ST. MARTIN PARISH ROAD BRIDGE
(Bridge Recall No. 200896)
Carries Parish Road 196 over Bayou La Rose
Butte La Rose vicinity
St. Martin Parish
Louisiana

HAER No. LA-34

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED & INTERPRETIVE DRAWINGS

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street, NW
Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD
ST. MARTIN PARISH ROAD BRIDGE
(Bridge Recall No. 200896)

HAER No. LA-34

Location: Carries Parish Road 196 over Bayou La Rose at the western edge of the Atchafalaya Basin and Floodway, approximately 3.6 miles west of the city of Butte La Rose on the Atchafalaya River in St. Martin Parish, Louisiana.

The St. Martin Parish Road Bridge (Bridge Recall No. 200896) is located at latitude 30.281869 north, longitude -91.73554 west.[1] The coordinate represents the center of the bridge. It was obtained in 2016 by plotting its location in Google Earth. The location has no restriction on its release to the public.

Present Owner: St. Martin Parish.

Present Use: Vehicular and pedestrian traffic. When in its open position, the bridge allows for marine traffic on Bayou La Rose.

Significance: The St. Martin Parish Road Bridge is a pontoon swing bridge that possesses significance as a distinctive example of a movable bridge. Its significance is demonstrated by the presence of distinctive engineering and design features of the pontoon swing bridge type, which is characterized by a floating pontoon span, pivot arm, and mechanical systems to operate the movement of the pontoon and approach aprons. The bridge was determined eligible for listing in the National Register of Historic Places (National Register) in 2013 under *Criterion C: Design/Engineering* at the state level of significance.[2]

Historian: Robert M. Frame, Senior Cultural Resource Specialist; Mead & Hunt, Inc.; 2017.

Project Information: This documentation was prepared as mitigation to fulfill Stipulation IX.5 of the *Programmatic Agreement Among the Federal Highway Administration, the Louisiana Department of Transportation and Development, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana*, dated August 18, 2015, and executed September 21, 2015. The Louisiana Department of Transportation and Development (LADOTD) retained Mead & Hunt to prepare this document. It was prepared by senior cultural resource specialist Robert M. Frame of Mead & Hunt. Dietrich Floeter completed the photography.

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[1] The bridge is also known as Structure No. P5030169914401. It has been identified with several names, including Crocodile Bayou Pontoon Bridge and Butte La Rose Pontoon Bridge. No Crocodile Bayou was identified anywhere near the bridge and the reason for that name is unknown. Most documents and individuals associate the bridge with the closest nearby community of Butte La Rose, for which it was built to provide road access. Bayou La Rose is presented in documents as both Larose and La Rose.

[2] Mead & Hunt, Inc., *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges* (prepared for the Louisiana Department of Transportation and Development, September 2013).

Part I. Historical Information

A. Physical History:

1. Date(s) of construction: The bridge was moved and erected on current location ca. 1954. It was originally constructed in the 1930s in Vermillion Parish, where it reportedly crossed an oil-field canal.

2. Engineer: Unknown.

3. Builder/Contractor/Supplier: Unknown.

4. Original plans and construction: No original plans or construction drawings were located for this bridge.

5. Alterations and additions: Bridge alterations include the widening of the navigation opening by moving the approach spans and altering the approach aprons in the mid-1960s. In the mid-1990s, following an accident that caused the pontoon barge to overturn, the barge was refurbished with Styrofoam fill, a new steel pivot pile was installed along with new motors for aprons and the cable-draw rope system, and a new independent timber-pile railing system was constructed for the approach spans.

B. Historical Context:

Historical background and construction of the St. Martin Parish Road Bridge[3]
The St. Martin Parish Road Bridge was moved to and erected at its current location as the result of changes made in the West Atchafalaya Floodway drainage system in the mid-1950s. The existing east-west portion of Bayou La Rose was closed at Butte La Rose and the Atchafalaya River. At the same time, a canal south of the bridge site was excavated, extending the north-south portion of the La Rose Bayou. The new section was termed the "Borrow Canal" because the excavated material was used to create the West Atchafalaya Basin Protection Levee. With the creation of the canal, a bridge was necessary for the east-west crossing of Parish Road 196 (Herman Dupuis Road) east to the community of Butte La Rose, which had previously been accessible only by water.[4]

An existing bridge from an oil-field canal in Vermillion Parish was moved to the Borrow Canal location ca. 1954. The particular bridge design with a pontoon barge and a vertically movable deck was necessary because of the water level that was subject to a substantial change, with an elevation range of 16'-0" possible. The moved-in bridge was reportedly built in the 1930s.

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[3] David S. Huval Sr., Huval & Associates, Phone interview with Robert M. Frame, Mead & Hunt, Inc., December 2016; the majority of the information in this section has been provided through interviews conducted on December 2, 6, and 9, 2016.

[4] See, for example, "Floating School Bus, Louisiana Bayou Students Use Novel Transportation," *Times Recorder (Zanesville, Ohio)*, October 24, 1957, 33.

An alteration to the bridge in the mid-1960s was necessitated by the long-term use of Bayou La Rose for barge shipment of oversize precast concrete bridge units. In 1966-1967 construction began on the Interstate Highway (I-) 10 bridge across the Atchafalaya Floodway, an 18-mile-long continuous structure named the I-10 Atchafalaya Basin Floodway Crossing, located near Henderson and north of the pontoon bridge. The new structure was designed with precast prestressed-concrete units that were 50'-0" long. The precast units were to be transported by barge from the south via the Borrow Canal, through the open pontoon bridge, and north to the new bridge construction site. At the time, the existing pontoon bridge had a clear opening of only approximately 32'. To allow passage of barges carrying the 50'-0" units, the opening was widened to 58'-1-½" by retaining the existing pontoon barge and deck, but moving the approaches and fender back away from the channel. The existing approach aprons, now set back, were lengthened to reach the deck. Steel extensions were welded to the front edges of the aprons. The 18-mile I-10 bridge was completed in 1972. The widened navigation opening has remained unchanged.

In 1995 corrosion in the pontoon barge allowed water to seep in, destabilizing the barge. In an event involving a vehicle crossing the deck, the pontoon turned over in the water. At that point, the barge was righted and filled with Styrofoam for floatation. Replacement with a bascule bridge moved from another location was evaluated, but eventually rejected. At around the same time the railing on the approach spans was refitted with a series of timber piles in the bayou. The piles are aligned adjacent to the approach spans, but structurally separate. The approach railings on both sides of the spans were mounted on the new pile series, becoming independent of the existing spans and bents. Additionally, in 1995 a motor was added to power the hydraulic system for raising and lowering the approach aprons, which were previously done manually.[5]

Engineering background

A pontoon swing bridge, such as the St. Martin Parish Road Bridge, is a type of movable bridge that combines features of both the fixed or stationary pontoon bridge and the swing-span movable bridge. It consists of a floating span—a pontoon, often referred to as a barge—that can swing or float out of position to open a clear navigation channel through the bridge alignment. The floating span is situated between the approach spans when in the closed position, allowing vehicular traffic to drive over it by means of hinged ramps or aprons on the approach spans. With their free ends resting on the pontoon deck, the aprons accommodate the changing elevation of the pontoon as the river level rises and falls. When the bridge is opened, the apron ends are raised, allowing the pontoon to be floated sideways, opening the navigable channel to vessels. One corner of the pontoon is connected by a beam or arm to a pivot pile fixed in the river, constraining the pontoon's sideways swing to a 90-degree arc as it opens and closes. Ropes or cables attached to the sides of the pontoon, typically controlled from an operator's house, pull the pontoon in one direction or the other to open or close the bridge.[6]

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[5] "Pontoon Bridge Flips Car into Bayou," *The Shreveport Times*, May 20, 1995, 55; St. Martin Parish Police Jury, *Butte LaRose Bridge Study Report; Relocation of the Bayou Carlin Bascule Bridge from Delcambre, Louisiana to Butte LaRose*, c 1995. The pontoon bridge accident caused the pontoon barge to overturn in the bayou.

[6] Mead & Hunt, Inc., *Historic Context for Louisiana Bridges* (prepared for the Louisiana Department of Transportation and Development, December 2013), 72.

The pontoon swing bridge differs from the typical swing-span bridge in both construction and design, despite being conceptually similar. In the swing-span bridge, the span rotates on a fixed pivot pier located beneath the center of the span. The swing span rotates to open and close rather than having the entire span move out and away from the bridge as in the pontoon's movement. Compared to a conventional swing-span bridge or a costly fixed bridge with adequate vertical navigation clearance, the floating swing pontoon bridge provides a low-cost solution for crossing small channels with limited vehicular and marine traffic.[7]

The earliest identified example of a pontoon swing bridge in the U.S. was built in 1874 to carry the Milwaukee and St. Paul Railway over the Mississippi River between Marquette, Iowa, and Prairie du Chien, Wisconsin. The bridge consisted of stationary timber pile approach spans and two timber pontoons that extended across the east and west channels of the Mississippi, which are separated by an island at mid-river. Each pontoon was 408'-0" long and powered by a steam engine. The aprons were lifted and lowered by counterweights powered by hydraulic jacks. Although it was rebuilt several times, it was an operating pontoon swing bridge until it was dismantled in 1961.[8]

In the modern era, pontoon swing bridges are uncommon nationally, with surviving examples generally limited to navigable channels in Texas and Louisiana. In Texas, five pontoon swing bridges were constructed on the Gulf Intracoastal Waterway in the early 1940s.[9] The only surviving example is the Sargent Swing Bridge, which is scheduled for replacement by a fixed-span structure in 2017. In 2012 there were seven extant pontoon swing bridges in Louisiana, accounting for less than one percent of the state's pre-1971 bridge population.[10] One of the last examples outside those states was the Sunset Beach Pontoon Bridge in North Carolina, which was recently removed and replaced with a high clearance, fixed-span structure. Erected in 1961, it operated in a swing-pontoon mode similar to the Louisiana and Texas pontoon bridges, but the bridge deck was built as a continuous structure raised several feet above a series of eight steel barges pinned together in a cluster for a movable span length of 115'-0". The apron ramps were attached to the barge spans instead of the approach spans.

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[7] Parsons Brinckerhoff and Engineering and Industrial Heritage, *A Context for Common Historic Bridge Types* (prepared for The National Cooperative Highway Research Program, Transportation Research Council, and National Research Council, October 2005), 3–115, 3–118, http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf.

[8] Alden E. Miller, "The Prairie Du Chien Pontoon Bridge," *The Railway & Locomotive Historical Society Bulletin* 58 (May 1942): 46–54; Anita Lindeman, "The Pontoon Bridge at Marquette," *The Annals of Iowa* 37, no. 7 (Winter 1965): 615–618; W.M. Wilson, "Types of Movable Bridges," *Journal of the Western Society of Engineers* 19, no. 6 (June 1914): 553–554.

[9] Mead & Hunt, Inc., *Intensive-Level Historic Resources Survey Report FM 457 at Gulf Intracoastal Waterway, Matagorda County, Texas TxDOT Yoakum District* (prepared for the Texas Department of Transportation, 2012), 9.

[10] Mead & Hunt, Inc., *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges*, 39. Louisiana's Statewide Historic Bridge Inventory Project, for which this report was prepared, inventoried bridges built in the state through 1970.

Part II. Structural/Design Information

A. General Statement:

1. **Character:** The St. Martin Parish Road Bridge is a pontoon swing bridge and is a representative example of this uncommon movable bridge type.

2. **Condition of fabric:** Good.

B. Description: The St. Martin Parish Road Bridge is a pontoon swing bridge located at the western edge of the Atchafalaya Basin and Floodway, approximately 3.6 miles west of the city of Butte La Rose on the Atchafalaya River, in St. Martin Parish, Louisiana. Aligned on an east-west axis, it carries a single lane of Parish Road 196, also known as Herman Dupuis Road, over the north-south channel of Bayou La Rose. Parish Road 196 connects Butte La Rose with the north-south levee road immediately west of the bridge. The function of the bridge is to service the Butte La Rose community via Parish Road 196 from Henderson and Catahoula.

The overall length of the bridge is 240'-0" and includes the length of the vertical movable deck structure on the floating barge or pontoon, the approach apron or draw ramps on each side, eight short approach spans totaling 78'-0" on the west, and eight short approach spans totally 82'-0" on the east.

Pontoon barge
The pontoon portion of the bridge consists of a 52'-0"-long, 35'-0"-wide steel barge supporting a vertical movable roadway deck. The deck height is adjusted manually to accommodate extreme changes in water elevation in the bayou that are beyond the range of the aprons, from low water elevation (+ approximately 3') to normal high water elevation (+ approximately 19'), for an elevation range of approximately 16'. Above high water elevation (+ approximately 19') the bridge is closed to roadway traffic. To open and close, the pontoon barge and the elevated deck swing open using electrical and hydraulic power for the double-cable draw works and the two apron ramps.

The vertical movable deck structure, smaller than the barge supporting it, is 40'-0" long and 16'-0" wide out-out. It is constructed of three 18" I-beam floorbeams, one at each end and one in the middle. Extending between the floorbeams are eight lines of 12" I-beam stringers. A 0.5" steel deck plate is mounted on top of the stringers. The entire steel deck structure is suspended by steel cables from six steel posts or towers, three on each side, mounted on the barge top and aligned with the ends of the deck floorbeams. Mounted at the top of each tower is a 48" wheel or sheave, over which travels a steel cable. One end of the cable is attached to a floorbeam end; the other end, away from the deck, is attached to a long steel cylinder serving as a counterweight for the deck. There are two steel pipes or cylinders, one on each side of the deck and extending the length of the deck on the outside of each set of three towers. Because there is a single cylinder for each side of the deck structure, the counterweight balance is unified across the three towers on each side.

Each tower post is 17" by 22" and formed in a U-cross-section to create a vertical slot open toward the deck and extending the height of each tower post. Each floorbeam end has a steel extension that fits into the vertical slot, allowing the entire rigid deck structure to slide up and down in the six tower slots, maintaining stability and alignment. Each tower contains a vertical series of holes through each wall of the slot. When the deck is raised or lowered to the desired elevation, steel-pipe pins are manually inserted horizontally through the aligned sets of holes, with pins above and below each floorbeam, locking the deck in position and transferring the dead load from the cables to the towers. When the pins are removed, the deck can be raised and lowered manually with a chain and pulley system and then again locked by inserting the pins at the new location.

The entire pontoon barge with its elevated deck structure swings in a 90-degree arc to open and close the navigation channel. To facilitate the movement, a steel pivot arm extends directly east from the southeast corner of the pontoon barge (directions from closed position). The arm is constructed of 6"-diameter steel pipes arranged in a truss configuration. At the opposite end, the arm is attached to a 24"-diameter steel pivot pile with a steel collar that is free to move up and down the pivot pile as the water level changes. The pontoon barge is moved by two steel cables, one for opening and one for closing. The opening cable and motor are mounted on the south edge of the barge and the closing cable and motor are on the north. One end of each cable is fixed to a pile in the bayou. The opposite end extends to a cat head winch powered by a three-horsepower electric motor. To pull the barge into the open position, the cable is wound up on the south-side cat head and the north cable is loosened. To pull the barge closed, the operation of each cat head and cable is reversed. When fully opened, the clear navigation channel is 58'-1-½".

Apron ramps

To facilitate vehicles driving from the approach spans to the elevated deck, a movable apron ramp is hinge-mounted on each adjacent approach span and lowered onto the steel deck surface. On each approach span end is an apron tower, constructed as simple vertical steel pipe with a diagonal support pipe. A steel cable extends from the top of the apron tower to the extended end of the apron. Each apron is 20'-0" long from the hinge to the end that rests on the steel deck. The hinge ends are mounted on the two bents adjacent to the pontoon barge, bents 9 and 10. Each apron lift is powered by a hydraulic cylinder mounted horizontally on the edge of the deck on approach spans 7, 8, 10, and 11. The entire hydraulic system for both aprons is powered by a 7.5-horsepower motor in a steel-grate housing on the south edge of the barge top. Hydraulic lines extend from the motor unit to the hydraulic cylinders. In order to raise the east apron, a short section of guardrail, mounted on a round steel post, is manually pivoted out of its normal rail position, opening a clear space necessary for the apron to lift. There is no comparable guardrail section at the west apron. The aprons were extended to their current length in 1966-1967, when the approaches were moved back to create a wider navigation channel.

