APPENDIX O. BIOLOGICAL ASSESSMENT

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Shelby County, Tennessee / Crittenden County, Arkansas

I-55; Bridge over the Mississippi River

America's River Crossing

PIN 132733.01

BIOLOGICAL ASSESSMENT FOR:

Pallid Sturgeon

Scaphirhynchus albus

U.S. FISH AND WILDLIFE SERVICE

Prepared Pursuant To

Section 7(c) of the Endangered Species Act of 1973, As Amended

Prepared By:

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INTRODUCTION

The Tennessee Department of Transportation (TDOT) proposes to replace the Interstate 55 Bridge over the Mississippi River in Shelby County, Tennessee (Figure 1). The purpose of this Biological Assessment (BA) is to review the proposed project to determine whether it may impact the federally listed Pallid Sturgeon (*Scaphirhynchus albus)*. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

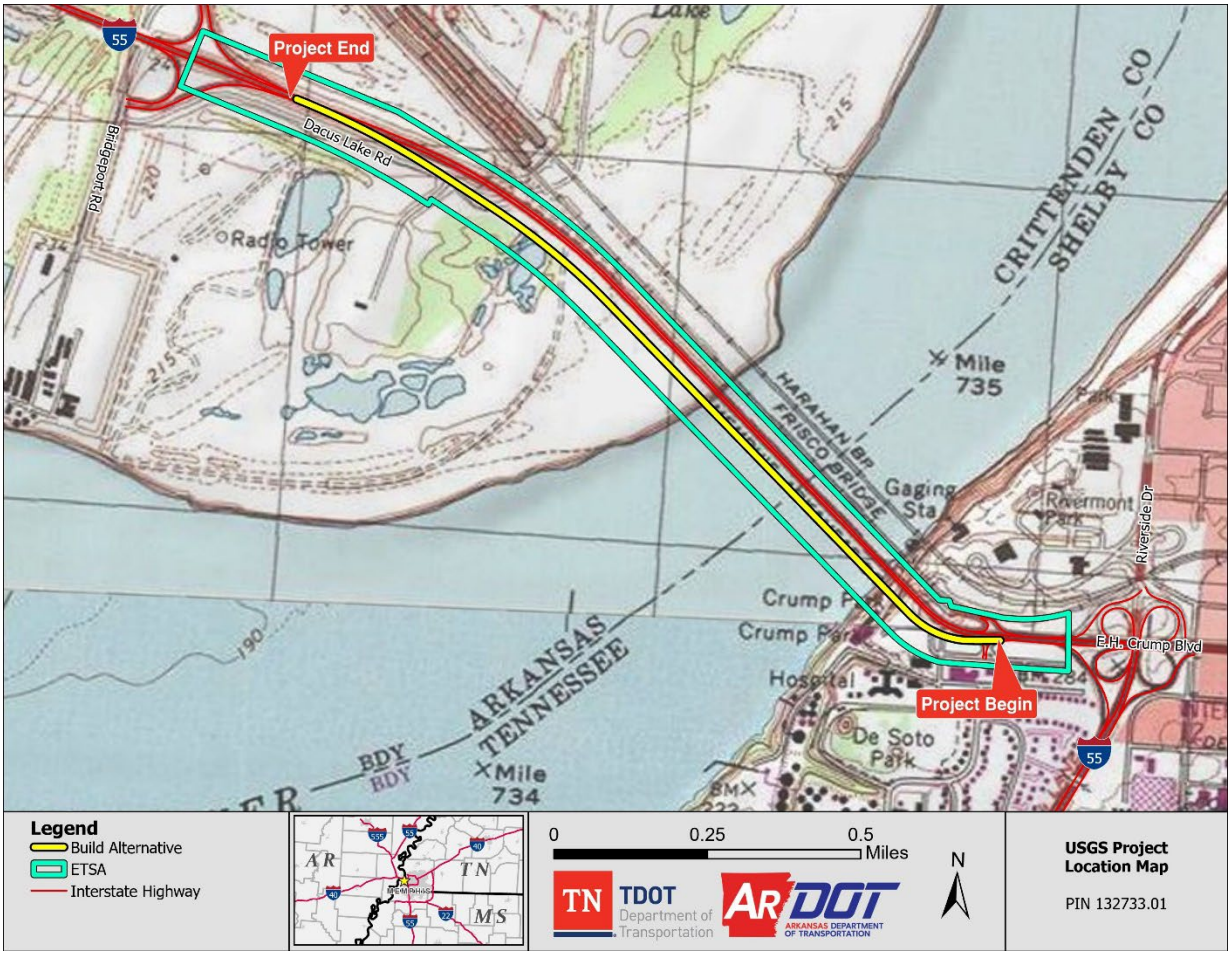

Figure 1. Project location: Interstate 55 Bridge over the Mississippi River in Shelby County, Tennessee.

On 25 March 2024, the TDOT Ecology Unit submitted a request for an official Section 7 species list through IPaC. The U.S. Fish and Wildlife Service (FWS) responded on 8 April 2024 informing TDOT that the federally listed (endangered) Pallid Sturgeon (*Scaphirhynchus albus*) occurs in this reach of the Mississippi River and a qualified individual should assess potential

impacts and determine if the proposed project may affect this species. Timeline and copies of the correspondence received can be found in Appendix F.

PROJECT DESCRIPTION

The proposed roadway improvements extend from just west of I-55 Exit 12 in Tennessee to just east of I-55 Exit 1 (Bridgeport Road) in Arkansas. The proposed new bridge would be constructed offset to the southwest downstream of the existing bridge (Figure 2). It is anticipated that the existing Memphis and Arkansas Bridge would be removed after project completion.

The I-55 bridge, which is also known as the Memphis-Arkansas Bridge, is nearly 75 years old and opened to traffic in December 1949. The I-55 bridge is one of only two Mississippi River vehicular crossings in the Memphis area, the other being the I-40 bridge, which opened to traffic in 1973 and is located approximately two miles north of the I-55 bridge. The next closest vehicular crossing of the Mississippi River is located approximately 71 miles north (I-155 bridge between Missouri and Dyer County, Tennessee) and approximately 54 miles south (US 49 bridge between Helena, Arkansas, and Mississippi).

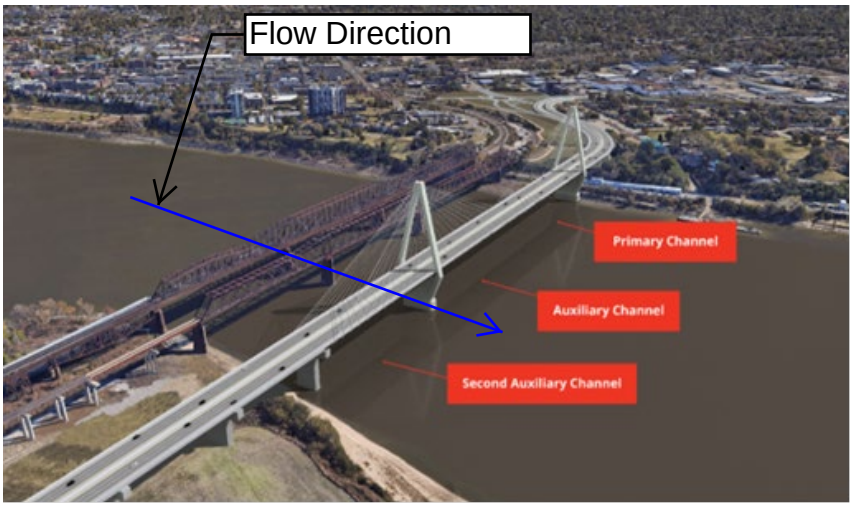

Figure 2. Conceptual rendering of proposed project.

Itemized Construction Activities

Individual activities or construction sequencing could change, due to unforeseen circumstances. Project plans are included in Appendix B of this document.

1) **Construction of Proposed Piers**

Three piers will be constructed in the Mississippi River. Two piers will include towers (Bent/Pier 14 (West Tower) and Bent Pier 15 (Tennessee Bank -East Tower)) and will be within the main river channel. One pier (Bent/ Pier 13 (Arkansas Bank)) will be near the bank on the Arkansas side of the river. The piers nearest the banks (13 and 15) will be constructed with the use of coffer dams while pier 14 will be constructed using caissons. A caisson is a watertight chamber or enclosure that is used for underwater construction or as a foundation. Caissons can be made of concrete and steel and can be built on-site or off-site and then moved to the installation site.

Additional bents (1-12) will be constructed in the river flood plain but work on these piers will be done above the OHWM and will be done in the dry without the use of coffer dams or diversions.

Bent/Pier 13 (Arkansas Bank) – Estimated 150'x90' cofferdam (Appendix C) to facilitate installation of 15 (5 x 3) 10'-diameter concrete drilled shafts. Drilled shafts are anticipated as the most cost effective and efficient foundation type to construct because of proximity to riverbank.

- Installation – from bank and/or barge install temporary support piles, drive cofferdam sheet piles, suction dredge and install internal bracing, place concrete plug and drill and place 15 10'-diameter concrete drilled shafts. Install tremie concrete seal course to keep dry. Install reinforcing steel and pour concrete footing cap. Install reinforcing steel and pour concrete for pier column and cap beam.
- Maintenance – water pumping and suction dredging as required to maintain dry work area.
- Removal – from bank and/or barge pull and remove cofferdam sheet piles. Alternatively, the contractor may request to cut off the sheet piles at the top of footing.
- Timeframe for cofferdam construction and removal:
    - Duration for Cofferdam Installation – ± 2 months
    - Duration Cofferdam in Place – ± 1 year
    - Duration for Cofferdam Removal - ± 1 month

Bent/Pier 15 (Tennessee Bank – East Tower) – Estimated 150'x150' cofferdam (Apppendix C) to facilitate installation of 25 (5 x 5) 10'-diameter concrete drilled shafts. Drilled shafts are anticipated as the most cost effective and efficient foundation type to construct because of proximity to riverbank.

- Installation – from bank and/or barge install temporary support piles, drive cofferdam sheet piles, suction dredge and install internal bracing, place concrete plug and drill and place 25 10'-diameter concrete drilled shafts. Install tremie concrete seal course to keep dry. Install reinforcing steel and pour concrete footing cap. Install reinforcing steel and pour concrete for pier column, cap beam and tower.

- Maintenance – water pumping and suction dredging as required to maintain dry work area.
- Removal - from bank and/or barge pull and remove cofferdam sheet piles. Alternatively, the contractor may request to cut off the sheet piles at the top of footing.
- Timeframe for cofferdam construction and removal:
    - Duration for Cofferdam Installation – ± 2 months
    - Duration Cofferdam in Place – ± 1 year
    - Duration for Cofferdam Removal - ± 1 month

Bent/Pier 14 (West Tower) – An estimated 150'x150' caisson (Appendix C) with a 450'x300' revetment blanket to prevent river scour is anticipated for the Bent/Pier 14 (West Tower) foundation. A caisson type foundation is anticipated because it has been the predominant foundation type for Mississippi River Channel crossings and would provide desirable seismic design characteristics.

