be well adaptable to wrought iron bridges, which first made their appearance in the United States just before the Civil War.<sup>31</sup> Wrought-iron remained the principal building material for metal bridges until the 1890s, when steel became the material of choice. Railroad companies –those most prolific of bridge builders-- led the way in spreading the Pratt truss across the United States.<sup>32</sup> The Baltimore and Ohio Railroad, for instance, used Pratts almost exclusively in their bridge construction between 1880 and 1905.<sup>33</sup> The Pratt truss became the basis of a number of later bridge types, including the Parker, Camelback, Baltimore, and Lenticular.<sup>34</sup>

Unlike modern steel bridges, which utilize large-dimensional rolled I-beams, early Pratt truss bridges had composite structural members. The verticals, chords, and diagonals (in some cases) were fashioned by joining together two or more angle irons with tie plates and lacing, using rivets. Typically, the principal framing members were pre-fabricated in the shop and then transported to the bridge site. Depending on the bridge, the truss members were either connected with pins, rivets, or a combination of rivets and bolts. Pinned construction pre-dated riveted. The on-site assembly was often conducted by local labor under the supervision of a bridge company representative. Rather than being individually designed, many Pratt truss bridges were part of a established product line that

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<sup>31</sup> The first bridge with a truss system, built completely of wrought iron was erected by the Louisville and Nashville Railroad over the Green River between the years 1857 and 1859 (Malcolm Keir, *The March of Commerce*, Volume 4 of *The Pageant of America*, [London: Oxford University Press, 1927], p. 119).

<sup>32</sup> Michael A. Ritter, "Timber Bridges: Design, Construction, Inspection, and Maintenance" (United States Department of Agriculture, 1990), pp. 1.7-1.17; T. Allen Comp and Donald Jackson, "Bridge Truss Types: a Guide to Dating and Identifying," American Association for State and Local History Technical Leaflet 95, *History News*, Vol. 32 (May 1977).

<sup>33</sup> John B. Nolan, Illinois Historic American Engineering Survey documentation for the Sumter Bridge (IL HAER No. WH-1996-1) (Documentation conducted by the Federal Highway Administration for the Illinois Historic Preservation Agency, 1996), pp. 3-4. Report on file at the IL HABS/HAER Collection, Illinois State Historical Library, Springfield.

<sup>34</sup> These bridge types differ from the classic Pratt truss –and each other-- principally in respect to their upper and lower (in the case of the lenticular) chords.

was marketed by bridge companies via catalogs and regional sales representatives. Once a bridge design was selected, it was purchased “by the foot” to fit the needs of the particular bridge crossing.<sup>35</sup>

The Dresden Bridge was designed to carry vehicular traffic over the Illinois and Michigan Canal. It has a single span with panels and is referred to as a “pony” –rather than a “through”—truss due to the absence of lateral bracing between its upper chords. The frame is steel and is held together primarily with rivets, although bolts have been used at a number of points. The relatively narrow width of the bridge deck (16') probably reduced the bridge's service to one-lane of traffic at a time. The abutments on which the bridge rests were originally of stone construction; these have since been partially removed (as part of the 1934 lowering) and augmented with poured concrete. Aside from the replacement of the original wood floor system, the modifications to the abutments, the change in the bridge's elevation, and the addition of new guard rails, the bridge essentially retains its original design. The structural integrity of the bridge, however, has been significantly impacted by the deterioration of its substructure --the stringers and floor beams in particular.<sup>36</sup>

B. Structural Description:

The Dresden bridge is of composite steel construction and measures 75'-0" long (center-to-center of bearings) and 16'-8" wide (center to center of trusses). The trusses have five panels with 15'-0" widths. The total height of the bridge, from the center-to-center of the upper and lower chords is 8'-6". The truss details are symmetrical to the center of the third panel (U2.5-L2.5). The road deck measures 16'-0 to 16'-1/2" wide. The rivets used on the bridge have 1"-diameter heads.

For reference, see the attached elevation plan of the Dresden Bridge (Figure 2).

Inclined end posts and upper chords:

L0-U1, U1-U4, U4-L5 two channels 1/4"x2-1/8"x7-1/8" with 1'4"x12" top plate; 1" rivets placed on 6" centers. Bottom lacing 1/4"x1-1/2" with rivets on 1'-3" centers. Tie plates 1/4"x7-1/2"x12".

Lower chords:

L0-L2, L4-L5 two angles 3/8"x2-1/2"x3-1/2"; L2-L3 four angles 3/8"x2-1/2"x3-1/2"; tie plates 1/4"x5"x12".

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<sup>35</sup> Nolan, *Sunter Bridge*, p. 4.

<sup>36</sup> For a detailed structural analysis of the Dresden Bridge see Fraenhoffer and Associates, “Structural Analysis: Dresden Bridge over the Illinois and Michigan Canal, Grundy County, Illinois” (Report prepared for the Illinois Department of Natural Resources, February 1996). Fraenhoffer and Associates also prepared a similar report on the bridge at Aux Sable entitled “Structural Analysis: Lock 8 Bridge Over the Illinois and Michigan Canal, Grundy County, Illinois (Report prepared for the Illinois Department of Natural Resources, February 1996).

Vertical members:

Four angles  $\frac{1}{4}$ "x2"x2-1/2"; center plate 1'4"x6"x8'-0" (full length); lacing  $\frac{1}{4}$ "x1-1/2"; 1" rivets placed 1'-2" on-center.

Diagonals and counters:

U1-L2, U4-L3 two angles  $\frac{1}{4}$ "x2"x3" with  $\frac{1}{4}$ "x5"x6-1/4" tie plates; U2-L3, U3-L2 two angles  $\frac{1}{4}$ "x2"x3" with  $\frac{1}{4}$ "x5"x6-1/4" tie plates; 4"x1-7-1/2" connection gussets at center intersections.

Floor beams:

L1, L4 I-beams measuring  $\frac{1}{2}$ "x1'-3"x3/8" with 9-1/4"x1'-11-1/2" end plates; L2, L3 I-beams measuring  $\frac{1}{2}$ "x1'-3"x3/8" I-beams with trapezoidal-shaped end plates.