Approach spans

In addition to the pontoon barge, which is identified as span 9, the bridge has eight approach spans on each side: spans 1-8 on the west end and spans 10-17 on the east end. All the approach spans are short, approximately 9' or 10' each, and constructed of 6" by 13" timber stringers with a wood-plank deck. Parallel lines of non-skid, diamond-steel plates comprise the wheel lanes on the plank deck. The spans

are supported on timber-pile bents comprised of three piles each, with diagonal timber sway braces. Simple pile-and-plank straight wingwalls are located at each end of the bridge.

Railings
The approach spans have a continuous steel guardrail on each side, supported by timber piles driven into the bayou bottom and separate from the substructure pile bents. In effect, the approach railings constitute a structural system that is independent of the approach span structures. The steel guardrail is continuous with the post-mounted system on the roadways approaching the bridge. Separate steel guardrails line both sides of the elevated deck and the aprons, all carried on vertical I-section steel posts.

Roadway approach structure
Situated at the outside end of each approach span, where it meets the approach roadways, is a steel framework comprised of two vertical posts on each side of the roadway, joined with a steel bar that extends overhead, above the roadway. The structure is intended to set the 9'-6" vertical clearance of the bridge by preventing taller vehicles from passing under the bar. A steel sign on the bar indicates the five-ton weight limit as well as the 9'-6" maximum vertical clearance.

Bayou fender system
There are several three-pile clusters on the east side of the bayou, immediately south of the bridge, to establish the open position of the pontoon barge at the full-open position. A pile fender system is located on both sides of bent 9 to guide boats through the navigation channel when the pontoon is open. There is no operator's house for the bridge. Operators simply stand on the top of the pontoon to operate the machinery for the lift aprons and the pontoon swing cables.

C. Site Information: The St. Martin Parish Road Bridge is located at the western edge of the Atchafalaya Basin and Floodway. It was built to carry Parish Road 196, also known as Herman Dupuis Road, and connect Butte La Rose with the north-south levee road immediately west of the bridge. At that point, Herman Dupuis Road divides into a "Y" and the levee road runs 4.28 miles north to Henderson and 5.44 miles south to Catahoula. Paralleling Herman Dupuis Road is the old east-west side channel of Bayou La Rose, which begins just north of the bridge and continues to Butte La Rose and now terminates just before reaching the Atchafalaya River. The function of the bridge is to service the Butte La Rose community from Henderson and Catahoula. The road immediately east of the bridge has residences and local "camps" intermittently along both sides, which were built following the construction of the bridge and the road.

Part III. Sources of Information

A. Primary Sources:

Alden E. Miller. "The Prairie Du Chien Pontoon Bridge." *The Railway & Locomotive Historical Society Bulletin* 58 (May 1942): 46–54.

Anita Lindeman. "The Pontoon Bridge at Marquette." *The Annals of Iowa* 37, no. 7 (Winter 1965): 615–18.

David S. Huval Sr., Huval & Associates. Phone interview with Robert M. Frame, Mead & Hunt, Inc., December 2016.

"Floating School Bus, Louisiana Bayou Students Use Novel Transportation." *Times Recorder (Zanesville, Ohio)*. October 24, 1957.

Mead & Hunt, Inc. *Intensive-Level Historic Resources Survey Report FM 457 at Gulf Intracoastal Waterway, Matagorda County, Texas TxDOT Yoakum District*. Prepared for the Texas Department of Transportation, 2012.

———. *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges*. Prepared for the Louisiana Department of Transportation and Development, September 2013.

Parsons Brinckerhoff, and Engineering and Industrial Heritage. *A Context for Common Historic Bridge Types*. Prepared for The National Cooperative Highway Research Program, Transportation Research Council, and National Research Council, October 2005. http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf.

"Pontoon Bridge Flips Car into Bayou." *The Shreveport Times*. May 20, 1995.

St. Martin Parish Police Jury. *Butte LaRose Bridge Study Report; Relocation of the Bayou Carlin Bascule Bridge from Delcambre, Louisiana to Butte LaRose*, c 1995.

W.M. Wilson. "Types of Movable Bridges." *Journal of the Western Society of Engineers* 19, no. 6 (June 1914): 553–54.

B. Secondary Sources:

Bridge Inspection Report. Recall No. 200896. October 15, 2012. Available in Bridge Maintenance and Inspection Division, Louisiana Department of Transportation and Development, Baton Rouge, La.

Mead & Hunt, Inc. *Historic Context for Louisiana Bridges*. Prepared for the Louisiana Department of Transportation and Development, December 2013.

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Dietrich G. Floeter, photographer, February and March 2016
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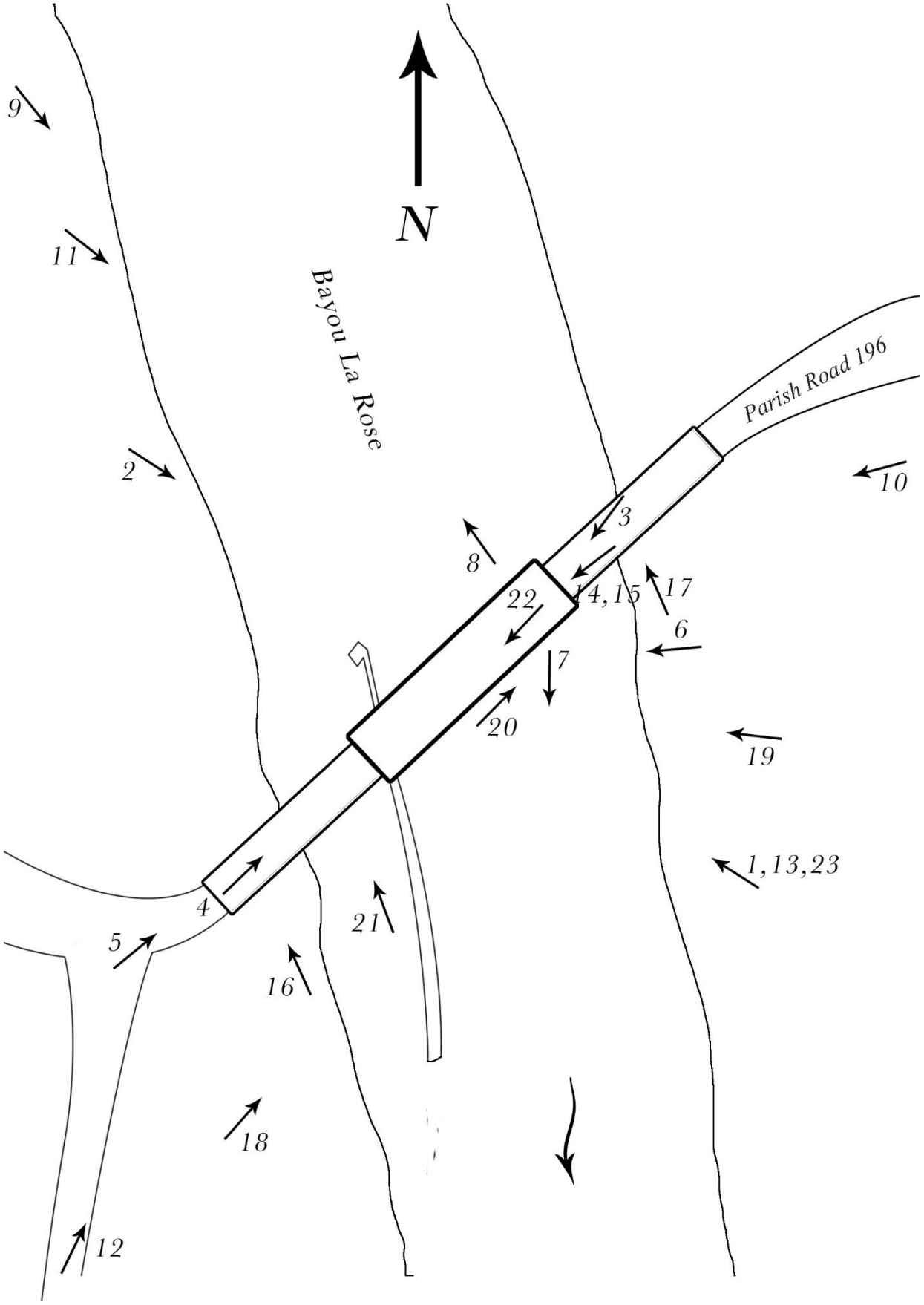
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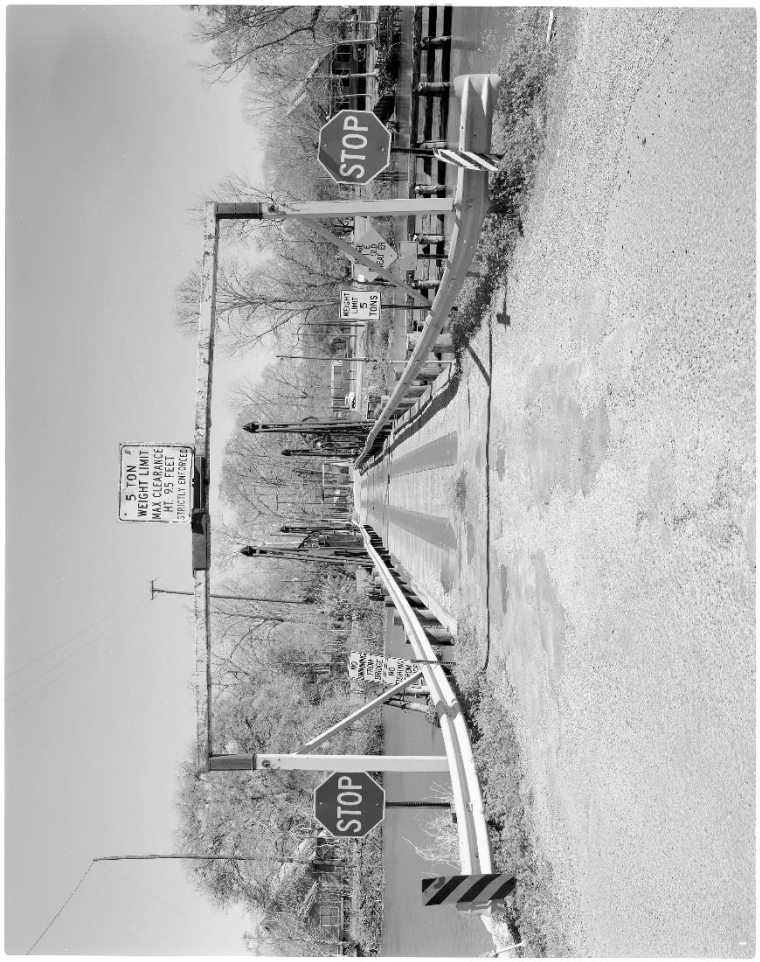

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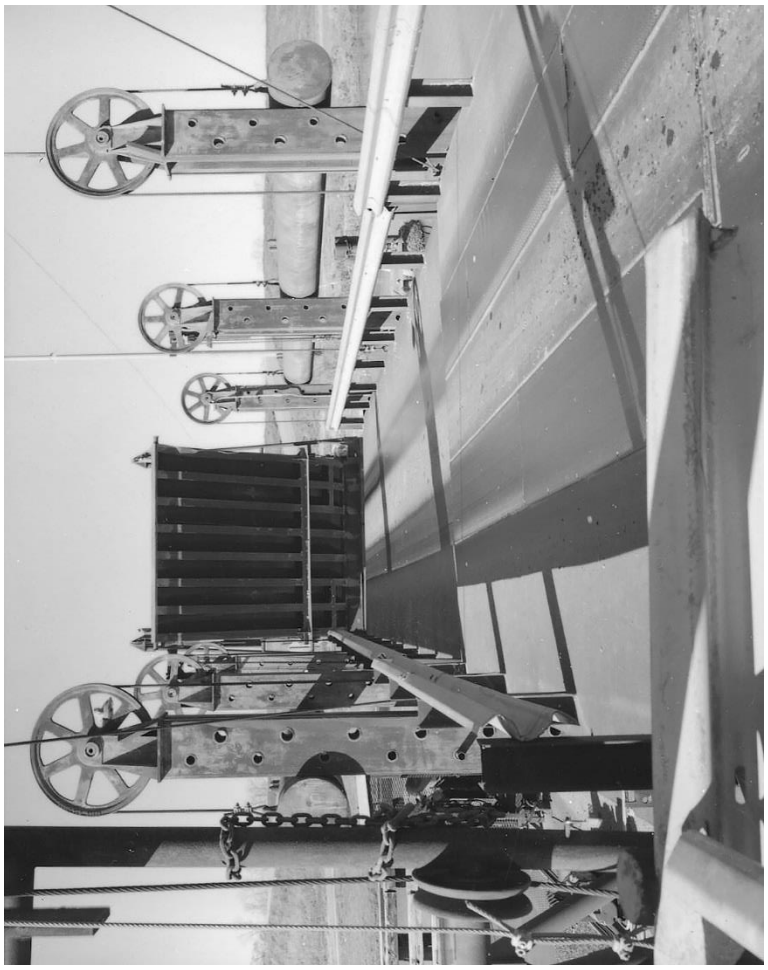

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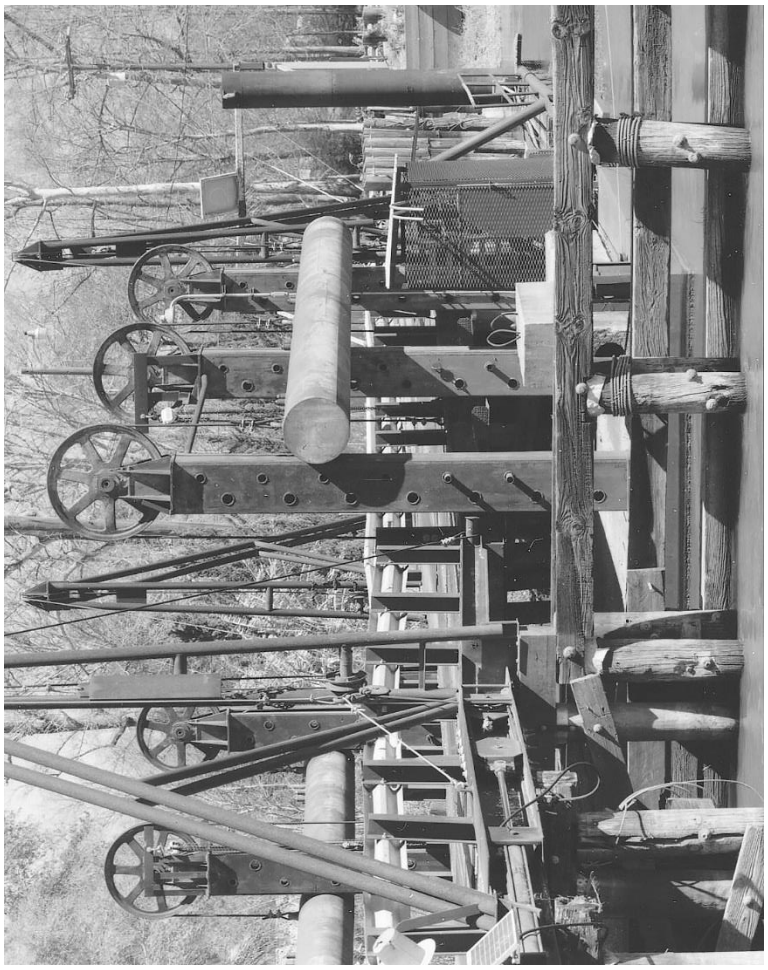