- Installation – from barges the estimated 450'x300' revetment blanket consisting of concrete articulating blocks or other approved material would be installed on the river bottom to prevent river scour around the perimeter of the caisson structure. At a location to be determined by the contractor along the riverbank, the caisson base would be constructed and floated into position over revetment mattress and then sunk to river bottom. Alternating between excavation and construction of additional sections, the caisson would ultimately be lowered to a depth determined by final design. Temporary guide piles for caisson alignment will be located at the caisson perimeter and a sheet pile current deflector may be installed within the footprint of the revetment blanket. Both will be removed once the construction of the pier begins above the water surface.
- The caisson will be an open cellular structure (square or round holes in the base). The bottom of the caisson is filled with entrapped air to control sinking rates and yaw.
- The caisson will be made of a steel cutting edge and floated into place and then gradually sunk to the right depth by placement of additional concrete sections.
- Additional sections of the caisson will be constructed on the bank and floated into place or will be cast-in-place as the caisson lowers to it final elevation.
- Timeframe for caisson construction:
    - Duration for Revetment Mattress Installation – ± 1 month
    - Duration of in-stream caisson construction - ± 1.5 years
    - Duration in Place – Permanently
    - Duration for Removal – Guide Pile and a sheet pile current deflector removal ± 1 month

2) Demolition of Existing Structure

After construction of the new bridge has been completed, demolition of the existing structure will begin:

- Bridge decking will be removed.
- Bridge sections will be removed by lowering onto barges.
- East and west piers may be removed by haul road from the riverbank.
    - The existing bents located near the Arkansas and Tennessee riverbanks are accessible from landside without construction of rock pads or the riverside via barge. There is an existing access road on the Tennessee side. A haul road will be constructed on the Arkansas side of the river.
- 2 middle piers will be removed to near the water surface by hoe ram or other mechanical means and remaining portions underwater will be blasted to rubbleize the material that will be left on the river bottom (US Coast Guard and USACE will determine elevation).

3) Haul Roads and General Construction Items

A haul road will be constructed to facilitate both construction and demolition activities:

- On the Arkansas side, 20' wide crushed rock access/haul roads would be constructed at-grade adjacent to the north and south outside edges of the proposed bridge deck from Dacus Lake Rd to the riverbank, a distance of approximately 2,400'. The access/haul roads would be located inside the proposed right-of-way and would not extend into the water. The access/haul road along the north side of the proposed bridge should be expected to stay permanently in place to provide for future inspection and maintenance of the new structure. Along the south side of the proposed bridge, that road would be removed upon completion of the new structure which is anticipated to take about four years to complete.

- On the Tennessee side, landside access to the existing and proposed pier locations, if necessary, would be via the privately owned paved area between W Illinois Ave and the bridge location. Access would require either a right-of-entry between the contractor and the property owner or an easement (something is likely already in place for access to the existing bridge).

- Area calculation for these haul roads
    Arkansas Side – 20'x2,400' x 2 = 96,000 SF (48,000 SF per road)
    Tennessee Side – N/A

Staging areas will also be needed near the river to facilitate construction of the new bridge as well as demolition of the existing structure:

- Because of the planned Construction Manager/General Contractor (CM/GC) project delivery, the contractor, through pre-construction phase services, will provide information on planned staging area locations likely sometime between Functional Design and Plan-in Hand Field reviews. Potential staging areas exist on both the Tennessee and Arkansas sides of the river (Figure 3).

Figure 3. Potential staging area on the Arkansas and Tennessee Sides of the Mississippi River.

ACTION AREA

The proposed action will consist of the replacement of the existing Interstate 55 Bridge over the Mississippi River in Shelby County, Tennessee. The Mississippi River flows south within the Action Area, perpendicular to I-55 and serves as a boundary between the states of Tennessee and Arkansas. The Mississippi River is approximately 2,200 feet in width and 65 feet in depth. Wetlands were identified on the Arkansas side of the floodplain in the vicinity of the proposed project.

The Action Area will include the direct footprint of bridge construction activities and the required highway approaches and potential equipment staging areas, as well as a buffered area 1 mile downstream of the bridge to account for sediment drift from incidental sediment releases from bridge construction (Figures 4 & 5). Sediment drift distance was based on estimations of sediment transport within the Duck River and extrapolated to adjust for higher average flows in the Mississippi River (Burrell 2008).

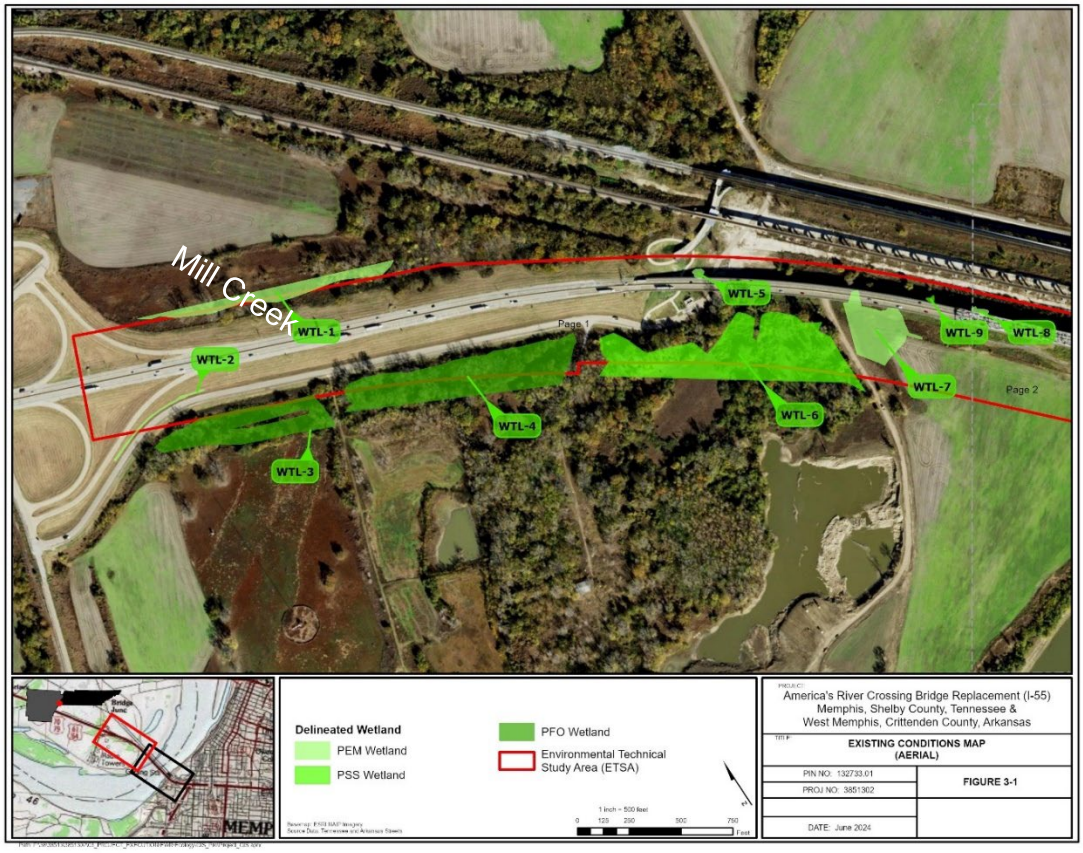

Figure 4. Map of the **Action Area**; Wetlands on Arkansas side of I-55 Bridge over the Mississippi River, Crittenden County, Arkansas

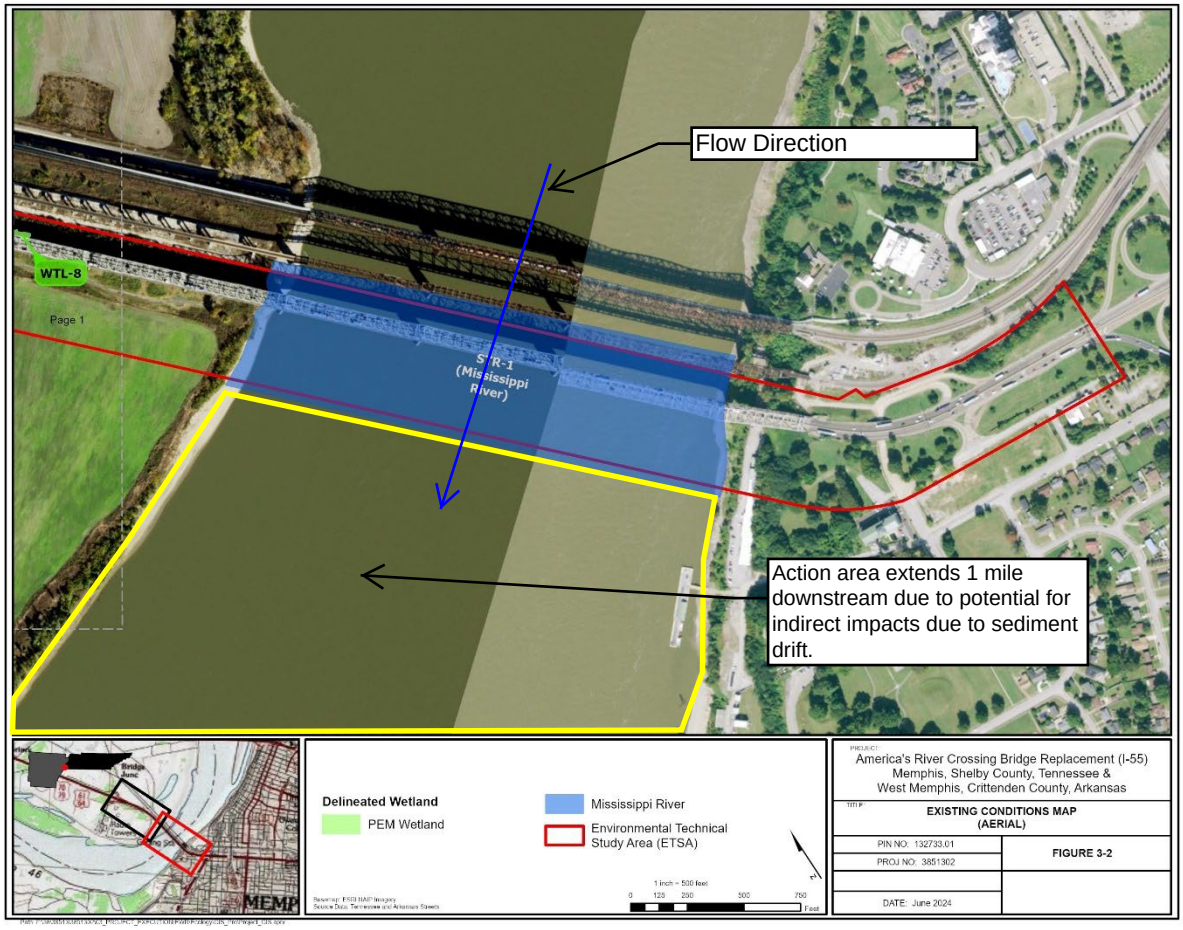

Figure 5 . Map of the **Action Area**; I-55 Bridge over the Mississippi River, Shelby County, TN / Crittenden County, Arkansas

LITERATURE REVIEW

Lower Mississippi River

The lower Mississippi River (LMR) is defined as the Mississippi River from the Mississippi-Ohio rivers confluence to the Gulf of Mexico (Figure 6). This reach of the river is approximately 1,541 Rkm (958 Rmi) in length. Between 1929 and 1955, multiple channelization projects have reduced the length of the LMR by 333.5 Rkm (207 Rmi) (Winkley 1977). The reduction of channel length resulted in the river entrenching in steeper gradient reaches and eroding large amounts of material from the channel banks and bed. Deposition of this material in the lower gradient reaches resulted in a semi-braided channel, and by the 1970s, the river began to

reestablish a meandering condition (Winkley 1977). Bank armoring and levees have been employed in the LMR to stabilize the channel and direct flows to reduce channel erosion.

