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# Documentation of the Historic Missouri River Bridge at Hermann

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Bridge No. K-226A  
Gasconade County, Route 19



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Hermann Bridge  
Spanning the Missouri River at  
U.S. Route 19  
Hermann Vicinity  
Gasconade County  
Missouri

HAER No. MO-114

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
Midwest Regional Office  
National Park Service  
601 Riverfront Drive  
Omaha, Nebraska 68102-4226

# HISTORIC AMERICAN ENGINEERING RECORD

## HERMANN BRIDGE

HAER No. MO-114

- Location: Spanning Missouri River at U.S. Route 19  
Hermann Vicinity  
Gasconade County  
Missouri
- UTM: Zone 15  
Northing 4285717  
Easting 635753
- Quad: Hermann, Missouri – Missouri 7.5' Quadrangle, 1985
- Construction: 1928-30
- Designer: Sverdrup and Parcel
- Present Owner: Missouri Department of Transportation, Jefferson City, Missouri
- Present Use: Vehicular bridge to be removed and replaced by a new vehicular bridge; projected date of removal in 2008.
- Significance: The Hermann Bridge (Bridge No. K-226A) is a multi-span structure crossing the Missouri River. It consists of two continuous Warren through-trusses, one Warren polygonal through-truss, two Warren deck trusses, and three steel-stringer approaches. The total length of the bridge is approximately 2,232', and the structure has undergone only minor alterations since it opened to traffic in 1930. The bridge was built by the National Toll Bridge Company and operated initially as a toll bridge. The Missouri State Highway Commission purchased the structure in 1932, converting it to a toll-free facility. The structure represents an excellent example of large-scale highway bridge construction and local efforts to bridge the Missouri River.
- Project Information: The Hermann Bridge was recorded in 2005 by Thomas J. Gubbels, Missouri Department of Transportation, Historic Preservation Section, P.O. Box 270, Jefferson City, Missouri, 65102.

## I. Physical Description of the Hermann Bridge

Although a private contractor, Sverdrup and Parcel, designed the Hermann Bridge, it is based on standard designs used by the Missouri State Highway Department in the 1920s and 1930s. Throughout the 1920s and 1930s, the highway department usually built rigid-connected Pratt and Parker trusses for its medium-span bridges. For longer structures such as bridges across the Missouri and Mississippi rivers, however, the department preferred Warren truss configurations. Warren truss bridges similar to the Hermann Bridge were designed by Sverdrup and Parcel to cross the Missouri River at Washington and Miami, reflecting the company's close ties to the highway department.

Construction of the Hermann Bridge took place between 1928 and 1930. The largest portion of the bridge consists of two continuous Warren through-truss spans that are each slightly longer than 800'. Each through-truss span covers two river spans and three concrete piers support each through-truss. The Hermann Bridge also features one 240' polygonal Warren through-truss, two Warren deck-truss spans that are each slightly less than 126' in length, and three steel stringer approach spans that are approximately 40' long. The superstructure of the Hermann Bridge rests on six concrete piers, five concrete bents, and reinforced embankments. The total length of the entire bridge structure is 2,232' 2".<sup>1</sup>

The Foundation Company of Chicago built the substructure of the Hermann Bridge, and the substructure is composed of steel-reinforced concrete bents and piers. End Bent B-1 actually serves as an abutment retaining a modest earthen embankment on Market Street in Hermann. The wingwalls of End Bent B-1 expand to a width of 30', and they rest upon modest 2' thick concrete footings measuring 4' x 4'. Bents B-2 and B-3 are symmetrical open concrete columns with modest concrete caps where expansion shoes join the superstructure. The square footings of Bent B-2 are both 2' thick, but the footing for the east column measures 4' x 4', while the west footing measures 5' x 5'. The east column of Bent B-2 is 23' 6" in height, while the west column measures 28' 6" due to variations in terrain along the bluff top near Hermann. Bent B-3 and Bent B-4 are nearly identical in design, but they differ in size. For example, the columns of Bent B-3 are 28' and 33' in height, while the columns of Bent B-4 are both 29' 7" in height. Both Bent B-3 and Bent B-4 feature bridge seats measuring 6-1/2" to provide a shelf for the lower chords of the deck trusses. Bent B-5 is best characterized as an abutment resting

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<sup>1</sup>The physical description of the Hermann Bridge is based on design plans produced by Sverdrup and Parcel. The plans note that the bridge was "designed by Missouri State Highway Specifications," reflecting Leif Sverdrup's tenure with the Missouri State Highway Department. See Sverdrup and Parcel, "Hermann Bridge at Hermann, Missouri: General Plan and Elevation," prepared in 1928 for the Hermann Bridge Company, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri.

atop an earthen embankment with an upward grade of 5 percent. Bent B-5's wingwalls expand to 46' 4" at their crown, and they rest on square 6' x 6' concrete footings.

The most imposing elements of the Hermann Bridge substructure are six concrete piers set in underlying bedrock within the Missouri River. These six piers each consist of two concrete columns joined by a wall of reinforced concrete, but they vary slightly in design and size. Piers Two, Three, Four, and Five were set within the Missouri River by the pneumatic process. Piers Two and Four are identical, sitting on massive rectangular concrete footings measuring 38' x 17'. The cylindrical columns of Piers Two and Four taper in circumference as they rise from 10' 6" at their base to 6' 6" at their crown. The columns are approximately 65' in height, and 20" crowns cap the columns of each pier. Pier Five is very similar to Piers Two and Four, except it sits upon two square footings measuring 15' x 15' rather than a single rectangular footing. Pier One is unique in that it features octagonal footings measuring 14' on each side and a concrete bridge seat measuring 7' in height and 16'-1/2" in depth to support the lower chord of a Warren deck truss. Pier Six features identical bridge seats to Pier One, but unlike the other elements of the substructure, Pier Six rests upon untreated wood piles underneath modest concrete footings. Pier One and Six were not set using the pneumatic process. Pier Six was built in the Missouri River floodplain, and it rests upon wood piles driven into the earth. Pier One was set using an open cofferdam.

The steel superstructure of the Hermann Bridge was produced and erected by the Kansas City Structural Steel Company. The south approach to the bridge proper features two 39' 11-3/4" steel stringer approach spans with a single 125' 11-1/4" Warren deck truss. The north approach features a single 39' 11-3/4" steel stringer approach span and one 125' 10" Warren deck truss. The upper and lower chords of the Warren deck trusses are composed of two angles joined by top laterals composed of single angles. The diagonals and verticals along the deck trusses consist of four angles, and they are joined to the chords by 5/16" thick steel gusset plates. The two deck trusses feature minimal sway bracing consisting of single angle beams measuring 3-1/2" x 3-1/2" x 5/16" thickness and connector plates. The south approach to the bridge features a 3.12 percent grade, while the north approach features a sharper grade measuring 5 percent.

On its north side, the Hermann Bridge features a single 240' Warren through-truss with a polygonal upper chord and ten panels. Polygonal through-trusses became extremely popular with the Missouri State Highway Department in the 1930s due to the fact that they used less material than straight-chorded trusses.<sup>2</sup> The upper chord of the 240' Warren through-truss span is composed of four angles welded together to form two

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<sup>2</sup>Clayton Fraser, *Missouri Historic Bridge Inventory* (Loveland, Colorado: Fraserdesign, Inc., 1996), 117.

channels, two cover plates, and lacing. The lower chord of this truss is composed throughout of four angles measuring 4" x 3-1/2" x 5/16" thickness joined by two cover plates to form built-up channels. The top laterals along all panels of the 240' Warren through-truss are made up of two angles and plates, while the top struts consist of four angles with lacing. The verticals and diagonals of the 240' Warren through-truss feature four angles and lacing, and the road deck underneath this truss is supported by six I-beams per panel.

The most prominent and visible features of the Hermann Bridge are two massive 24-panel 800' Warren through-trusses. These trusses each feature two identical spans that are slightly more than 400' long, and three river piers support each individual truss. The only difference between the two trusses is that the northernmost through-truss features a 1 percent grade, while the other through-truss is level. The upper chord of the 800' Warren through-trusses is composed of four angles welded together to form two channels, cover plates, and single sway bracing. The angles used to construct the upper chord vary in length, but most of them measure 3-1/2" x 3-1/2" x 5/16" thickness. The lower chord of these two through-trusses also features two built-up channels and bracing. Some of the verticals are made up of four angles with batten plates, while the verticals closer to the center of the span are composed of two channels with lacing. Similarly, the diagonals also vary in composition with some being made of four angles with others made from two channels. The top struts of the Warren through-trusses are composed of four angles measuring 3-1/2" x 3" x 1/4" thickness with lacing, while the top and bottom laterals are made up of two angles of varying sizes. The roadbed underneath each panel is supported by seven large I-beams that form crossbeams measuring 23' in length. The 800' Warren through-trusses are reinforced by sway bracing at the portals and alternating panels. The sway bracing varies, being composed of two angles or four angles built into channels at various points along the superstructure.

The superstructure and the substructure of the Hermann Bridge are joined at various points by fixed shoes and roller shoes that allow the structure to expand and contract. The roadbed along the length of the bridge is 20' wide with two 10' driving lanes and a 1-1/2" crown. The lower chord of the bridge was designed to sit approximately 55' above the Missouri River, allowing vessels to pass freely underneath. The lower chord of the Warren deck truss on the south side of the Hermann Bridge allows 24' of vertical clearance so trains can pass safely underneath. A modest guardrail composed of 2-1/2" diameter pipes runs the length of the bridge, and the bridge features electric switches and conduits allowing for the installation of lights along its length. A small tollhouse was constructed in 1930 on the south end of the bridge, but it was removed in 1932. The only major repair of the Hermann Bridge occurred in 1964 when

portions of the deck were stripped of their original concrete driving surface and replaced by 1-1/4" of bituminous asphalt.<sup>3</sup>

## II. History of the Hermann Bridge

### A. Historic Background of Hermann, Missouri

The community of Hermann, Missouri, evolved out of an effort to preserve German culture and traditions in America. In the early nineteenth century several waves of German immigrants came to America and settled in Philadelphia, Pennsylvania. Many of these immigrants feared that the dominant American culture would rapidly assimilate them and destroy their Germanic heritage. In an effort to protect German traditions, the German Settlement Society was created in 1836. The Society sent several scouts into America's heartland to search out land for the creation of a new German community, and these scouts recommended Missouri as an ideal place to create a Germanic utopia. Thus, George Bayer, a Philadelphia schoolteacher who represented the Society, purchased over 11,000 acres of land near the confluence of the Gasconade and Missouri rivers. The terrain reminded Bayer of the Rhine Valley in Germany, and his descriptions of the area generated great enthusiasm among potential settlers back in Philadelphia. A town named Hermann after a Germanic national hero was platted by the Society, and settlers soon set out from Philadelphia with a vision of creating a German community in the heart of Missouri.<sup>4</sup>

When the first families from the German Settlement Society arrived in December 1837, they discovered what one settler described as a "howling wilderness." The land

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<sup>3</sup>In addition to resurfacing the roadbed, the highway department also replaced several crossbeams and expansion joints underneath the deck of the Hermann Bridge in 1964. See Missouri State Highway Department, "Plan and Profile: Resurfacing Bridge Over Missouri River, State Road at Hermann," 1964, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri.

<sup>4</sup>Hermann the Cherusker, also known by his Latin name Arminius, served as a Roman soldier. After seeing Roman forces mistreat people in his homeland, Hermann organized and led a force that defeated Quinctilius Varus and his three Roman Legions at the Battle of Teutoburger Forest in 9 C.E, forcing the Romans to abandon the region. Hermann's bravery made him a national hero, and he remains a popular figure in Germany today. See City of Hermann, Missouri, "What Kind of Name for a Town is Hermann, Anyway?," downloaded April 2005 from [http://www.hermannmissouri.com/hermann\\_arminius.htm](http://www.hermannmissouri.com/hermann_arminius.htm); and Order of the Sons of Hermann, "From Folk Hero to Fraternalist," downloaded April 2005 from <http://www.texashermannsons.org/i4a/pages/index.cfm?pageid=165>.

that Bayer purchased was located along steep bluffs overlooking the Missouri River, and the area's rocky soil appeared to be totally inhospitable to agriculture. Within two years the Settlement Society had dissolved and George Bayer had passed away. Hermann somehow survived its rocky start, and by 1839, its population had grown to 450 residents.<sup>5</sup>

Migrants who came to Hermann quickly realized that they needed to find viable alternatives to traditional grain agriculture if their community was to prosper. Most of the land in the area was hilly and covered with dense forests, generally limiting the size of farms to less than 120 acres. Fortunately, the land was fertile enough to support limited grain farming and livestock ranching, creating an agricultural base for the local economy. A unique natural feature that Hermann's settlers noticed was an abundance of wild grapevines growing along the rocky hillsides. Local soils turned out to be ideal for grape cultivation, and viticulture quickly became a key element of the local economy. Area farmers developed new varieties of grapes well-suited to Missouri soils, and in 1847, Michael Poeschel opened Hermann's first commercial winery on a hill overlooking the town. Other community leaders promoted viticulture by selling small lots for new vineyards and by organizing tourist festivals such as the "Maifest." By 1904, twenty wineries operated in the Hermann vicinity, and Poeschel's facility had grown to become the third largest winery in the world. Viticulture and tourism emerged early as economic complements to traditional agriculture in Hermann, and both continued to influence the development of the town well into the twentieth century.<sup>6</sup>

Two additional factors that helped Hermann prosper and grow were its role as a steamboat port along the Missouri River and its selection as the county seat. The Missouri River provided the primary transportation resource in Missouri during the early decades of the nineteenth century, and most migrants who came to Hermann did so via the river. By 1860, approximately thirty steamboats were based in Hermann. These boats transported raw goods from Central Missouri downriver to St. Louis. Some of the items shipped on these boats included lumber from surrounding forests, iron from the Meramec region, and barrels of wine and beer. Steamboats also contributed to the

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<sup>5</sup>James Goodrich and Lynn Wolf Gentzler, eds., *Marking Missouri History* (Columbia, Missouri: State Historical Society of Missouri, 1998), 150-151; Hermann Area Chamber of Commerce, "History and Heritage," downloaded April 2005 from <http://www.hermannmo.info/history-and-heritage/>; *History of Franklin, Jefferson, Washington, Crawford and Gasconade Counties, Missouri* (Chicago: Goodspeed Publishing Company, 1888), 658-666; and Dorothy Schrader, *Hermann Sesquicentennial: A Dream in Philadelphia, A Town in Missouri* (Hermann, Missouri: Graff Printing Company, 1986), 2-3.

<sup>6</sup>Goodrich and Gentzler, *Marking Missouri History*, 151; and Schrader, *Hermann Sesquicentennial*, 14. The winery founded by Michael Poeschel operates today as the Stone Hill Winery.

growth of Hermann's tourism industry by bringing visitors from St. Louis and other communities to the city.<sup>7</sup>

When Gasconade County organized in 1821, its county seat was located at Gasconade City along the Gasconade River. The county seat was forced to move frequently during the 1820s and 1830s due to flooding along the Gasconade River, and thus no permanent courthouse was built. In 1842, county voters decided to move the seat of government to Hermann to make sure it was out of the flood plain. Local residents contributed approximately \$3,000 to build a square, two-story brick building located in the center of a city block along East Front Street. The courthouse sat atop a bluff overlooking the Missouri River, and its natural vistas added to the aesthetics of the community. By acquiring the county seat, Hermann gained prominence and ensured its continued success and growth.<sup>8</sup>

When railroads replaced steamboats as the primary means of transportation in Missouri during the latter half of the nineteenth century, Hermann was fortunate enough to be selected as a station point along the Missouri Pacific Railroad. The Missouri Pacific line from St. Louis to Jefferson City was built through Hermann in 1854, allowing Hermann to maintain its regional prominence as an agricultural shipping point and commercial center. Train transportation and access to outside markets also allowed for the creation of several light industrial plants within Hermann, most notably a shoe facility operated by the Florsheim Company. This economic diversity provided stability and allowed Hermann to maintain its German heritage. Local presses produced several German language newspapers, and many residents spoke German well into the twentieth century. Hermann fell on hard times during World War I and Prohibition, severely damaging the local tourism industry. Fortunately, economic diversity and community strength allowed Hermann to survive these challenges and remain a prosperous community as Missouri entered the 1920s.<sup>9</sup>

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<sup>7</sup>Goodrich and Gentzler, *Marking Missouri History*, 151; and Schrader, *Hermann Sesquicentennial*, 10-11

<sup>8</sup>Schrader, *Hermann Sesquicentennial*, 28; and Marian Ohman, "Gasconade County Courthouse," downloaded April 2005 from <http://muextension.missouri.edu/explore/uedivis/ue6036.htm>. The current Gasconade County Courthouse was constructed in 1898. It features red brick with white stone trim and a dome that rises 120' above the city.

<sup>9</sup>Goodrich and Gentzler, *Marking Missouri History*, 151; *History of Franklin, Jefferson, Washington, Crawford and Gasconade Counties, Missouri*, 666-672; and Schrader, *Hermann Sesquicentennial*, 13-15.