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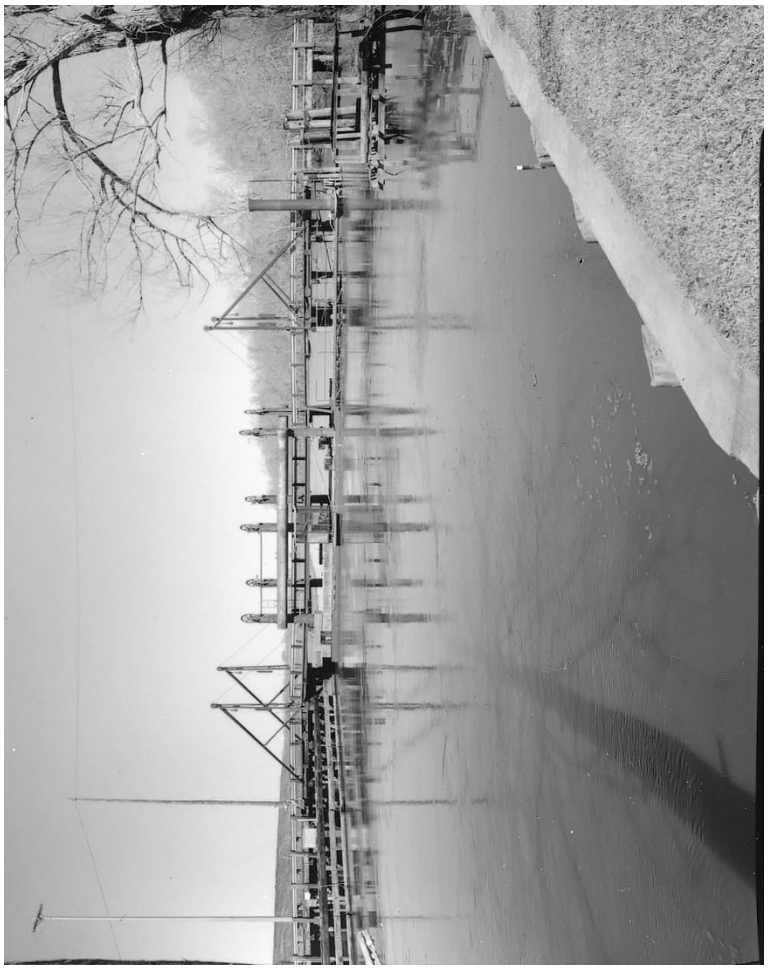

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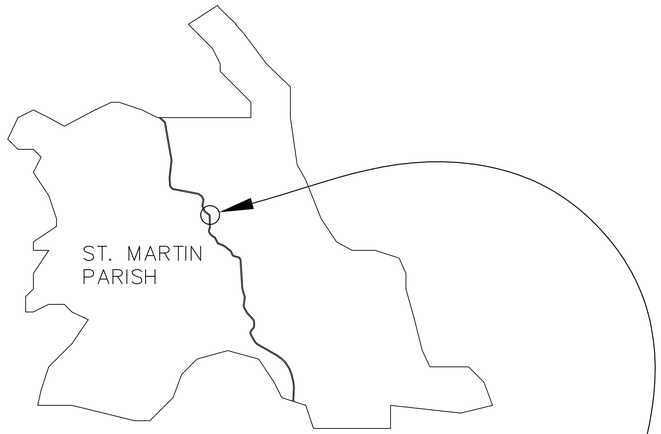
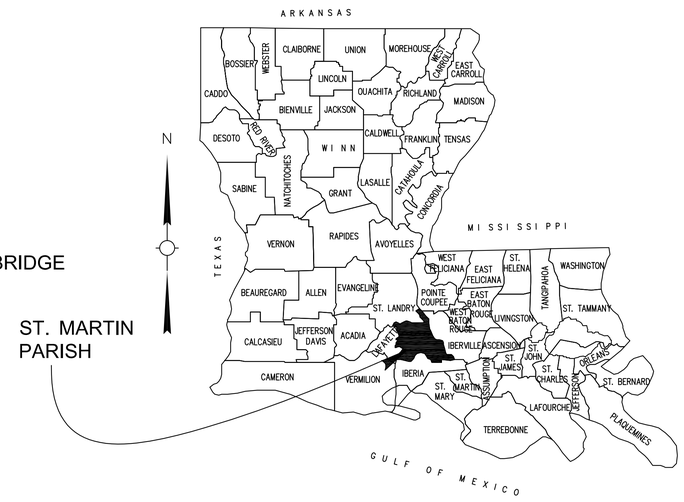


Butte La Rose Vicinity

ST. MARTIN
PARISH ROAD BRIDGE

ST. MARTIN
PARISH



LOUISIANA

LOCATION MAP
Latitude: 30.281869 North
Longitude: -91.73554 West

The St. Martin Parish Road Bridge (Bridge Recall No. 200896) is a pontoon swing bridge that is significant as a distinctive example of a movable bridge. Its significance is demonstrated by the presence of distinctive engineering and design features of the pontoon swing bridge type, which is characterized by a floating pontoon span, pivot arm, and mechanical systems to operate the movement of the pontoon and approach aprons. This bridge was determined eligible for listing in the National Register of Historic Places in 2013 under Criterion C: Design/Engineering at the state level of significance.

This documentation was prepared to fulfill Stipulation IX.5 of the Programmatic Agreement Among the Federal Highway Administration, the Louisiana Department of Transportation and Development, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana, dated August 18, 2015 and executed September 21, 2015. The Louisiana Department of Transportation and Development (LADOTD) retained Mead & Hunt to prepare this document. It was prepared by Robert M. Frame, Cultural Resources Specialist of Mead & Hunt, Stephen V. Estopinal, P.E., P.L.S. and Trenton Iglehart, Geodetic Analyst, of SJB Group, LLC. Dietrich Floeter completed the photography.

These measured drawings were prepared based on a site visit to complete laser scanning of the bridge, with selective hand measuring in the field to verify measurements.

LIBRARY OF CONGRESS INDEX NUMBER

HISTORIC AMERICAN ENGINEERING RECORD
LA-34

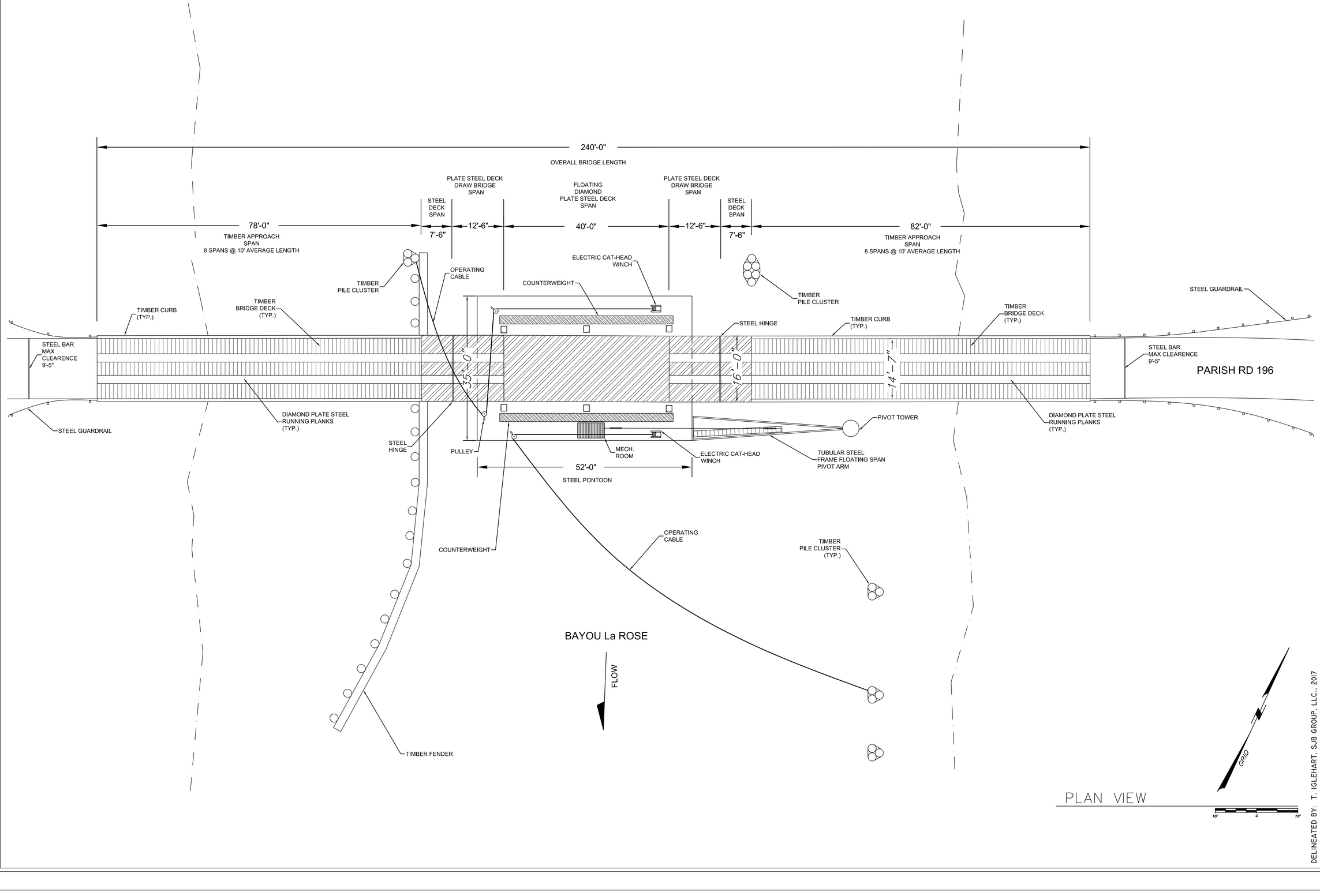
SHEET 1 OF 4

ST. MARTIN PARISH ROAD BRIDGE
CARRIERS PARISH ROAD 196 OVER BAYOU La ROSE
ST. MARTIN PARISH
LOUISIANA

BUTTE La ROSE VICINITY

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC BRIDGE INVENTORY
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR



PLAN VIEW

BUTTE LA ROSE VICINITY

ST. MARTIN PARISH ROAD BRIDGE
CARRIERS PARISH ROAD 196 OVER BAYOU LA ROSE
ST. MARTIN PARISH
LOUISIANA

SHEET 2 OF 4

HISTORIC AMERICAN ENGINEERING RECORD
LA-34

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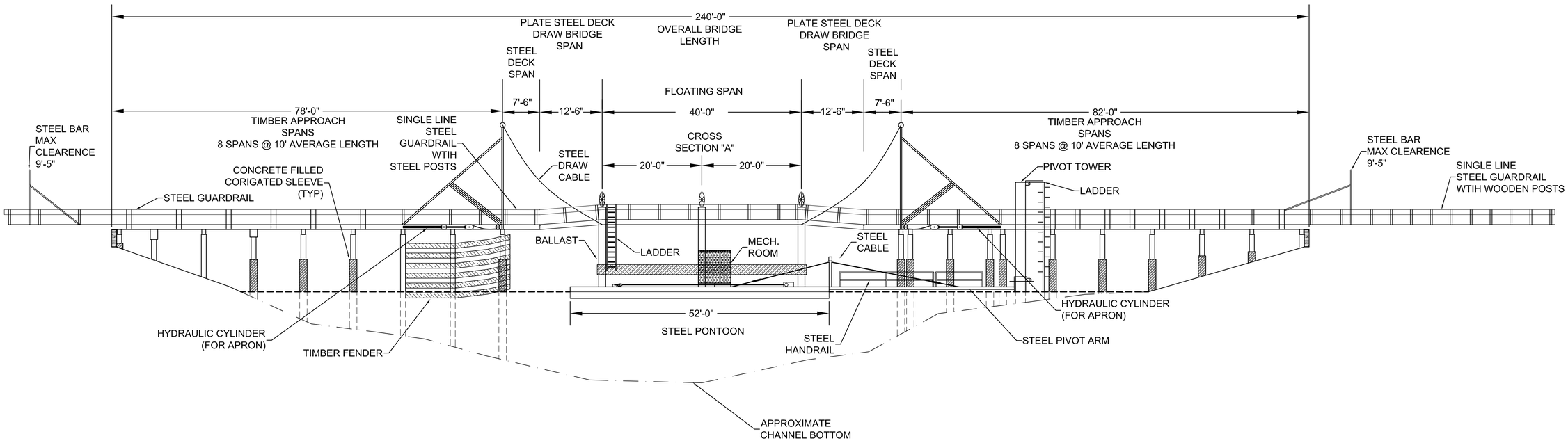
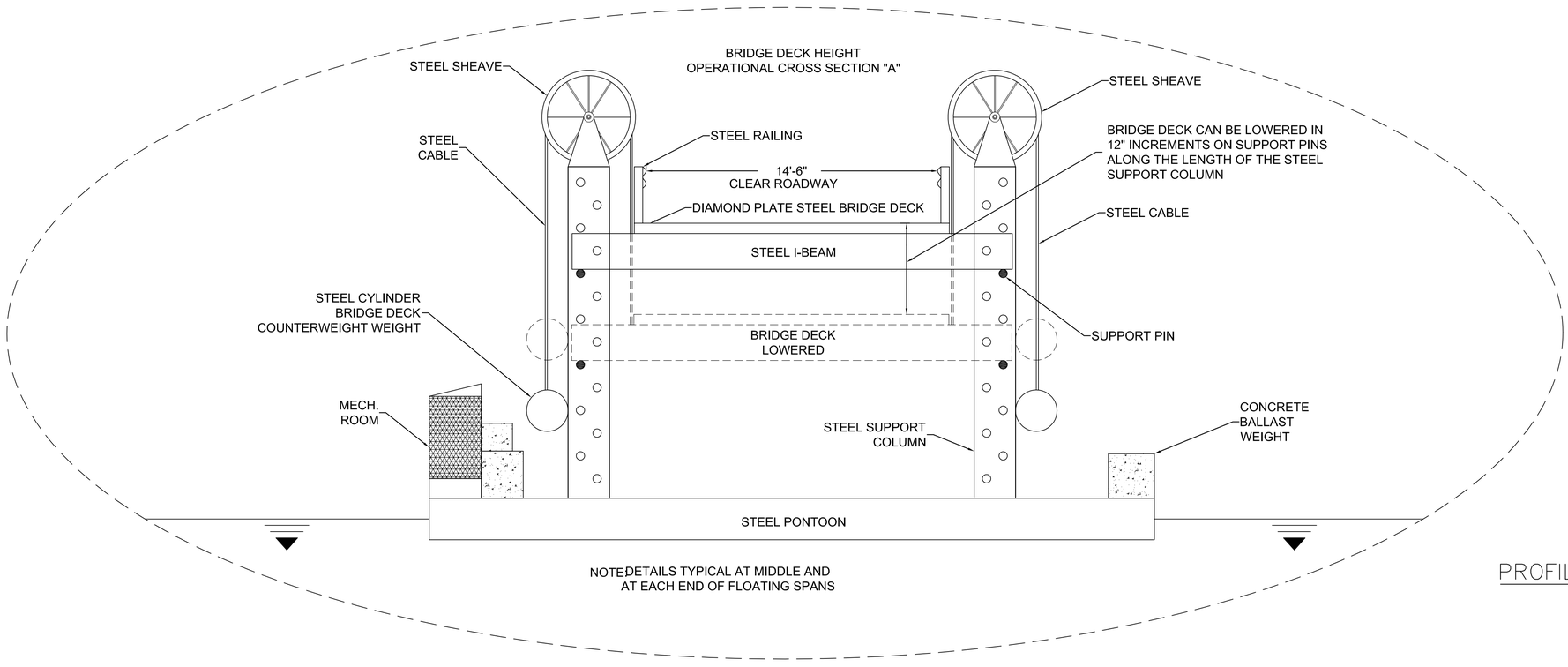
DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR





NOTE: DETAILS TYPICAL AT MIDDLE AND AT EACH END OF FLOATING SPANS

PROFILE VIEW

GRID

10' 0 10'

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC BRIDGE INVENTORY
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