Levees are often found on the west side of the river and fill is often found on the east side (Cowdrey 1977; Baker et al. 1991). These levees are estimated to have reduced the floodplain area of the LMR by as much as 90% (Baker et al. 1991). Although the LMR channel has been enclosed by levees and fill, numerous and extensive sandbars, vegetated and seasonal islands, and secondary channels remain seasonally connected to the river (Schramm et al. 1999). Despite extensive alteration, the lower Mississippi River retains significant amounts of in-channel complexity and floodplain connectivity thought to be important to Pallid Sturgeon. (Cite the document)

The Action Area for this project is on the Mississippi River at the City of Memphis, around river mile 726. The surrounding area is mostly urban on the east side of the river, with the City of Memphis on the east river bank. The west side of the river in Crittenden County Arkansas is mostly rural floodplain with the exception of the City of West Memphis Arkansas about 4 miles from the project area.

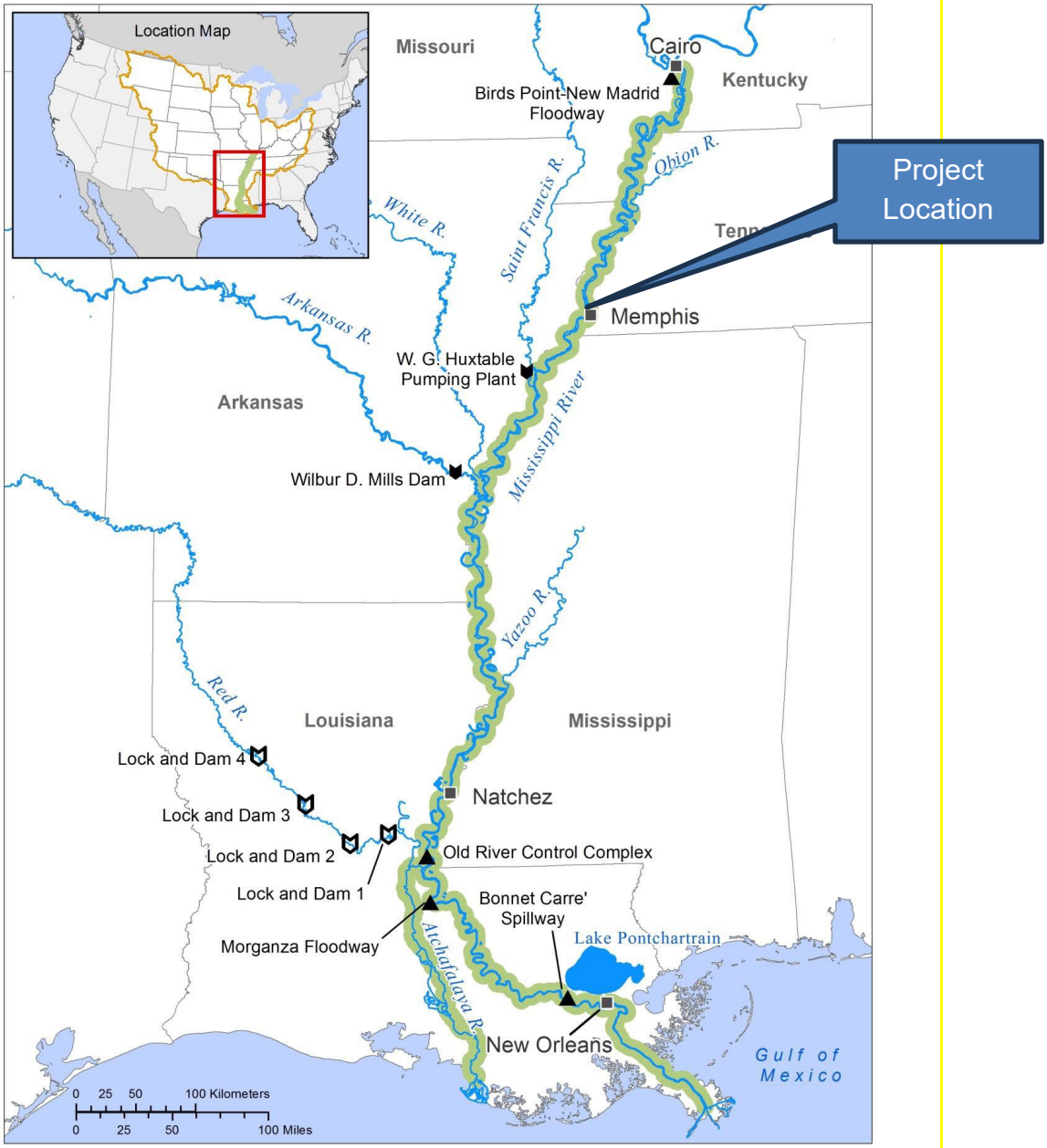

Figure 6. Map of Lower Mississippi River with project location marked.

Pallid Sturgeon

Scaphirhynchus albus

Federally Listed – Endangered

In 1905, the Pallid Sturgeon was first recognized as a species different from Shovelnose Sturgeon by S.A. Forbes and R. E. Richardson based on a study of nine specimens collected from the Mississippi River near Grafton, Illinois (Forbes and Richardson 1905). They named this new species *Parascaphirhynchus albus* and a later reclassification assigned it to the genus *Scaphirhynchus* (Bailey and Cross 1954; Campton et al. 2000).

Pallid Sturgeon have a flattened shovel-shaped snout, a completely armored caudal peduncle, and lack a spiracle (Forbes and Richardson 1905). The mouth is toothless, capable of being extended and withdrawn from its natural position, and ventrally positioned under the head. The skeletal structure is primarily composed of cartilage rather than bone. Pallid Sturgeon are similar in appearance to the more common Shovelnose Sturgeon, and both species inhabit overlapping portions of the Mississippi river basins (USFWS 2014).

Pallid Sturgeon differ from Shovelnose Sturgeon in size, color, head length, eye size, mouth width, barbel length ratios, ossification, gill raker morphology, number of ribs, and size of the air bladder. Bailey and Cross (1954) identified several additional differences between the two species, including barbel arrangement and position, barbel structure (i.e., diameter and papillae), and both dorsal and anal fin ray counts. In general, mature Pallid Sturgeon attain larger sizes than mature Shovelnose Sturgeon and they have longer outer barbels and shorter inner barbels with inner barbels originating anterior to outer barbels. Additionally, Pallid Sturgeon have wider mouths and naked bellies generally lack the mosaic of embedded scutes that armor the ventral surface of the Shovelnose Sturgeon (USFWS 2014).

Pallid Sturgeon are a bottom-oriented, large river obligate fish inhabiting the Missouri and Mississippi rivers and some tributaries from Montana to Louisiana (Kallemeyn 1983). Pallid Sturgeon are primarily benthic fishes, spending the majority of their time at or near the river bottom, but have been documented in waters of varying depths and velocities. Depths at collection sites range from 0.58 m to > 20 m (1.9 to > 65 ft), though there may be selection for areas >0.8 m (2.6 ft) deep (Bramblett and White 2001; Carlson and Pflieger 1981; Constant et al. 1997; Erickson 1992; Gerrity 2005; Jordan et al. 2006; Peters and Parham 2008; Wanner et al. 2007). This species is found at a wide range of depths but is typically found in areas where relative depths (the depth at the fish location divided by the maximum channel cross section depth expressed as a percent) exceed 75% (Constant et al. 1997; Gerrity 2005; Jordan et al. 2006; Wanner et al. 2007, USFWS 2014).

Pallid Sturgeon primarily utilize main channel, secondary channel, and channel border habitats throughout their range. Juvenile and adult Pallid Sturgeon are rarely observed in habitats without

flowing water which are removed from the main channel (i.e., backwaters and sloughs). Specific patterns of habitat use and the range of habitat parameters used may vary with availability and by life stage, size, age, and geographic location (USFWS 2014).

Pallid Sturgeon have been documented over a variety of available substrates, but are often associated with sandy and fine bottom materials (Bramblett and White 2001; Gerrity 2005) and exhibit a selection for sand over mud, silt, or vegetation (Elliott et al. 2004). Substrate association appears to be seasonal (Koch et al. 2012). During winter and spring, sand, sand and gravel, and rock substrates are used and during the summer and fall sand substrate is most often used (USFWS 2014).

Spawning appears to occur between March and July, with lower latitude fish spawning earlier than those in the northern portion of the range. Spawning appears to occur adjacent to or over coarse substrate (boulder, cobble, gravel) or bedrock, in deeper water, with relatively fast, converging flows, and is driven by several environmental stimuli including day length, water temperature, and flow (U.S. Geological Survey 2007; DeLonay et al. 2009). Newly hatched larvae are predominantly pelagic, drifting in the currents for 11 to 13 days and likely dispersing several hundred km downstream from spawn and hatch locations (Braaten et al. 2012, USACE 2010).

Adult Shovelnose Sturgeon (and likely adult Pallid Sturgeon) exhibit relatively high prolonged swimming speeds (Adams et al. 1997) and would be at lower entrainment risk than young fish. Juvenile Pallid Sturgeon are not strong swimmers and are at greater risk of entrainment (Adams et al. 1999), but they also exhibit a variety of complex swimming behaviors which may increase their ability to resist flow (Hoover et al. 2005). *Scaphirhynchus* larvae are weak swimmers and experience high rates of mortality under simulated propeller entrainment and high rates of stranding under simulated vessel-induced drawdown (Adams et al. 1999, USACE 2010).

EFFECTS ANALYSIS

Direct Effects to *Scaphirhynchus albus*

The primary effects to *S. albus* due to the proposed I-55 bridge replacement, are the potential for harassment and take of individuals and alteration of spawning habitat of *S. albus* associated with the placement of temporary diversions and revetment blankets for the construction and removal of in-stream piers.

- **Loss of potential spawning habitat**

A total of 36,000 square feet of spawning habitat will be affected by the construction of coffer dams for the construction of Pier 13 and Pier 15. An additional 135,000 square feet of spawning

habitat will be affected be the installation of the revetment blanket for construction of the caisson for Pier 14. These habitat disruptions will not take place simultaneously.