Bottom lateral cross bracing:

1" diameter rods. All rods have threaded ends passing through floor beams and skrewback bent plate brackets on opposite side measuring 5"x12".

Stringers (joists):<sup>37</sup>

Five 4"x8"x3/16" I-beams with 2'-7" centers. Stringers are continuous. Outside stringers are set 3'-3" in from center of lower chords.

Deck:

1-1/2"x3-1/2" boards set on edge. The boards appear to be kept in place by compression, rather than with fasteners of any kind. During the later years of the bridge's active use, the wood deck was covered with asphalt; the asphalt has been removed.

Rails:

3/16"x6-1/8" plate with bottom edge set 2'-11" above road deck. Rails are spot welded in place to vertical members and diagonals.

Abutments:

The bridge is believed to still rest on remnants of its original stone abutments. The stone, however, has been hidden by poured concrete curtain walls that have been added at a later date. The curtain wall on the north abutment is 2'-1" wide, while that on the south is 3'-4" wide. Concrete has also been added around the connection point between the incline end posts and lower chords (U0, U5) – presumably due to deterioration at that point. There are no visible wing walls associated with the abutments.

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<sup>37</sup> The original stringers were wood and may have been of a similar dimension to the existing I-beam stringers (4"x8").

10'-diameter (approx.), creosote-treated, timber pilings have been driven into the canal bed at U1 and U4. These pilings, which are not original, carry 6"x10"x3/8" I-beams that support the floor beams above them.

C. Site:

1. General Setting and Orientation: The Dresden Bridge crosses the Illinois and Michigan Canal in a north/south direction, immediately south of the juncture of two township roads. One of these roads, the McClindon Road, runs north-south and intersects with U. S. Route 6 approximately one mile north of the bridge. The other road is Cemetery Road, which runs parallel to the Illinois River. A new concrete highway bridge is located approximately 75' west of the Dresden Bridge. The area between the two bridges on the south bank of the canal is utilized as an access point to the Illinois and Michigan Canal towpath, which now serves as a bike and walking path. The access point has a paved parking lot accessible from Cemetery Road. A portion of the canal between the two bridges has been partially filled in order to allow the bike/walking path to pass beneath the newer span. The Dresden Bridge is located approximately three miles southwest of Channahon and seven miles east-by-northeast of Morris.

PART III. SOURCES OF INFORMATION

- A. Original Architectural Drawings: Inquiries regarding original plans for the bridge were made at the Grundy County Recorder of Deed's office and the Grundy County Highway Department, but produced no results.
- B. Early Views: Several early views of the bridge were found in the Civilian Conservation Corps records on file at the National Archives facility in College Park, Maryland. These photographs document the lowering of the bridge from its original elevation in 1934. Copies of these photographs have been submitted as part of this HAER documentation. A search of the local history files at the Morris Public Library found no additional photographs of the bridge.
- C. Interviews: None were conducted.
- D. Bibliography:
  1. Primary and Unpublished Sources:

Civilian Conservation Corps. Camp Reports for Illinois and Michigan Canal State Park. Record Group 79, CCC Project Reports. National Archives, College Park Maryland.



Doran, Thomas. *Map of Grundy County, Illinois*. Chicago, 1863.

Frauenhoffer and Associates. "Structural Analysis: Dresden Bridge over the Illinois and Michigan Canal, Grundy County, Illinois." Report prepared for the Illinois Department of Natural Resources. February 1996.

\_\_\_\_\_. "Structural Analysis: Lock 8 Bridge Over the Illinois and Michigan Canal, Grundy County, Illinois. Report prepared for the Illinois Department of Natural Resources. February 1996.

Grundy County. County Supervisors' Record. Multiple volumes on file at the County Recorder's Office, Morris, Illinois.

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Martin, Claire Fuller. "Illinois and Michigan Canal Archives from the Illinois Department of Natural Resources: An Inventory and Assessment." Illinois State Museum Society Technical Report No. 97-1094-12.

McCredie, Roger. Illinois Historic American Engineering Record documentation for the Lease Bridge, Champaign County, Illinois. Documentation prepared for the Illinois Department of Transportation. Report on file at the Illinois Historical Library, Springfield, Illinois. 1993.

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Monckton, Jack. Intra-regional Town Differentiation: Commodity Flows on the Illinois and Michigan Canal. Paper presented at the Illinois History Symposium, Springfield, Illinois, 1995.

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Ogle, George A. and Company. *Plat Book of Grundy County, Illinois*. Chicago, 1892.

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Warner and Beers. *Atlas of Grundy County and the State of Illinois*. Chicago, 1874.

2. Secondary and Published Sources:

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Brown, Virginia Sparr ed. *Grundy County Illinois Landmarks*. Morris: Grundy County Historical Society, Morris, 1997.

Burt, R. F. "General Superintendent's Report (November 25, 1916)." In *The Canal Commissioners of the State of Illinois to Governor Edward F. Dunne*. Springfield: Illinois State Journal Company, 1917.

Comp, T. Allan and Donald Jackson. "Bridge Truss Types: A Guide to Dating and Identifying," [American Association for State and Local History Technical Leaflet 95], *History News*. Vol. 32 No. 5, 1977.

Fitzsimons, Gary. *An Inventory of Historic Engineering and Industrial Structures within the Illinois and Michigan Canal National Heritage Corridor*. Washington, D. C.: National Park Service, 1995.

Howard, Robert. *Illinois: A History of the Prairie State*. Grand Rapids: William B. Eardnans Publishing Company, 1972.

Howe, Walter, ed. *Documentary History of the Illinois and Michigan Canal: Legislation, Litigation and Titles*. Springfield, 1956.

Kamish, Allysa. "The Chicago Sanitary and Ship Canal: Its Construction and Effects." In *Lockport Legacy: Themes in the Historical Geography of an Illinois Canal Town*, ed. by Michael P. Conzen and Adam R. Daniel. Chicago: Committee on Geographical Studies, University of Chicago, 1990.