BUTTE LA ROSE VICINITY

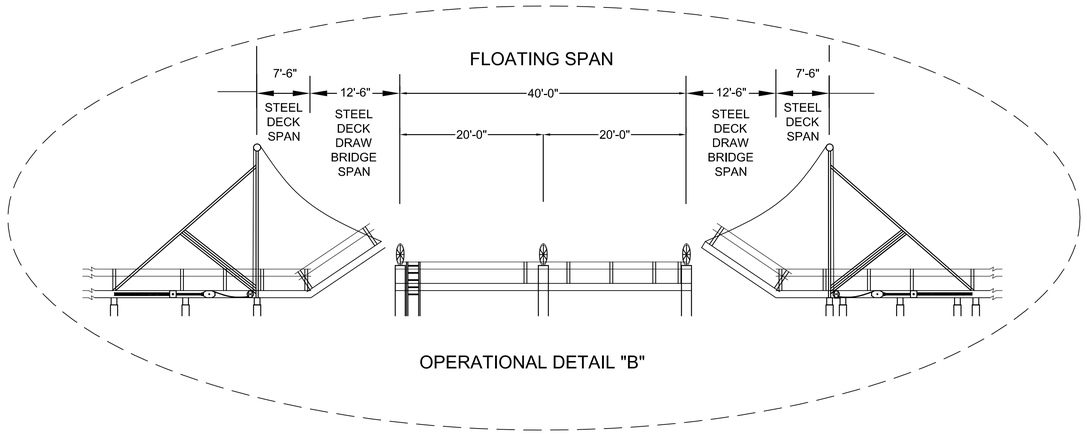
ST. MARTIN PARISH ROAD BRIDGE
CARRIERS PARISH ROAD 196 OVER BAYOU LA ROSE
ST. MARTIN PARISH

LOUISIANA

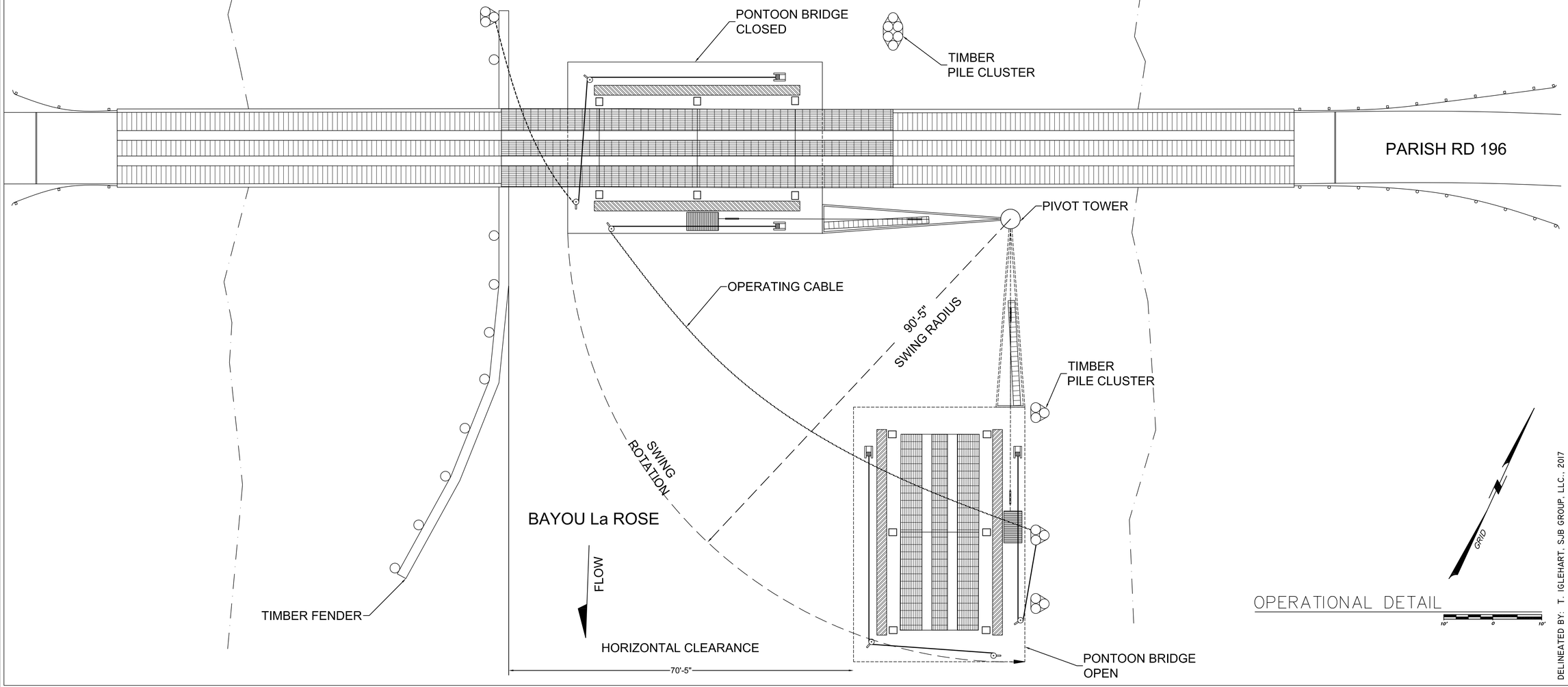
SHEET 3 OF 4

HISTORIC AMERICAN ENGINEERING RECORD
LA-34

LIBRARY OF CONGRESS INDEX NUMBER



OPERATIONAL DETAIL "B"



OPERATIONAL DETAIL

10' 0 10'

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC BRIDGE INVENTORY
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

BUTTE La ROSE VICINITY

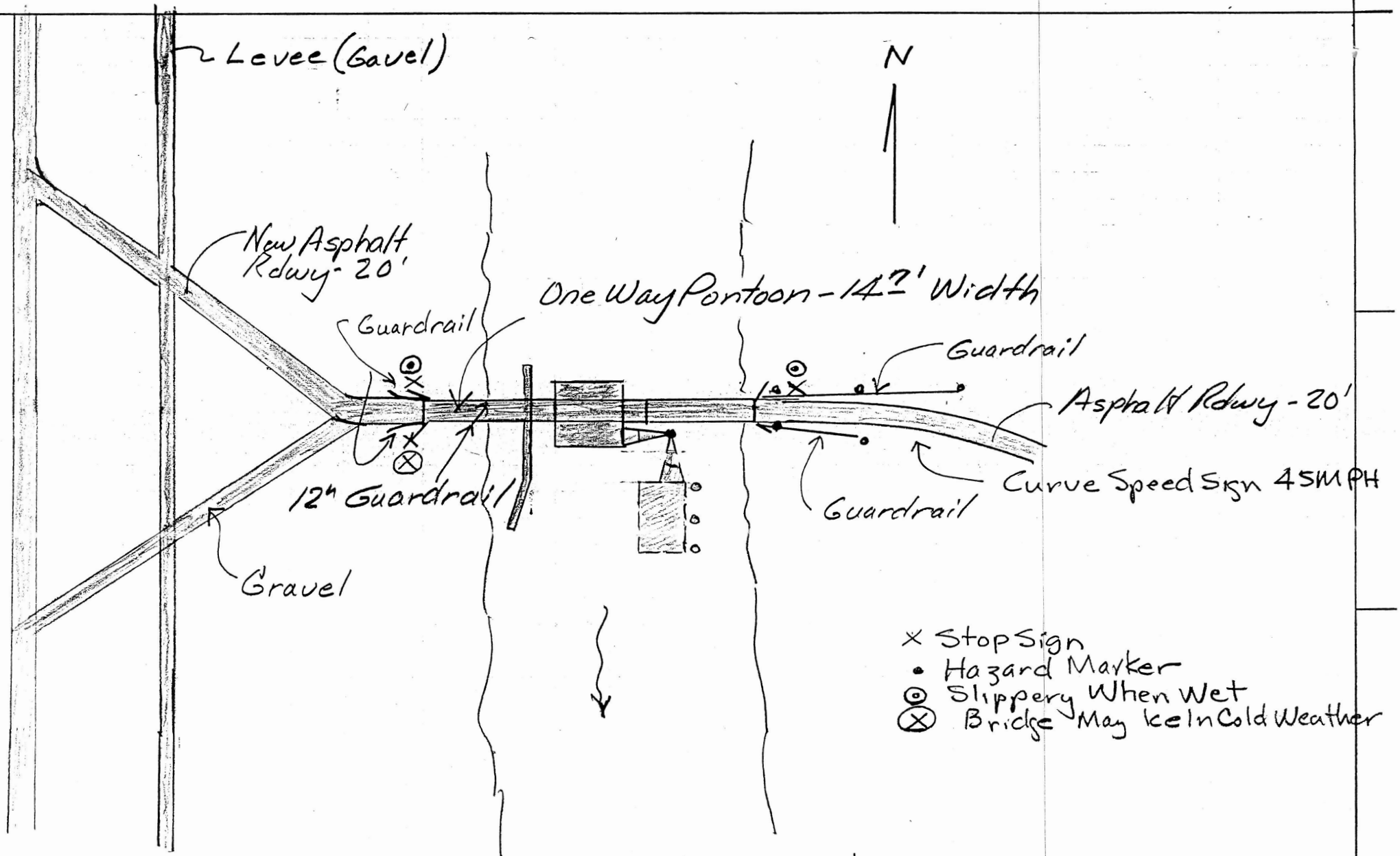
ST. MARTIN PARISH ROAD BRIDGE
CARRIERS PARISH ROAD 196 OVER BAYOU La ROSE
ST. MARTIN PARISH

LOUISIANA

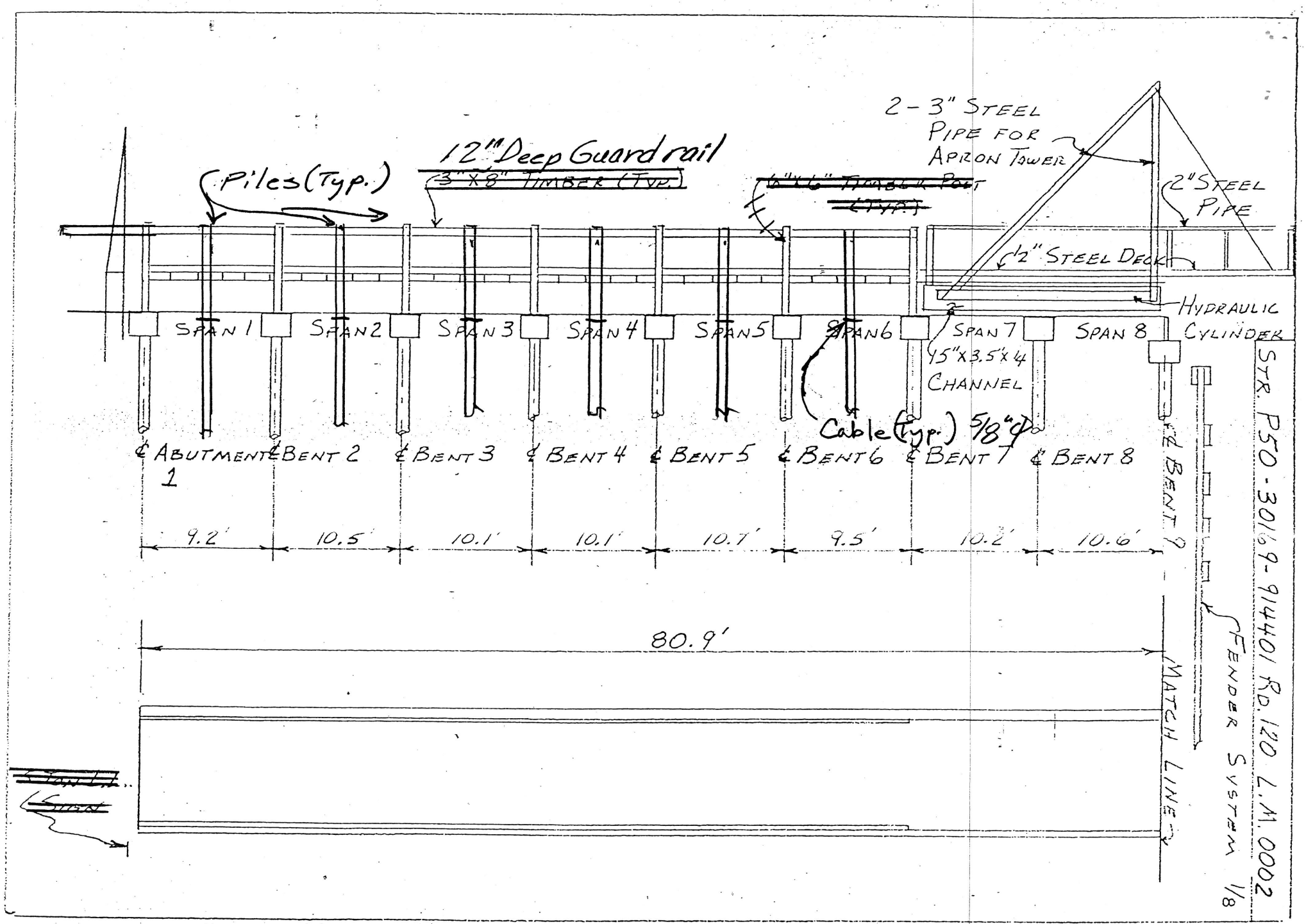
SHEET 4 OF 4

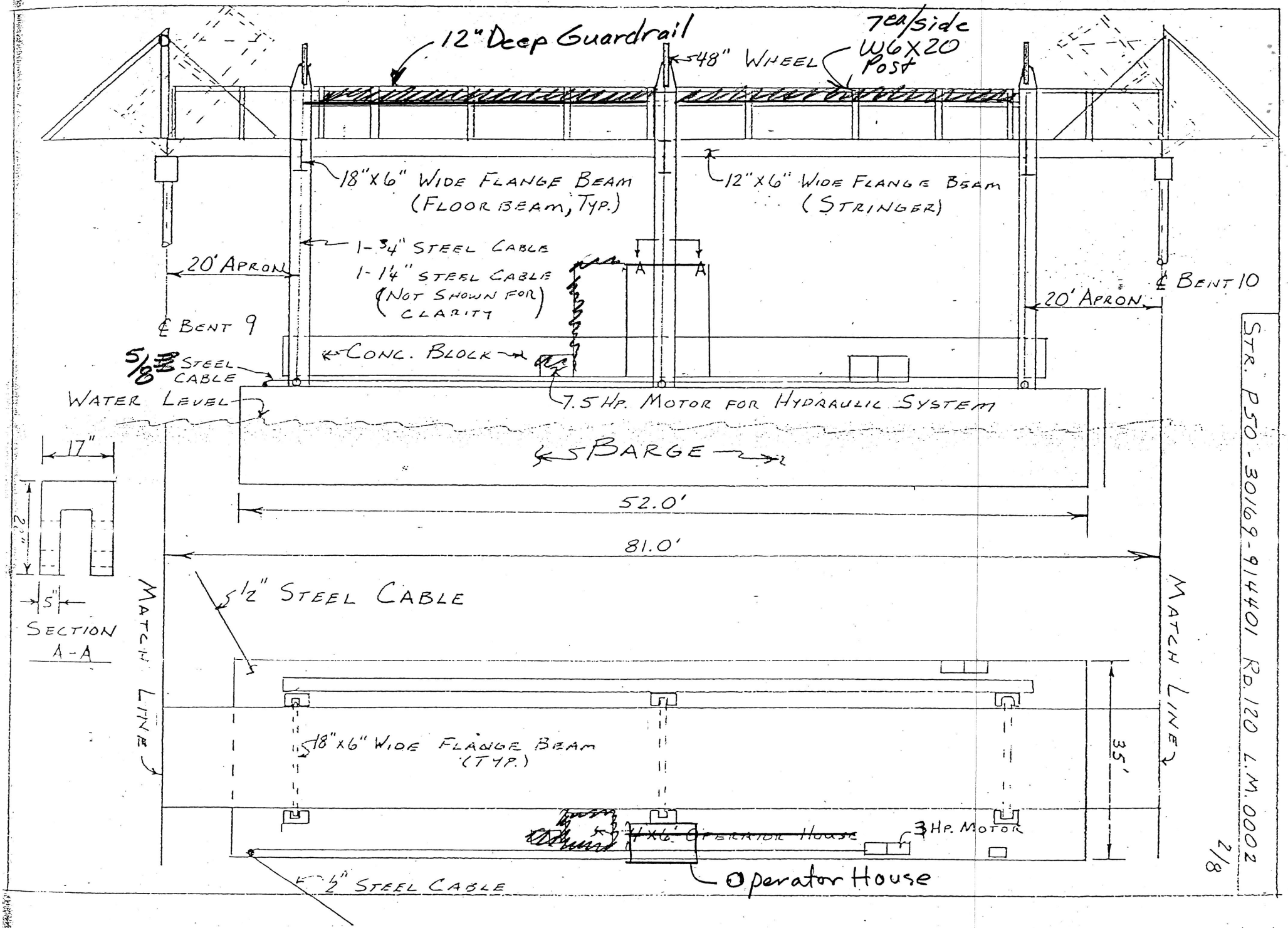
HISTORIC AMERICAN ENGINEERING RECORD
LA-34