Roughly 1,029,105 square feet of spawning habitat is available within the project footprint with plenty of additional spawning habitat available up and down the Mississippi River. Therefore, the small amount of spawning habitat affected will result in minimal impact to species.

- **Risk to *P. albus* during cofferdam and caisson construction**

Additional risk to *P. albus* exists from possible entrapment within the coffer dams prior to dewatering. Adult fish are strong swimmers and should be able to move out of the area of coffer dam construction, resulting in less possibility of entrapment within the structure. Juveniles are not strong swimmers and may be at greater risk of entrapment than adults. Larval fish are weak swimmers and are at even greater risk of entrapment.

Similar risk of entrapment of the separate age classes exists during caisson construction. The caisson will likely be an open cellular structure (square or round holes in the base) that will be sunk to the river bottom with additional sections added to reach the desired depth determined by design. The bottom of the caisson is filled with entrapped air to control sinking rates and yaw, resulting in a reduced risk of possible entrapment.

- **Sediment loss from construction activities**

Approximately 96,000 square feet of haul road will be constructed on the Arkansas side of the bridge. In addition, construction and removal of the bridge will require additional staging areas of equipment and off-stream construction activities.

Sediments on the river bottom may become suspended in the water column due to installation of the revetment blanket or the cofferdams, or due to other in-stream activities. Suspended sediments could drift with the current of the Mississippi river and potentially cover sturgeon feeding or spawning habitat. Best management practices, including the installation of in-stream diversions and revetment blanket installation should minimize these impacts.

Installation and maintenance of appropriate erosion prevention and sediment control measures should mitigate the sediment impacts from the construction activities. Equipment used during construction can leak petroleum products used for fuel or lubrication into streams or other aquatic resources. These petroleum products can adversely affect both *P. albus* and its aquatic habitats. All vehicle storage and maintenance will be restricted to upland locations away from the Mississippi River to reduce the risks to *P. albus* and other aquatic species.

- **Demolition and blasting**

During demolition activities, the two middle piers on the Mississippi river will be removed to near the water surface by hoe ram or other mechanical means. The remaining portions underwater will be blasted to rubble, and the material will be left on the river bottom. Blasting may temporarily disturb Pallid Sturgeon movements and disrupt spawning habitat.

Demolition of piers on the floodplain will take place above the OHWM and will be done in the dry without the use of coffer dams or diversions.

Cumulative Effects

The replacement of the I-55 bridge will not result in cumulative impacts within or adjacent to the Action Area, following the completion of construction. The new bridge will have 3 piers in the water opposed to the existing structure's four piers. In addition, the new structure's piers will be close to the bank of the Mississippi River with only one pier in the main channel of the river where *P. albus* is mostly to occur.

MEASURES TO MINIMIZE HARM

Several measures will be implemented during project construction to minimize the effects to the Pallid Sturgeon. Erosion and sediment control measures will be installed and maintained throughout project construction, in accordance with TDOT's EPSC Inspection Manual. If a Construction General Permit is needed, construction activities would comply with the Tennessee Department of Environment and Conservation (TDEC) NPDES Permit for Discharges of Stormwater Associated with Construction Activities. A site-specific Stormwater Pollution Prevention Plan (SWPPP) would also be developed to address all construction-related activities occurring from the date construction commences to the date of termination of permit coverage. Equipment refueling and maintenance areas will be located such that no petroleum fuel or lubrication products enter area streams or other aquatic resources. To minimize potential for adversely impacting *P. albus*, the following protective notes will also be included in the project plans:

1. No instream work, whether during demolition of the existing bridge or construction of the new bridge, will occur from May 1 and June 30 to avoid the most sensitive period of juvenile and larval *P. albus*.

2. All work below the OHWM of the Mississippi River will be separated from flowing water using coffer dams, or other standard best management practices. A filter bag or equivalent

sediment control will be used to prevent any sediment or material within the coffer dam from entering the Mississippi River when the enclosure is dewatered.

3. All use of motorized equipment below the ordinary high-water mark of Mississippi River will be from barges anchored in the river .

4. Construction and demolition of the off-stream piers located in the floodplain of the Mississippi River will be conducted during periods the floodplain is not inundated and appropriate sediment and erosion controls will be used to prevent sediment loss to the river from construction activities.

5. All material (concrete, dirt, and rock, etc.) resulting from demolition and construction will be hauled to an approved waste site.

6. The stream banks under and around the new bridge will be stabilized using appropriately sized rip rap or other equivalent erosion control to prevent sediment loss to the Mississippi River.

7. A staging area is defined as the physical location used for the storage of vehicles and related equipment, including any equipment or container that houses petroleum or chemical products. At the end of each workday, the prime contractor shall ensure all equipment or containers that house petroleum or chemical products, with exception of crane(s), are stored in staging areas by all employees and subcontractors.

8. To minimize impairment to the Mississippi River the contractor shall adopt at least one of the following measures as are practicable: 1-Equipment shall be staged a minimum of 150 feet from the Mississippi River, 2-Equipment shall be staged in upland areas that are contained or that don't drain directly to the Mississippi River, 3-Catch pans and/or spill containment "diapers" shall be installed on all construction equipment staged within 150 feet of Mississippi River.

9. No refueling or servicing of equipment will be allowed within 150 feet of streams.

10. If spillage or leakage of concrete into a stream is observed, concrete pouring shall cease immediately and the TDOT Environmental Division Ecology Unit must be immediately notified.

11. Upon locating dead or injured sturgeon, the TDOT Environmental Division Ecology Unit must be immediately notified.

CONCLUSION AND DETERMINATION OF EFFECTS

The replacement of the I-55 Bridge over the Mississippi River and the associated in-stream construction will temporarily affect approximately 4,534 sq. ft. below the OHWM of the Mississippi River and will cover or alter suitable spawning habitat used by *P. albus* within project limits. Effects to *P. albus* habitat will be unavoidable within the footprint of in-stream revetment blankets and flow diversions but in-stream work will be avoided during the most sensitive time for sturgeon larvae. The replacement of the I-55 bridge over the Mississippi River **may affect and is likely to adversely affect** the Pallid Sturgeon.