Keir, Malcolm. *The March of Commerce*. Volume 4 of *The Pageant of America*. London: Oxford University Press, 1927.

Krenkel, John H. *Illinois Internal Improvements, 1818-1848*. Chicago: Knight and Leonard, 1876.

Lamb, John M. "Canal Boats on the Illinois and Michigan Canal," *Journal of the Illinois Historical Society* Vol 71 (3): 211-224.

Pease, Theodore Calvin. *The Frontier State, 1818-1848*. Volume 2 of *The Centennial History of Illinois*. Springfield: Illinois Centennial Commission, 1918.

Putnam, James William. *The Illinois and Michigan Canal: A Study in Economic History*. Chicago: University of Chicago, 1918.

E. Likely Sources Not Yet Investigated:

One avenue that could be pursued are the local newspapers in Grundy County. It is likely that the local press reported the construction of the Dresden Bridge and its subsequent remodeling by the Civilian Conservation Corps. Microfilm copies of the Morris city newspapers are on file at the Morris Public Library.

It is possible that the Civilian Conservation Corps materials on file at the National Archives depository in College Park, Maryland may contain some information about the modifications made to the Dresden Bridge in 1934. Although an inquiry regarding this point turned up no new information, it is possible that a narrative report describing the work on the bridge does exist but was not easily relocated.

Another CCC resource that could be investigated are the newspapers that were published by the various CCC companies. Company 630, for instance, published a newspaper called "Tow Path Topics, which reported the various work they were doing along the canal. This and other CCC company newspapers have been copied on microfiche.

F. Supplemental Material: None is included.

#### PART IV. METHODOLOGY OF RESEARCH

- A. Research Strategy: The research strategy initially adopted called for documentary research to be conducted at the Grundy County Courthouse and Morris Public Library, in order to obtain original plans for the bridge and any information on its history. Additionally, we decided to obtain copies of previous IL-HAER reports

done on Pratt-truss bridges in Illinois. It was hoped that these earlier reports would provide a model for our documentation of the Dresden Bridge and also aid in developing a context for Pratt-truss bridge construction. Photographic and cartographic illustrations of the bridge were to be sought from local and county sources in Morris.

- B. Actual Research Process: Research at the Grundy County Courthouse found no original plans for the Dresden Bridge, nor survey records that might have indicated its construction and later modification. Failing in this, we contacted the Grundy County Highway Department but met with similar disappointing results. Lacking the original plans, measurements were taken of the bridge during a one day survey. These measurements were integrated into the structural description section of this report and were used to produce a scaled elevation view of the bridge (Figure 2). Although the research at the courthouse failed to uncover any original drawings or survey records, a perusal of the County Supervisor's records provided valuable information regarding the construction of early iron truss bridges in Grundy County during the 1890s and helped in developing the historical context for the report.

Research was also conducted at the Morris Public Library. The library's local history section contained late-nineteenth and early-twentieth-century and historic county atlases illustrating the site of the Dresden Bridge. It also had a number of source books that inventoried other metal truss bridges in the county and a large section of reference materials on the Illinois and Michigan Canal.

Copies of previous HAER reports on Pratt Truss Bridges were obtained from the IL HABS/HAER Collection on file at the Illinois State Historical Library. These reports documented the La Moine Bridge in Hancock County (IL HAER No. HA 1996-1), the Sargent Bridge in Douglas County (IL HAER No. DO-1993-1), the Lease Bridge in Champaign County (IL HAER No. CH-1993-3), and the Sumter Bridge in White County (IL HAER No. WH-1996-1). The reports for the Sumter and La Moine Bridge both provided good contexts for Pratt truss bridges.

Research was conducted at the Illinois State Archives in order to determine the presence of plans detailing the remodeling of the Dresden Bridge by the CCC. Research at the archives focused on the Illinois Department of Natural Resources collection's state park files. Although plans were found of other CCC projects along the Illinois and Michigan Canal, none pertaining to the Dresden Bridge were located.

Subsequent research in the state archives focused on a collection of files from the Illinois and Michigan Canal archives that had been donated by the Illinois Department of Natural Resources. Containing 885 files (representing 10 linear feet) and an additional linear foot of bound engineers' notebooks, this collection

contains a wealth of information about the Illinois and Michigan Canal's construction and subsequent operation. Although the amount of information directly pertaining to the Dresden Bridge was limited, research did yield correspondence detailing the proposed remodeling of the bridge in 1929, as well as construction information on contemporary Pratt pony truss bridges spanning the Illinois and Michigan Canal.

The National Archives depository in College Park, Maryland was contacted in order to assess whether or not their Civilian Conservation Corps files contained any information regarding the modification of the bridge in 1934. On a previous project, we had found a number of photographs illustrating CCC work along the Illinois and Michigan Canal integrated with narrative reports from CCC Camp Shiloh, in Coles County, Illinois. Included among the misfiled photographs were three views of the Dresden Bridge, showing it before and after its lowering. It was hoped that the narrative reports to which these photographs originally were attached could be relocated; unfortunately, this was not able to be done.<sup>38</sup> Copies of three photographs have been included with this report.

A copy of the structural analysis on the Dresden Bridge that was prepared by Fraunhoffer and Associates in 1996 was also obtained.

C. Archives and Repositories Used: The following is a list of the archives and depositories used through the course of preparing this IL HAER documentation:

The Grundy County Clerk and Recorder's Office  
Morris, Illinois

Illinois State Archives  
Springfield, Illinois  
Illinois State Historical Library  
Springfield, Illinois

Morris Public Library  
Morris, Illinois

National Archives  
Textual Reference Branch  
College Park, Maryland

The character of the resources found at these different depositories –pertinent to the Dresden Bridge-- has been described in the preceding section (IV.B).

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<sup>38</sup> Joseph Schwarz to Christopher Stratton, 19 October 1999, letter on file at Fever River Research, Springfield, Illinois.