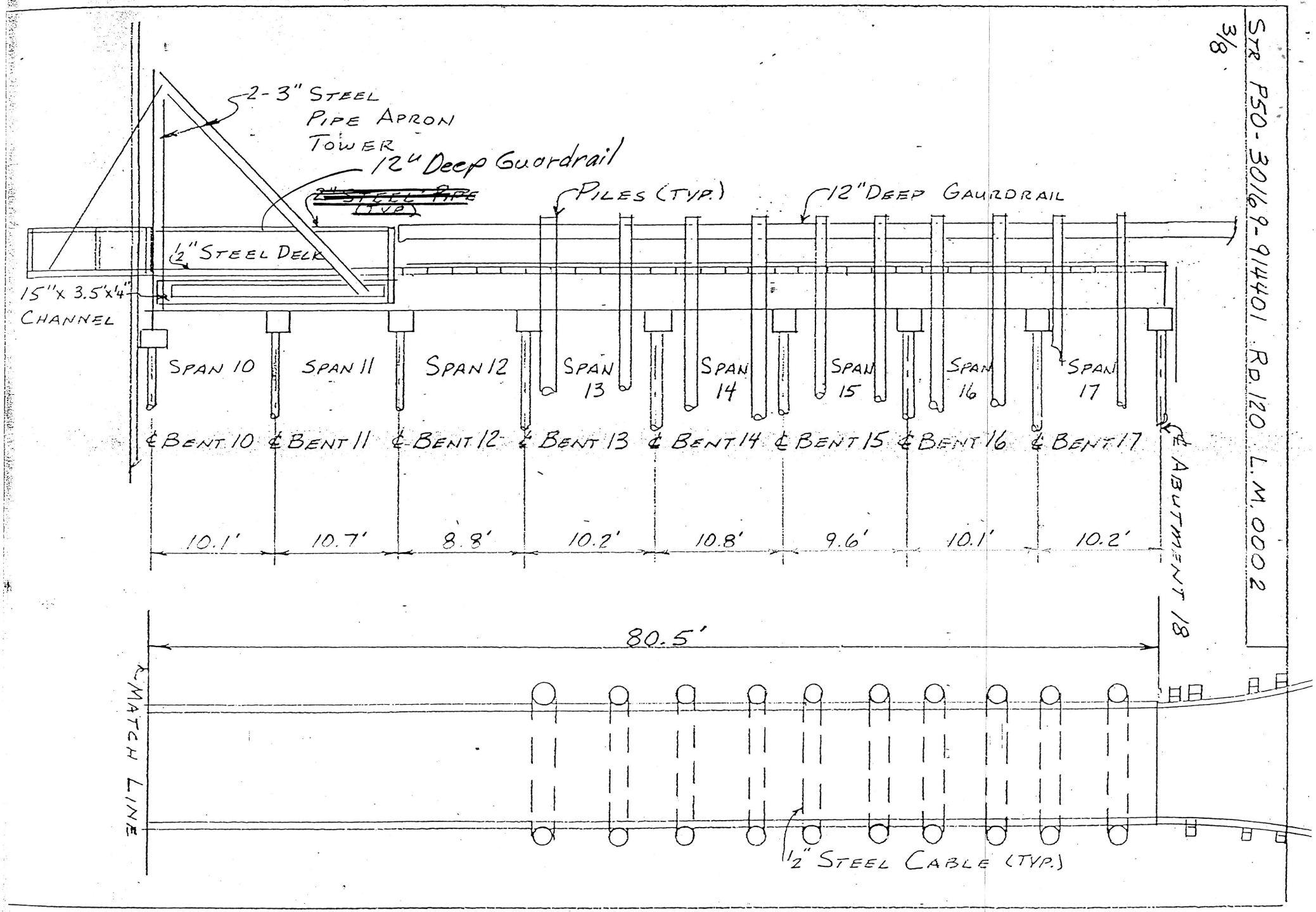
LIBRARY OF CONGRESS INDEX NUMBER



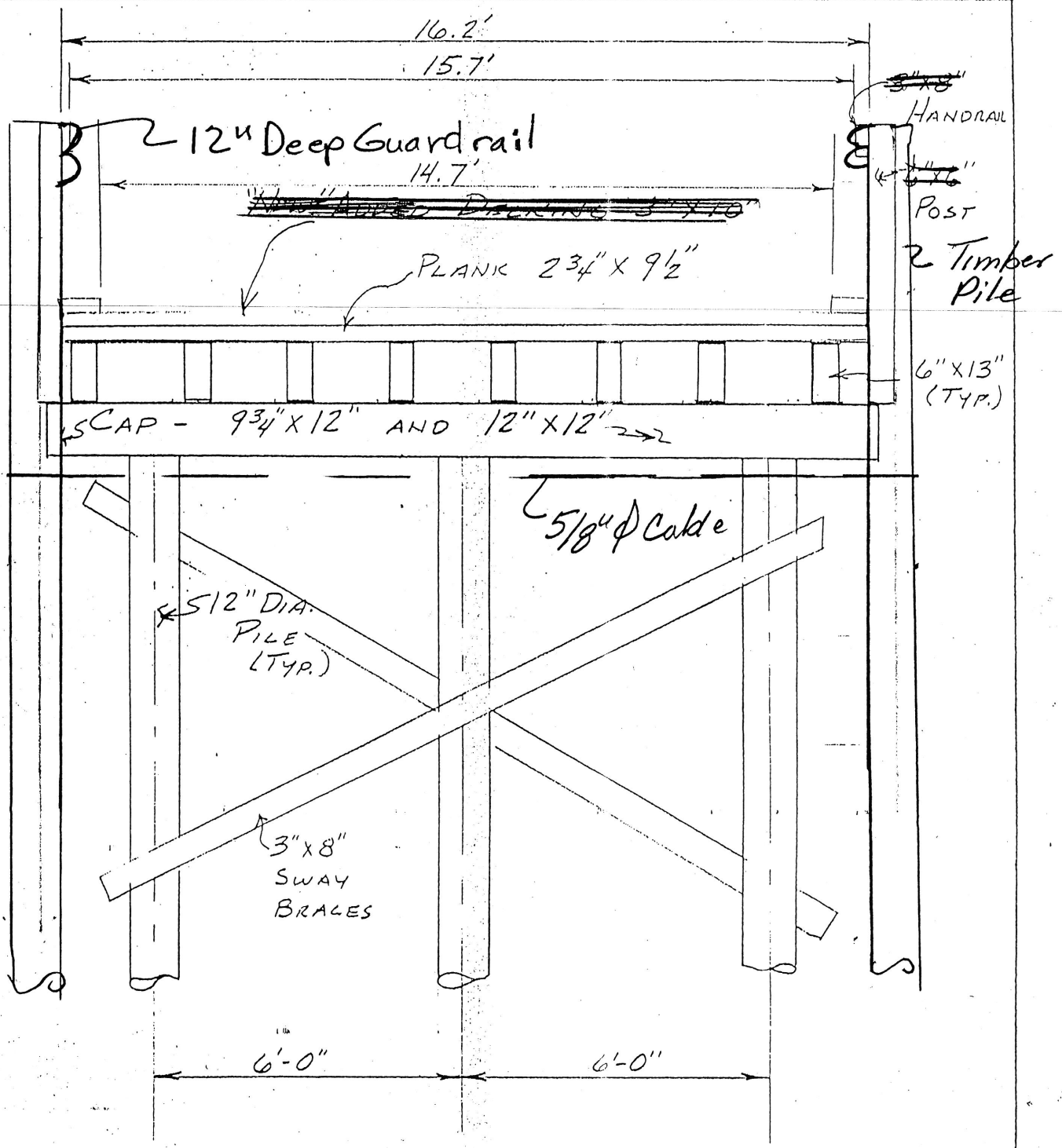
General Plan of Bridge & Rdwy Approaches


2-3" STEEL PIPE FOR APRON TOWER
12" Deep Guard rail
(Piles (Typ.)
3"x8" TIMBER (TYP.)
6"x6" TIMBER POST (TYP.)
2" STEEL PIPE
½" STEEL DECK
HYDRAULIC CYLINDER
SPAN 1
SPAN 2
SPAN 3
SPAN 4
SPAN 5
SPAN 6
SPAN 7
SPAN 8
45"x3.5"x4 CHANNEL
Cable (Typ.) 5/8"ϕ
℄ ABUTMENT 1
℄ BENT 2
℄ BENT 3
℄ BENT 4
℄ BENT 5
℄ BENT 6
℄ BENT 7
℄ BENT 8
9.2'
10.5'
10.1'
10.1'
10.7'
9.5'
10.2'
10.6'
80.9'
MATCH LINE
FENDER SYSTEM
STR. P50-3016-9144401 RD. 120 L.M. 0002


12" Deep Guardrail
48" Wheel
7ea/side W6X20 Post
18"x6" Wide Flange Beam (Floor Beam, Typ.)
12"x6" Wide Flange Beam (Stringer)
1-¾" Steel Cable
1-1¼" Steel Cable (Not Shown for Clarity)
20' Apron
℄ Bent 9
℄ Bent 10
5/8" Steel Cable
Conc. Block
7.5 Hp. Motor for Hydraulic System
Water Level
Barge
52.0'
81.0'
17"
2'-3"
5"
Section A-A
½" Steel Cable
Match Line
18"x6" Wide Flange Beam (Typ.)
35'
6"x6" Operator House
3 Hp. Motor
Operator House
½" Steel Cable
Str. P50-30169-914401 Rd. 120 L.M. 0002
2/8


STR P50-30169-914401 RD.120 L.M. 0002
3/8"
2-3" STEEL PIPE APRON TOWER
12" Deep Guardrail
2" STEEL PIPE (TYP.)
PILES (TYP.)
12" DEEP GAURDRAIL
½" STEEL DECK
15" x 3.5'x14" CHANNEL
SPAN 10
SPAN 11
SPAN 12
SPAN 13
SPAN 14
SPAN 15
SPAN 16
SPAN 17
℄ BENT 10
℄ BENT 11
℄ BENT 12
℄ BENT 13
℄ BENT 14
℄ BENT 15
℄ BENT 16
℄ BENT 17
℄ ABUTMENT 18
10.1'
10.7'
8.8'
10.2'
10.8'
9.6'
10.1'
10.2'
80.5'
℄ MATCH LINE
½" STEEL CABLE (TYP.)

STR. P50-30169-914401 RD. 120 L.M. 0002 4/8

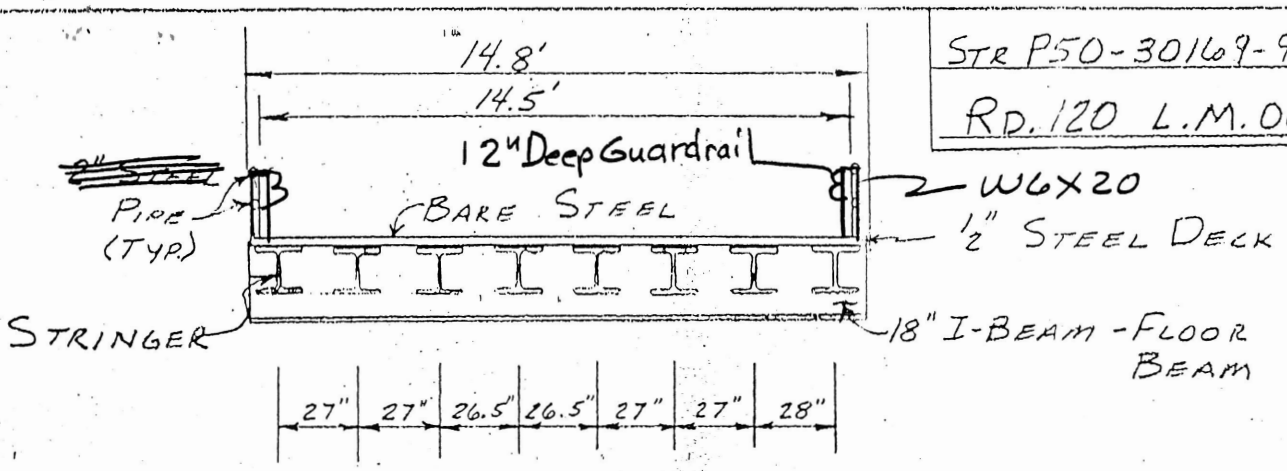


TYPICAL SECTION OF TIMBER SPANS

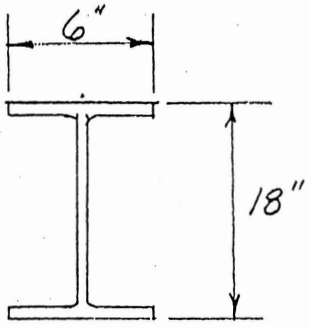
STR P50-30169-914401

RD. 120 L.M. 0002

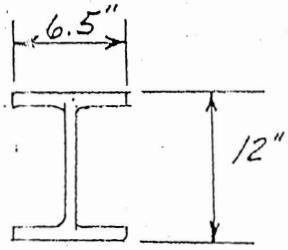
5/8



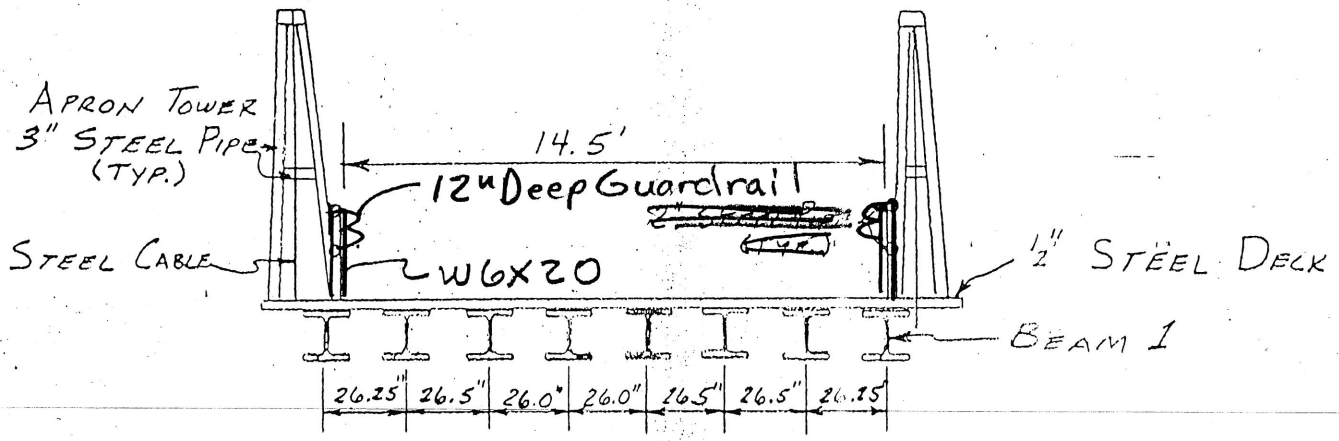
TYPICAL SECTION OF ROADWAY AT SUPPORTS OVER BARGE