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APPENDIX A

1949 (Existing Structure) Plansheet

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INDEX OF SHEETS

STATES OF TENNESSEE AND ARKANSAS

PLAN OF PROPOSED

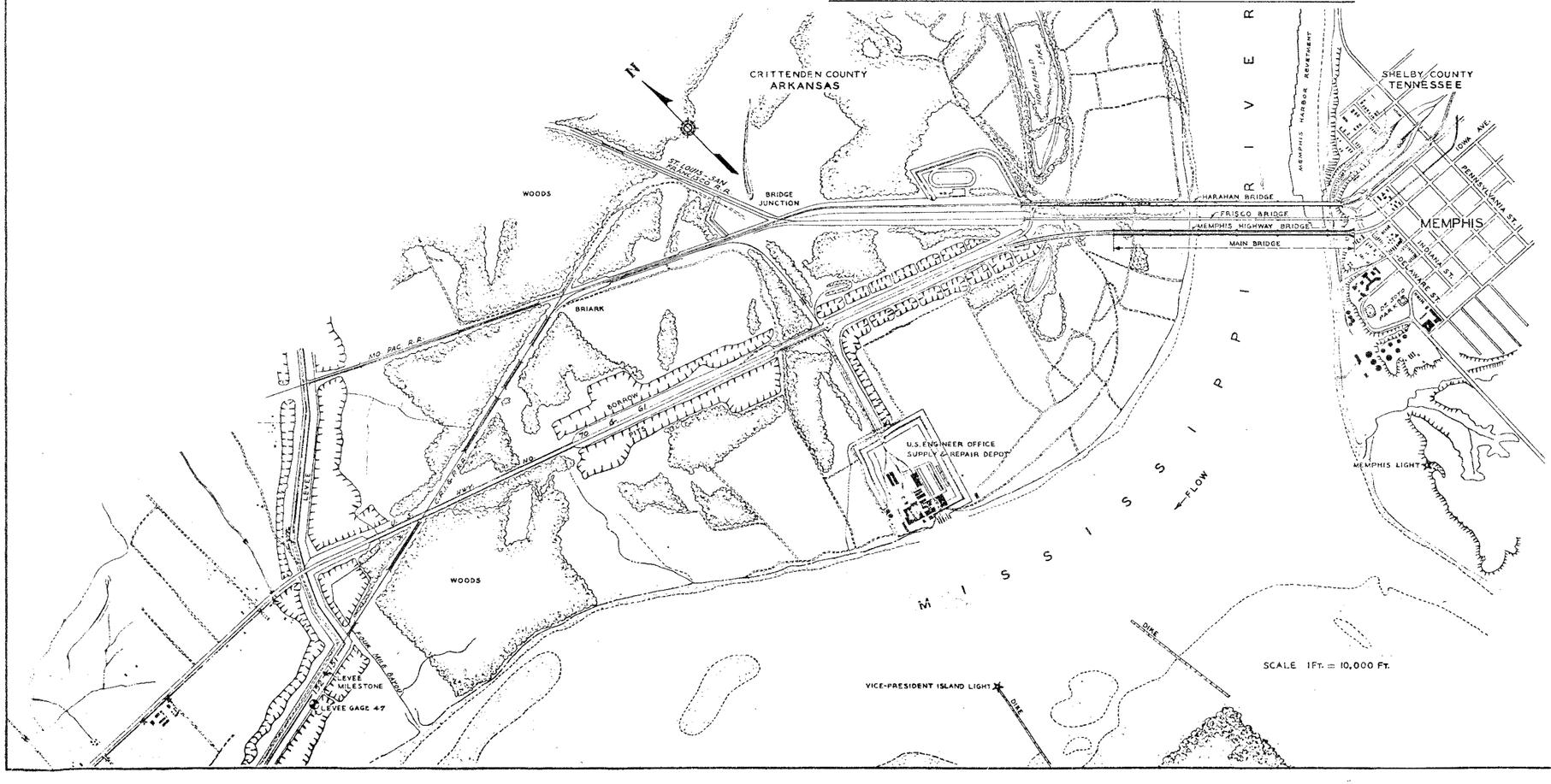
MAIN BRIDGE SUBSTRUCTURE

OF

MEMPHIS HIGHWAY BRIDGE

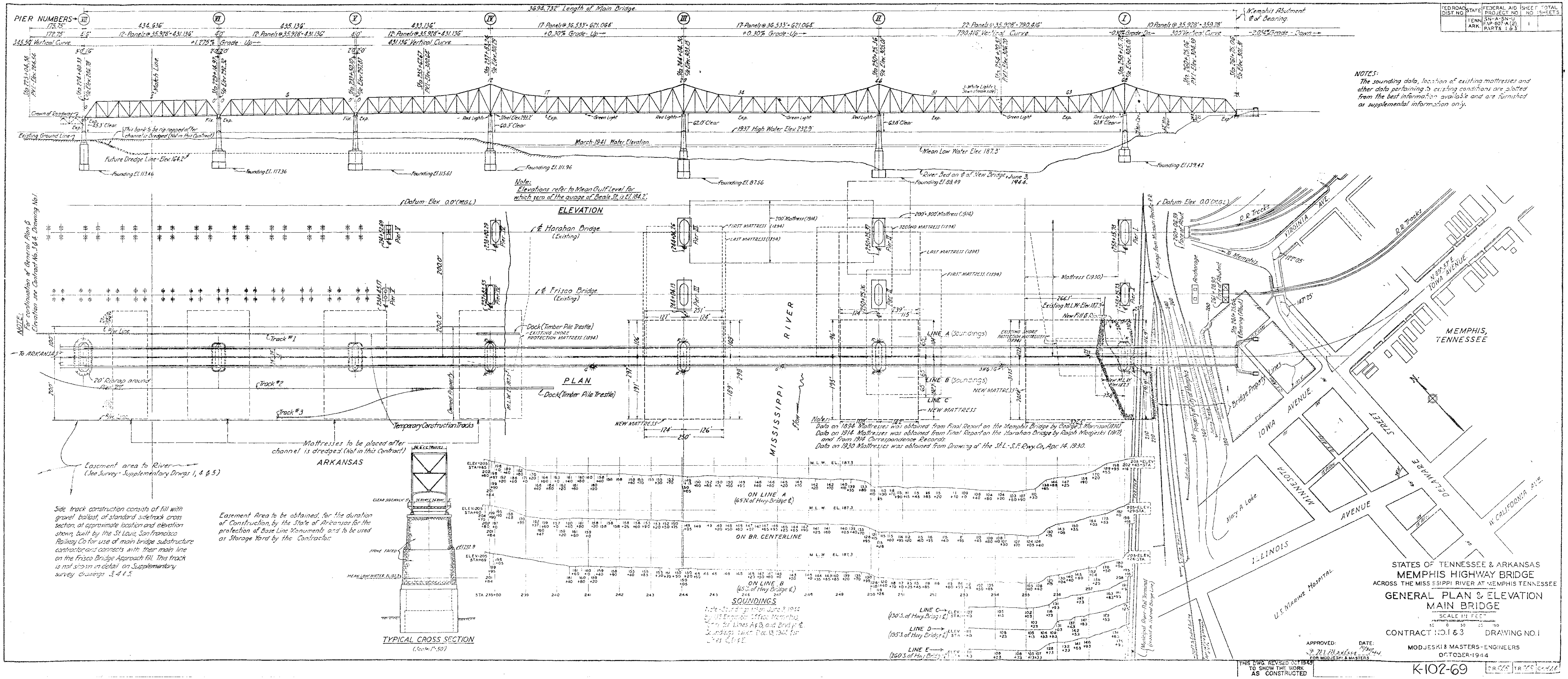
OVER MISSISSIPPI RIVER

TENNESSEE — ARKANSAS
PROJECT NO. SN-A-SN-U-FAP-607-A(2), PART 1
SHELBY COUNTY, TENN. - CRITTENDEN COUNTY, ARK.



DESIGNED AND RECOMMENDED BY MODJESKI & MASTERS		
J. M. Masters FOR MODJESKI & MASTERS 12/5/44 DATE		
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS, TENNESSEE	ARKANSAS STATE HIGHWAY COMMISSION	FEDERAL WORKS AGENCY PUBLIC ROADS ADMINISTRATION
APPROVED: BRIDGE ENGINEER 11/14/44 DATE	APPROVED: PRINC. HWY. ENGR. (BRIDGES) 11/20/44 DATE	RECOMMENDED FOR APPROVAL:
APPROVED: ENGR. OF SURVEYS & DESIGN 11/14/44 DATE	APPROVED: DIRECTOR - CHIEF ENGINEER 11-20-44 DATE	DISTRICT ENGINEER DATE PUBLIC ROADS ADMINISTRATION FEDERAL WORKS AGENCY
APPROVED: STATE HIGHWAY ENGINEER 11/14/44 DATE	APPROVED:	APPROVED:
APPROVED: COMMISSIONER 11/14/44 DATE	APPROVED: CHAIRMAN 11-23 DATE	COMMISSIONER DATE PUBLIC ROADS ADMINISTRATION FEDERAL WORKS AGENCY

K-102-68


PIER NUMBERS
3694.732' Length of Main Bridge.
12-Panels @ 35.928' = 431.136'
17-Panels @ 36.533' = 621.064'
22-Panels @ 35.928' = 790.416'
10 Panels @ 35.928' = 359.28'
345.50' Vertical Curve.
+1.275% Grade - Up
431.136' Vertical Curve.
+0.30% Grade - Up
790.416' Vertical Curve.
-0.30% Grade - Dn.
300' Vertical Curve
-2.054% Grade - Down
Memphis Abutment ℄ of Bearing.
Crown of Roadway
Existing Ground Line
This bank to be rip rapped after channel is Dredged (Not in this Contract)
Future Dredge Line - Elev. 164.2'
Founding El. 113.46
Founding El. 117.36
Founding El. 115.61
Founding El. 111.96
Founding El. 87.56
Founding El. 88.49
Founding El. 139.42
1937 High Water Elev. 232.9'
March 1941 Water Elevation.
Mean Low Water Elev. 187.3'
River Bed on ℄ of New Bridge, June 3, 1944.
Note: Elevations refer to Mean Gulf Level for which zero of the guage of Beale St. is El. 184.2'.
ELEVATION
Datum - Elev. 0.0' (M.G.L.)
℄ Harahan Bridge (Existing)
℄ Frisco Bridge (Existing)
NOTE: For continuation of General Plan & Elevation see Contract No. 3 & 4, Drawing No. 1
To ARKANSAS
20' Riprap around Pier VII
Track #1
Track #2
Track #3
Temporary Construction Tracks
Dock (Timber Pile Trestle)
EXISTING SHORE PROTECTION MATTRESS (1894)
PLAN
MISSISSIPPI RIVER
Flow
NEW MATTRESS
LINE A (Soundings)
LINE B (Soundings)
LINE C
FIRST MATTRESS (1894)
LAST MATTRESS (1894)
SECOND MATTRESS (1894)
200' Mattress (1914)
200' x 300' Mattress (1914)
Mattress (1930)
Existing M.L.W. Elev. 187.3'
New Fill & Riprap
Mattresses to be placed after channel is dredged. (Not in this Contract)
ARKANSAS
Easement area to River (See Survey - Supplementary Drwgs 1, 4 & 5)
Side track construction consists of fill with gravel ballast, of standard sidetrack cross section, at approximate location and elevation shown, built by the St. Louis, San Francisco Railway Co for use of main bridge substructure contractor, and connects with their main line on the Frisco Bridge Approach fill. This track is not shown in detail on Supplementary survey drawings 3, 4 & 5.
Easement Area to be obtained, for the duration of Construction, by the State of Arkansas for the protection of Base Line Monuments and to be used as Storage Yard by the Contractor.
TYPICAL CROSS SECTION (Scale: 1" = 50')
Notes:
Data on 1894 Mattresses was obtained from Final Report on the Memphis Bridge by George S. Morrison (1894)
Data on 1914 Mattresses was obtained from Final Report on the Harahan Bridge by Ralph Modjeski (1917), and from 1914 Correspondence Records.
Data on 1930 Mattresses was obtained from Drawing of the St. L.-S.F. Rwy. Co., Apr. 14, 1930.
ON LINE A (65' N. of Hwy. Bridge ℄)
ON BR. CENTERLINE
ON LINE B (65' S. of Hwy. Bridge ℄)
M.L.W. EL. 187.3
SOUNDINGS
LINE C (130' S. of Hwy. Bridge ℄)
LINE D (195' S. of Hwy. Bridge ℄)
LINE E (260' S. of Hwy. Bridge ℄)
NOTES: The sounding data, location of existing mattresses and other data pertaining to existing conditions are plotted from the best information available and are furnished as supplemental information only.
R.R. Tracks
VIRGINIA AVE.
To Memphis
IOWA AVENUE
MEMPHIS, TENNESSEE
Bridge Property Lines
MINNESOTA
DELAWARE STREET
W. CALIFORNIA AVE.
ILLINOIS AVENUE
Mary A. Lake
U.S. Marine Hospital
Property of City of Memphis
FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJECT NO. | SHEET NO. | TOTAL SHEETS
TENN. ARK. | SN-A-SN-U F.A.P. 607-A (2) PARTS 1 & 3 | 1
STATES OF TENNESSEE & ARKANSAS
MEMPHIS HIGHWAY BRIDGE
ACROSS THE MISSISSIPPI RIVER AT MEMPHIS TENNESSEE
GENERAL PLAN & ELEVATION
MAIN BRIDGE
SCALE IN FEET
CONTRACT NO. 1 & 3
DRAWING NO. 1
APPROVED:
DATE: 10/30/44
FOR MODJESKI & MASTERS
MODJESKI & MASTERS - ENGINEERS
OCTOBER - 1944
THIS DWG. REVISED OCT. 1949 TO SHOW THE WORK AS CONSTRUCTED
K-102-69

Appendix B

2024 (Proposed) Plan Sheet

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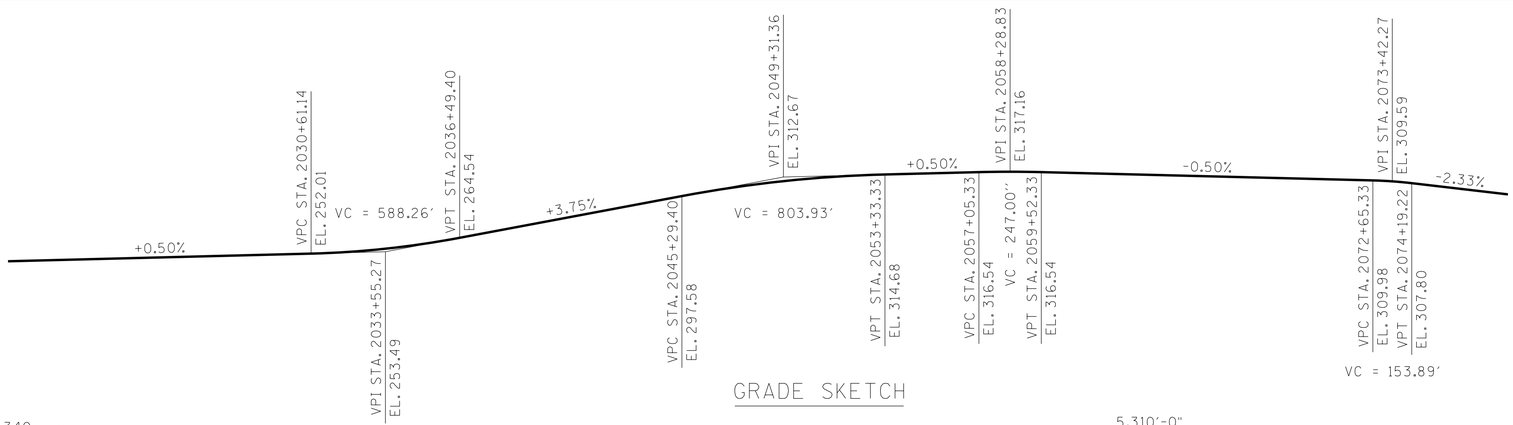