D. Research Staff:

1. Primary Preparer: The written HAER documentation form was prepared by Christopher Stratton, a research historian with Fever River Research.
2. Photographer: The large format photographs of the Dresden Bridge showing existing conditions were taken by William Flesher of Fever River Research.
3. Delineator: The elevation plan of the Dresden Bridge and site map showing the photograph locations were digitized, using Design-CAD software, by Christopher Stratton.
4. Additional Staff: All aspects of this project were carried out under the direct supervision of Mr. Floyd Mansberger, principal investigator, Fever River Research, P. O. Box 5234, Springfield, Illinois, 62705.

PART V. PROJECT INFORMATION

This Historic American Engineering Record project was undertaken to fulfill requirements stipulated in a memorandum of agreement executed on 21 July 1999 between the Illinois Department of Natural Resources and the Illinois Historic Preservation Agency's Preservation Services Division concerning the demolition of the Dresden Bridge spanning the Illinois and Michigan Canal. The subject memorandum of agreement was executed and its terms carried out in order to ensure compliance by the participating state agencies with section 707 of the Illinois State Historic Resources Preservation Act (20 ILCS 3420).

The work was carried out by Fever River Research under the direction of IL HABS/HAER coordinator Stephen A. Thompson of the Preservation Services Division of the Illinois Historic Preservation Agency. Fever River Research personnel involved in the project were William Flesher, Christopher Stratton, Cynthia Phillippe, and Floyd Mansberger.

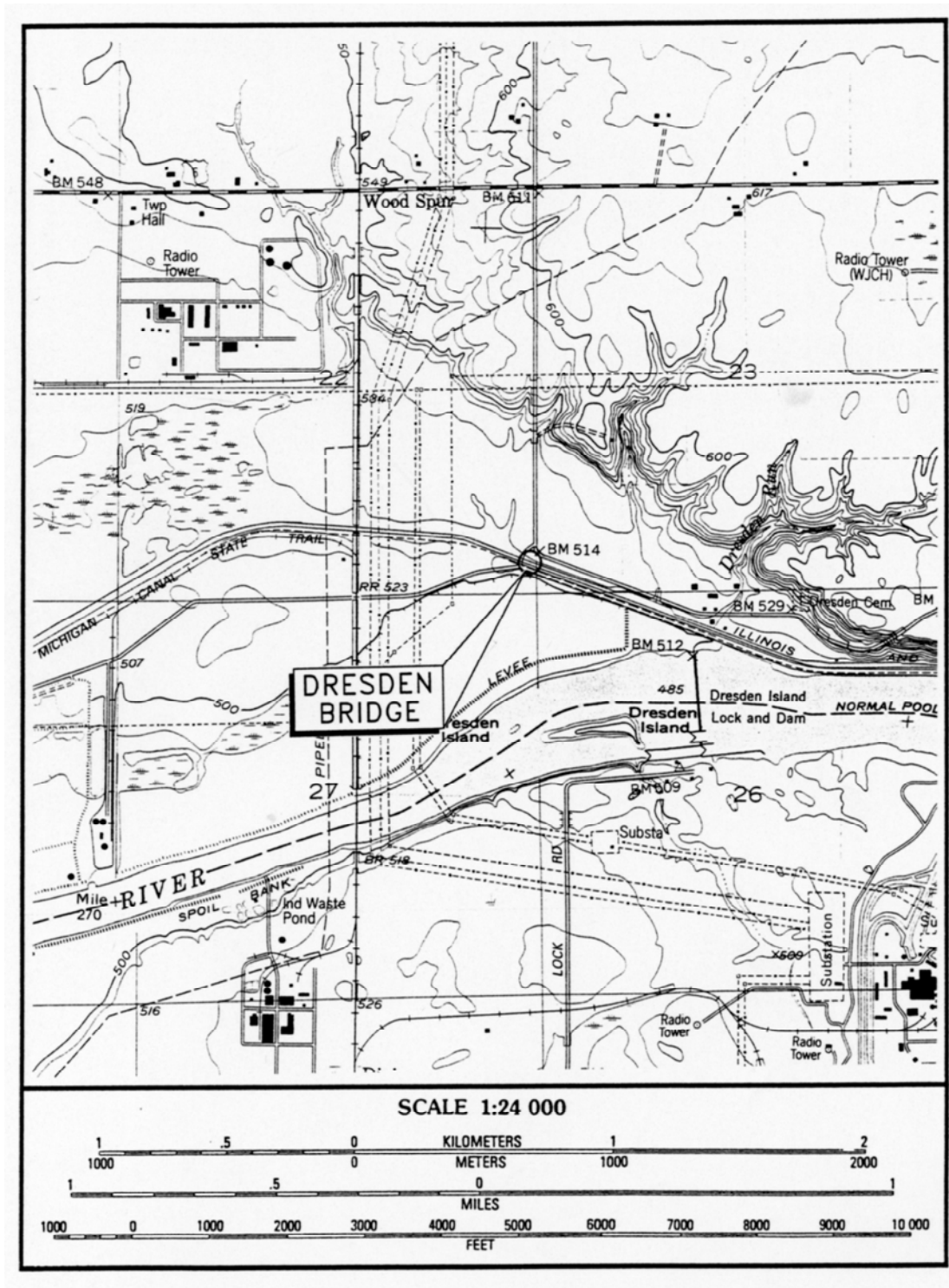


Figure 1. United States Geological Survey (USGS) map showing the location of the Dresden Bridge (USGS: Minooka Quadrangle, 1980).