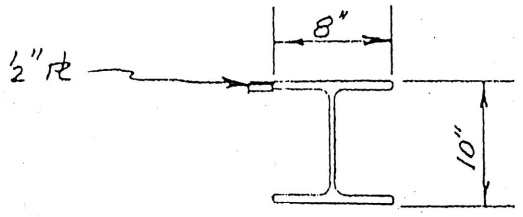
TYPICAL SECTION OF 18" I-BEAM FLOOR BEAM



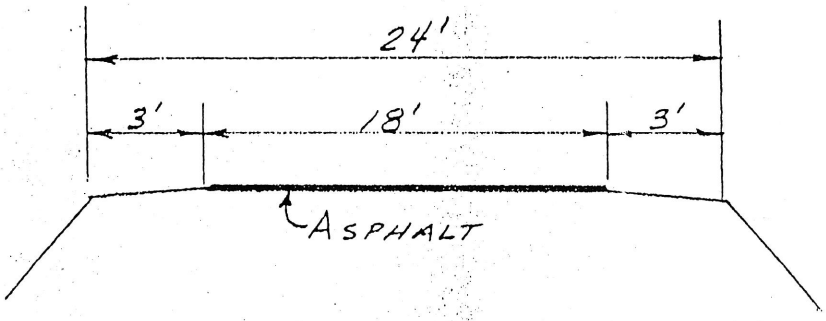
TYPICAL SECTION STRINGER BEAM



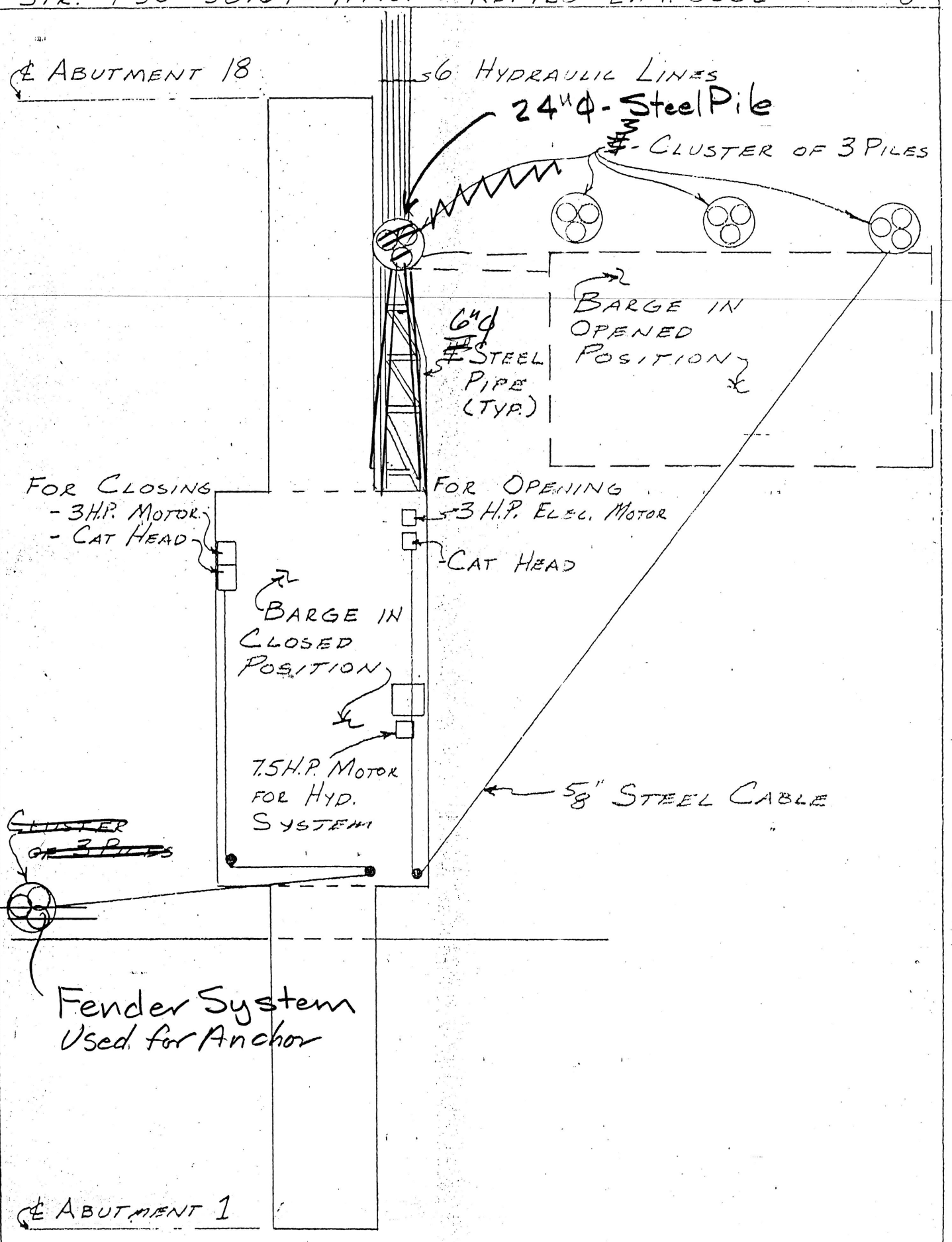
APRON AT BENTS 9 & 10

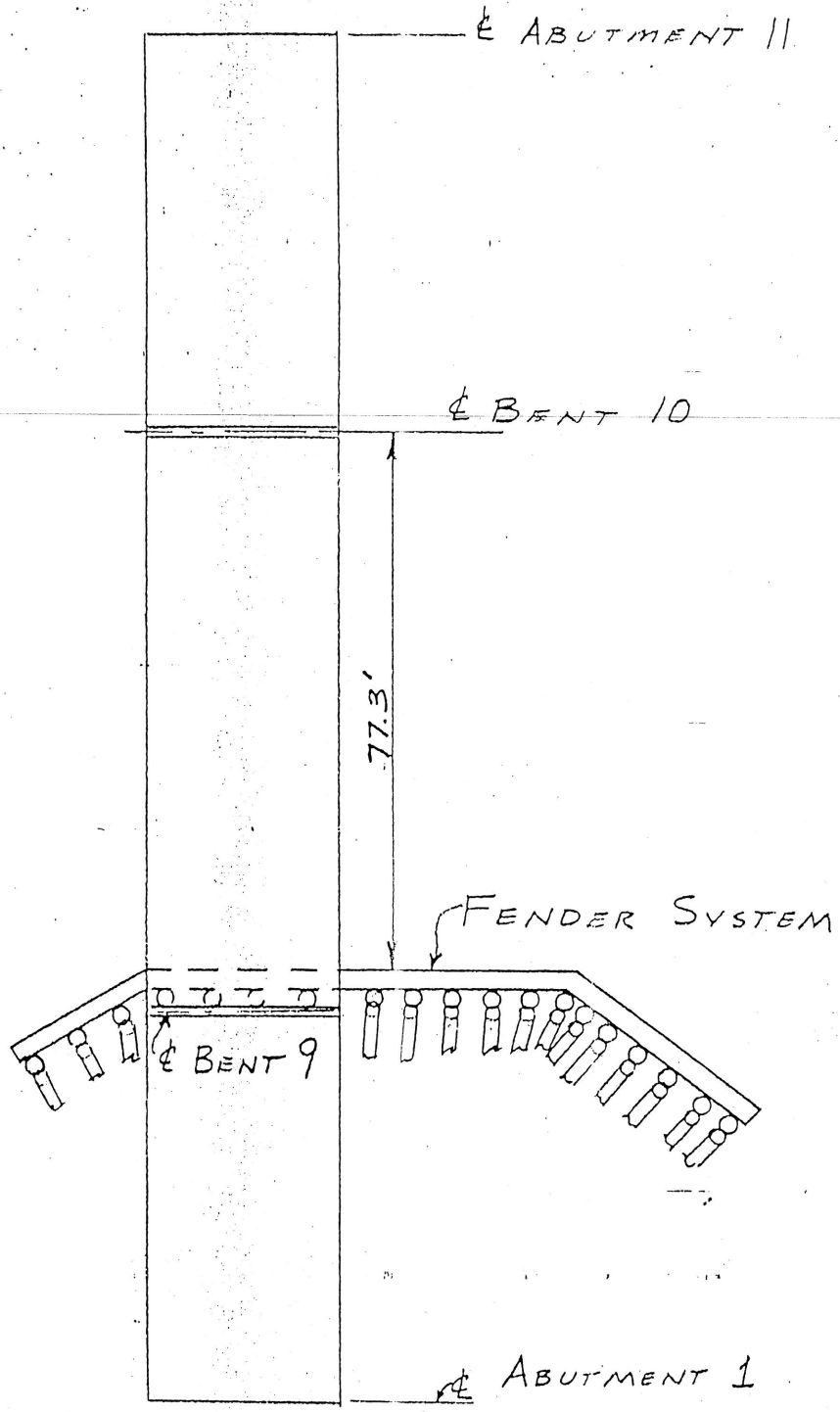


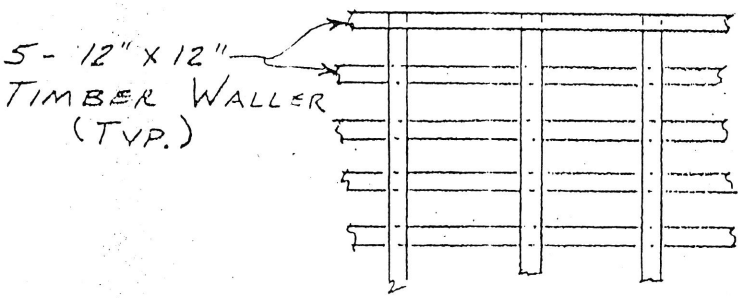
BEAM 1 SECTION



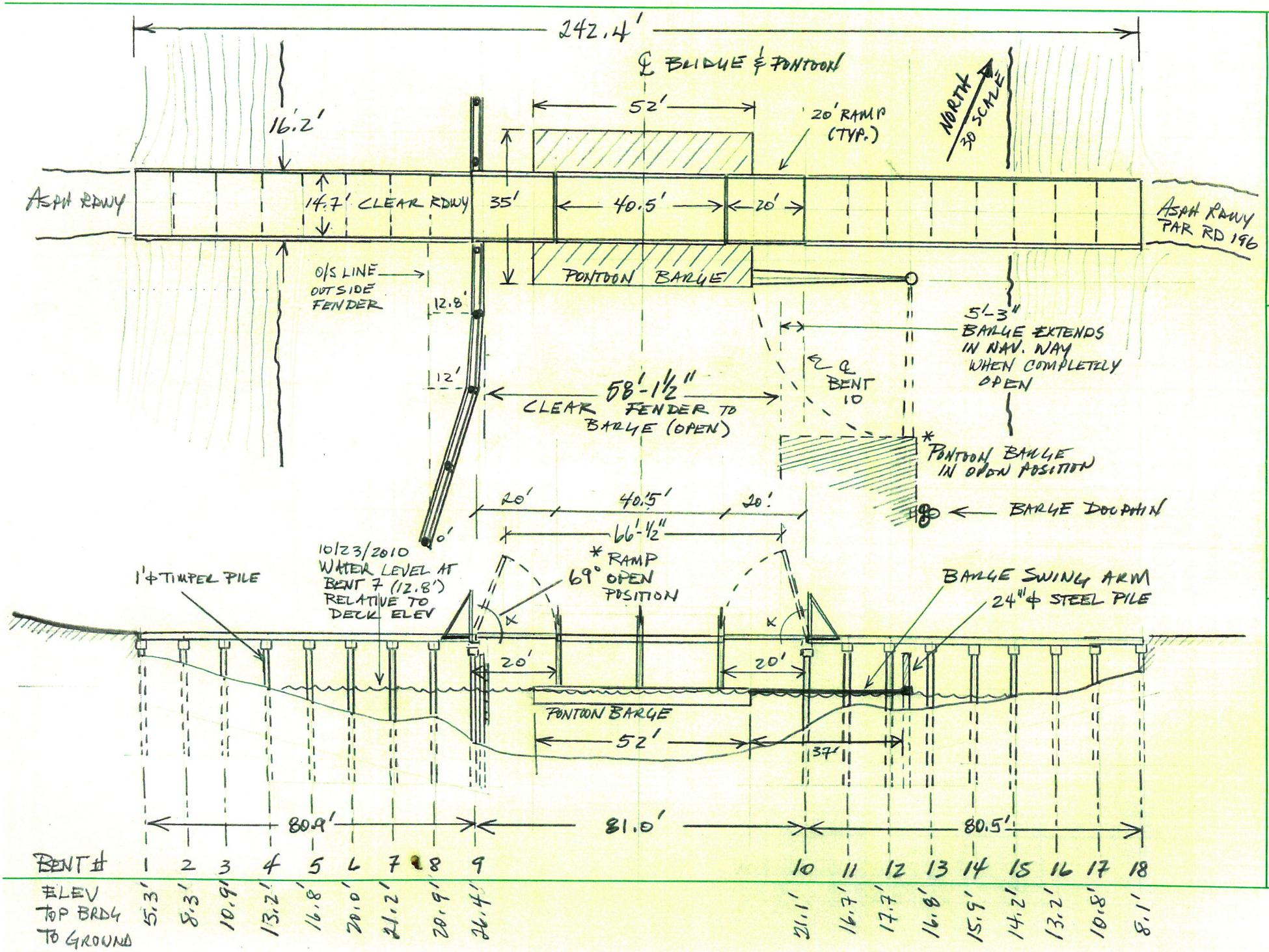
TYPICAL SECTION OF ROADWAY

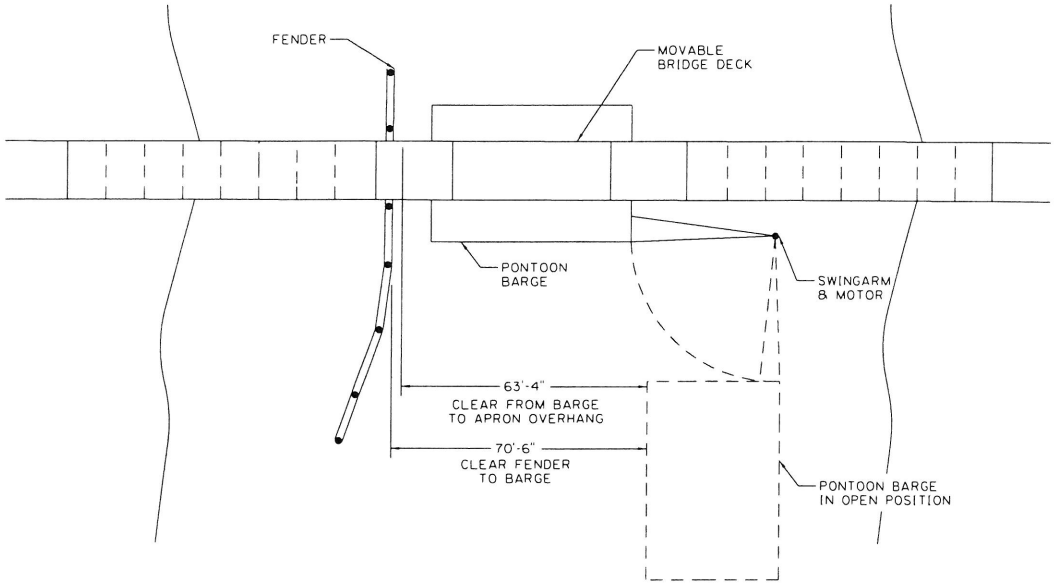

℄ ABUTMENT 18
56 HYDRAULIC LINES
24"ϕ - Steel Pile
3 - CLUSTER OF 3 PILES
BARGE IN OPENED POSITION
6"ϕ STEEL PIPE (TYP.)
FOR CLOSING
- 3H.P. MOTOR
- CAT HEAD
FOR OPENING
3 H.P. ELEC. MOTOR
CAT HEAD
BARGE IN CLOSED POSITION
7.5H.P. MOTOR FOR HYD. SYSTEM
5/8" STEEL CABLE
CLUSTER OF 3 PILES
Fender System
Used for Anchor
℄ ABUTMENT 1