GRADE SKETCH

CURVE C1
PI 2023+78.66
N 317420.3343
E 746995.5232
Δ 24°34'08" RT.
D 00°45'32"
R 7550.00'
L 3237.50'
T 1644.02'
LC 3212.75
BC S56°12'21"E
SE 0.028 FT/FT

CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.
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REVISIONS

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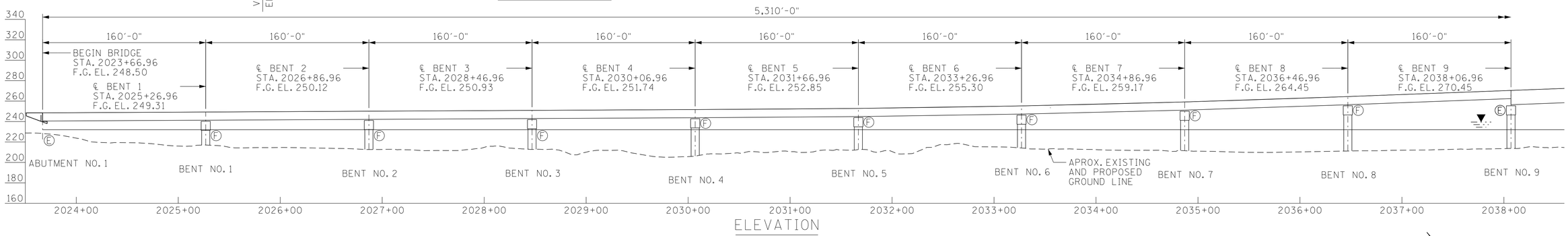
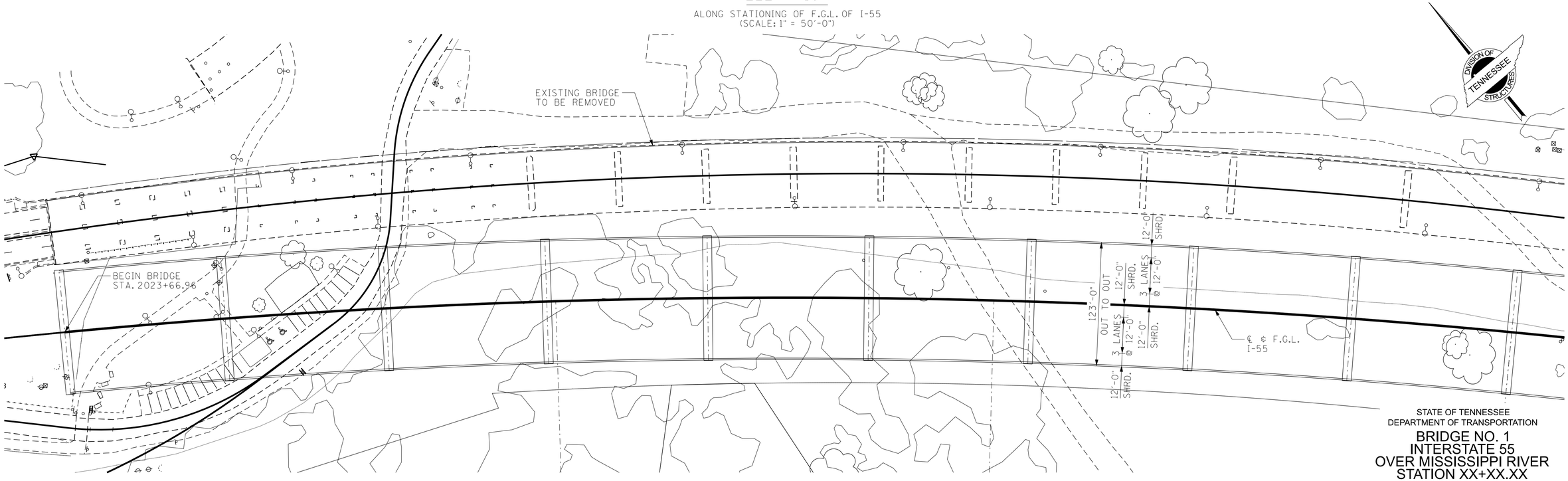


ELEVATION

ALONG STATIONING OF F.G.L. OF I-55
(SCALE: 1" = 50'-0")



PLAN

(SCALE: 1" = 50'-0")

DIVISION OF TENNESSEE STRUCTURES

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

PIN NO.:_____

DESIGN BY:	HANS HUTTON	DATE: 8/9/24
DRAWN BY:	DAVID LINENBERGER	DATE: 8/9/24
SUPERVISED BY:	STEVE HAGUE	DATE: 8/9/24
CHECKED BY:	HANS HUTTON	DATE: 8/9/24

HNTB

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CONST. NO.:

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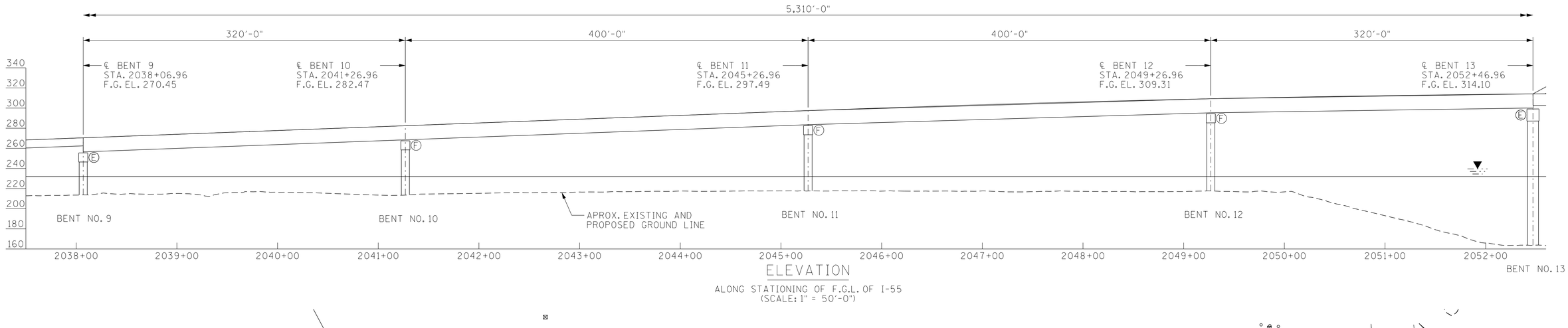
HYDRAULIC DATA

DRAINAGE AREA - X.X SQ. MI
DESIGN DISCHARGE (100 YR.) - X,XXX CFS
WATER AREA PROVIDED BELOW EL. X.X FT² - X.X FT²
100 YR. VELOCITY - X.X FPS
100 YR. BRIDGE BACKWATER - X.X FT @ X.X FT
500 YR. DISCHARGE - X.X CFS @ EL. X.X FT
ROADWAY OVERTOPPING EL. - X.X FT



ELEVATION

ALONG STATIONING OF F.G.L. OF I-55
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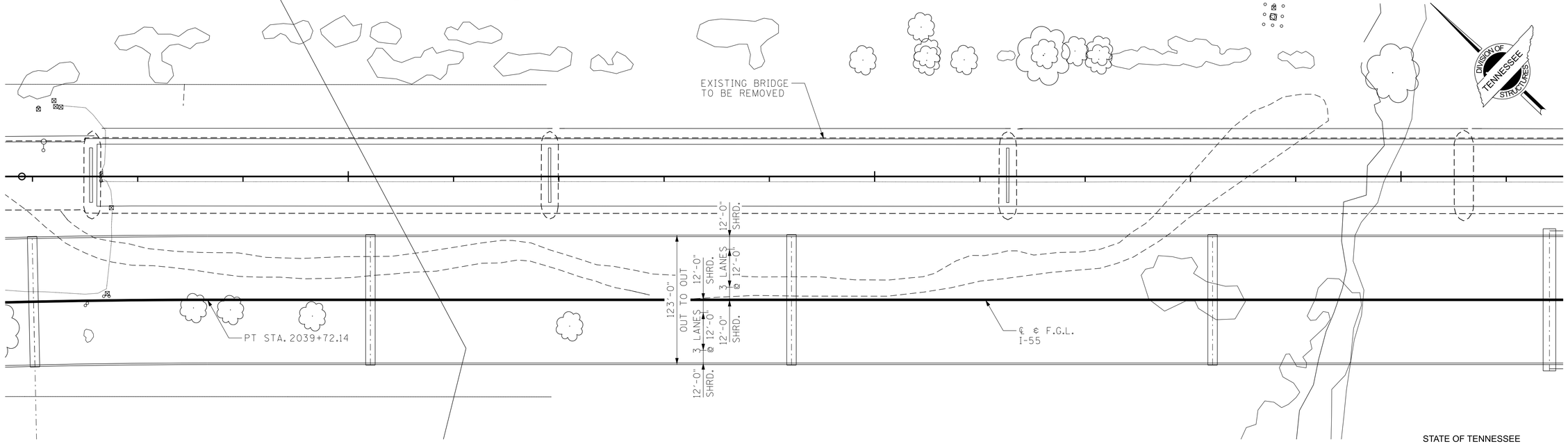

PLAN

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

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INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