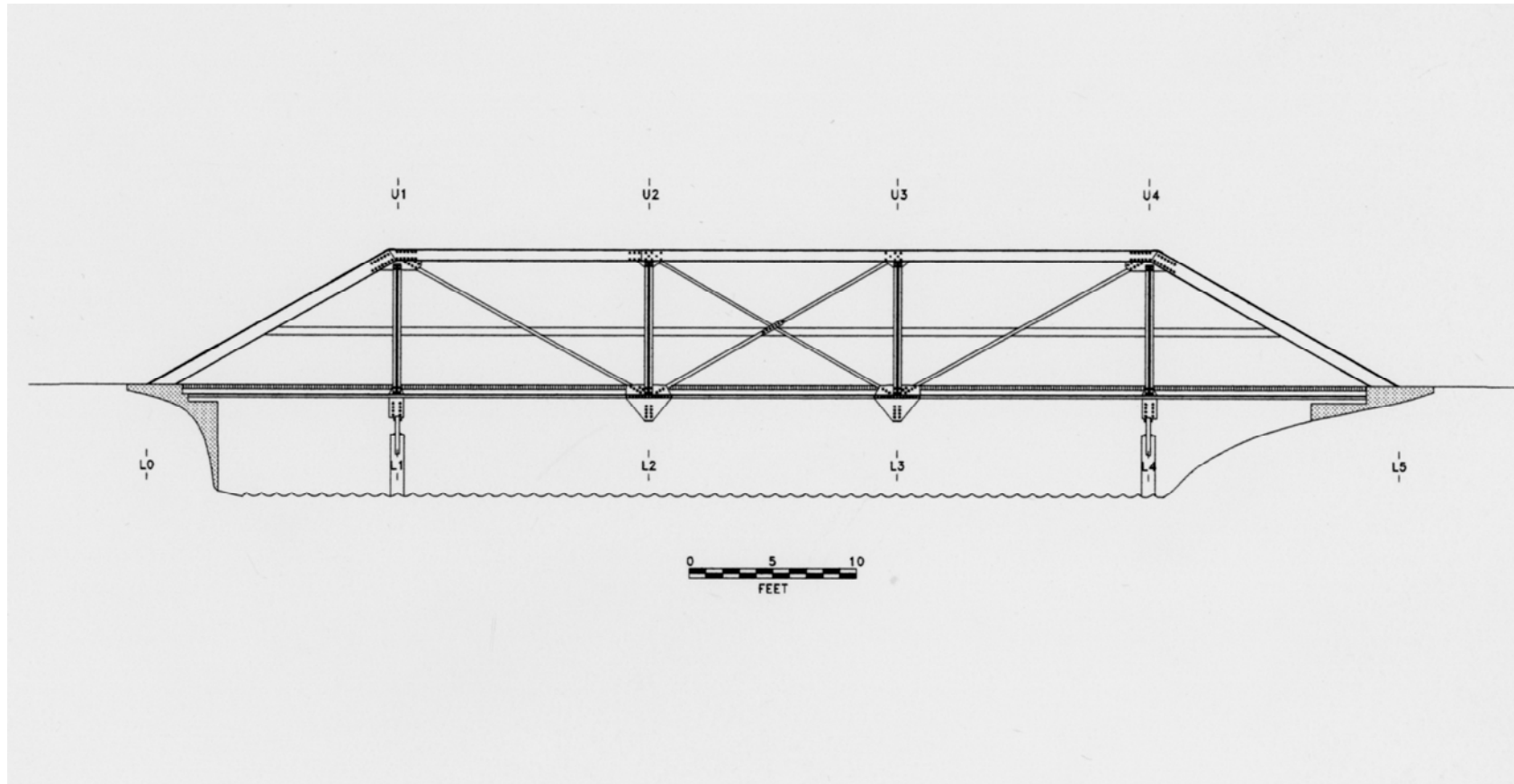


Figure 2. Elevation plan of the Dresden Bridge, looking east (1999).



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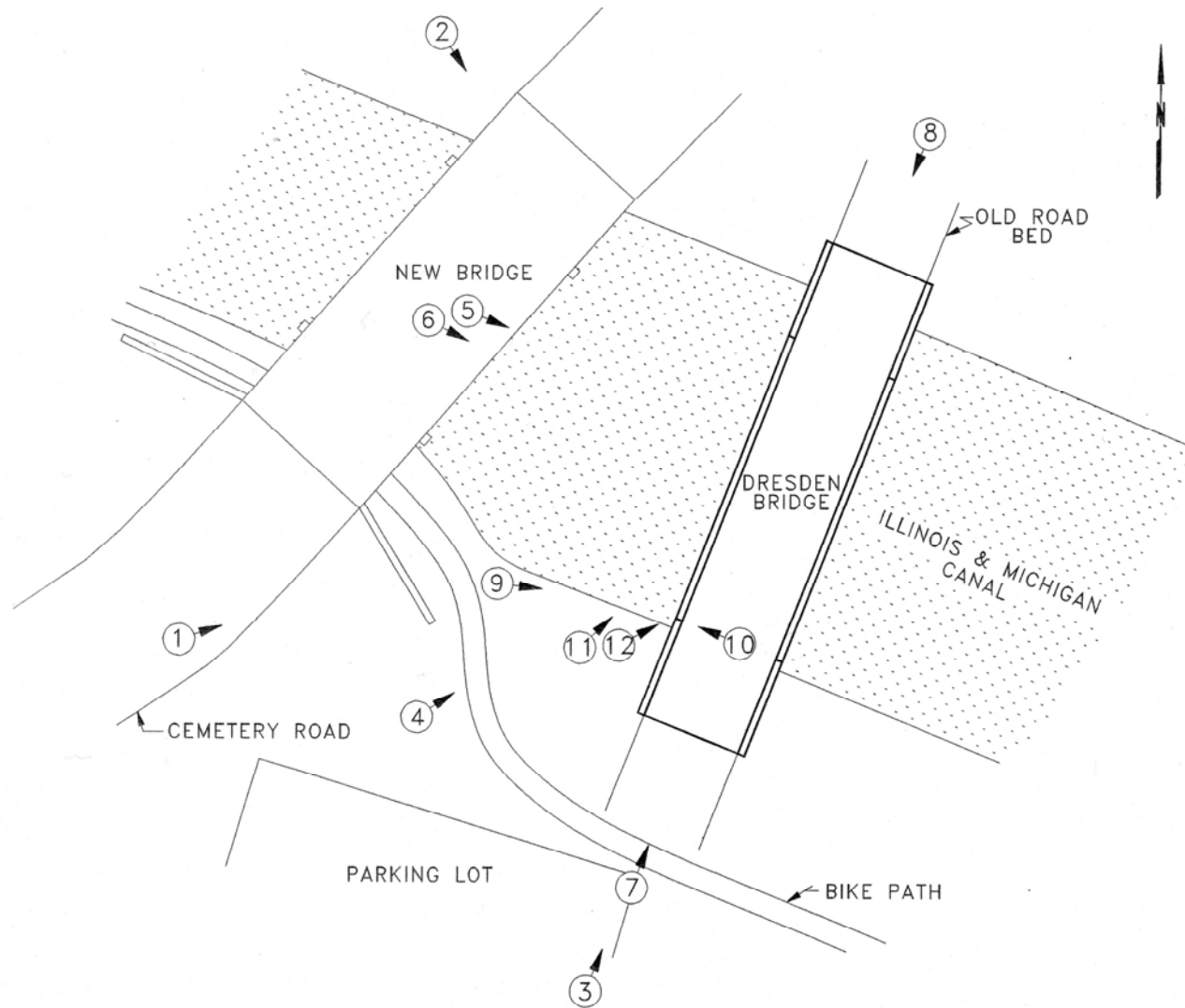
Dresden Bridge  
Section 23