## B. Seeking a Missouri River Bridge for Hermann

In the 1920s Missouri was just beginning to pull itself “out of the mud” and into the modern highway era.<sup>10</sup> Prior to 1907, county governments controlled road and bridge building in Missouri. Individual counties decided how much money to spend on road construction, and taxes were levied at the local level for road and bridge maintenance. Unfortunately, this led to a jumbled system of uncoordinated roads, and local governments could not raise sufficient funds to finance major projects such as bridging the Missouri River. This situation changed with the passage of the Centennial Road Law in 1921, which created a highway commission to coordinate the construction of a statewide road system linking Missouri’s county seats. The Centennial Road Law also allowed the commission to build cross-state highways linking Missouri’s major metropolitan areas. Funded by a \$60 million bond issue, the Missouri State Highway Commission began building hard-surfaced state highways. By 1930, Missouri’s basic highway system was approximately 70 percent complete, and paved or graded roads had been built in almost every county.<sup>11</sup>

A key component of Missouri’s emerging statewide highway system was the construction of bridges across major rivers. River bridges were frequently built to link Missouri’s county seats, and these bridges were usually financed using a combination of local and federal funds. For example, a locally financed bridge carrying Missouri State Route 2 (later renamed U.S. Highway 40) across the Missouri River at Boonville opened to traffic on July 4, 1924. The completion of the river crossing spurred an economic revival in Boonville thanks to the creation of new service industries catering to automotive travelers and an increase in commerce between city businesses and area farms. Due in part to the new bridge, Boonville’s population grew by 27 percent between 1920 and 1930.<sup>12</sup> Many other communities within Missouri attempted to follow Boonville’s example and secure the opportunities offered by the construction of river

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<sup>10</sup>Good roads advocates used the slogan “Lift Missouri Out of the Mud” repeatedly in the 1920s and 1930s as part of their efforts to win public support for road building in Missouri. For a detailed discussion of road building obstacles that had to be overcome in Missouri during the early twentieth century, see Richard Traylor, “Pulling Missouri Out of the Mud: Highway Politics, The Centennial Road Law, and the Problems of Progressive Identity,” *Missouri Historical Review*, 98 (October 2003): *passim*.

<sup>11</sup>Missouri Department of Transportation, “History Summary,” downloaded May 2005 from [http://www.modot.mo.gov/about/general\\_info/history.htm](http://www.modot.mo.gov/about/general_info/history.htm); Missouri State Highway Commission, *Seventh Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1930* (Jefferson City, Missouri: Hugh Stephens Press, 1930), 84-93; and Milton Rafferty, *The Ozarks: Land and Life* (Norman: University of Oklahoma Press, 1980), 108-110.

<sup>12</sup>David Austin, “Boonville Bridge,” HAER No. MO-80, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1994, 13.

bridges. Local efforts led to the opening of new bridges across the Missouri River at Waverly and Lexington in 1925, and leaders within both communities bragged that the completion of the structures would guarantee economic prosperity for years to come.<sup>13</sup>

The bridge building *zeitgeist* of the 1920s reached Hermann in the latter half of the decade as rumors began to circulate that the Missouri State Highway Commission was considering construction of a bridge across the Missouri River somewhere in the eastern half of the state. There was no bridge across the Missouri River between the capital at Jefferson City and St. Charles, and local business leaders in Hermann believed that their community would be the ideal location for the construction of such a structure. As of 1920, several ferries provided passage across the Missouri River at Hermann.<sup>14</sup> However, local merchants such as O. H. Nienhueser and George Eberlin believed that a river bridge carrying automotive traffic would open new markets and increase commerce. Government leaders such as Hermann Mayor Charles Egley and Circuit Judge Ransom Breuer also hoped that construction of a river bridge would spur the highway commission to build a highway connecting Hermann to U.S. Highway 40 north of the Missouri River and U.S. Highway 50 south of the river. Highways 40 and 50 were cross-state thoroughfares joining St. Louis to Kansas City, and Highway 40 was part of a national road that reached back to the east coast. By linking the city to these two critical highways Hermann could draw larger numbers of tourists to its annual festivals and encourage the further growth of local industries and agribusinesses.<sup>15</sup> Hermann's civic leaders were thus drawn to seek the construction of a river bridge to join their community to Missouri's growing highway system, but they soon learned that the Missouri State Highway Commission would be unable to aid them in their efforts.

In the fall 1926 a delegation representing Hermann met with two officials from the Missouri State Highway Department; B. H. Piepmeier, Chief Engineer, and Leif Sverdrup, State Bridge Engineer. The delegation asked if there was any way that the highway department could help finance the construction of a bridge across the Missouri River at Hermann, but they learned that federal legislation providing funds for bridge building had expired. Bridges at Boonville and elsewhere had been built using a

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<sup>13</sup>Thomas Gubbels, "Lexington Bridge," HAER No. MO-111, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 2003, 25-26; and Thomas Gubbels, "Waverly Bridge," HAER No. MO-112, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 2003, 24-25.

<sup>14</sup>One such business was the Hermann Ferry and Packet Company, which operated steamboats along the Missouri and Gasconade Rivers for over fifty years. For more information on Hermann's river port and ferry services, see Schrader, *Hermann Sesquicentennial*, 10-11.

<sup>15</sup>Charles Egley, "Bridging the Missouri," *Hermann Advertiser-Courier*, 7 September 1928, 1; and "They Build for the Future of Hermann," *Missouri Magazine*, September 1930, 6.

combination of local funds and state road-building aid authorized under the Morgan-McCullough Road Law. These funds were no longer available, and the Centennial Road Law did not allow the Missouri State Highway Commission to use funds to construct bridges across navigable waterways such as the Missouri River. The best that Piepmeier and Sverdrup could offer was the possibility that the highway department might build the approaches to a new bridge if one were built using local or private funding.<sup>16</sup> State funds would not be used to construct the Hermann Bridge, but fortunately, a viable alternative soon presented itself.

Although Leif Sverdrup had worked for the Missouri State Highway Department since 1922, he harbored deeper ambitions. Sverdrup frequently told his supervisors that he hoped to someday leave civil service and create his own consulting company. When the Hermann delegation approached the highway department seeking a bridge across the Missouri River, Sverdrup saw an opportunity to branch out on his own. Sverdrup informed the Hermann delegation that perhaps they could find a private company to construct a toll bridge across the Missouri River. He recommended that they gather sufficient funds to hire a firm to conduct soundings in the river to determine how deep it was to bedrock under the channel. This information could be used to generate an estimate of how much it would cost to build a bridge, and then they could turn their efforts toward either paying for the structure locally or finding a private company to finance the project. In a letter dated March 9, 1927, Sverdrup detailed his recommendations and offered his professional services in exchange for future considerations as the engineer in charge of designing and building the structure:

I propose to serve as your Engineer to design and supervise the construction of your proposed bridge over the Missouri River at Hermann. As stated to you previously, I will supervise the borings, the actual cost of same to be paid by you. I will further make a preliminary survey and a preliminary plan and estimate suitable for ascertaining the approximate cost of the bridge. The above mentioned services I will be glad to do without any charge whatsoever, whether the bridge is built or not. However, should it be decided to build a bridge, I should like to act as your Engineer, rendering the services under the conditions set forth below...for all of these services I ask a fee of 7% of the cost of the construction of the bridge and its approaches.<sup>17</sup>

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<sup>16</sup>Egley, "Bridging the Missouri," 1.

<sup>17</sup>Quoted in Gregory Franzwa and William Ely, *Leif Sverdrup: Engineer Soldier at His Best* (Gerald, Missouri: Patrice Press, 1980), 33.

Leif Sverdrup saw the Hermann project as a potential springboard into the private sector, and local leaders in Hermann realized that Sverdrup's suggestions offered a feasible way to move toward construction of a new bridge. On March 10, 1927, the Hermann Commercial Club agreed to hire Leif Sverdrup as their consulting engineer whenever the bridge was built, and they began to solicit funds to finance the river soundings.<sup>18</sup>

In the spring 1927 the Hermann Commercial Club asked its members to donate \$500 toward the soundings needed to determine the feasibility of a river bridge. In addition, presentations were made before the Gasconade County Court and the Hermann City Council asking both to contribute \$500 to defray the costs of the soundings. The City of Hermann immediately agreed to provide its share, but the Gasconade County Court proved more cautious, declining to support this preliminary step in the construction process. Members of the Hermann Commercial Club thus turned to the local business community, and sufficient funds were raised to make up for the county court's inaction.<sup>19</sup>

The Longyear Exploration Company from Kansas City was hired to conduct the survey, and they began work in the river at Hermann during the first week of August 1927. Local steamships and barges were hired to carry survey teams into the river to conduct the soundings, and even though it was not an official project, several engineers from the Missouri State Highway Department were sent to Hermann to supervise the soundings. Data from the soundings indicated that bedrock could be reached at depths varying from 39' to 98' below the surface of the Missouri River, and thus it was feasible to build the piers needed to support the proposed bridge. Leif Sverdrup studied the data and concluded that it would cost approximately \$800,000 to build a bridge at Hermann, meaning that significant private funds would be necessary if such a structure was to be built.<sup>20</sup> In response to this information, the Hermann Commercial Club formed a permanent committee composed of six political leaders and businessmen to seek out either private funding to pay for the bridge or a company willing to build the bridge and

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<sup>18</sup>Egley, "Bridging the Missouri," 1; Franzwa and Ely, *Leif Sverdrup*, 32-34; Gregory Franzwa, *Legacy: The Sverdrup Story* (St. Louis: Sverdrup Corporation, 1978), 1-4; and David Austin, "Gasconade Bridge," HAER No. MO-82, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1994, 9. The Hermann Commercial Club was a forerunner of the current Hermann Chamber of Commerce.

<sup>19</sup>Egley, "Bridging the Missouri," 2; and "Bridge Activity," *Hermann Advertiser-Courier*, 18 March 1927, 1.

<sup>20</sup>Sverdrup received no payment for preparing cost estimates for the Hermann Bridge. He personally spent between \$80 and \$100 for travel and survey work during this phase of the project, but with a potential commission of 7 percent, Sverdrup anticipated a generous payoff when the bridge was finally built. See Franzwa, *Legacy*, 11.

operate it as a toll structure. This committee later incorporated as the Hermann Bridge Company, and it began working in the fall 1927 to make Hermann's bridge dream a reality.<sup>21</sup>

A critical obstacle that needed to be overcome before the Hermann Bridge Company could move forward was obtaining permission from the federal government to build such a bridge across the Missouri River. Since the bridge would pass over a navigable waterway, federal legislation was needed to allow the project to proceed. Without federal permission, any local effort to construct a bridge at Hermann would have been moot. Missouri Representative Clarence Cannon introduced a bill allowing the construction of a bridge at Hermann in 1927. The bill easily cleared the House, but it died in the United States Senate due to repeated filibusters that clogged the Senate's calendar. When the enabling legislation was reintroduced during the 1928 session of the 70th Congress, opposition to the bill arose among St. Louis-area legislators. Opponents of the legislation feared that unscrupulous bridge promoters would add exorbitant fees to the cost of the bridge for their own profit and inflate the value of any bonds sold to finance the structure to defraud investors. Representative Cannon and Missouri Senator Harry Hawes assured fellow legislators that the Hermann Bridge Company was competent enough to avoid fraud, and after a few delays, both chambers passed the enabling legislation. The bill signed into law by President Calvin Coolidge on February 29, 1928, contained several safeguards, including one allowing Missouri or any local government to purchase a toll bridge at Hermann twenty years after it was opened. With this legislation in place, construction of the Hermann Bridge moved closer to reality.<sup>22</sup>

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<sup>21</sup>Egley, "Bridging the Missouri," 2; "Sounding for Bedrock," *Hermann Advertiser-Courier*, 12 August 1927, 1; "Soundings Finished," *Hermann Advertiser-Courier*, 19 August 1927, 1; and Sverdrup and Parcel, "Hermann Bridge at Hermann, Missouri: Logs of Borings," prepared in 1927 for the Hermann Bridge Company, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri. The Hermann Bridge Company registered with the Missouri Secretary of State as a fictitious corporation formed solely to provide legal standing for the men who represented the Hermann Commercial Club. Since the Hermann Bridge Company did not intend to manufacture any products or offer any tangible services, it was legally referred to as a fictitious corporation. The company's stockholders were the same people who were on the committee created by the Hermann Commercial Club to promote the bridge project. After the Hermann Bridge had been constructed and later transferred to state ownership, the Hermann Bridge Company dissolved. See Hermann Bridge Company, "Registration of Fictitious Name," 1928, copy on file at Missouri Corporations Office, Missouri Secretary of State, Jefferson City, Missouri; and Hermann Bridge Company, "Affidavit of Dissolution," 1935, copy on file at Missouri Corporations Office, Missouri Secretary of State, Jefferson City, Missouri.

<sup>22</sup>Egley, "Bridging the Missouri," 2; and Clayton Fraser, "NPS Form 10-909: Hermann Bridge," 1990, reproduced in Clayton Fraser, *Missouri Historic Bridge Inventory* (Loveland, Colorado: Fraserdesign, Inc., 1996).

In the fall 1927 a private corporation approached the Hermann Bridge Company and inquired after the possibility of building the toll bridge. The firm E. M. Elliott and Associates was based in Chicago, and in September 1927 a representative from the company came to Hermann to investigate whether the construction of a toll bridge would be a wise investment. After meeting with the Hermann Bridge Company and Leif Sverdrup, E. M. Elliot and Associates was selected to build the Hermann Bridge. Representatives from the Hermann Bridge Company now began to approach local governments to seek permission to build the structure. Presentations regarding the bridge were made to the Hermann City Council, the Gasconade County Court, and the Montgomery County Court. All three granted franchise rights to E. M. Elliot and Associates allowing them to build a bridge at Hermann, but certain restrictions were included along with the rights. For example, the franchise agreements gave the Missouri State Highway Commission the right to purchase the bridge after it had been in operation as a toll facility for twenty years. The price to be paid for the bridge would be determined by an independent board, and it would be converted into a free bridge open to all traffic. The agreements also listed maximum allowable toll charges to cross the bridge and reserved to local governments the right to set load limits for vehicles crossing the structure. Finally, the franchise agreements called for construction of the bridge to begin within one year and for Leif Sverdrup to design the bridge structure. The stage seemed to be set for construction to begin, but local leaders quickly learned that E. M. Elliot and Associates never intended to actually build anything in Missouri.<sup>23</sup>

Investigations by the Hermann Bridge Company soon revealed that E. M. Elliot and Associates was little more than a holding company. It did not have any construction equipment, nor did the company plan to operate a toll bridge at Hermann. Instead, the company specialized in winning franchise agreements and construction rights from local governments and then selling such rights for a profit to other companies. Fortunately for Hermann, a new company stepped forward to assume responsibility for construction of a river bridge. In spring 1928 the franchises granted to E. M. Elliot and Associates were transferred back to the Hermann Bridge Company and then turned over to the National Toll Bridge Company. The National Toll Bridge Company was a subsidiary of J. G. White and Company of New York City. The National Toll Bridge Company was

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<sup>23</sup>Egley, "Bridging the Missouri," 2; "County Court Grants Franchises," *Herman Advertiser-Courier*, 14 October 1927, 1; Gasconade County Clerk, *County Court Minute Book L: 1925-1928*, microfilm copy available from Missouri State Archives, Missouri Secretary of State, Jefferson City, Missouri, 422-428; and Warranty Deed Transferring the Hermann Bridge from the Missouri Bridge Company to the Missouri State Highway Commission, 3 November 1932, As contained in Gasconade County Recorder of Deeds, *Deed Book 62: 1930-1933*, microfilm copy available from Missouri State Archives, Missouri Secretary of State, Jefferson City, Missouri, 533-534. The warranty deed transferring the Hermann Bridge to the Missouri State Highway Commission contains a detailed record of the transfers of rights and franchises granted to the companies involved in the construction of the bridge.

developing plans to build and operate several toll bridges in 1928, including structures at Hermann, Missouri, Independence, Missouri, and Madison, Indiana. The Gasconade County Court, the Montgomery County Court, and the City of Hermann reaffirmed the franchises they had granted previously, paving the way for National Toll Bridge Company to begin work on the new bridge.<sup>24</sup>

When it became clear that the Hermann Bridge would be built, Leif Sverdrup decided that it was time to leave the Missouri State Highway Department and create an independent consulting company. In the spring of 1928 Sverdrup and his business partner John Parcel formally created Sverdrup and Parcel. Although John Parcel would continue in his position as a professor at the University of Minnesota for several months, Sverdrup asked him to begin work on the plans for the main spans of the Hermann Bridge as soon as possible. In a letter dated April 8, 1928, Sverdrup discussed his vision of the design process for the Hermann Bridge:

In accordance with the contract that I have signed with White, the plans have to be complete 4 months after the date that they give us notice to go ahead, and that in my opinion is ample time...What I had in mind was that you could go ahead with the design of the four-span continuous truss as soon as we could get the word, and that you could get the reactions to us as soon as possible, so that we could design the piers. We could, of course, in the meantime get the piers for the approaches, and the approach spans out of the way...I think perhaps it would be better to do all the detailing here, as the men I will have will be more familiar with such matters...So my idea was that you go ahead and figure the stresses in the main span, and send them down, then we would check them and draw up the details. In that way all the sheets would be uniform.<sup>25</sup>

In addition to receiving a contract to design the Hermann Bridge, Leif Svedrup also accepted a job as General Manager for the National Toll Bridge Company in the spring of 1928. Although he would be busy starting his own consulting company, Sverdrup described the position with the National Toll Bridge Company as “too good to turn

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<sup>24</sup>Egley, “Bridging the Missouri,” 2; “They Build for the Future of Hermann,” *Missouri Magazine*, 6; and “Bridge at Hermann,” *Hermann Advertiser-Courier*, 13 April 1928, 1. When the National Toll Bridge Company received reaffirmed franchise rights to build the Hermann Bridge, the company agreed to reimburse the Hermann Bridge Company for the \$1,500 they spent to conduct soundings in the Missouri River. The decision to pay back the \$1,500 was likely made as a sign that the company intended to build a bridge rather than broker the franchise rights to another bidder. See Egley, “Bridging the Missouri,” 6.