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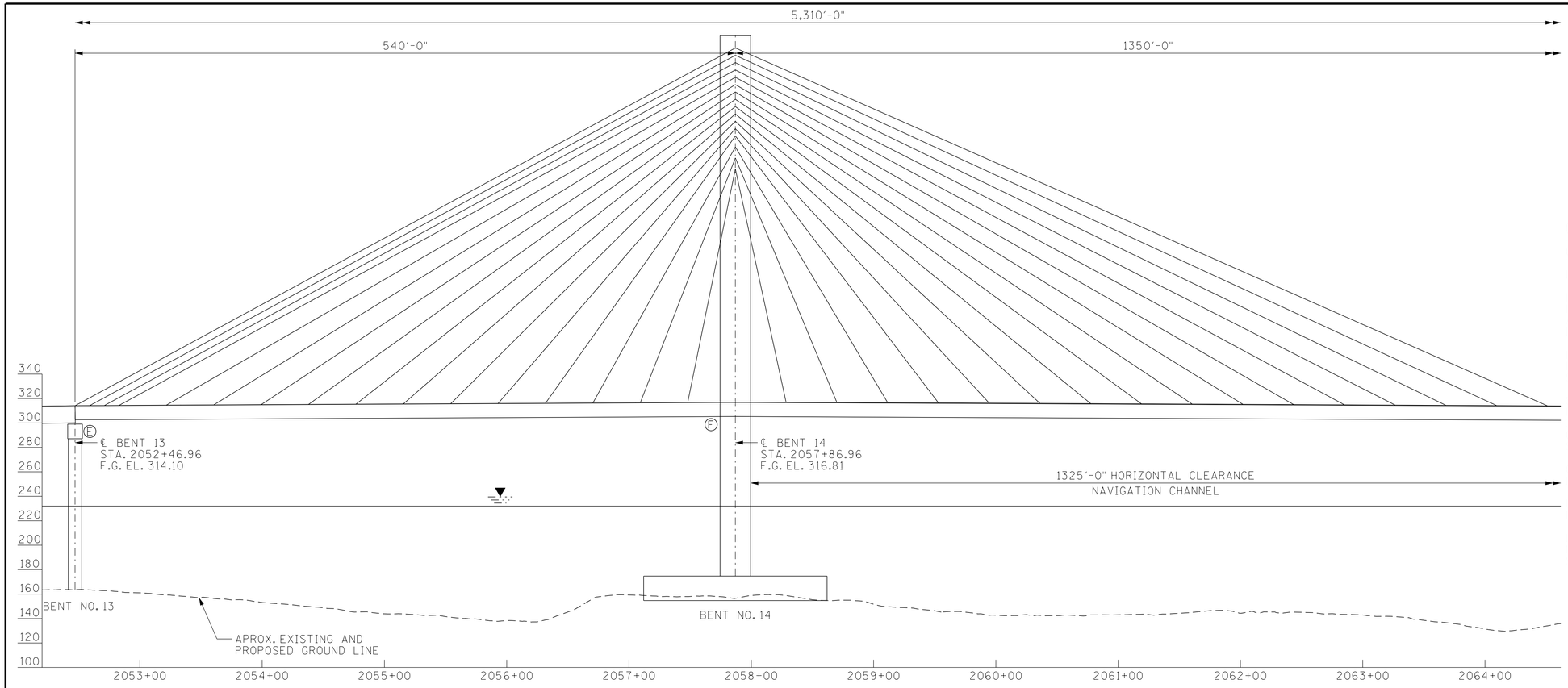

ELEVATION

ALONG STATIONING OF F.G.L. OF I-55
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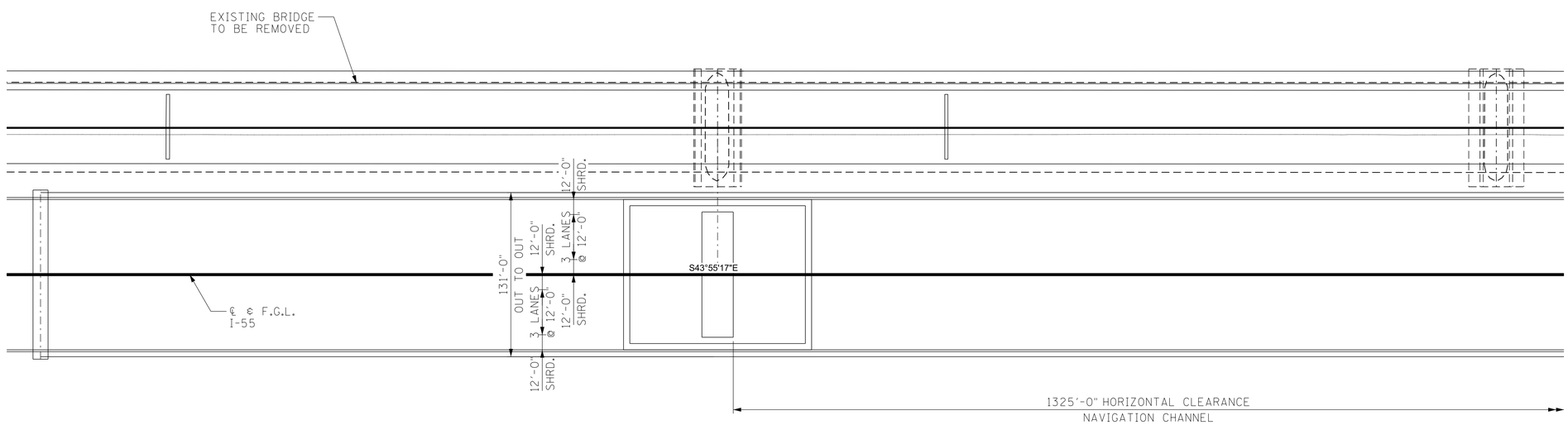

PLAN

(SCALE: 1" = 50'-0")

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GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION)

DESIGN SPECIFICATIONS: 9TH EDITION (2020) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AAHTO GUIDE SPECIFICATION FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.

LOADING: HL-93 LIVE LOADING; SITE SPECIFIC SEISMIC DEMAND; DEAD LOADS TO INCLUDE 35 LBS/SQ.FT. FOR FUTURE WEARING SURFACE.

SUPERSTRUCTURE: TO CONSIST OF 9 SPANS OF CONTINUOUS, PRECAST, PRESTRESSED BT-72 BEAMS WITH COMPOSITE SLAB, 3 SPANS OF CONTINUOUS STEEL PLATE GIRDERS WITH COMPOSITE DECK AND A 3 SPAN CONTINUOUS CABLE STAYED UNIT.

CONCRETE: CLASS A F'C=3000 PSI, CLASS DS F'C=4000 PSI FOR BRIDGE DECK.

REINFORCING STEEL: TO BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.

BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 3 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.

PIN NO.:_____

DESIGN BY:	HANS HUTTON	DATE: 8/9/24
DRAWN BY:	DAVID LINENBERGER	DATE: 8/9/24
SUPERVISED BY:	STEVE HAGUE	DATE: 8/9/24
CHECKED BY:	HANS HUTTON	DATE: 8/9/24

HNTB

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

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CONST. NO.:

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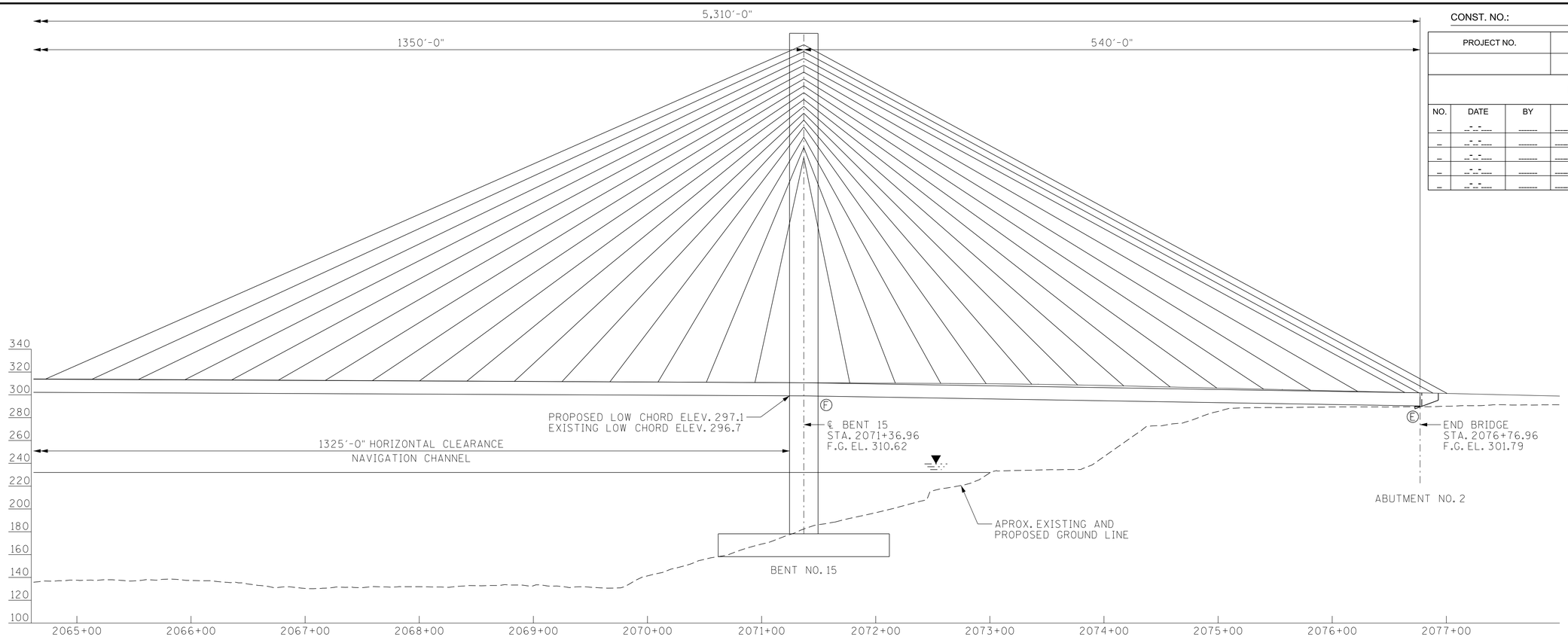
CURVE C2
PI 2079+32.65
N 313383.4358
E 750883.2210
Δ 49°50'27" LT.
D 07°04'25"
R 810.00'
L 704.61'
T 376.34'
LC 682.60'
BC S68°50'30"E
SE 0.08 FT/FT



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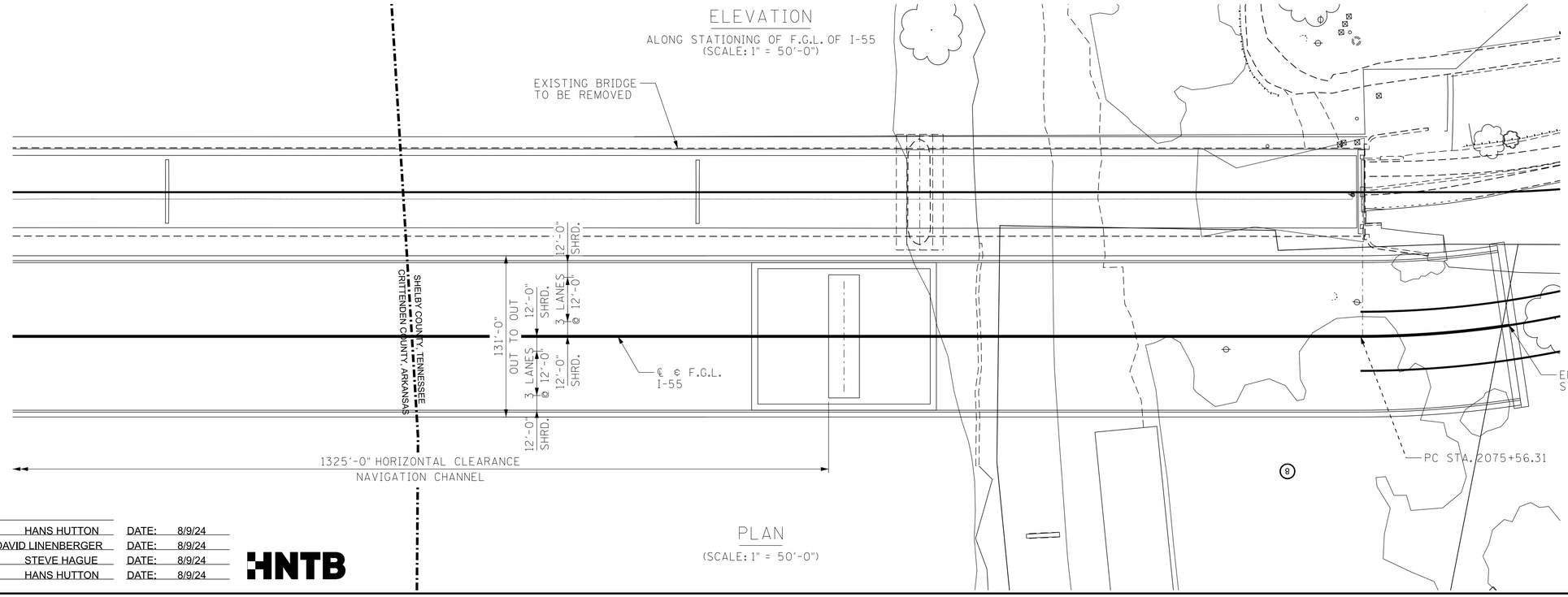
ALONG STATIONING OF F.G.L. OF I-55
(SCALE: 1" = 50'-0")