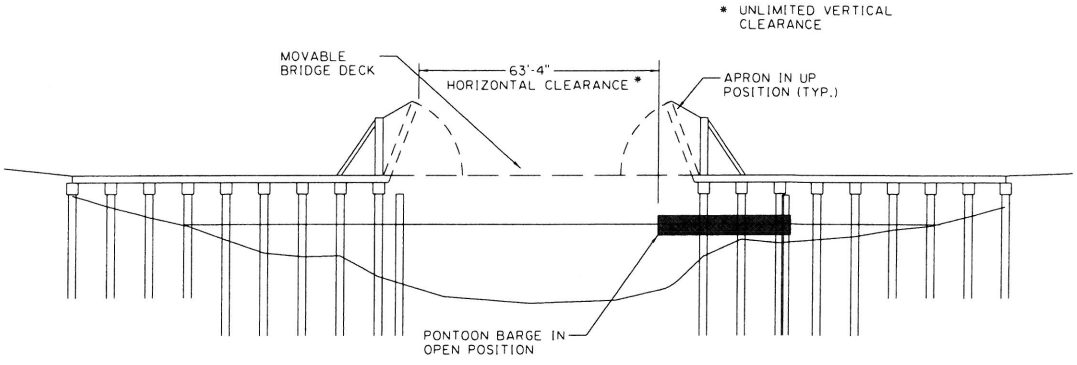


TYPICAL FENDER SYSTEM





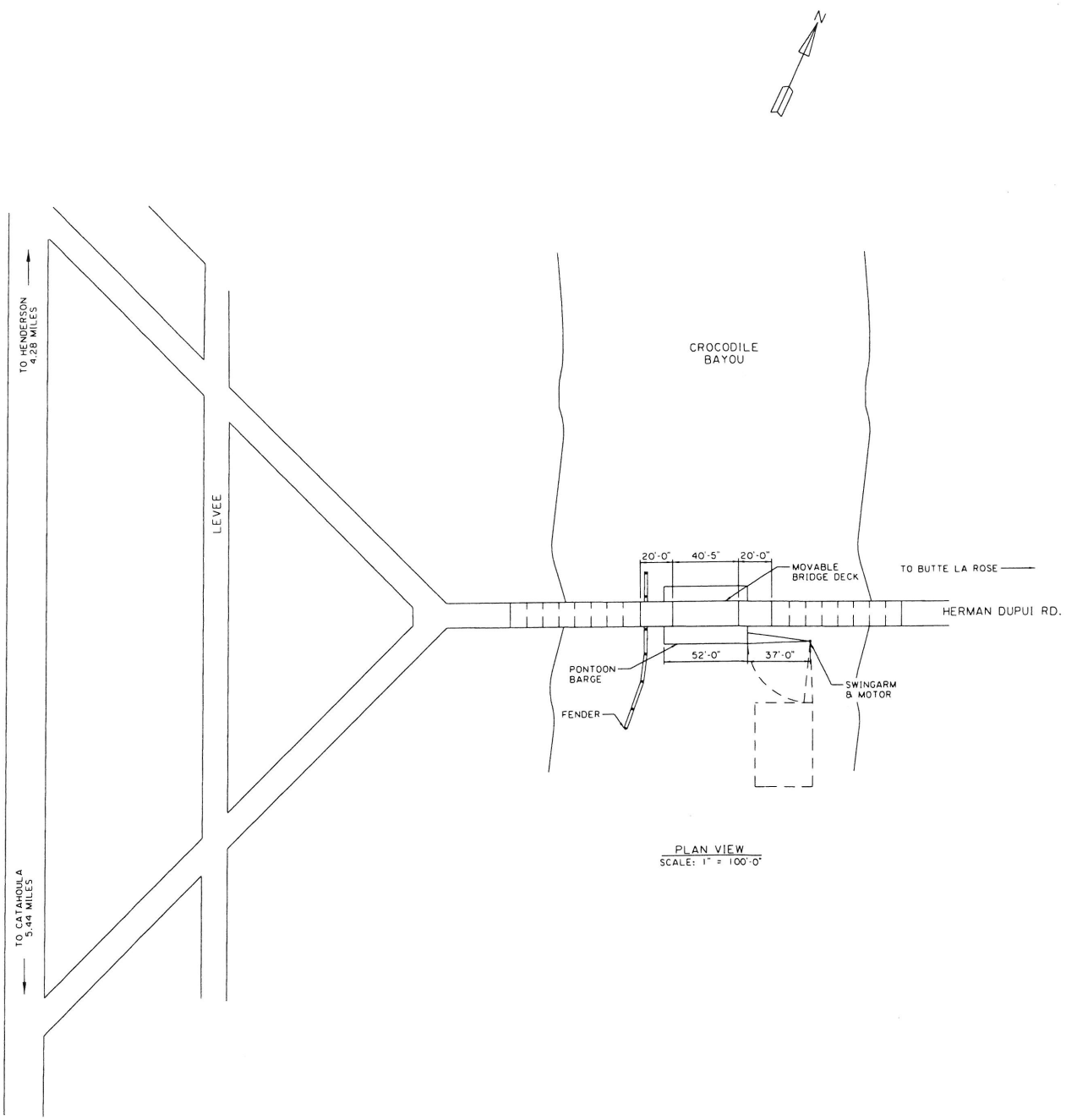
PLAN VIEW
SCALE: 1" = 50'-0"



PROFILE VIEW
SCALE: 1" = 50'-0"

BUTTE LAROSE PONTOON BRIDGE
CROCODILE BAYOU

FEBRUARY 28, 2011



PLAN VIEW
SCALE: 1" = 100'-0"

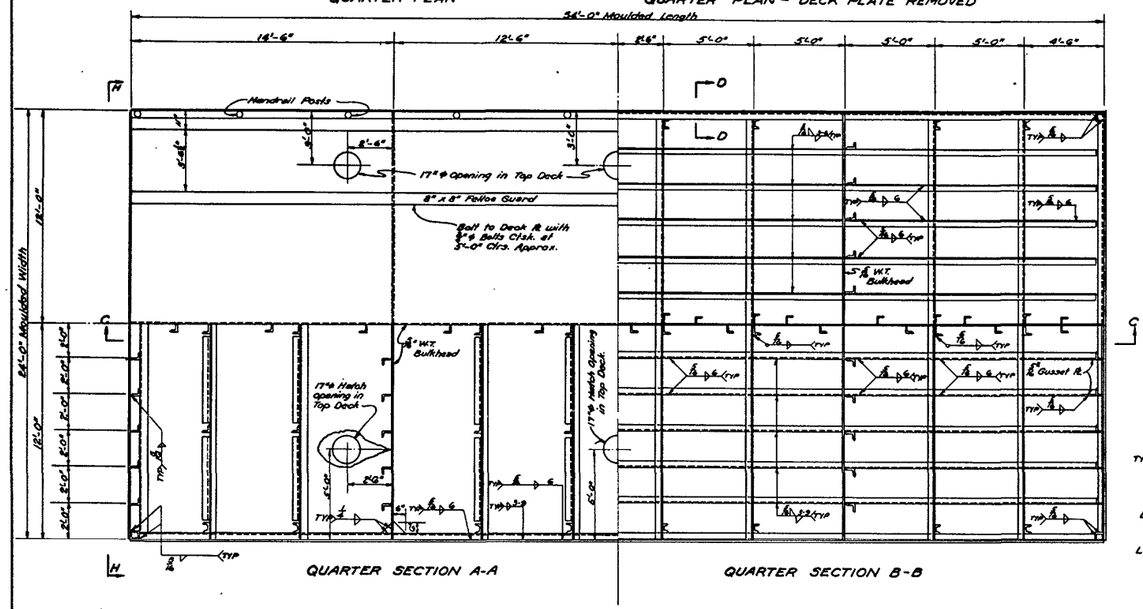
BUTTE LAROSE PONTOON BRIDGE
CROCODILE BAYOU

FEBRUARY 28, 2011

	STATE PROJECT	PARISH	SHEET NO.

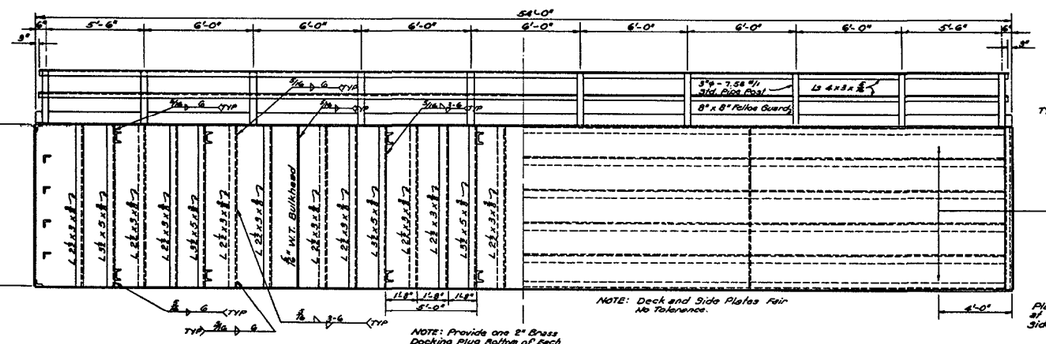
QUARTER PLAN

QUARTER PLAN - DECK PLATE REMOVED



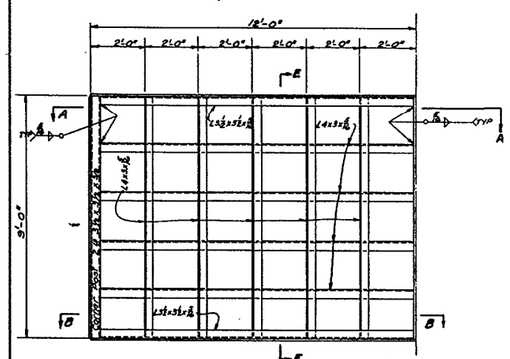
QUARTER SECTION A-A

QUARTER SECTION B-B

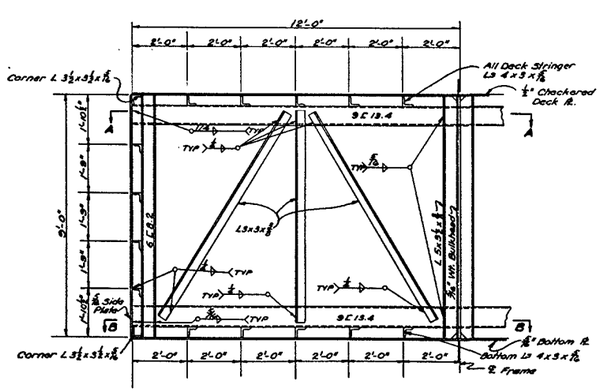


HALF SECTION C-C

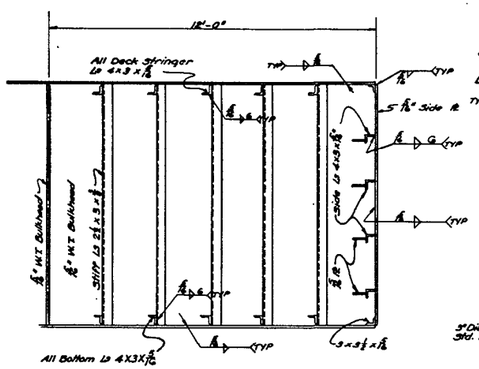
HALF SIDE ELEVATION



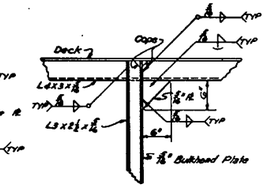
VIEW H-H END PLATE REMOVED (TYPICAL)



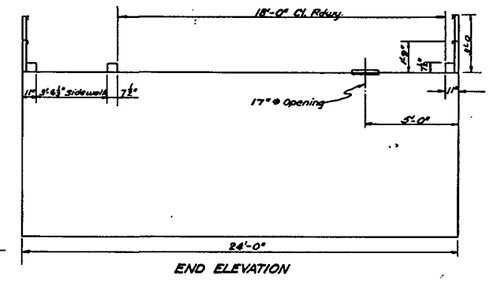
HALF SECTION TYPICAL TRANSVERSE FRAME



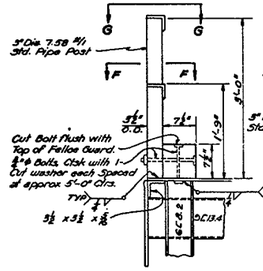
HALF SECTION TRANSVERSE BULKHEAD



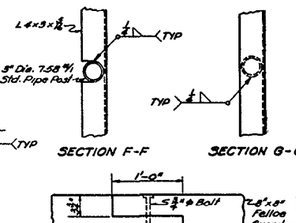
CONNECTION DETAIL
Showing Connection of Deck or Bottom Stringers to Transverse Bulkhead.



END ELEVATION

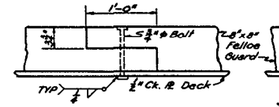


PART SECTION
Showing Handrail & Felloe Guard Details

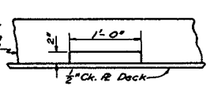


SECTION F-F

SECTION G-G

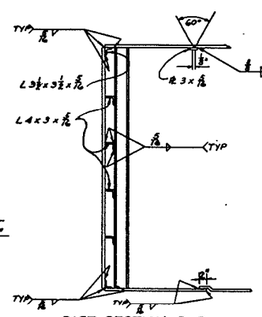


TYPICAL FELLOE GUARD SPLICE



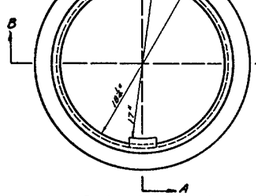
TYPICAL DRAIN OPENING IN FELLOE GUARD

NOTE:
1- Reqd. Every other Handrail Space

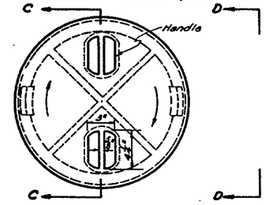


PART SECTION D-D

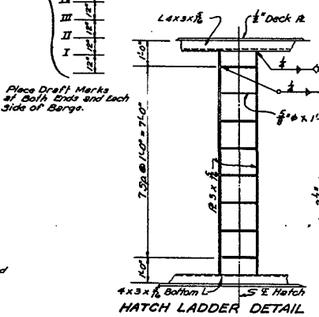
PART SECTION E-E



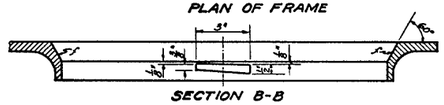
PLAN OF FRAME



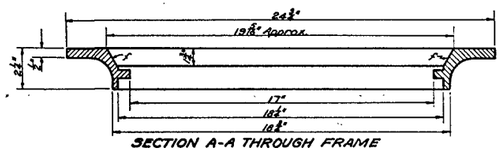
PLAN OF COVER



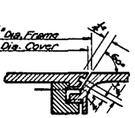
HATCH LADDER DETAIL
ONE REQ'D. FOR EACH HATCH



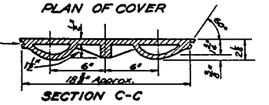
SECTION B-B



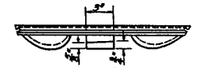
SECTION A-A THROUGH FRAME



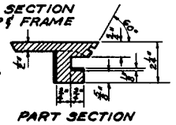
PART SECTION COVER & FRAME



SECTION C-C

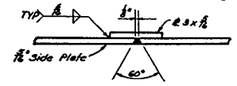


VIEW D-D



PART SECTION OF COVER

NOTE:
Hatch Details shown are for Std. Flush Type Hatch manufactured by Dibert, Bancroft & Ross Co., Ltd. of New Orleans, La. Drawings for other Flush Type Hatches may be submitted and if in the opinion of the Engineer, they are equal to the Type shown, they will be approved for use on the Barge.