<sup>25</sup>Quoted in Gregory Franzwa, *Legacy*, 10-11.

down.”<sup>26</sup> The company offered Sverdrup an annual salary of \$9,000 along with several stock options, and the position provided a safety net for Sverdrup in case his new business venture floundered. As General Manager of the National Toll Bridge Company Sverdrup was responsible for hiring and overseeing the contractors who would build the Hermann Bridge, guaranteeing his involvement in every step of the design and construction process.<sup>27</sup>

In order to draw up the plans for the Hermann Bridge, Leif Sverdrup needed to secure space for his new design firm and hire skilled engineers to help him with the design process. Thus, in June 1928 Parcel leased space in an office building in downtown St. Louis, Missouri, to house Sverdrup and Parcel. Sverdrup staffed his new company with draftsmen and engineers poached from the Missouri State Highway Department.<sup>28</sup> Design work on the new structure began in May 1928, and the plans ready for letting by the end of the summer. The new bridge would feature two Warren through-truss spans each measuring over 800’ in length and two driving lanes that were 10’ wide. Sverdrup’s team also drew up plans for several approach spans, a tollhouse on the south

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<sup>26</sup>*Ibid.*, 10.

<sup>27</sup>Leif Sverdrup continued to work as the Missouri State Bridge Engineer until the end of April 1928. Sverdrup’s supervisors apparently did not mind that he was actively seeking private work as a consultant while still employed by the state. When he left the highway department, Sverdrup received an effusive letter from C.D. Matthews, Chairman of the Missouri State Highway Commission, praising his performance as a state worker:

Usually good things are said of a man after he is gone; your monument is standing to your credit while you are here. The work that you have done for the Highway Department in the building of the Missouri Bridges and the other splendid structures over the State will ever be regarded as Sverdrup monuments, and I am pleased and gratified to be part of an organization that has produced such splendid men as yourself and others that are fittingly carrying on this public work for the people of the State of Missouri.

Quote from Franzwa and Ely, *Leif Sverdrup*, 40. For an additional discussion of the conflict of interest issue, see Franzwa, *Legacy*, 7-8.

<sup>28</sup>Some of the employees hired away from the Missouri State Highway Department included draftsman Robert Sailor, plan checker Jules Jascot, bridge designer Lee Hendrix, and plan tracer W. R. McCreary. These men drew the plan sheets for the Hermann Bridge, and since they had worked previously for the highway department, the privately produced plans were nearly identical in style and format to those produced by state designers. See Franzwa, *Legacy*, 12; and Sverdrup and Parcel, “Hermann Bridge at Hermann, Missouri: General Plan and Elevation,” prepared in 1928 for the Hermann Bridge Company, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri.

side of the bridge, and connectors to carry utility lines across the structure.<sup>29</sup> As soon as the first design plans had been completed, Sverdrup began soliciting bids from contractors to build the bridge substructure. Reuben Grant, a designer who left the highway department to work for Sverdrup and Parcel, commented, “the boys must have put the substructure plans on the market before the ink was dry.”<sup>30</sup>

On August 9, 1928, Leif Sverdrup hired the Foundation Company of Chicago to sink the piers needed to support the Hermann Bridge. The Foundation Company immediately began shipping supplies to Hermann, and the riverfront was soon buzzing with pre-construction activity.<sup>31</sup> A few months later, the Kansas City Structural Steel Company was hired to fabricate and build the steel superstructure. The contract signed by the Kansas City Structural Steel Company stated that the bridge needed to open to traffic by August 1, 1929, and the contract included financial incentives to complete the bridge early and penalties in case the structure was completed late. The local newspaper announced proudly that there was no doubt that the Hermann Bridge would open in the summer of 1929 and bring prosperity and growth to the area.<sup>32</sup> A few months later Charles Egley, Mayor of Hermann and Chairman of the Hermann Bridge Company, described local reaction to the beginning of construction:

The Foundation Company of Chicago, were the successful bidders for the building of the substructure, and they, upon securing the contract, began shipment of carload after carload of equipment. Engineers, construction

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<sup>29</sup>Sverdrup and Parcel, “Hermann Bridge at Hermann, Missouri: General Plan and Elevation,” Prepared in 1928 for the Hermann Bridge Company, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri. Sverdrup and Parcel eventually received a \$33,000 commission for designing the Hermann Bridge. Since the bridge cost approximately \$835,000 to build, this fee was significantly less than the 7 percent commission that Leif Sverdrup requested when he made his bridge proposal to local leaders. Still, the \$33,000 commission was large enough to keep Sverdrup and Parcel solvent during its early years of existence. See Franzwa, *Legacy*, 11; and Franzwa and Ely, *Leif Sverdrup*, 39.

<sup>30</sup>Quoted in Franzwa, *Legacy*, 12.

<sup>31</sup>“Work on Missouri River Bridge at Hermann to Begin Soon,” *Hermann Advertiser-Courier*, 20 July 1928, 1; and “The Boom is On,” *Hermann Advertiser-Courier*, 17 August 1928, 1. In addition to hiring contractors to build the Hermann Bridge, Sverdrup also approached federal officials in the War Department in the summer of 1928 seeking federal permits for the bridge. The War Department had to approve the bridge since it would cross a navigable waterway considered critical to national defense efforts. Following a few minor modifications to the design plans, the War Department gave its blessing to the Hermann Bridge on July 3, 1928. See Egley, “Bridging the Missouri,” 6.

<sup>32</sup>“New Missouri River Bridge to Open to Traffic August 1,” *Hermann Advertiser-Courier*, 23 November 1928, 1.

crews, foremen and laborers began to arrive; things fairly hummed with activity; and the “skeptics,” i.e. those who were waiting to say “I told you so,” and who held out to the very last with “I don’t believe it yet,” now looked wide-eyed and wonderingly at the merry din north of the City Hall, witnessing the birth of the Hermann Bridge--convinced that for once the seemingly impossible was realized right here at home.<sup>33</sup>

Despite Egley’s effusive optimism, the Hermann Bridge proved just as difficult to construct as other bridges across the Missouri River, and like many of the bridge structures built in Missouri during the 1920s, the Hermann Bridge opened to traffic later than originally envisioned.

### C. Building the Hermann Bridge

The Foundation Company began to sink the piers for the Hermann Bridge in the fall of 1928. The company set up a plant to mix concrete for the piers on the north bank of the Missouri River and transported the concrete across the river via an improvised trestle and railway. Although Leif Sverdrup had previously expressed concerns about using such a system to build bridge piers in the Missouri River, the Foundation Company chose to use a railway instead of barges to move the concrete into place for pouring.<sup>34</sup> Most of the piers for the Hermann Bridge were sunk to underlying bedrock using caissons. H. F. Nelson, an engineer who supervised construction of the Missouri River Bridge at Waverly, Missouri, provided a succinct description of how caissons worked:

Caissons might be compared to an airtight box of steel or wood and turned upside down. These used were made of heavy timber. After being placed in position in the water the concrete forms which were built on top are filled with concrete, except for the shaft which allows the men, called sand hogs, to be lowered into the caisson where they work under air pressure digging out the sand which goes to the top through suction lines. The weight of the concrete sinks the caisson as the sand is excavated and more concrete is added keeping the concrete above the water line until the caisson lands on solid foundation, which in this case is two feet of shale.

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<sup>33</sup>Egley, “Bridging the Missouri,” 6.

<sup>34</sup>Franzwa, *Legacy*, 12. Leif Sverdrup was serving as the Missouri State Bridge Engineer when the Waverly Bridge was built across the Missouri River in the mid-1920s. In private correspondence, Sverdrup described the tramway used to build the piers of the Waverly Bridge as a “piece of damned foolishness that looks like it might fall in at any minute.” Clearly Sverdrup believed that barges should be used to transport the cement needed to construct bridge piers within the Missouri River. See Gubbels, “Waverly Bridge,” 12-13.

All the caissons are sunk two feet into shale to prevent any danger of scowling or slipping from river pressure, ice or drift. The caisson is then filled with concrete through the supply shaft and the foundation is then ready for the pier.<sup>35</sup>

Working inside a caisson was a dirty and dangerous endeavor. Negative air pressure in the caissons occasionally caused workers to suffer from nitrogen poisoning, pain, bleeding, and even death, but fortunately, no workers were killed while setting the piers for the Hermann Bridge.

Unfortunately for those who believed that construction of the Hermann Bridge would be completed quickly, the Missouri River experienced an unexpected rise in the fall 1928, delaying the project. Reuben Grant, a designer who worked for Sverdrup and Parcel, commented:

Ordinarily, we don't have high water in the fall, but this year [1928] was an unusual one and they had a flood at exactly the wrong time for the [Hermann] bridge. The concrete tubes were lying on the bottom of the river, and the caisson for the main pier was tilted at an awful angle.<sup>36</sup>

Similar problems with varying water levels continually plagued all phases of bridge construction. The Missouri River experienced extremely high water levels throughout 1929, hindering efforts to complete the Hermann Bridge substructure. One year later, the river experienced low water levels, hampering the ability of the Kansas City Structural Steel Company to build the steel superstructure.<sup>37</sup> The steel for the superstructure had been fabricated and shipped to the Hermann area by spring 1930, but as noted in a local newspaper, low water levels hindered its erection:

The retard in the work is due to the low stage of the river, which makes it impossible for the large barges to come close enough to the shore to allow the heavy steel to be loaded on and towed toward the bridge. At present only small barges can be used and the work of moving the large pieces of steel progresses very slowly.<sup>38</sup>

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<sup>35</sup>Quoted in "Waverly Bridge in Early Days," *Carrollton Daily Democrat*, 7 August 1975, 2.

<sup>36</sup>Quoted in Franzwa, *Legacy*, 12-13.

<sup>37</sup>"They Build for the Future of Hermann," *Missouri Magazine*, 6.

<sup>38</sup>"Steel Work Progresses Slowly," *Hermann Advertiser-Courier*, 4 April 1930, 1.

Similar construction delays were caused by the unpredictability of the Missouri River during construction of bridges at Lexington and Waverly.<sup>39</sup> The Missouri River proved to be a difficult obstacle, but slow, steady progress was made on the Hermann Bridge, and local residents anxiously awaited the opening of the new structure.

During the summer and fall of 1929 supporters of the Hermann Bridge received bad and good news. The bridge was clearly not going to be completed by the August 1, 1929, deadline due to continued problems with high water, and thus the timeline for the project was extended by one year. In addition, a worker was killed while working on the bridge in September 1929. Edward Burdick, a 28-year old carpenter employed by the Foundation Company, fell from a scaffold into the river. Burdick hit his head when he fell and was knocked unconscious. The following morning, workers used a grappling hook to drag Burdick's lifeless corpse out of the river. Burdick was the only recorded fatality associated with the construction of the Hermann Bridge.<sup>40</sup>

Fortunately for Hermann, there was some good news in the summer of 1929 to counteract the continued construction delays. On July 9, 1929, the Missouri State Highway Commission approved a plan to improve Highway 19 through Gasconade and Montgomery counties to connect the Hermann Bridge to U.S. Highways 40 and 50. This decision guaranteed that Hermann would link directly to two major interstate highways making the Hermann Bridge the only major river crossing between Jefferson City and St. Charles County. The improvement of Highway 19 promised to open up lucrative national markets for Hermann's wine industry and increase tourist traffic. Improving Highway 19 between U.S. 40 and U.S. 50 proved to be a major undertaking for the Missouri State Highway Department. Construction of the road required several bridges to be built over local tributaries as well as active railroad tracks. In addition, the highway department needed to blast several rock cuts and haul in 130,000 cubic yards of fill to construct Highway 19 through the hilly terrain surrounding Hermann.<sup>41</sup> Highway

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<sup>39</sup>For a discussion of the challenges presented by the Missouri River in constructing bridges at Lexington and Waverly, see Gubbels, "Lexington Bridge," 18-23; and Gubbels, "Waverly Bridge," 12-18.

<sup>40</sup>"They Build for the Future of Hermann," *Missouri Magazine*, 6; and "Bridge Employee Drowns," *Hermann Advertiser-Courier*, 6 September 1929, 1. Local newspapers provided minimal coverage of the construction of the Hermann Bridge except when major problems arose. One interesting article detailed how an employee of the Foundation Company received a ticket for hunting without a license and was fined \$1 plus \$10 in court costs. The employee responded to this perceived insult by paying his fine at the Gasconade County Courthouse with 1,100 pennies! See "A Penny Business," *Hermann Advertiser-Courier*, 20 September 1929, 1.

<sup>41</sup>"Gasconade Wins Connecting Highways," *Hermann Advertiser-Courier*, 12 July 1929, 1; "Begin Northside Highway Project," *Hermann Advertiser-Courier*, 13 September 1929, 1; and "A Costly Road Project," *Hermann Advertiser-Courier*, 18 October 1929, 1.

department officials had offered to upgrade Highway 19 if local leaders built a bridge across the Missouri River, and the department kept its promise and finished the highway improvements by the early 1930s.

By spring 1930 the Foundation Company had completed the substructure of the Hermann Bridge and the Kansas City Structural Steel Company had begun to erect the steel superstructure. Despite delays caused by low water, construction of the superstructure was completed in early August. The only work that remained was the laying of a roadbed across the bridge, attachment of utility lines and lights, and painting the structure. Plans were made for a formal dedication of the new bridge on August 29, 1930, and the Gasconade County Court donated \$500 to help cover the costs of the celebration. An anticipated highlight of the event was the arrival of Missouri Governor Henry Caulfield at the event in an airplane. Governor Caulfield announced that he was going to charter a private plane to fly him to Hermann and circle the city twice before landing so local residents could see an airplane in flight. The city brimmed with excitement as the day approached and thousands of revelers made their way to Hermann.<sup>42</sup>

On the morning on August 29, 1930, approximately 8,000 Missourians traveled to Hermann to witness the dedication of the Hermann Bridge. The day began with a flyover by Governor Henry Caulfield's chartered plane and a meeting of the Gasconade and Montgomery county courts at the center of the bridge. Following several speeches by local officials and businessmen, a young girl named Florence Mundwiller cut a ribbon to officially open the new bridge. After the ribbon-cutting ceremony, Governor Caulfield gave a speech praising Missouri's long-term road-building plan as an excellent program that insulated the state from the effects of the Great Depression:

I am proud of the work Missouri is doing in the building of highways. I am glad that during the year of 1930, when there has been considerable unemployment, Missouri will have doubled her highway construction record of 1929, and will have given employment to thousands of Missouri citizens who otherwise would face the problem of being out of work. More than ten thousand men are now working on the construction and maintenance of Missouri's highway system...It is no wonder that

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<sup>42</sup>“Hermann Highway Bridge Will Be Dedicated August 29,” *Hermann Advertiser-Courier*, 15 August 1930, 1; “Thousands Expected in Hermann for Bridge Dedication,” *Hermann Advertiser-Courier*, 22 August 1930, 1; “Governor Will Circle City in Airplane,” *Hermann Advertiser-Courier*, 29 August 1930, 1.