Township 34 North, Range 8 East  
Aux Sable Township  
Grundy County  
Illinois

IL HAER No. GR-1999-1

- Documentation: 3 historic photographs. National Park Service, photographer.  
9 photographs. William Flesher, photographer.
- GR-1999-1.1 View of the Dresden Bridge being lowered by CCC personnel, looking northeast (1934).
- GR-1999-1.2 View of the Dresden Bridge after lowering, looking southeast (1934).
- GR-1999-1.3 View showing re-graded approach to Dresden Bridge after structure's lowering, looking north (1934).
- GR-1999-1.4 View of bridge, looking northeast (1999).
- GR-1999-1.5 View of bridge, looking east from new vehicle bridge (1999).
- GR-1999-1.6 View of bridge, looking east from new vehicle bridge (1999).
- GR-1999-1.7 View of bridge, looking north along old road approach (1999).
- GR-1999-1.8 View of bridge, looking south along old road approach (1999).
- GR-1999-1.9 Detail of bridge panel, showing inclined end posts (1999).
- GR-1999-1.10 Detail illustrating the juncture point of inclined end post, upper chord, and diagonal.
- GR-1999-1.11 View of substructure of bridge (1999).
- GR-1999-1.12 Substructure detail, showing juncture of vertical, lower chord, and floor beam (1999).

PHOTOGRAPHIC VIEW SHEET  
IL HAER No. GR-1999-1



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SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS



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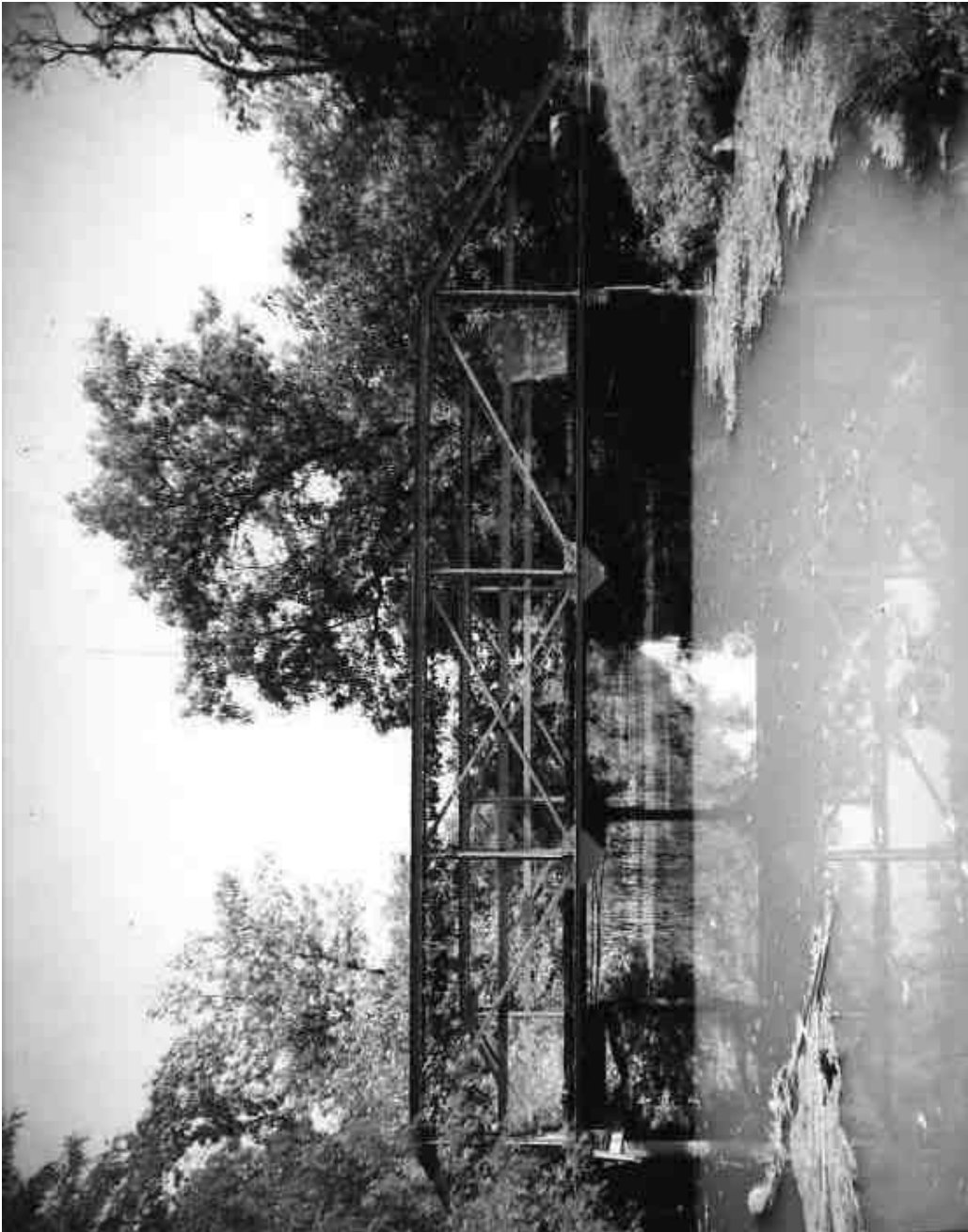
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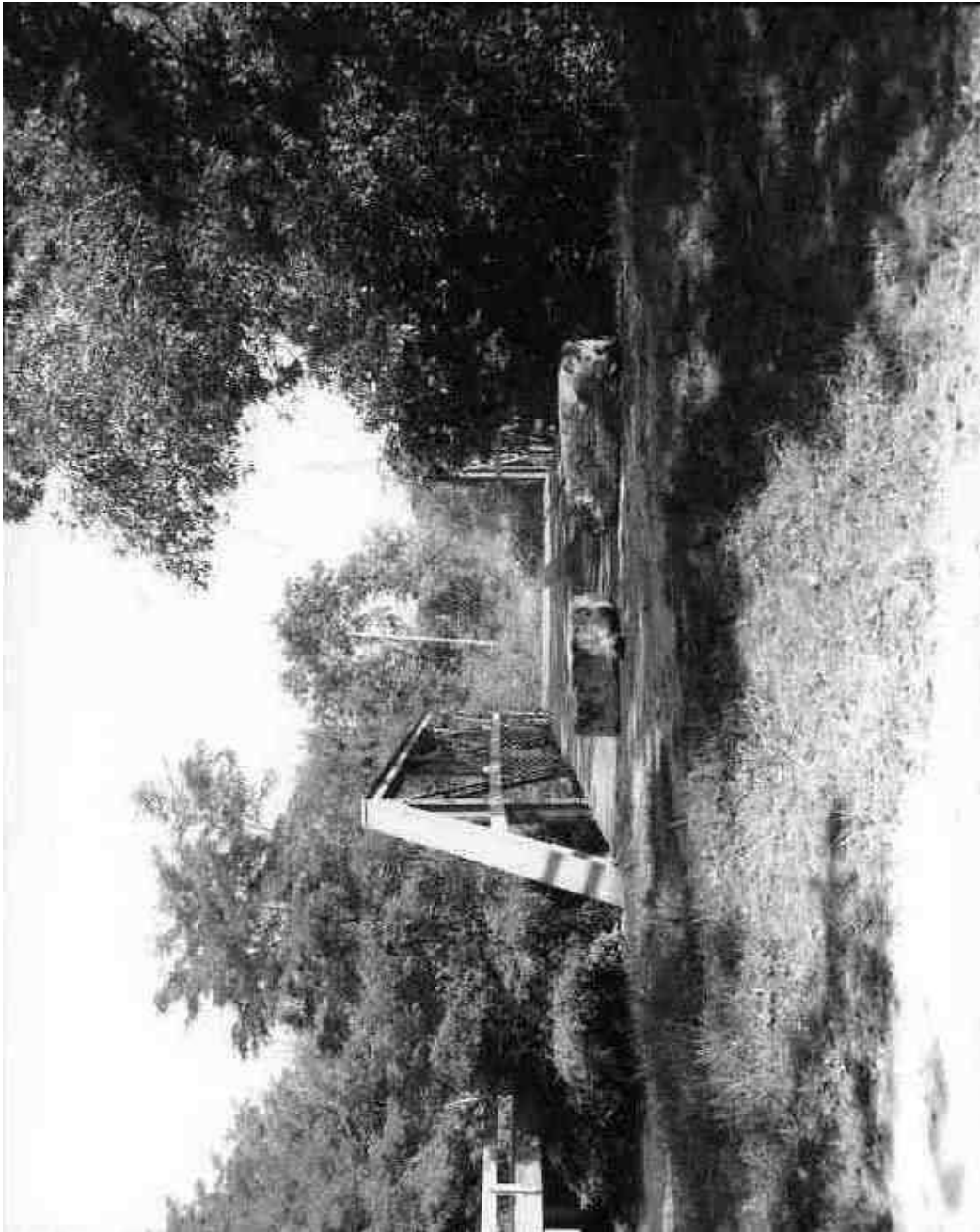