TYPICAL VERTICAL SPLICE (SIDE PLATE)
Use Same for Transverse Joints in Deck and Bottom Plates.

SECTION THROUGH HATCH, FRAME, DECK & DECK ANGLES

GENERAL NOTES:
Deck Loading : A.A.S.H.O.(1941)-H-15
Specifications : American Welding Society (1941) for Welded Highway and Railway Bridges, Together with Special Provisions.
Steel: Class "A" of above Provisions.
Paint: First Coat - Red Lead Paint
Second Coat - Red Lead tinted with Lamp Black
Third Coat - Blue Lead Paint.
See Special Provisions for Formulas.
Creo Timber = .364 M.F.B.M.

STANDARD PLAN
WELDED STEEL PONTOON BARGE
24'-0" x 54'-0" x 9'-0"

DATED MAY 2, 1951

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS
BRIDGE DESIGN SECTION

DESIGNED	DETAILED L.Dup	TRACED
CHECKED	CHECKED H.F. Johnson	CHECKED H.F. Johnson

DATE	DESCRIPTION	BY
5-21-51	Copy to blue lead Paint in Creo tanks	E.A.B.
REVISIONS		

S.M. 38

HAER No. LA-34

STATE PROJECT	PARISH	SHEET No.

QUARTER PLAN

QUARTER PLAN – DECK PLATE REMOVED

QUARTER SECTION A-A

QUARTER SECTION B-B

HALF SECTION C-C

HALF SIDE ELEVATION

HALF SECTION TRANSVERSE BULKHEAD

CONNECTION DETAIL
Showing Connection of Deck or Bottom Stringers to Transverse Bulkhead

END ELEVATION

PART SECTION
Showing Handrail & Felloe Guard Details

SECTION F-F

SECTION G-G

TYPICAL FELLOE GUARD SPLICE

TYPICAL DRAIN OPENING IN FELLOE GUARD

NOTE:
1 – Reqd. Every other Handrail Space

PART SECTION D-D

PART SECTION E-E

PLAN OF FRAME

PLAN OF COVER

SECTION B-B

SECTION C-C

VIEW D-D

SECTION A-A THROUGH FRAME

PART SECTION COVER & FRAME

PART SECTION OF COVER

NOTE:
Hatch Details shown are for Std. Flush Type Hatch manufactured by Dibert, Bancroft & Rose Co., Ltd. of New Orleans, La. Drawings for other Flush Type Hatches may be submitted and if in the opinion of the Engineer, they are equal to the type shown, they will be approved for use on the Barge.

HATCH LADDER DETAIL
ONE REQ'D. FOR EACH HATCH

TYPICAL VERTICAL SPLICE (SIDE PLATE)
Use Same for Transverse Joints in Deck and Bottom Plates.

SECTION THROUGH HATCH, FRAME, DECK & DECK ANGLES

VIEW H-H END PLATE REMOVED (TYPICAL)

HALF SECTION TYPICAL TRANSVERSE FRAME

NOTE: Deck and Side Plates Fair No Tolerance.

NOTE: Provide one 2" Brass Docking Plug Bottom of Each Compartment. Same to be Painted one Coat of White Lead when Installed.

GENERAL NOTES:
Deck Loading: A.A.S.H.O.(1941)–H-15
Specifications: American Welding Society(1941) for Welded Highway and Railway Bridges, Together with Special Provisions.
Steel: Class "A" of above Provisions.
Paint: First Coat – Red Lead Paint
Second Coat – Red Lead Tinted with Lamp Black
Third Coat – Blue Lead Paint.
See Special Provisions for Formulas.
Tree Timber = A.S.A.M.E.B.M.

STANDARD PLAN
WELDED STEEL PONTOON BARGE
24'-0" x 54'-0" x 9'-0"

DATED MAY 9 1951

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED	DETAILED L.O.D.	TRACED R.P.L.
CHECKED	CHECKED H.R.H.	CHECKED H.R.H.

DATE	DESCRIPTION	BY
5-21-51	Very Tubular Lead Paint in Two Coats	R.A.B.

31435

Louisiana Historic Bridge

HAER Bridge

Base @ Modern

FS	Desc
500	60d sel
501	PK nail sel
502	60d sel
503	60d sel
504	60d sel
505	PK nail sel

A. Burns
R. Braden
R. Daumer

HAER No. LA-34 (3)

BK 16-10

31435

Louisiana Historic Bridge

HAER Bridge

Scan 1 (Tripod)

Sta	503
BS CK	500

Scan 2 (Tripod)

Sta	505	
BS CK	503	501

Scan 3 (Tripod)

Sta	504
BS CK	502

Scan 4 (Tripod)

Sta	502
BS CK	504, 501

Scan 5 (Tripod)

Sta	501	BS CK	500, 502

Scan 6 (Tripod)

Sta	500	BS CK	501, 503

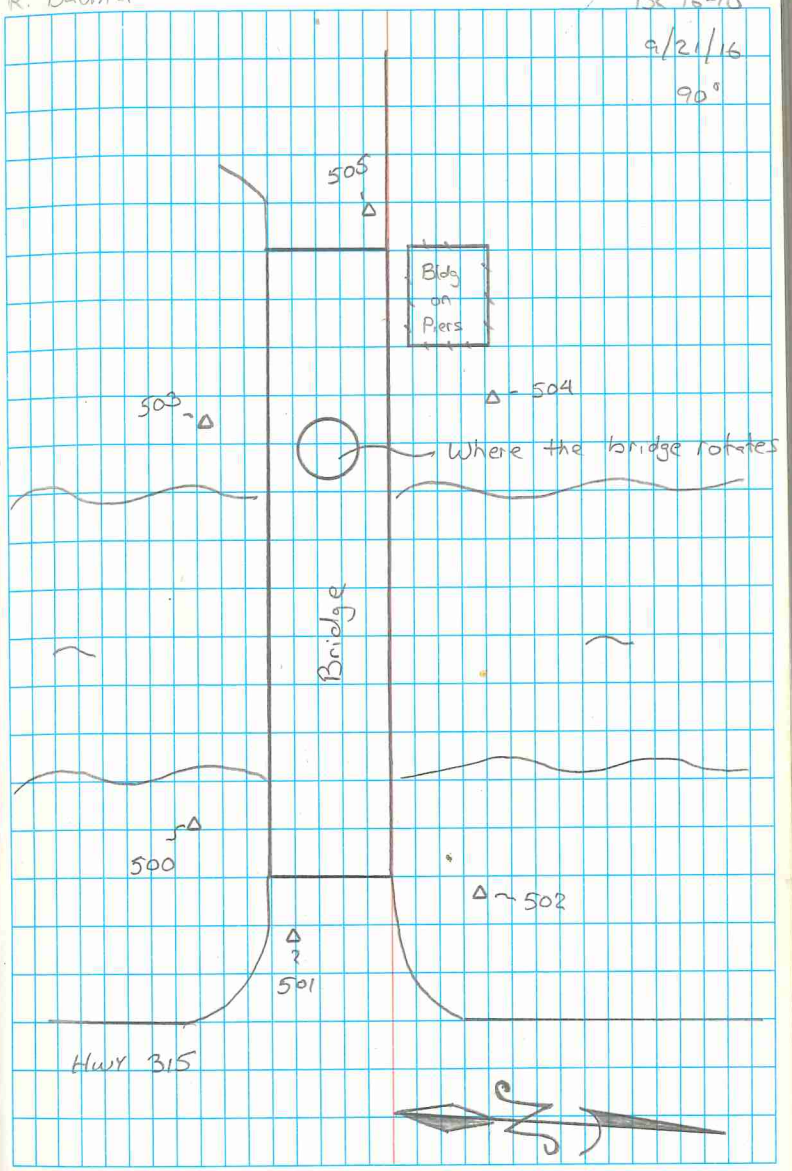
A. Burns
R. Brodon
R. Daumer

④

BK 16-10

9/21/16

90°




105
106
101
10
11
108
13
104
102
103
12

BRIDGE 200896.txt

Status: VALID Registration

Mean Absolute Error:

   for Enabled Constraints = 0.015 ft

   for Disabled Constraints = 0.000 ft
Date: 2017.10.05 10:33:00

Database name : BRIDGE 200896 crocodile bayou

ScanWorlds
CONTROL2.txt (Leveled)
101: SW-003 (Leveled)
103: SW-004 (Leveled)
104: SW-005 (Leveled)
105: SW-008 (Leveled)
106: SW-002 (Leveled)
108: SW-001 (Leveled)
Station-002: SW-007 (Leveled)

Constraints

Name	ScanWorld	ScanWorld	Type	On/Off	Weight	Error	Error Vector	Horz	Vert
108	CONTROL2.txt (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.030 ft	(0.002, 0.002, -0.030) ft	0.003 ft	-0.030 ft
101	CONTROL2.txt (Leveled)	101: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.021 ft	(0.014, 0.013, -0.009) ft	0.019 ft	-0.009 ft
13	CONTROL2.txt (Leveled)	104: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.008 ft	(0.003, 0.005, -0.006) ft	0.006 ft	-0.006 ft
13	CONTROL2.txt (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(-0.017, 0.001, -0.007) ft	0.017 ft	-0.007 ft
103	CONTROL2.txt (Leveled)	103: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.007 ft	(0.006, 0.004, -0.001) ft	0.007 ft	-0.001 ft
10	CONTROL2.txt (Leveled)	103: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.006 ft	(0.005, -0.001, -0.003) ft	0.005 ft	-0.003 ft
10	CONTROL2.txt (Leveled)	105: SW-008 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.016 ft	(0.012, -0.002, -0.011) ft	0.012 ft	-0.011 ft
10	CONTROL2.txt (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.009 ft	(0.008, 0.001, 0.000) ft	0.009 ft	0.000 ft
104	CONTROL2.txt (Leveled)	104: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.025 ft	(-0.023, -0.009, 0.005) ft	0.024 ft	0.005 ft
12	CONTROL2.txt (Leveled)	101: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.015 ft	(-0.009, 0.004, 0.012) ft	0.010 ft	0.012 ft
12	CONTROL2.txt (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.021 ft	(-0.007, 0.018, 0.010) ft	0.019 ft	0.010 ft
105	CONTROL2.txt (Leveled)	105: SW-008 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.018 ft	(-0.004, -0.009, 0.015) ft	0.010 ft	0.015 ft
105	CONTROL2.txt (Leveled)	106: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.015 ft	(0.002, -0.010, 0.011) ft	0.010 ft	0.011 ft
105	CONTROL2.txt (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.026 ft	(0.011, -0.022, 0.006) ft	0.025 ft	0.006 ft
106	CONTROL2.txt (Leveled)	106: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.011 ft	(0.002, 0.000, -0.011) ft	0.002 ft	-0.011 ft
12	101: SW-003 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.007 ft	(0.003, 0.003, 0.005) ft	0.004 ft	0.005 ft
12	101: SW-003 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.014 ft	(0.002, 0.014, -0.002) ft	0.014 ft	-0.002 ft
10	103: SW-004 (Leveled)	105: SW-008 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.010 ft	(0.007, 0.000, -0.007) ft	0.007 ft	-0.007 ft
10	103: SW-004 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.006 ft	(0.004, 0.003, 0.003) ft	0.004 ft	0.003 ft
13	104: SW-005 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.020 ft	(-0.020, -0.004, -0.001) ft	0.020 ft	-0.001 ft
10	105: SW-008 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.012 ft	(-0.004, 0.003, 0.011) ft	0.005 ft	0.011 ft
105	105: SW-008 (Leveled)	106: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.007 ft	(0.005, -0.001, -0.005) ft	0.005 ft	-0.005 ft
105	105: SW-008 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.022 ft	(0.015, -0.013, -0.009) ft	0.020 ft	-0.009 ft
105	106: SW-002 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.016 ft	(0.009, -0.012, -0.004) ft	0.015 ft	-0.004 ft
12	108: SW-001 (Leveled)	Station-002: SW-007 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.013 ft	(-0.001, 0.011, -0.008) ft	0.011 ft	-0.008 ft

ScanWorld Transformations
CONTROL2.txt (Leveled)
translation: (0.000, 0.000, 0.000) ft
rotation: (0.0000, 1.0000, 0.0000):0.000 deg

101: SW-003 (Leveled)
translation: (3153980.569, 648256.892, 25.796) ft
rotation: (0.0000, 0.0000, 1.0000):48.199 deg

103: SW-004 (Leveled)
translation: (3153778.865, 648118.061, 19.857) ft
rotation: (0.0000, 0.0000, 1.0000):-158.236 deg

104: SW-005 (Leveled)
translation: (3153746.568, 648188.561, 18.971) ft
rotation: (-0.0000, -0.0000, -1.0000):-144.530 deg

BRIDGE 200896.txt

105: SW-008 (Leveled)
translation: (3153687.404, 648310.183, 20.213) ft
rotation: (-0.0000, -0.0000, -1.0000):-91.000 deg

106: SW-002 (Leveled)
translation: (3153953.540, 648272.764, 17.462) ft
rotation: (-0.0000, -0.0000, -1.0000):60.083 deg

108: SW-001 (Leveled)
translation: (3153961.760, 648220.043, 14.133) ft
rotation: (-0.0000, -0.0000, -1.0000):-96.790 deg

Station-002: SW-007 (Leveled)
translation: (3153718.357, 648153.576, 26.995) ft
rotation: (-0.0000, -0.0000, -1.0000):-105.861 deg

Unused ControlSpace Objects
CONTROL2.txt (Leveled):
    Vertex : TargetID : 11
    Vertex : TargetID : 102

Station-002: SW-007 (Leveled):
    Vertex : unlabeled

SJB GROUP, LLC
QUALITY BY DESIGN

Parks & Planning
Transportation
Site Development
Utility Systems
Land Surveying
Construction Services
Environmental Services
Real Estate Services

P. O. Box 1751
Baton Rouge, Louisiana
70821-1751
(225) 769-3400
Fax (225) 769-3596
www.sjbgroup.com

State Project No. H.007020
Historic Bridge Inventory

SJB Group performed terrestrial laser scanning and created deliverables in accordance with HAER 4.0 Measured Drawings for six bridges throughout Louisiana. The six bridges surveyed under this contract were bridge numbers 008970, 009130, 014900, 058710, 200865 and 200896. The following sections are a description of the equipment and procedures used for this project.

Section I – Equipment

The equipment used in the establishment of the primary control network for this project was manufactured by Leica. Real-time kinematic GPS observations were collected using a Leica GS15 Smart Antenna "Performance" and CS15 3.5G Field Controller. Figure 12 is an image of the equipment used.

Figure 1: Photograph of Leica TS15 Total Station and Leica CS/GS15 GPS uni

Below is a table of the serial numbers for the equipment used for this project.

Description	Model Number	Serial Number
Leica ScanStation	C10	1260997
Leica Base	GS15	1508955
Leica Rover	GS15	1509134
Leica Controller	CS15	25022556

Section II – Field Procedures

Marks set via real-time kinematic GPS observations were established through a series of ten (10) second observations. Each mark was occupied three (3) times throughout the day from at least two (2) different base stations for a total of six (6) observations. Primary control marks were periodically cross checked throughout the day to ensure an accurate basis of measurement.

Section III – Equipment

Scanning was performed with the Leica ScanStation C-10, serial number 120997, in conjunction with HDS 6 inch circular planar fixed height (1.472 meters) targets

Figure 2: Photograph of Leica ScanStation C10

Section IV – Field Procedures

Scanning observations were made by independent instrument locations which included a minimum of four HDS targets on Secondary Control Marks. At each scanning location the C10 collects observed data relative to the instrument and builds a data set which identifies the HDS target marks. Each data set is called a "Scan World" for the purposes of computation.

Section V – Data Processing

The separate Scan Worlds were "registered" using Leica Cyclone Version 8.0 software which merges the independent observations by resection and statistical comparison of the State Plane values associated with each of the HDS target locations. The State Plane resolution data set which merges all scanned information is presented in Appendix "E." TopoDOT version 9.0.0.0 was used to extract features from the point cloud registered in Leica Cyclone.