Missouri's percentage of employment is less than that of most of her sister states.<sup>43</sup>

Following the governor's speech, Circuit Judge Ransom Breuer with his passenger Leif Sverdrup drove the first car across the Hermann Bridge. The remainder of the day was taken up by private banquets, public speeches and concert performances, and an evening street dance attended by 3,000 people.<sup>44</sup>

Reaction to the opening of the new Hermann Bridge was universally positive. Many newspapers praised the bridge as a critical component of Missouri's highway system, and *Missouri Magazine* described the completion of the bridge as a victory for the local community:

The bridge is a concrete and steel structure, massive and beautiful in design and of cantilever type. Its entire length, including approaches, is 2,232 feet. It is supported by five massive piers suggesting to the observer the form of the Ionic column in Greek architecture. The bridge is an engineering feat quite noteworthy and it will be a lasting monument to the designers, builders and promoters, "a thing of beauty and a joy forever." The city of Hermann is justly proud and exults over this historic event that means so much in its future economic, commercial and social development...A barrier has been removed by the opening of this bridge, and a road system, partly as a consequence, has been developed that is at once a wonder and a transformation for Hermann, linking it with the outside world in a way that could not have even been dreamed of in days before.<sup>45</sup>

On its first day of service, no tolls were charged to the vehicles and pedestrians who crossed the Hermann Bridge. Beginning the next day, tolls ranging from \$1.25 for a round trip by a large truck to 60 cents for a one-way trip by a passenger car were charged to cross the bridge.<sup>46</sup> The new bridge was seen by many as a boon that would improve

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<sup>43</sup>Quoted in "Eight Thousand Attend Bridge Dedication Ceremonies," *Hermann Advertiser-Courier*, 5 September 1930, 1.

<sup>44</sup>*Ibid.*, 1; "They Build for the Future of Hermann," *Missouri Magazine*, 6; and "Were First to Cross Hermann Bridge," *Hermann Advertiser-Courier*, 29 August 1929, 1.

<sup>45</sup>"They Build for the Future of Hermann," *Missouri Magazine*, 6-7. The Hermann Bridge was built using continuous trusses, and thus the description of the structure as a "cantilever type" is inaccurate.

<sup>46</sup>In addition to automobiles, the Hermann Bridge was also open to pedestrian traffic, horse-pulled vehicles, and livestock herds. Tolls of 15 cents per pedestrian, 25 cents per bicycle, and 40 cents per horse-

the local economy and transform Hermann into a commercial and tourist center, and many residents believed that Hermann would become one of Missouri's most attractive and vibrant communities.<sup>47</sup>

#### D. Post-construction history of the Hermann Bridge

Although local residents hoped that the opening of the Hermann Bridge would lead to the dawning of a *belle époque*, its completion did not create dramatic economic or population growth. Instead, Hermann remained a small community with a mixed economic base. Although the Hermann Bridge operated as a toll facility, traffic across the structure did not prove sufficient to turn a profit for the National Toll Bridge Company. Thus, the company asked Leif Sverdrup in the summer of 1932 to approach his former colleagues in the Missouri State Highway Department and see if they were interested in purchasing the Hermann Bridge.<sup>48</sup> Missouri had the right to purchase the Hermann Bridge after it had been in use as a toll facility for twenty years, but since the National Toll Bridge Company desperately needed capital to survive the Great Depression, selling the bridge became a corporate priority.

When Sverdrup approached the highway department and offered them the option to purchase the Hermann Bridge, they jumped at the opportunity. In November 1928 voters approved an amendment to the Missouri State Constitution empowering the highway commission to sell \$75 million worth of bonds financed by motor vehicle and license fees. These moneys were to be used to expand, improve, and maintain Missouri's highways, and the highway commission believed that some of the funds could be used to bridge the Missouri River.<sup>49</sup> Thus, T.H. Cutler, Chief Engineer for the Missouri State Highway Department, approached the commission in July 1932 and advised them to purchase the Hermann Bridge. The National Toll Bridge Company had offered to sell the Hermann Bridge for only \$450,000. Cutler estimated that it would cost twice as much to

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drawn vehicle were charged to cross the bridge, and ranchers were charged 10 cents for every head of livestock driven across the structure. For a detailed toll schedule, see "Rates and Classifications of Traffic Over Hermann Highway Bridge," *Hermann Advertiser-Courier*, 22 August 1930, 1.

<sup>47</sup>For example, a local newspaper celebrated when, only a few weeks after its dedication, the first truckload of local coal was hauled across the Hermann Bridge. See "First Truckload of Coal to Cross Hermann Bridge," *Hermann Advertiser-Courier*, 19 September 1930, 1.

<sup>48</sup>Franzwa and Ely, *Leif Sverdrup*, 54-55. Sverdrup received a commission that yielded a profit of \$63,000 when Missouri purchased the Hermann Bridge for doing little more than contacting his old friends in the highway department. Although Sverdrup earned this money personally, he shared the commission with his fledgling engineering company.

<sup>49</sup>Missouri State Highway Commission, *Seventh Biennial Report*, 109-110.

build a new structure, making the Hermann Bridge an attractive bargain. Cutler also advised that acquisition of the bridge “would greatly expedite and facilitate through traffic” along Highway 19. Since the 1928 amendment to the Missouri Constitution allowed the Missouri State Highway Commission to expand the state’s system of primary highways by up to 300 miles of new road, Cutler recommended the Hermann Bridge be purchased and converted into a free river crossing as part of Highway 19. The highway commission agreed unanimously with Cutler, and preparations were made to finance the purchase of the Hermann Bridge.<sup>50</sup>

When the Missouri State Highway Commission decided to purchase the Hermann Bridge, it ran into a legal stumbling block that threatened to derail the process. Missouri State Auditor L. D. Thompson announced that he would not register the bonds that the commission planned to sell to finance the bridge purchase. Thompson explained that the Missouri State Constitution and the Centennial Road Law contained no specific clause granting the highway department the right to purchase existing bridges and add them to the state’s highway system. Since there was no explicit legal basis to purchase the Hermann Bridge, Thompson refused to issue any bonds to finance the transaction. In response to this challenge, the Missouri State Highway Commission asked the Missouri Supreme Court for a writ of mandamus forcing the Missouri State Auditor to register the bonds and offer them for sale.<sup>51</sup>

After weighing the merits of the Missouri State Highway Commission’s arguments, the Missouri Supreme Court voted 4-3 to issue a writ of mandamus forcing Missouri State Auditor L. D. Thompson to register the road bonds. In the majority opinion, Judge Berryman Henwood noted that the 1928 amendment to the Missouri Constitution allowed the Missouri State Highway Commission to add 300 miles of new

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<sup>50</sup>Missouri State Highway Commission, “Minutes of a Special Meeting of the State Highway Commission of Missouri, Held at the State Highway Building, Jefferson City, Missouri, on Monday, July 25, 1932,” As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Missouri Department of Transportation General Headquarters, Jefferson City, Missouri, 2-5. Quote from *Ibid.*, 5. In addition to the Hermann Bridge, the highway commission hoped to purchase two other toll bridges across the Missouri River and convert them to free facilities. The commission wanted to purchase the bridge between Independence and Liberty for \$400,000 and incorporate it into Traffic Relief Road 35, a spur of Highway 71 in the busy Kansas City metropolitan area. The commission also planned to spend \$100,000 to purchase a toll bridge carrying Highway 63 across the Missouri River into Jefferson City. By acquiring these three bridges, the commission hoped to create a more efficient state highway system. See *Ibid.*, 2-3; and *State ex rel. State Highway Commission v. L.D. Thompson, State Auditor*, Missouri Supreme Court Case No. 32,399, Ruling issued 5 October 1932, as held by the Missouri State Archives, Missouri Secretary of State, Jefferson City, Missouri, 1-2.

<sup>51</sup>*State ex rel. State Highway Commission v. L.D. Thompson, State Auditor*, 1-2; and Missouri State Highway Commission, *Eighth Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1932* (Jefferson City, Missouri: Hugh Stephens Press, 1932), 72.

roads to the state system. Because the Hermann Bridge would allow for Route 19 to be expanded, the purchase of the bridge was a legal act:

The Hermann bridge is the only bridge across the Missouri between St. Charles and Jefferson City...It follows the most direct route between northeast and southeast Missouri, and connects with or intersects all east and west cross-state highways...The state highway commission is expressly authorized to construct 300 miles of additional highways and bridges...Unquestionably a bridge across the Missouri River at Hermann may be designated as a part of said additional highways and bridges, for, as we have seen, such a bridge will not only constitute a connecting link between two state highways designated and laid out in the Centennial Road Law, but will also facilitate and expedite the movement of through traffic.<sup>52</sup>

In addition, the Missouri Supreme Court ruled that the power to construct bridges granted by the 1928 constitutional amendment gave the highway commission the right to purchase existing bridges and integrate them into Missouri's highway system as well as the power to build new bridges:

The provisions of the constitutional amendment of 1928 show that the larger cities and rural districts, with a better appreciation of the value of the state highway system and with the purpose of completing the same as speedily as possible, "got together" and agreed "to turn the state highway commission loose"...So viewing the provisions of said constitutional amendment as a whole, we are led to the conclusion that its framers intended, by the general provision for the construction of "bridges across the rivers and waters of the State" and by the specific provision for the completion of existing state highways, to invest the state highway commission with authority to provide bridges over navigable streams at all points where such streams intersect said highways, either by constructing new bridges or by purchasing existing bridges at such points.<sup>53</sup>

Based on these arguments, the Supreme Court ordered Thompson to register the bonds that would be used to purchase toll bridges across the Missouri River at Hermann, Jefferson City, and Independence. On November 3, 1932, the Missouri State Highway Commission signed a deed acquiring the Hermann Bridge from the National Toll Bridge

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<sup>52</sup>*State ex rel. State Highway Commission v. L.D. Thompson, State Auditor*, 10.

<sup>53</sup>*Ibid.*, 5. Emphasis in original.

Company, and two days later, the structure became a toll-free facility. The tollhouse that had been built two years earlier was torn down and its materials reused to erect a building for the Missouri State Highway Patrol.<sup>54</sup> The Hermann Bridge, now known officially as Bridge K-226A, has remained toll-free since Missouri purchased it in 1932, and it still carries Route 19 through Hermann. Hermann remains a vibrant town with a population of slightly more than 2,600. Tourism and light industry play key roles in supporting the local economy, and the community regularly hosts celebrations of its German heritage.<sup>55</sup>

Since it opened in 1930, the Hermann Bridge has undergone some minor alterations. The bridge deck was resurfaced in 1964 with a 1-1/4" coating of asphalt, and portions of Highway 19 north of the bridge were reconstructed following Missouri River floods in 1993 and 1995. Today, the Hermann Bridge is no longer sufficient to handle modern traffic. The bridge is only 20' wide and has no shoulders. This narrow width makes it extremely dangerous for modern trucks and other large vehicles to pass each other while crossing the structure. In addition, the bridge has lower speed limits than approaching highways and it is too small to accommodate future traffic levels. Finally, recent inspections have revealed significant cracks in portions of the bridge substructure and widespread deterioration of its steel superstructure.<sup>56</sup>

To address the structural problems of the Hermann Bridge and provide for future needs, the Missouri Department of Transportation will replace Bridge K-226A with a

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<sup>54</sup>"Hermann Bridge Soon to be Toll-Free," *Hermann Advertiser-Courier*, 7 October 1932, 1; "State Last Saturday Declared Hermann Bridge Toll-Free," *Hermann Advertiser-Courier*, 11 November 1932, 1; and "Wrecking Toll House," *Hermann Advertiser-Courier*, 18 November 1932, 1; and Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission, Held in Jefferson City, Missouri, October 11, 1932," as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri, 15-17. Civic leaders held a small celebration in Hermann featuring music, dancing, and speeches when the bridge became a toll-free facility. See "Toll-Free Bridge Dedication Well Attended," *Hermann Advertiser-Courier*, 18 November 1932, 1.

<sup>55</sup>Schrader, *Hermann Sesquicentennial*, *passim*; William Flannery, "Small Businesses Give Hermann Big Lift," *St. Louis Post-Dispatch*, 9 January 1995, Business Plus Section, 12; and Missouri Census Data Center, "MCDC Demographic Profile 3, 2000 Census, Hermann City, MO," downloaded May 2005 from [http://mcdc2.missouri.edu/cgi-bin/broker?PROGRAM=websas.dp3\\_2k.sas&SERVICE=sasapp&st=29&pl=31762](http://mcdc2.missouri.edu/cgi-bin/broker?PROGRAM=websas.dp3_2k.sas&SERVICE=sasapp&st=29&pl=31762).

<sup>56</sup>Missouri State Highway Department, "Plan and Profile: Resurfacing Bridge Over Missouri River, State Road at Hermann," 1964, microfiche copy available from Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri.; and Missouri Department of Transportation, "Appraisal of Condition and Report on Feasibility of Rehabilitation of the Hermann Bridge," 1998, xerox copy provided by Bridge Division, Missouri Department of Transportation General Headquarters, Jefferson City, Missouri.

new structure. The new bridge will feature wider driving lanes, sufficient shoulders to handle increases in traffic load, and dedicated lanes to accommodate pedestrians and bikers. In addition, the new Hermann Bridge will incorporate aesthetic enhancements that complement Hermann's nineteenth century architectural features. Once the new bridge has opened to traffic, Bridge K-226A will be removed and another of Missouri's historic river crossings will disappear from the landscape. The Hermann Bridge may no longer accommodate modern traffic needs, but it remains a visible symbol of the triumph of the will in Hermann's effort to bridge the Missouri River.

### III. Construction Contractors

#### A. Sverdrup and Parcel

The engineering firm of Sverdrup and Parcel dramatically influenced the built environment of twentieth century Missouri by designing numerous structures and buildings for government and private customers. Leif Sverdrup was born in Norway in 1898 and immigrated to the United States in 1915. He studied engineering at Augsburg College and the University of Minnesota, and in 1922 he accepted a position as a designer with the Missouri State Highway Department. Sverdrup later became head of the department's Bureau of Bridges, overseeing and approving all state-sponsored bridge projects in Missouri. Sverdrup left public service in 1928 to form Sverdrup and Parcel with his college mentor, John Parcel. Company headquarters were established in St. Louis, and the founders set out to find work for the new firm. The first bridge designed by the fledgling company was the Hermann Bridge, and the commission received for designing this structure helped keep Sverdrup and Parcel alive during the lean years of the Great Depression. Sverdrup and Parcel eventually designed several bridges for the highway department, including the Poplar Street Bridge and the Blanchette Bridge across the Mississippi River in St. Louis and the Gasconade River Bridge located just a few miles west of Hermann.<sup>57</sup>

During the Second World War, Leif Sverdrup served in the U.S. Army Corps of Engineers, building airstrips and military installations throughout the Pacific theater. After World War II ended, Sverdrup and Parcel expanded to become a comprehensive design firm providing engineering, architectural, and planning services for all types of construction projects. Sverdrup's military connections helped secure numerous projects for his consulting firm, including the trans-Arabian pipeline and the U.S. Air Force's Arnold Engineering Development Center. Sverdrup and Parcel also designed many of St. Louis' signature sites, including Busch Memorial Stadium and the Mississippi River

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<sup>57</sup>Austin, "Gasconade Bridge," 9; and Franzwa, *Legacy*, 3-14.

Flood Wall. Leif Sverdrup passed away in January 1976, but his firm continued to provide comprehensive design and engineering services. Sverdrup and Parcel merged in 1999 with Jacobs Engineering of Pasadena, California, becoming part of Jacobs' technology division.<sup>58</sup>

#### B. The Foundation Company of Chicago

Little is known about the corporate history of the Foundation Company of Chicago. The forerunner of the Foundation Company of Chicago was created in New York in 1902. This company was originally called the Foundation and Contracting Company, but it soon shortened its name to the Foundation Company to reflect its specialty, the design and construction of foundations for structures and buildings. Some of the Foundation Company's earliest projects included building foundations for skyscrapers in the Manhattan area including the Woolworth Building and the Empire State Building. The Foundation Company quickly gained national recognition as an industry leader in foundation work, and its early twentieth century projects included a variety of bridges, mineshafts, tunnels, and dams.<sup>59</sup>

By the 1920s the Foundation Company had expanded beyond its New York origins to include branches throughout the Midwest, including an office in Chicago. During the 1920s and 1930s the Foundation Company worked on numerous major projects throughout North America. In addition to building the piers for the Hermann Bridge, the Foundation Company sank the piers for the Grace Memorial Bridge across the Cooper River in Charlotte, North Carolina, and the piers for the Mainstreet Bridge in Jacksonville, Florida. The Foundation Company used a wide variety of construction techniques to build structural foundations, including cofferdams, pile driving, and pneumatic caissons.<sup>60</sup>

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<sup>58</sup>Austin, "Gasconade Bridge," 10; Franzwa, *Legacy, passim*; City of St. Louis, Missouri, "Mound City of the Mississippi, a St. Louis History: Sverdrup, Leif," downloaded April 2005 from [http://stlc.in.missouri.org/history/people/detail.cfm?Master\\_ID=1737](http://stlc.in.missouri.org/history/people/detail.cfm?Master_ID=1737); Liese Hutchison and Carol Schwab, "The Top 20 of the Twentieth Century: Leif Sverdrup," *St. Louis Commerce*, December 1999, downloaded April 2005 from <http://www.stlcommercemagazine.com/archives/december1999/top.html>.

<sup>59</sup>Haven Hawley, "Three Sisters Bridges," HAER No. PA-490, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1998, 30; Justin Spivey, "St. Charles Air Line Bridge," HAER No. IL-157, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 2001, 21; and P.A.C. Spero and Company, "Coraopolis Bridge," HAER No. PA-217, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1990, 12.