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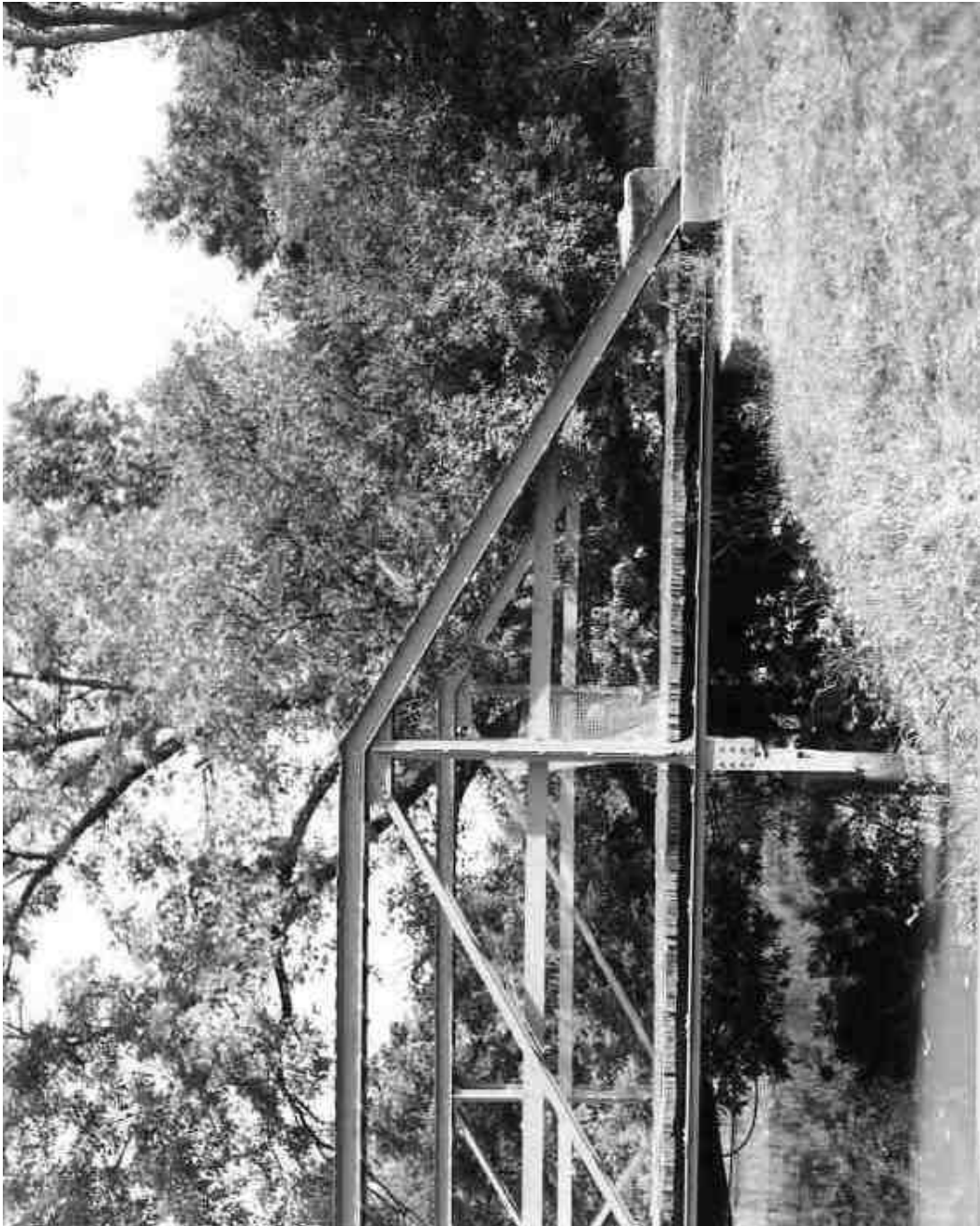
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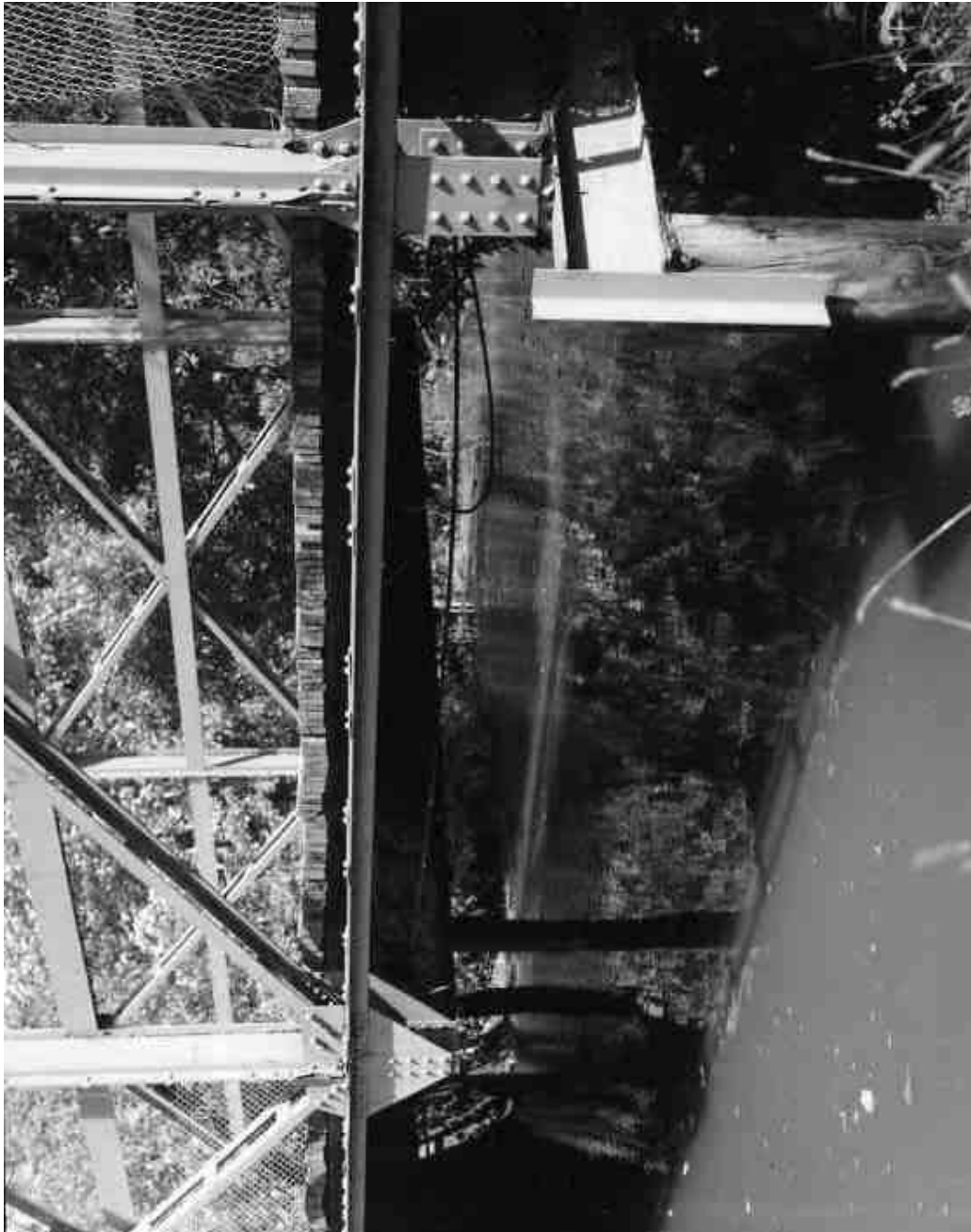
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