<sup>60</sup>Hawley, "Three Sisters Bridges," 30; Florida Department of Transportation, "Structures Design Office - Historic Mainstreet Bridge," downloaded May 2005 from

One of the largest jobs undertaken by the Foundation Company was the construction of bridges along the Canadian Pacific Railway. This transcontinental rail line was built across Canada in the early twentieth century, and the Foundation Company was involved with the construction of most of the bridges in this massive project. To provide efficient service for its customers the Foundation Company opened a branch office in Canada. The Foundation Company of Canada quickly became wealthy and bought out the New York and Chicago offices to assume control of the entire corporation. Today, the direct descendent of the Foundation Company is Aecon Buildings, Inc., the U.S. branch of the Aecon Corporation. Aecon Corporation is Canada's largest publicly held construction company, and its U.S. branch focuses on the design and construction of entertainment, office, industrial, and mixed-use projects.<sup>61</sup>

### C. Kansas City Structural Steel Company

The steel superstructure of the Hermann Bridge was fabricated and erected by the Kansas City Structural Steel Company, a company that played a role in the construction of many buildings and structures throughout Missouri. The company was founded in 1907 by Howard Fitch and Olaf Smith. Howard Fitch was born in Warrensburg, Missouri, in 1868. He studied engineering at the Missouri State Normal School in Warrensburg and began his career as a surveyor with the Kansas City Railway Company. Fitch later worked for the Minneapolis Steel and Machinery Company where he oversaw reconstruction of Kansas City's Convention Hall following a disastrous fire in 1900.<sup>62</sup> Olaf Smith was a native of Green Bay, Wisconsin, and he was educated at the University of Minnesota. He went to work for the Minneapolis Steel and Machinery Company as a shop superintendent in 1904, where he met Howard Fitch. The two men joined together in 1907 to incorporate their own steel company that they named Kansas City Structural

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<http://www.dot.state.fl.us/structures/botm/mainstreet/mainstreet.htm>; and South Carolina Department of Transportation, "Cooper River Bridge Replacement - History," downloaded May 2005 from <http://www.cooperriverbridge.org/history.html>.

<sup>61</sup>P.A.C. Spero and Company, "Coraopolis Bridge, 12; Aecon Buildings Inc., "Company History," downloaded May 2005 from <http://www.usa.aecon.com/CompanyHistory.htm>; and Aecon Corporation, "Corporate Profile," downloaded May 2005 from <http://www.aecon.com>.

<sup>62</sup>In 1899 a new convention center financed by private funds opened in downtown Kansas City. This building was slated to host the Democratic National Convention in July 1900, but on April 4, 1900, the facility burned to the ground. Local leaders quickly raised funds to rebuild the center, and the replacement facility was built in less than ninety days. The new convention center opened in time to host the Democratic Convention, but the party's presidential nominee, William Jennings Bryan, was soundly defeated in the November general election. See Kansas City Public Library, "Convention Hall," downloaded May 2005 from <http://www.kclibrary.org/localhistory/media.cfm?mediaID=35651>; and Rick Montgomery, "Kansas City in the Twentieth Century: Disaster Strikes, But the Spirit Comes Through," *Kansas City Star*, 4 January 1998, A1.

Steel.<sup>63</sup> Fitch was president of the new company with Smith as vice-president, and the two men initially planned to focus primarily on steel fabrication:

The purpose for which the corporation is formed is as follows, to wit: To manufacture all classes and kinds of foundry architectural and structural steel and iron manufacturing business; to sell the products manufactured or acquired by it; to build, construct, acquire, buy, sell, own or encumber such property, (real and personal), plants and machinery necessary, usual, or incidental to the carrying on and conducting its business.<sup>64</sup>

When Fitch and Smith sought out a location for a foundry, they made a fortuitous decision to locate in the Argentine district of Kansas City, Kansas. The two men spent approximately \$50,000 to purchase an abandoned lead and silver smelter formerly operated by the Consolidated Kansas City Refining Company. This site was located near the Kaw River and the main line of the Atchison, Topeka, and Santa Fe Railroad, making it an ideal industrial site with abundant transportation access. During its early months of operation employees made repairs and improvements to the smelter and salvaged lead, silver, and gold from abandoned deposits. Through this salvage process, the Kansas City Structural Steel Company made enough money to fully pay for the purchase of the smelter site.<sup>65</sup>

During its first years of operation, the Kansas City Structural Steel Company provided the steel for several buildings in the Kansas City area, including the Y.M.C.A. building and an addition to the Jones Store Building. The company gained a national reputation as an efficient fabricator of steel for mines, factories, bridges, and highways. The company also created a division to erect the steel fabricated in the Argentine foundry. During the First World War, Kansas City Structural Steel received numerous military contracts. By 1919, Kansas City Structural Steel was the largest steel fabricator west of the Mississippi River. The company fabricated the steel for several Missouri

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<sup>63</sup>David Austin and Steven Mitchell, "Van Buren Bridge," HAER No. MO-90, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1995, 11; and Edwin Shutt, II, "Silver City: A History of the Argentine Community of Kansas City, Kansas" (M.A. Thesis, Emporia Kansas State College, 1976), 63-66, 76-77.

<sup>64</sup>Kansas City Structural Steel Company, "Articles of Incorporation," 1907, copy on file at Missouri Corporations Office, Missouri Secretary of State, Jefferson City, Missouri. Five days before it dissolved in May 1982, the Kansas City Structural Steel Company changed its legal name to KCSS Company of Missouri. See Kansas City Structural Steel Company, "Amendment of Articles of Incorporation," 1982, copy on file at Missouri Corporations Office, Missouri Secretary of State, Jefferson City, Missouri.

<sup>65</sup>Austin and Mitchell, "Van Buren Bridge," 11-12; and Shutt, "Silver City," 66-68.

bridges besides the Hermann Bridge, including a highway bridge across the Current River near Van Buren. The company invested \$300,000 in 1929 to expand its foundry in Kansas City, Kansas, and one of the company's major projects, the erection of a bridge across the Colorado River at the Grand Canyon in Arizona, was completed one year later.<sup>66</sup>

The Great Depression dramatically curtailed national demand for structural steel, and the Kansas City Structural Steel Company was forced to lay-off many of its employees. The company fell into receivership in 1934, but it found some light in the darkness by providing the steel for a number of buildings in Kansas City including the Municipal Auditorium and a new City Hall. The Second World War revived the fortunes of the Kansas City Structural Steel Company. The company built over 400 amphibious landing vessels for the U.S. Navy, and Rear Admiral E.L. Cochran described these ships as a vital contribution to the war effort:

It will be a matter of personal pride to each of you to know that LCT's [Landing Crafts Tanks] of your construction were part of the spearhead in the successful invasion of Sicily. The fact that the landing operations on a scale unparalleled in history, were effected with the utmost precision and a minimum of casualties was in no small measure due to the efficient performance of the land craft such as you are providing for our amphibious forces. Many more of your LCT's will be needed for the bigger job ahead when our fighting boys establish the beachheads which will ultimately lead to Berlin and Tokyo. They are counting on your best efforts to supply these vital crafts on time.<sup>67</sup>

By the 1950s Kansas City Structural Steel had resumed its status as one of the nation's pre-eminent steel fabricators.<sup>68</sup> The company worked on numerous major projects in the latter half of the twentieth century, including the Kansas Turnpike and the R. Crosby Kemper Memorial Area in Kansas City. Following many years of successful operation,

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<sup>66</sup>Austin and Mitchell, "Van Buren Bridge," 12-13; Shutt, "Silver City," 68-73; and Commemorative Air Force, Heart of America Wing, "Kansas City War Contribution," downloaded May 2005 from [http://www.kcghostsquadron.org/kcwar\\_ovw.asp?menuID=40~40](http://www.kcghostsquadron.org/kcwar_ovw.asp?menuID=40~40).

<sup>67</sup>Quoted in Shutt, "Silver City," 78.

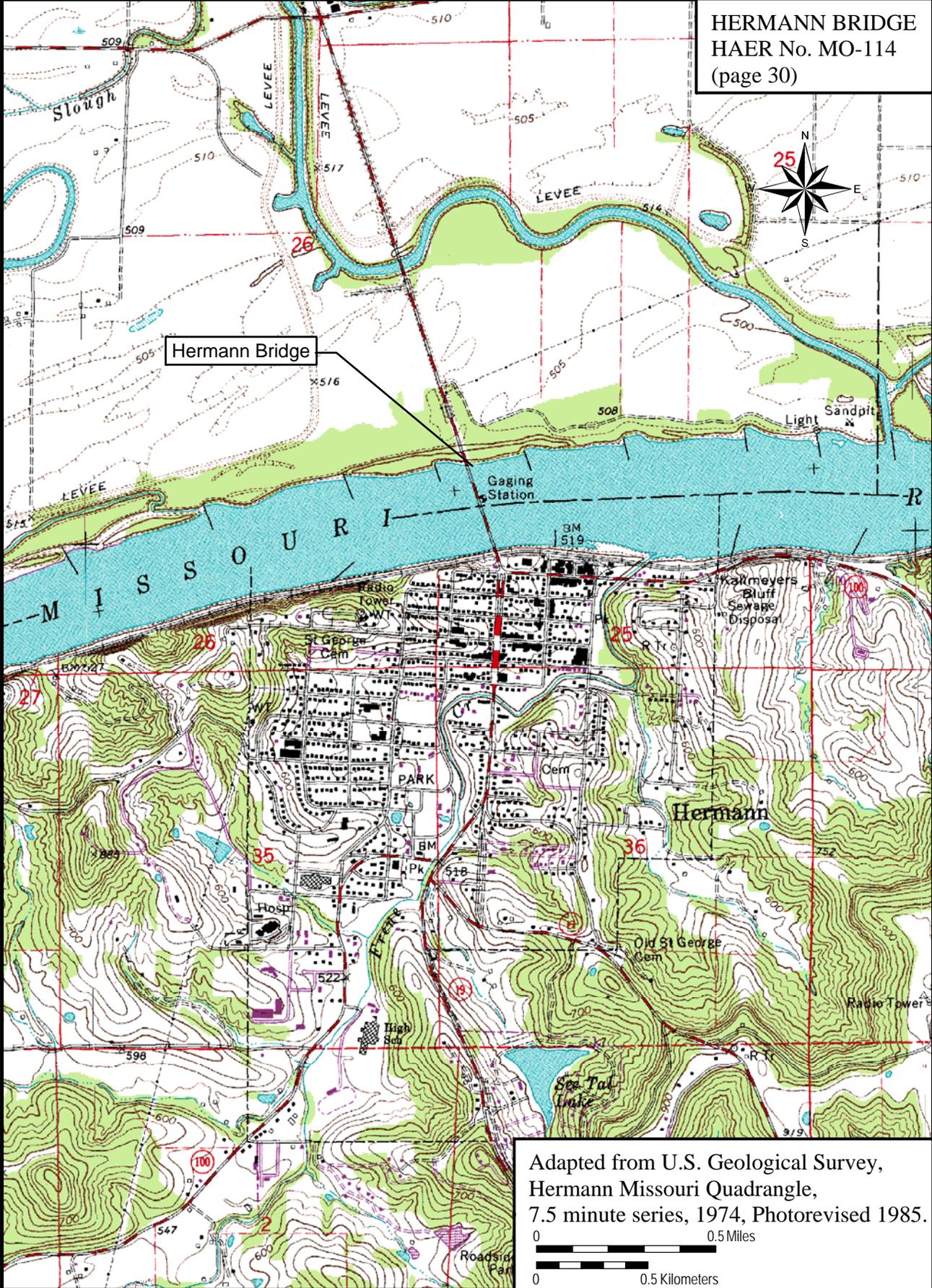
<sup>68</sup>For a list of major buildings erected in Kansas City by the Kansas City Structural Steel Company between 1909 and 1938, see Shutt, "Silver City," 202-203.

the Kansas City Structural Steel Company dissolved in May 1982, liquidating its assets and shutting down its foundry.<sup>69</sup>

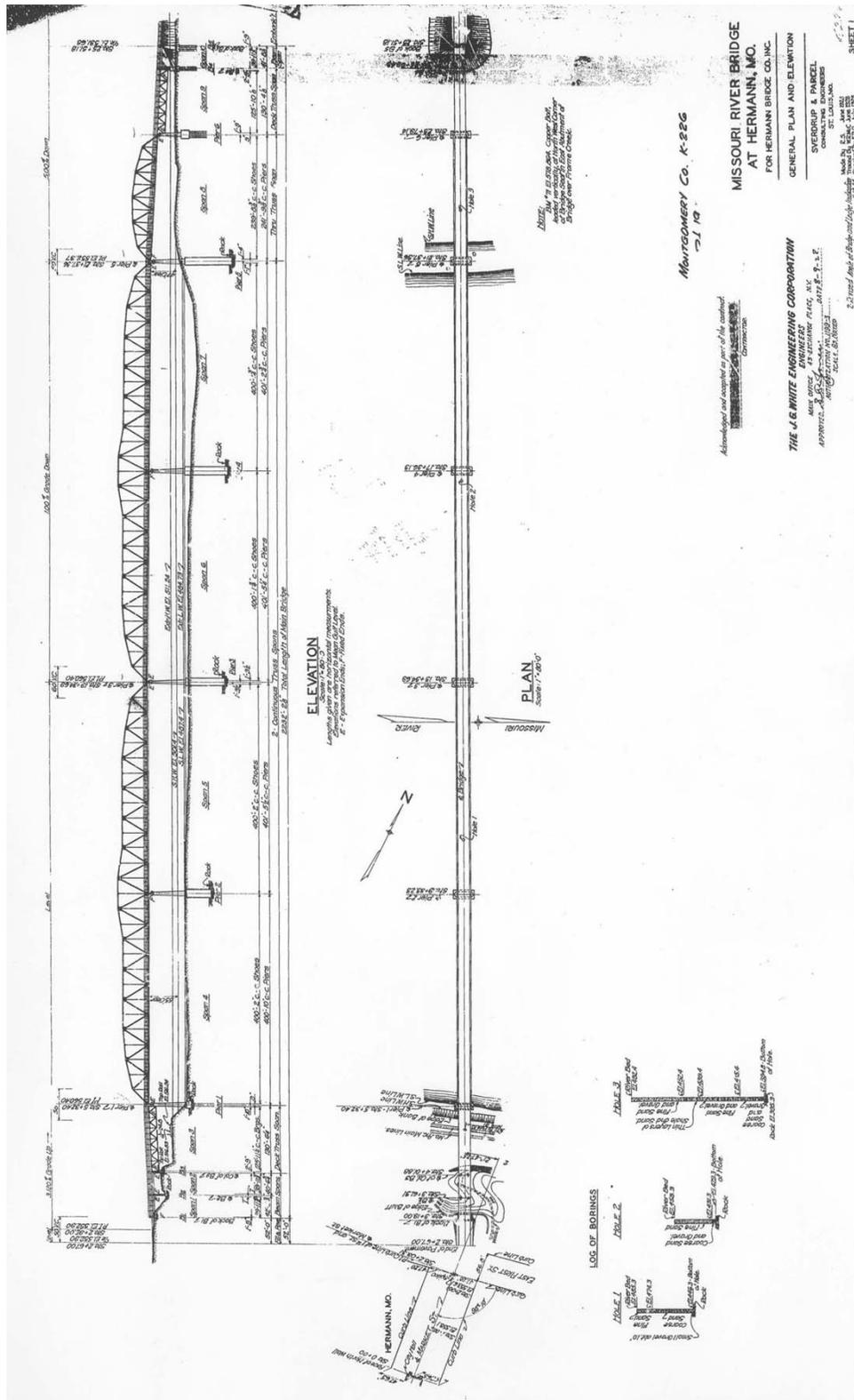
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<sup>69</sup>Austin and Mitchell, "Van Buren Bridge," 13-14; and KCSS Company of Missouri, "Articles of Dissolution by Voluntary Action," 1982, copy on file at Missouri Corporations Office, Missouri Secretary of State, Jefferson City, Missouri.

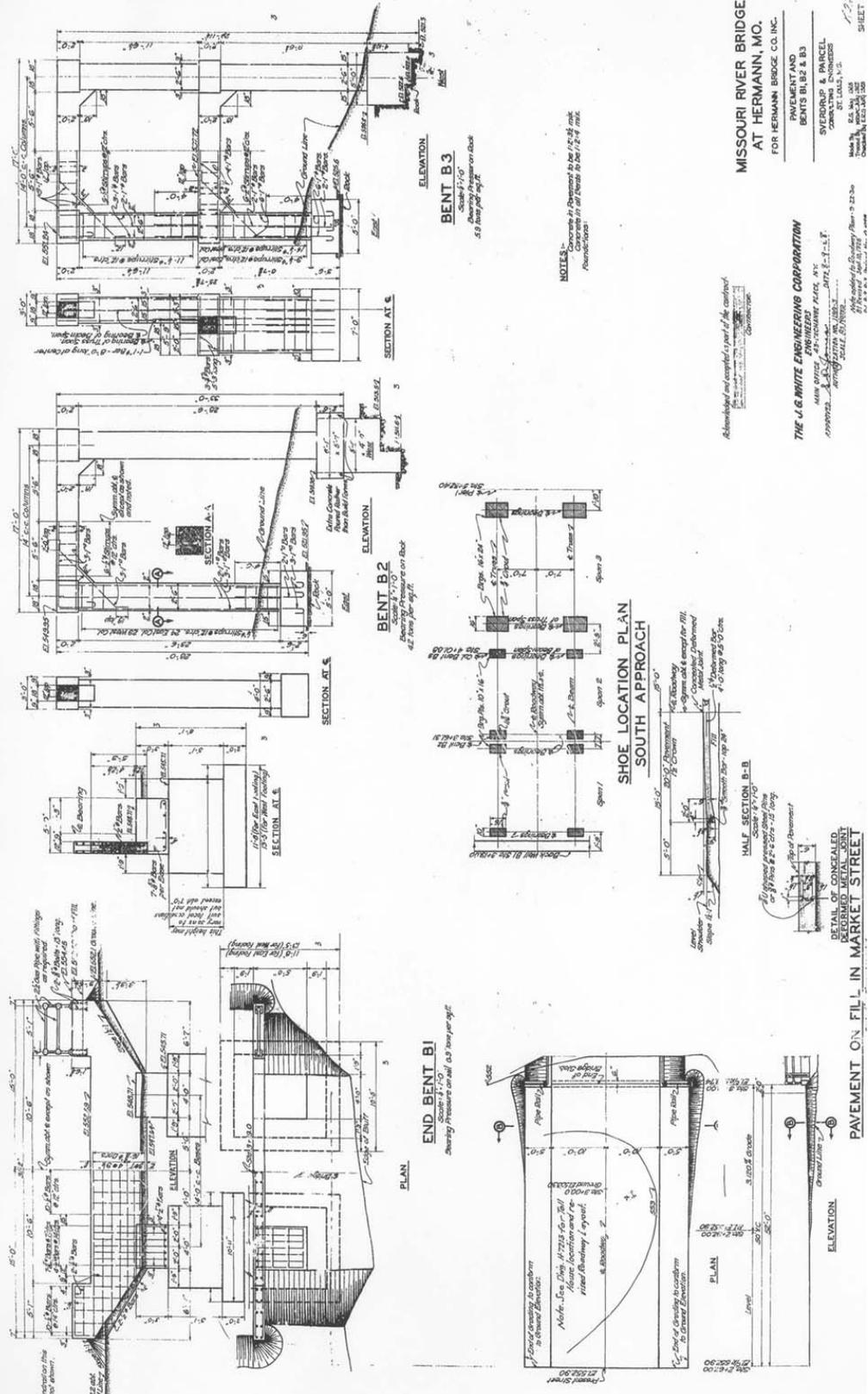
HERMANN BRIDGE  
HAER No. MO-114  
(page 30)

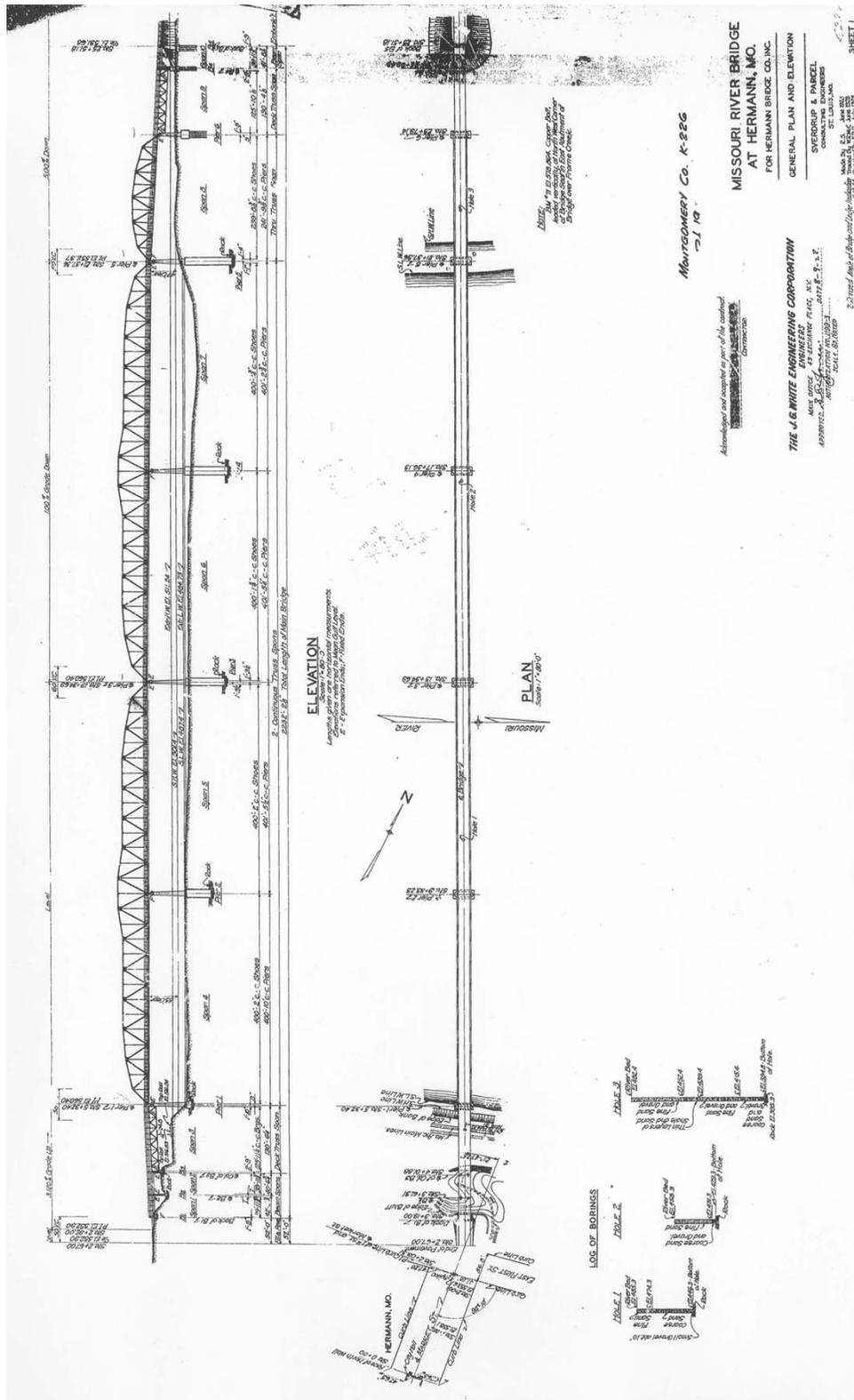


Adapted from U.S. Geological Survey,  
Hermann Missouri Quadrangle,  
7.5 minute series, 1974, Photorevised 1985.  
0 0.5 Miles  
0 0.5 Kilometers

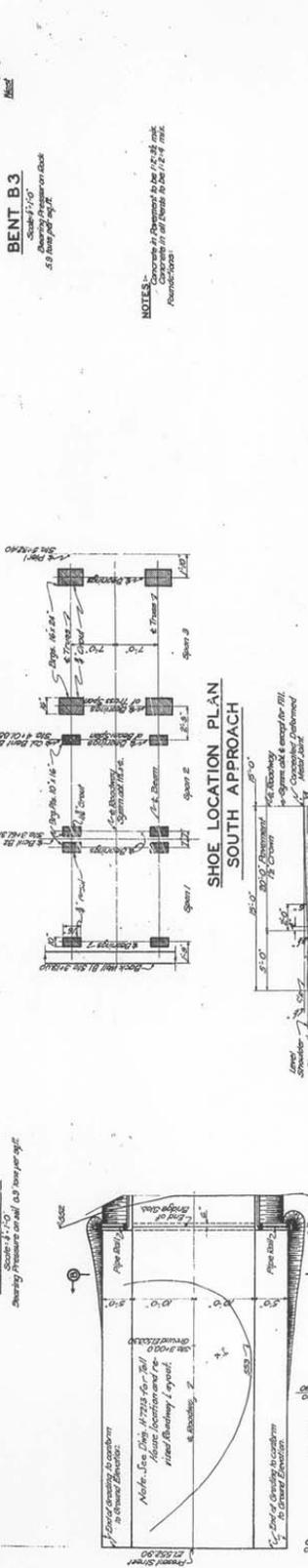
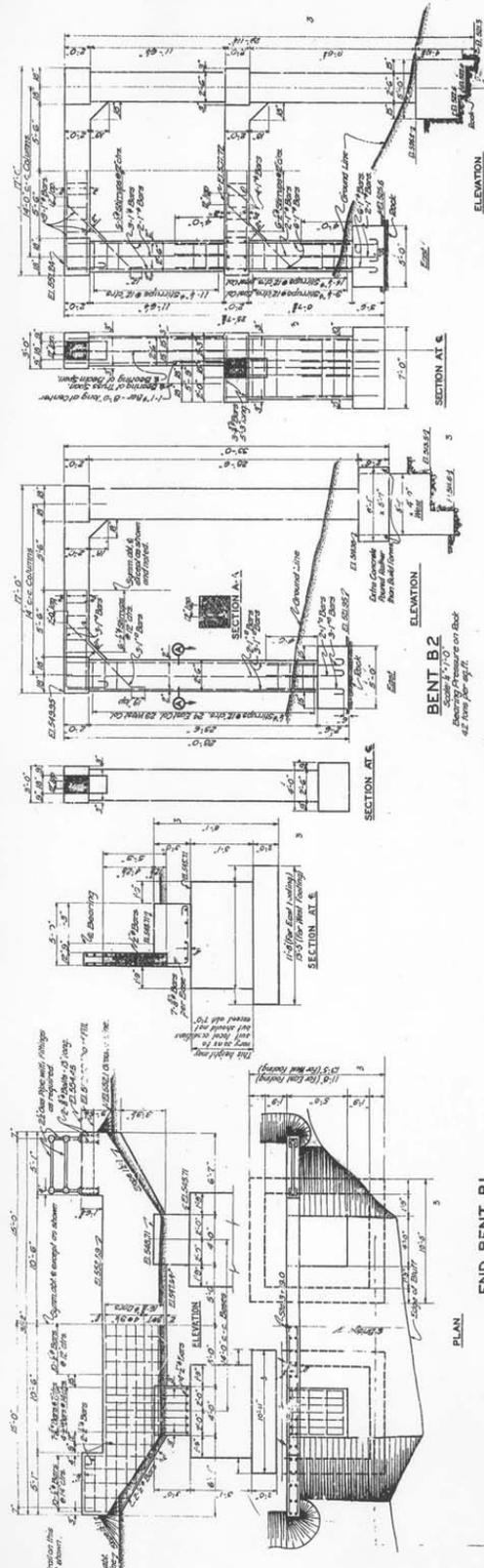


HERMANN BRIDGE  
 HAER No. MO-114  
 (page 32)





HERMANN BRIDGE  
 HAER No. MO-114  
 (page 34)



**NOTES**  
 Concrete in Pavement to be 1/2" max. reinforcement on face  
 5.0 times per sq. ft.

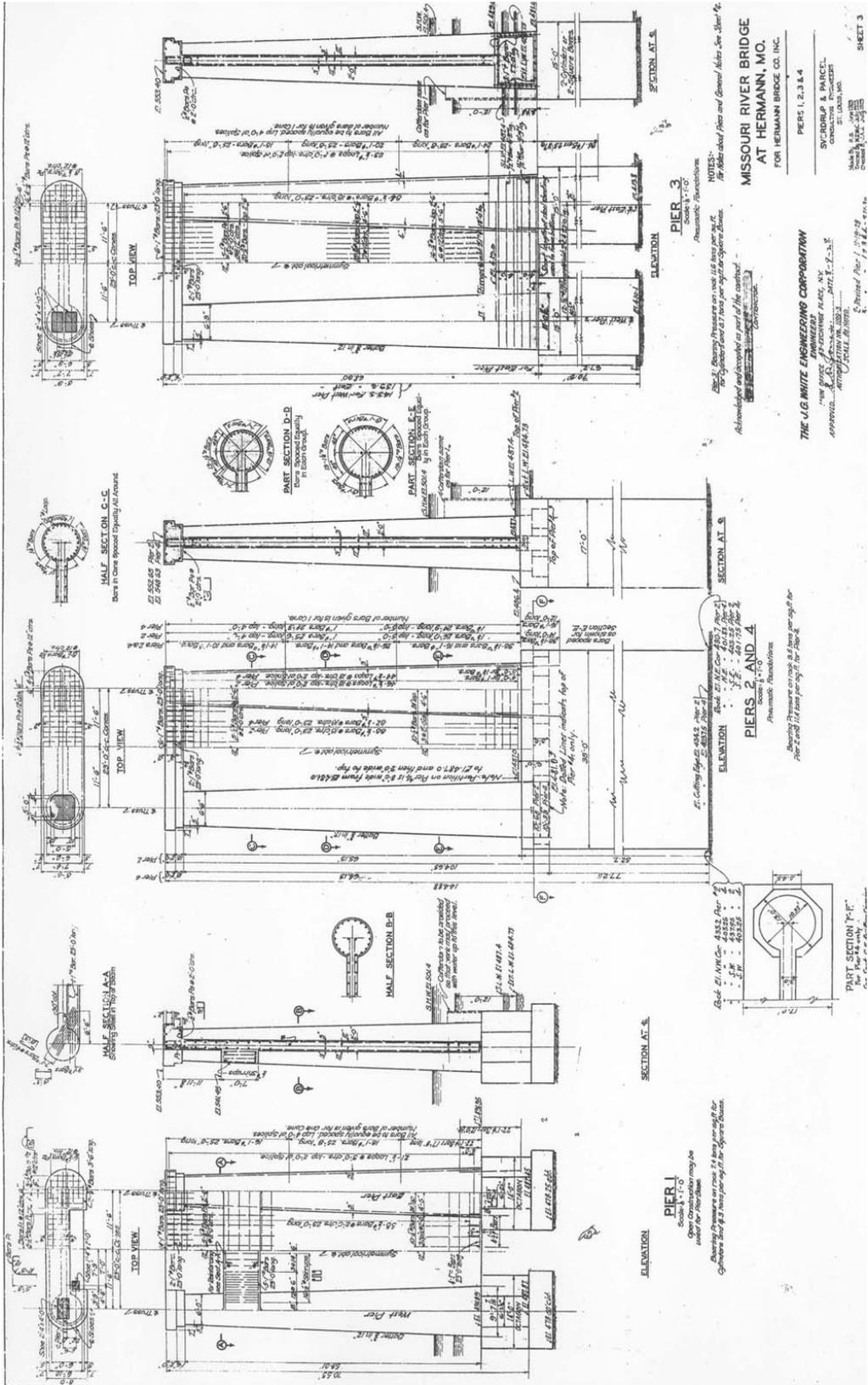
**MISSOURI RIVER BRIDGE  
 AT HERMANN, MO.**  
 FOR HERMANN BRIDGE CO. INC.

**THE J.G. WHITE ENGINEERING CORPORATION**  
 CIVIL ENGINEERS  
 209 SOUTH 4TH STREET, ST. LOUIS, MO.  
 1922

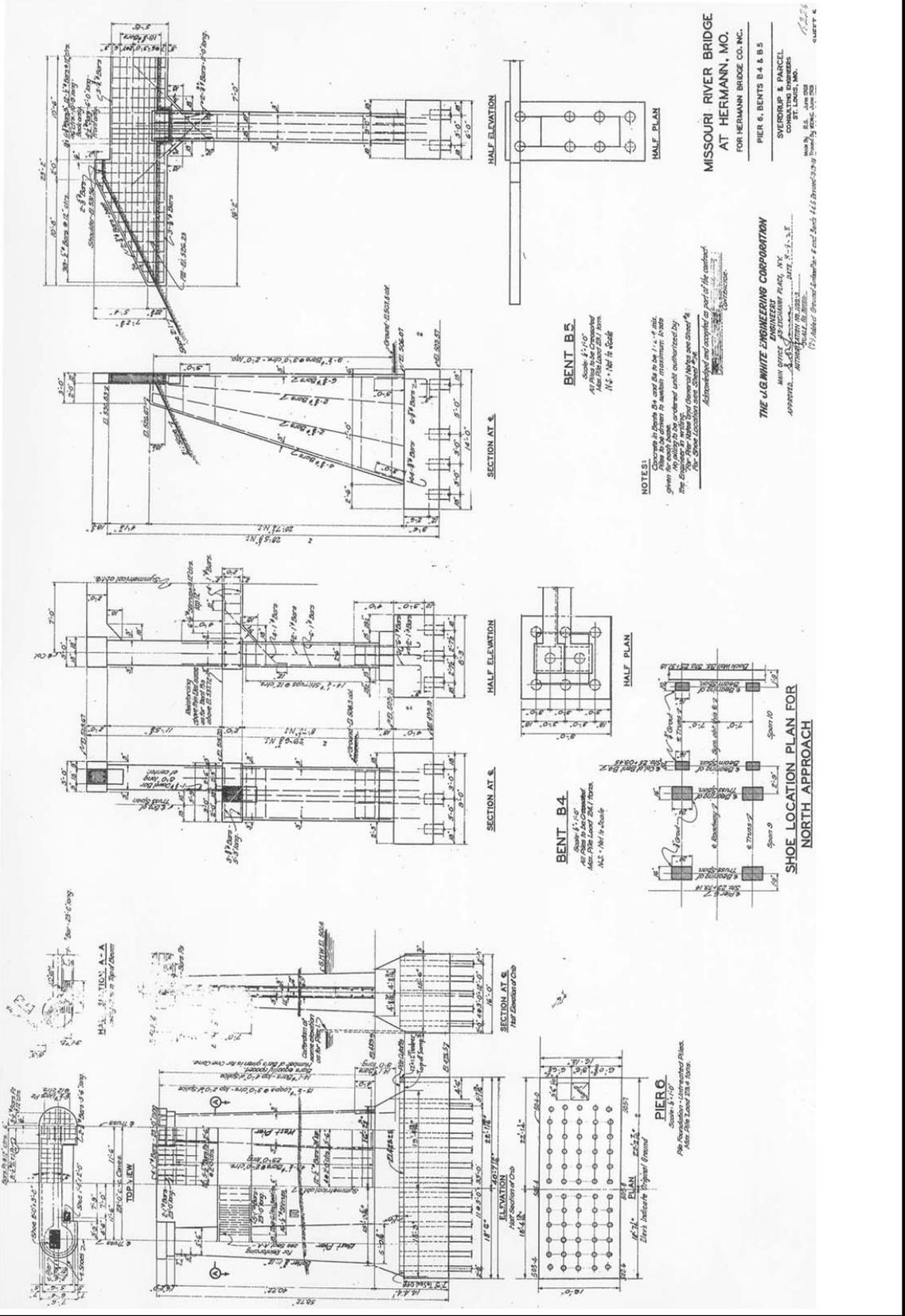
**PAVEMENT AND  
 BENTS B1, B2 & B3**  
 SYNERGIC & PARCEL  
 CONSULTING ENGINEERS  
 1001 N. 10TH ST., ST. LOUIS, MO.  
 63104

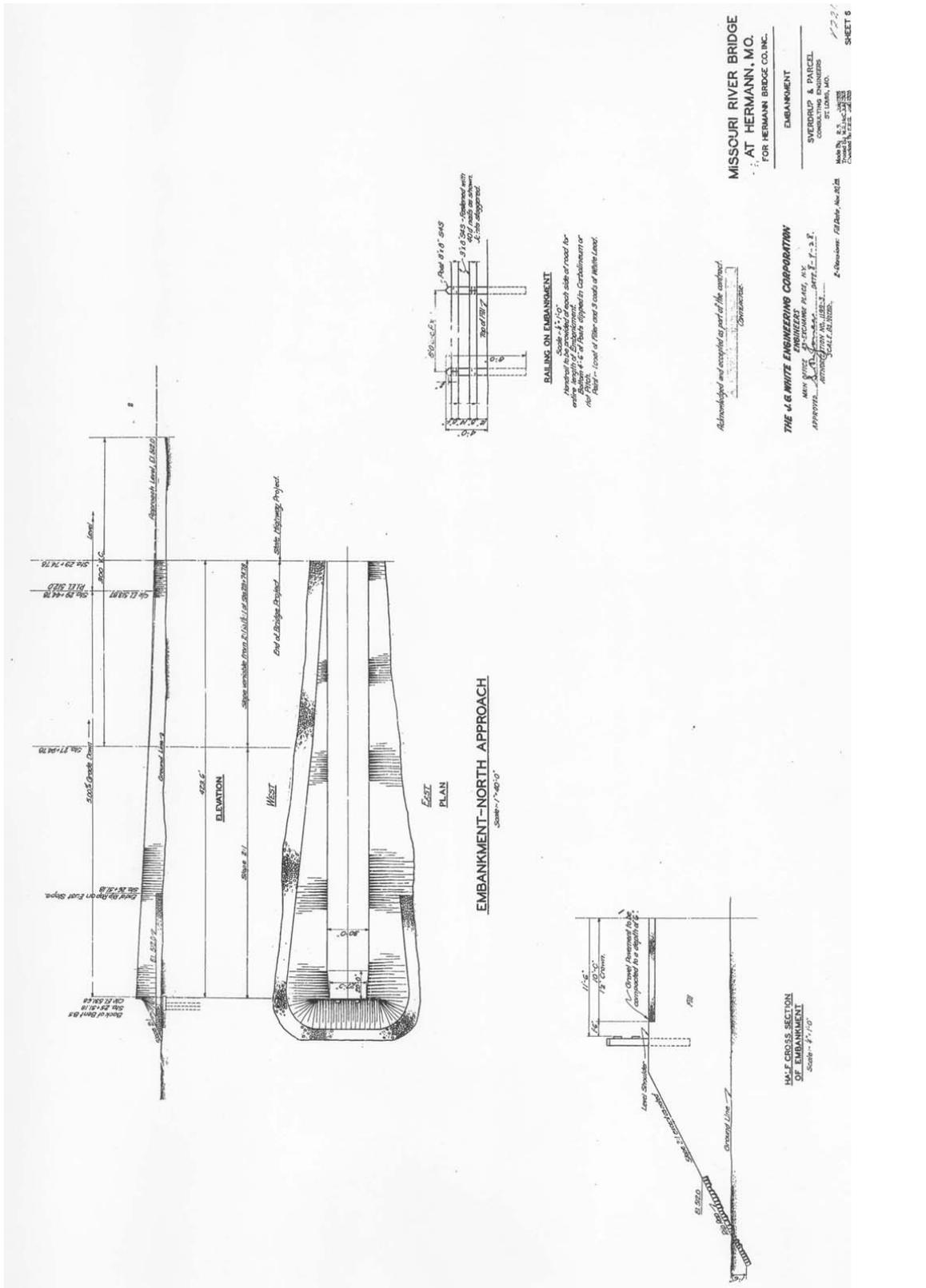
MADE IN U.S.A.  
 SHEET 2

PAVEMENT ON FILL IN MARKET STREET









MISSOURI RIVER BRIDGE  
 AT HERMANN, MO.  
 FOR HERMANN BRIDGE CO. INC.

EMBRANKMENT  
 SYDORUS & PARCEL  
 CONTRACTING ENGINEERS  
 ST. LOUIS, MO.  
 MADE IN U.S.A.  
 DRAWN BY T.E. 10/23/28  
 CHECKED BY T.E. 10/23/28

THE J & WHITE ENGINEERING CORPORATION  
 NEW YORK  
 NEW YORK OFFICE: 210 NASSAU ST., N.Y.  
 APPROVED: J. WHITE, CHIEF ENGINEER  
 ATTORNEYS: J. & W. WHITE, 210 NASSAU ST., N.Y.  
 2-10-28

Admitted and accepted as part of the contract.  
 CONTRACTOR

Scale - 1/4" = 1'-0"

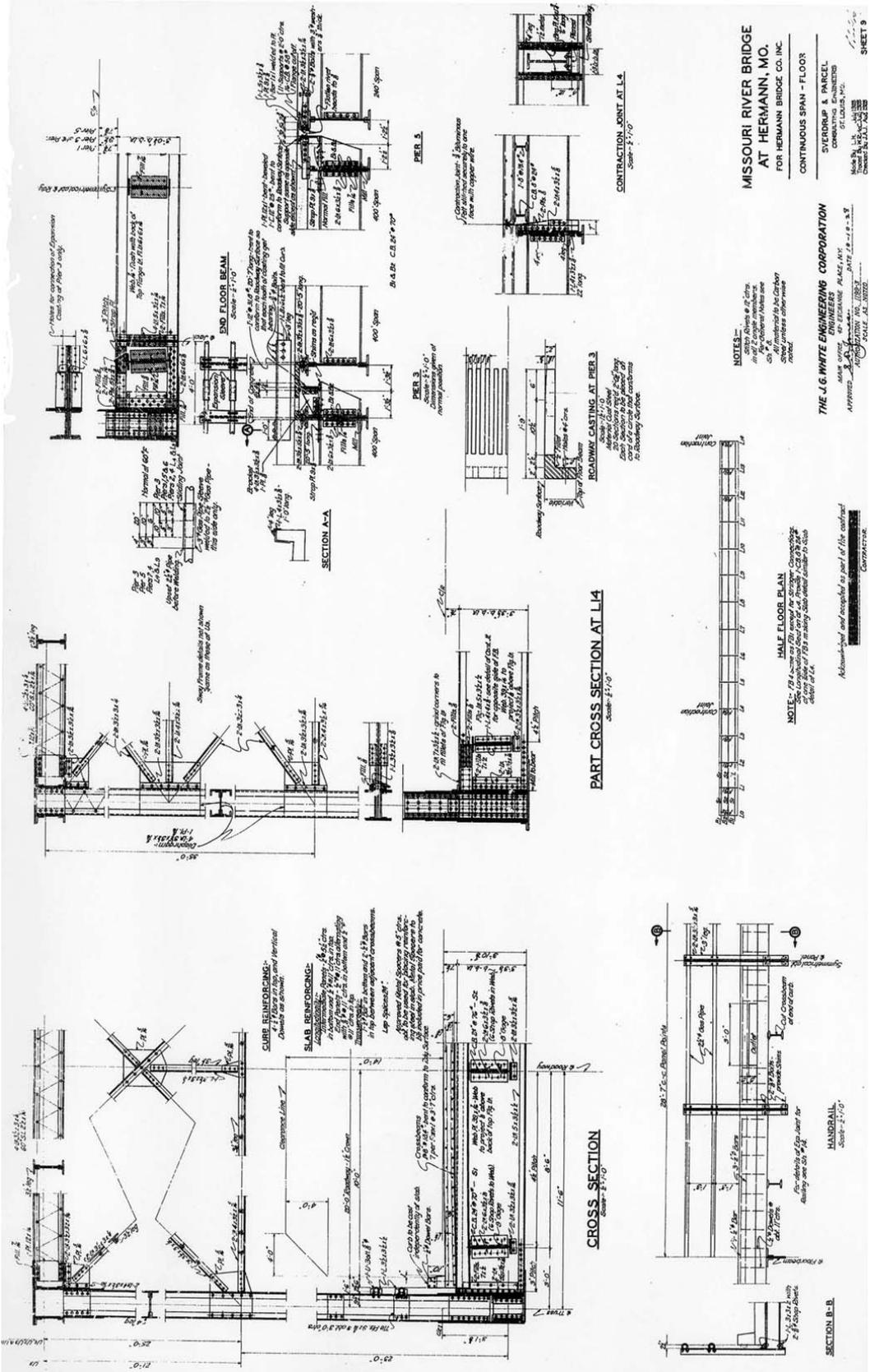
HAIR CROSS SECTION  
 OF EMBANKMENT  
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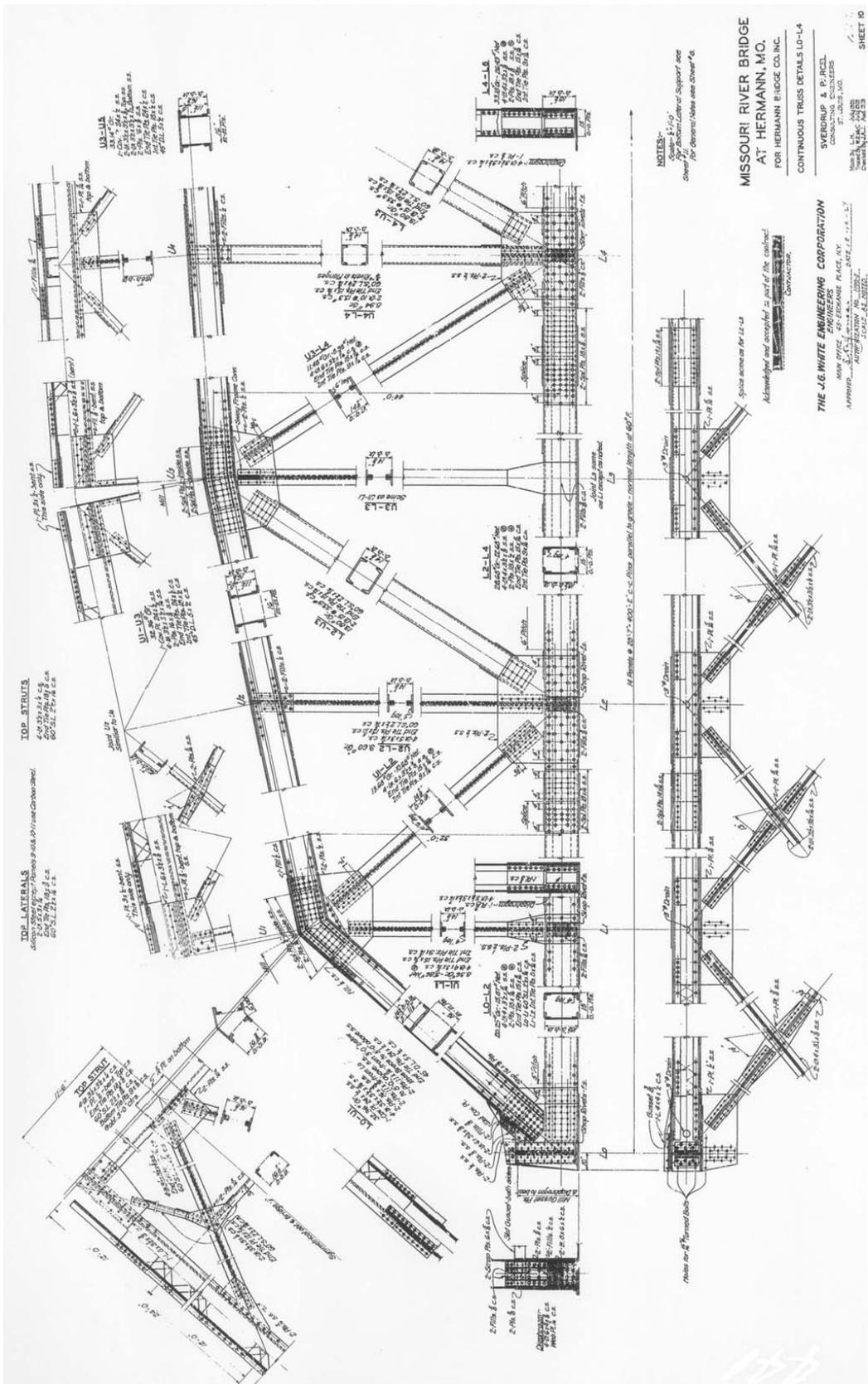
RAILWAY ON EMBANKMENT  
 Scale - 1/4" = 1'-0"

SHEET 6









**TOP LATERALS**  
 2x12 @ 24" C.C.  
 2x12 @ 24" C.C.  
 60" x 12" @ 24" C.C.

**TOP STRUITS**  
 2x12 @ 24" C.C.  
 2x12 @ 24" C.C.  
 60" x 12" @ 24" C.C.

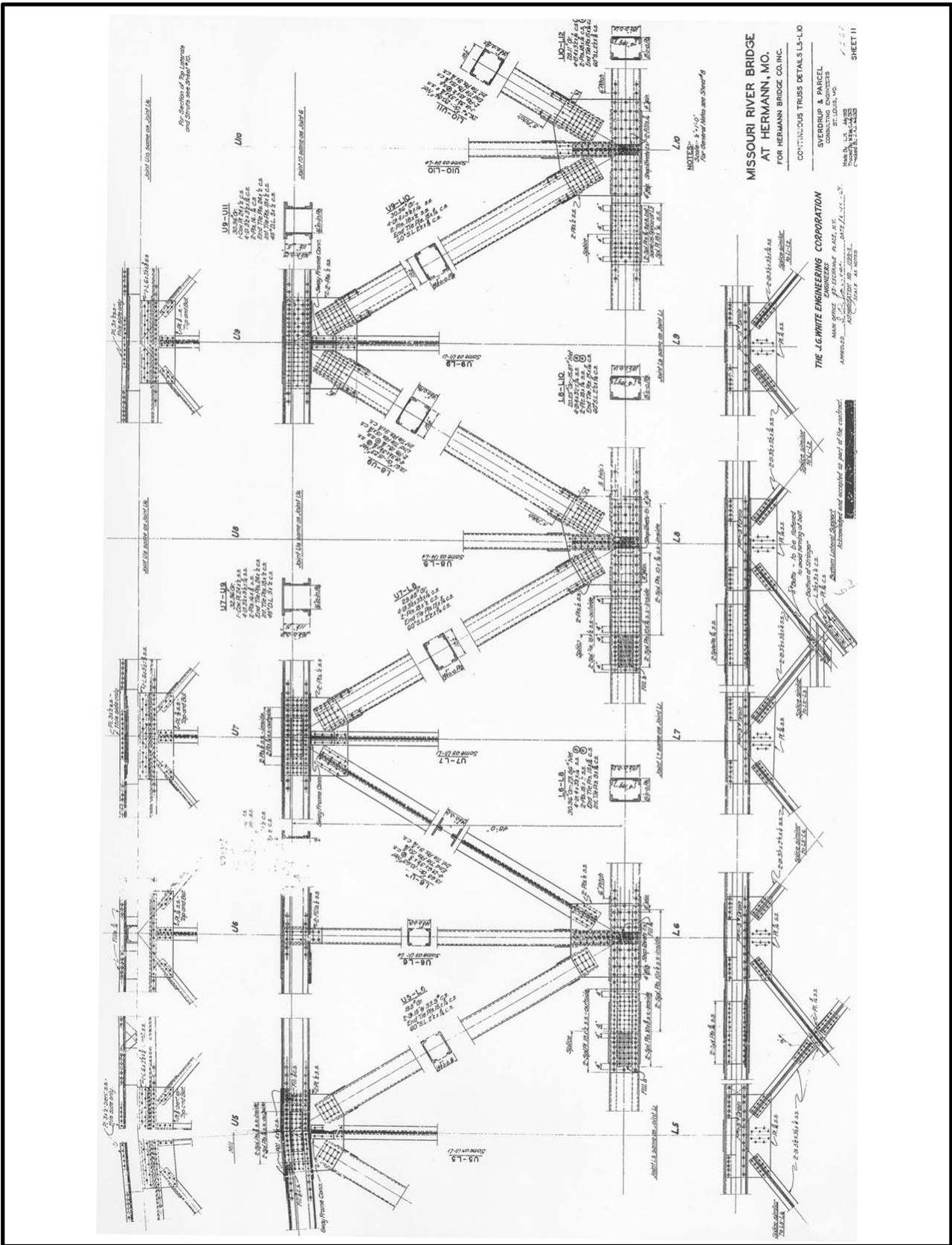
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 1. L.L.1  
 2. For Structural Support see  
 3. For dimensions/Notes see sheet 46.

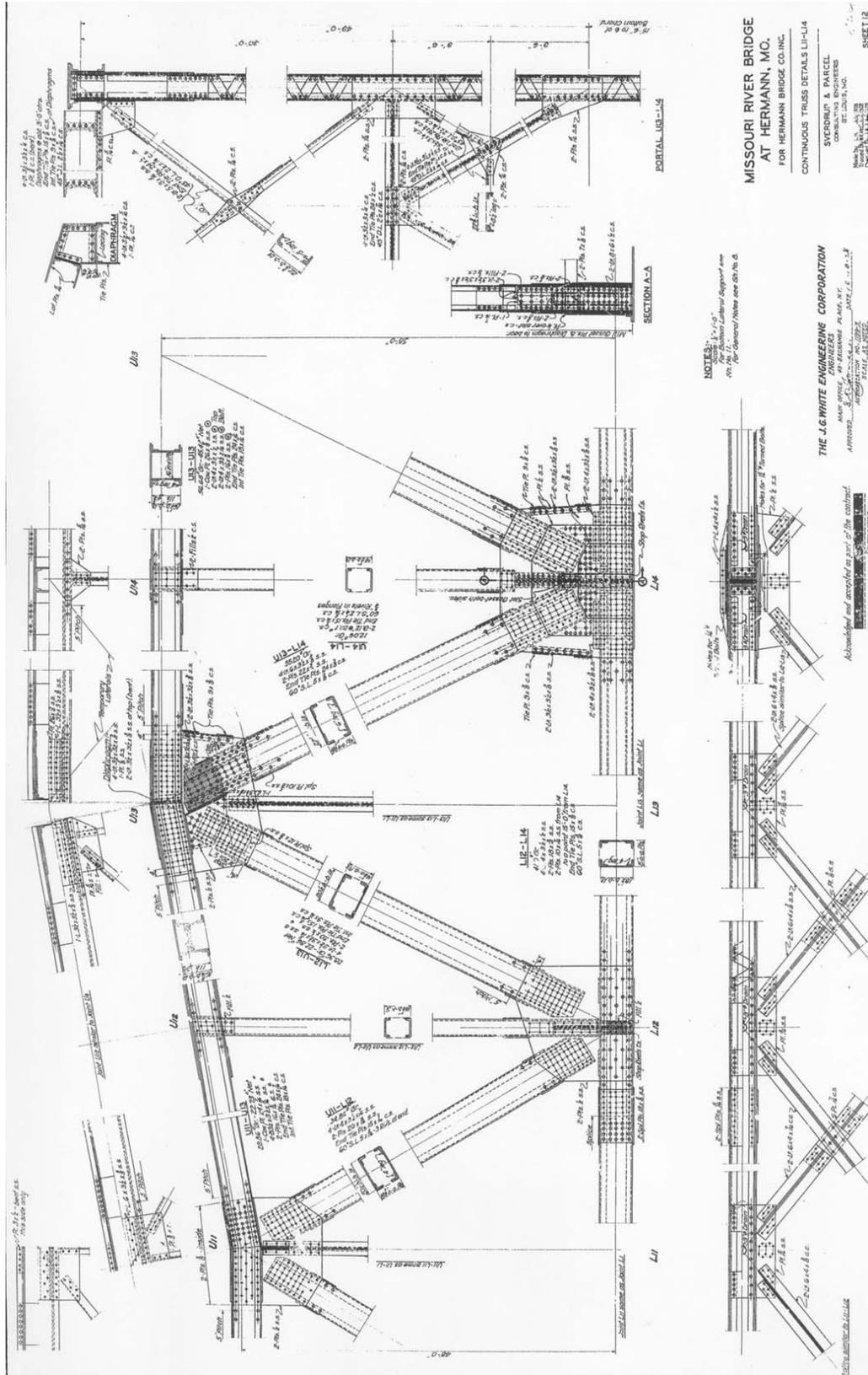
MISSOURI RIVER BRIDGE  
 AT HERMANN, MO.  
 FOR HERMANN BRIDGE CO. INC.

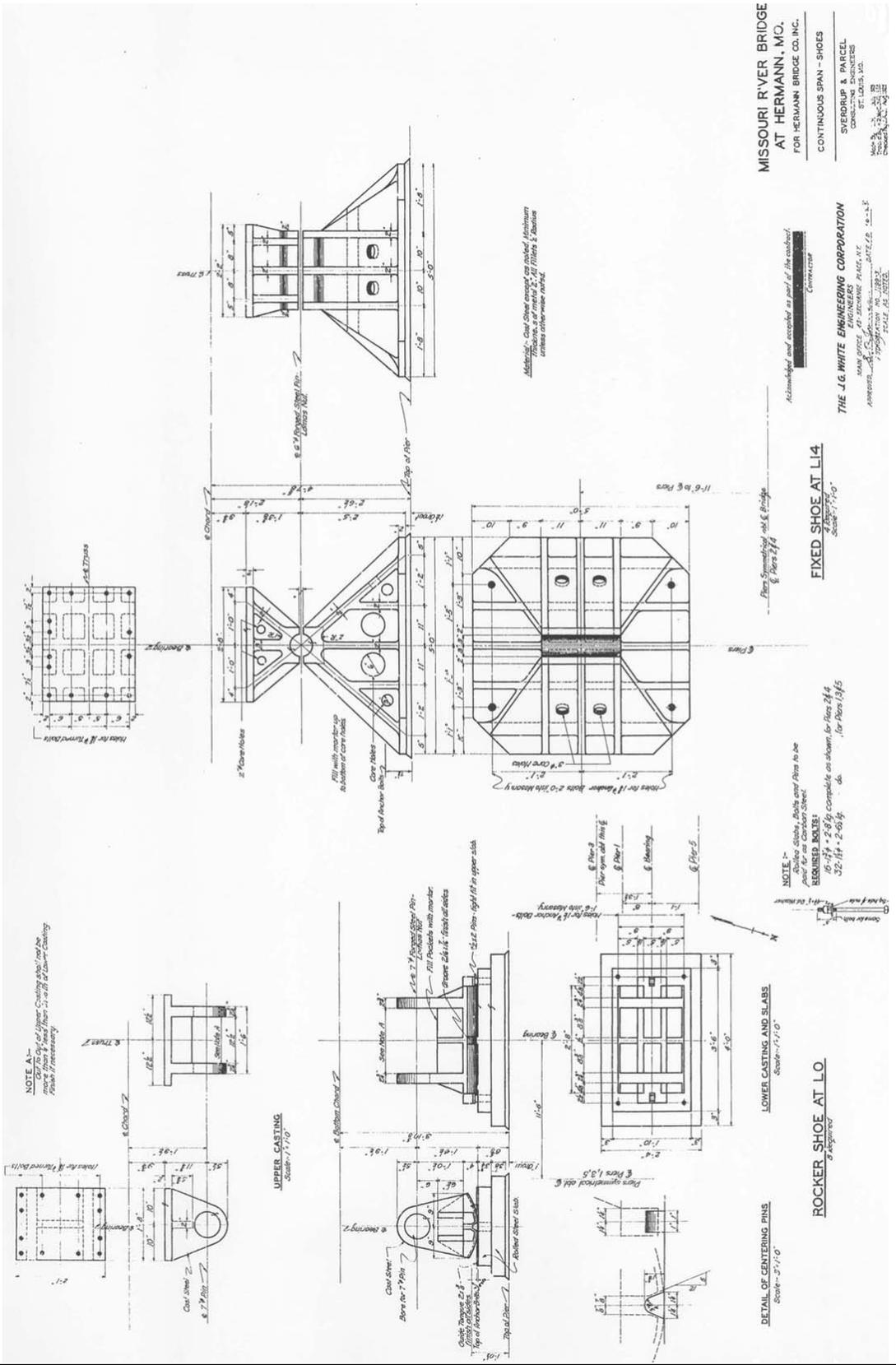
CONTINUOUS TRUSS DETAILS LO-14

**THE J.G. WHITE ENGINEERING CORPORATION**  
 200 BROADWAY, NEW YORK, N.Y.  
 APPROVED: [Signature] DATE: 11-1-27  
 SHEET 10

Adopted and accepted as part of the contract  
 Construction

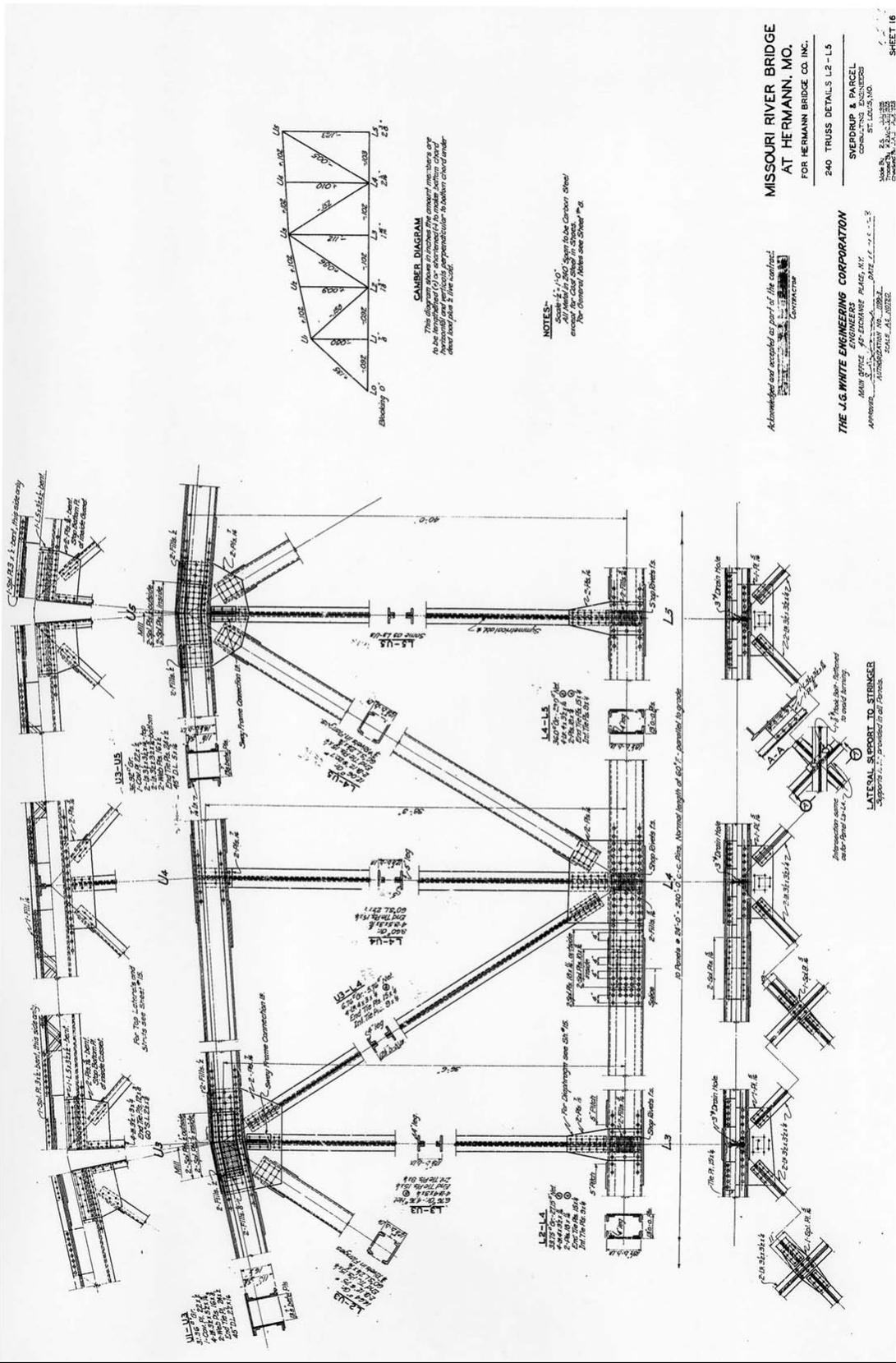












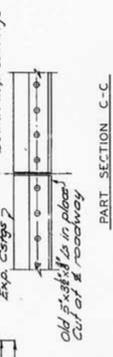
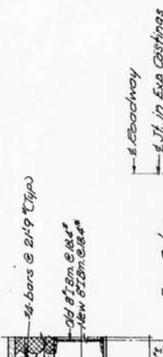
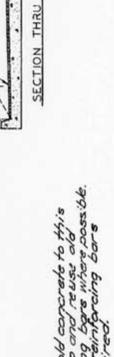
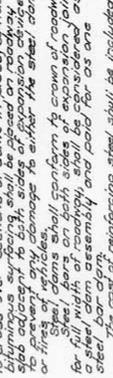
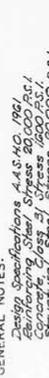






MISSOURI STATE HIGHWAY DEPARTMENT

TO DRAW DATE	REV.	TOTAL SHEETS
NOV 19 1954	5	11
PROJ. NO.	HAER NO.	MO. SHEETS
100-114	114	52



GENERAL NOTES:  
Design Specifications A.A.S.H.O. 1961  
Reinforcing Steel Stress 20,000 P.S.I.  
Concrete Comp. St. Stress 2,000 P.S.I.  
All structural steel shall be A.S.T.M. A36  
Qualification of welding operators will be required.  
or 1/2" thick. Reinforcing steel shall extend full roadway width between curbs but shall be installed in sections of such lengths as to permit at least one lap joint at all times. Lap joints shall be sufficient to provide full strength. Bituminous surfacing shall be placed on roadway slab adjacent to both sides of expansion device or lines of vehicles.  
Steel dams shall conform to crown of roadway. Steel bar dam assembly and piers shall be considered as a steel dam assembly and piers for as one in price bid for Class B Concrete.  
All new steel for expansion devices of structural carbon steel.

RESURFACING OVER MISSOURI RIVER  
BRIDGE AT HERMANN  
STATE ROAD AT HERMANN

PROJECT NO. RTE. 19 - SEC. M-372(B) STA. 3+19.10  
MONTGOMERY COUNTY

DATE	BY	CHKD.
6/14/54	D. P. Anderson	M. J. Anderson
STANDARD	NO.	NO.
8710	1	1
K-226 A		

Item	Description	Unit	Quantity	Total
5207	Prime (CC-O)	Sq. Ft.	330	330
4304	Type D Asphalt Conc.	Ton	358	358
6700	Construction Signs	L. Sign	1	1
5302	Steel Bar Beams	Each	4	4
5308	Class B Concrete	Cu. Yds.	2.24	2.24
5500	Reinforcing Structural Steel	Lbs.	1270	1270

Sheet No. 1 of 1.

Note: This drawing is not to scale. Refer dimension.

DESIGNED BY: M. J. Anderson  
CHECKED BY: M. J. Anderson  
DATE: 10/19/54

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——— "Gasconade Bridge." HAER No. MO-82. Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1994.

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Commemorative Air Force, Heart of America Wing. "Kansas City War Contribution."  
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Hermann Bridge  
Spanning the Missouri River at  
U.S. Route 19  
Hermann Vicinity  
Gasconade County  
Missouri

HAER No. MO-114

Photographer: Shaun Schmitz, May 2005

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MO-114-2	SOUTHERN APPROACH SPANS, VIEW TO THE NORTHEAST
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