PLAN

(SCALE: 1" = 50'-0")

DIVISION OF TENNESSEE STRUCTURES

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
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OVER MISSISSIPPI RIVER
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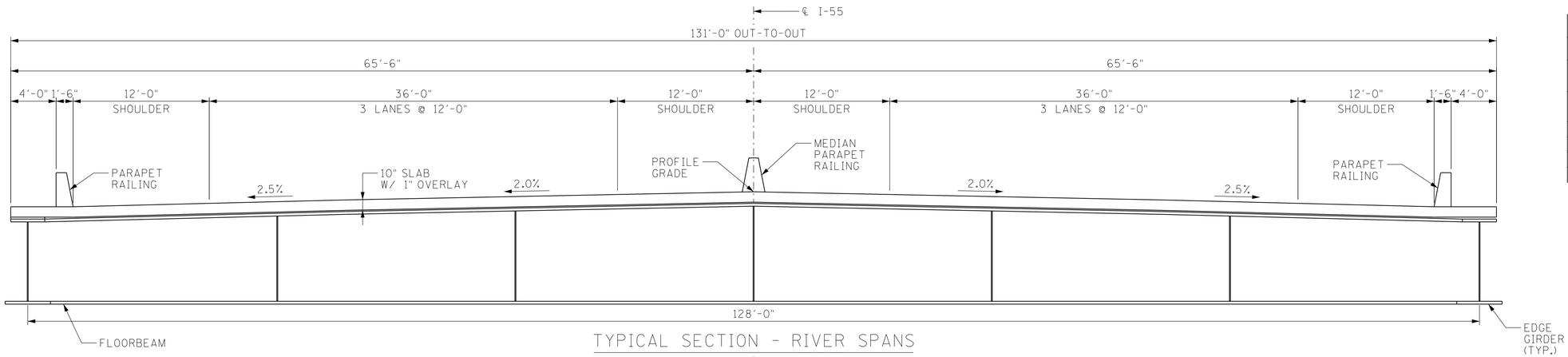
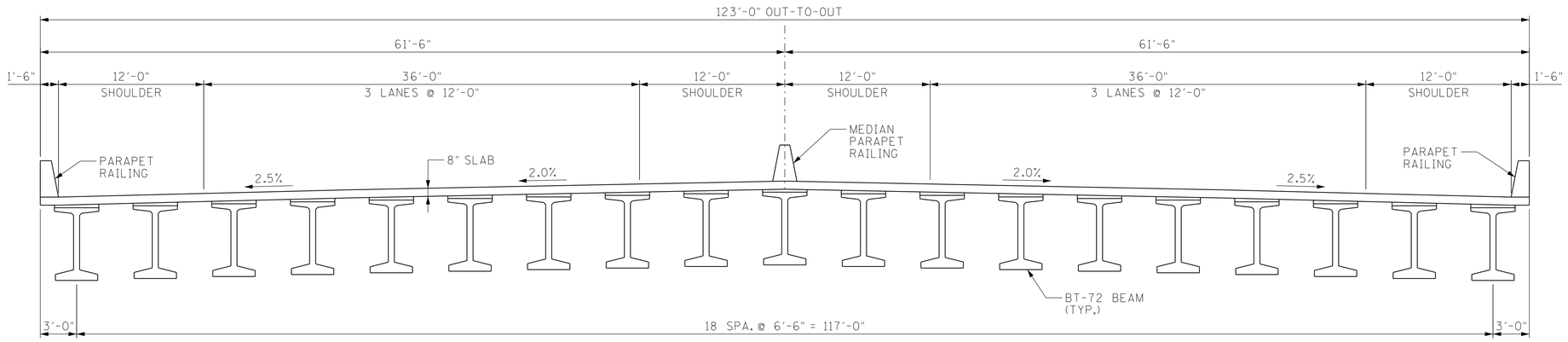
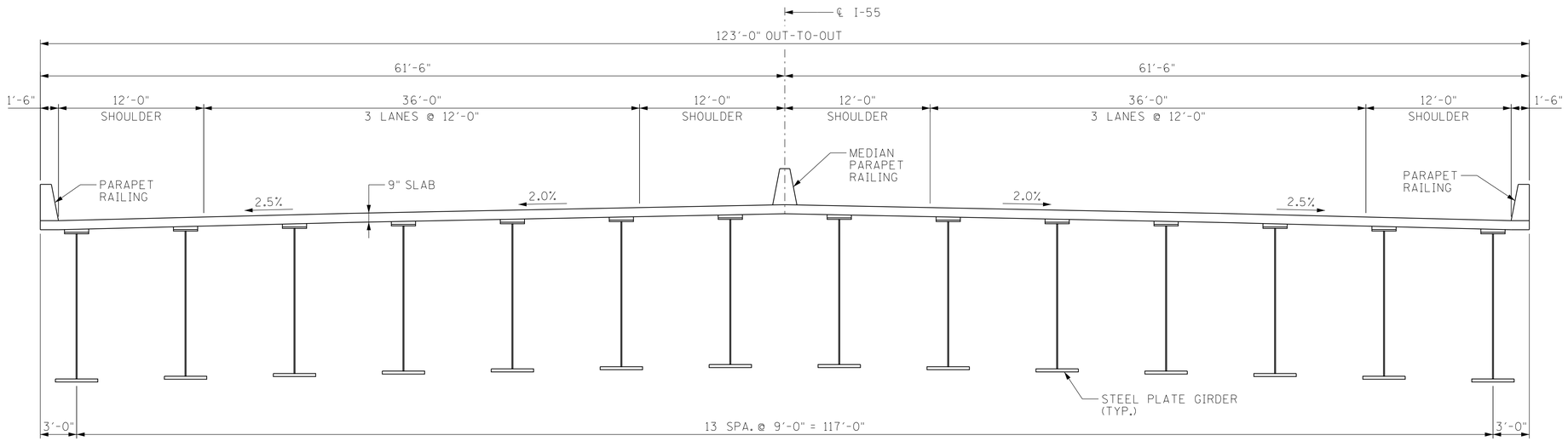


TYPICAL SECTION - RIVER SPANS



TYPICAL SECTION - ARKANSAS APPROACH SPANS



TYPICAL SECTION - ARKANSAS APPROACH SPANS

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

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SUPERVISED BY:	STEVE HAGUE	DATE: 8/9/24
CHECKED BY:	HANS HUTTON	DATE: 8/9/24

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Appendix C

Coffer Dam/ Revetment Blanket Locations

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PROJECT NO.	YEAR	SHEET NO.
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REVISIONS

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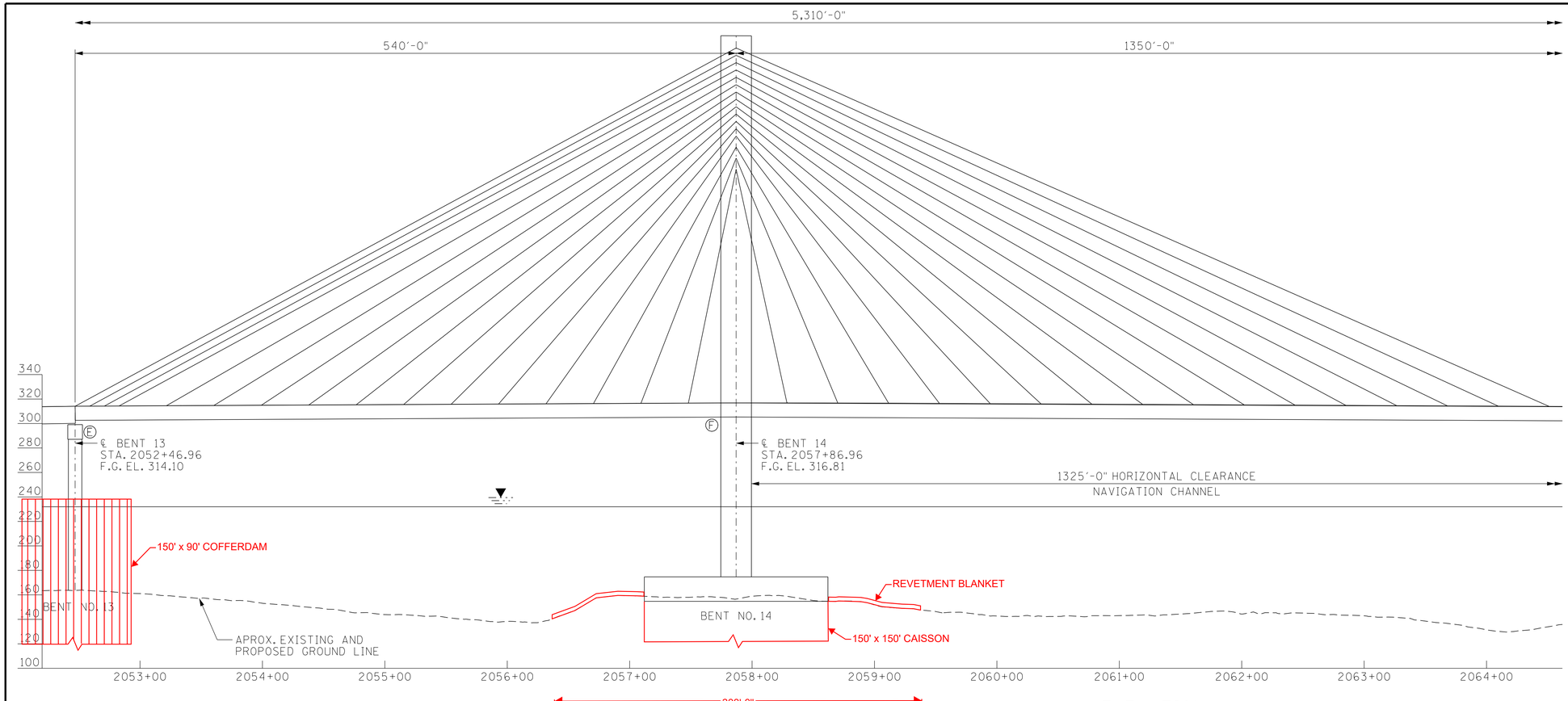
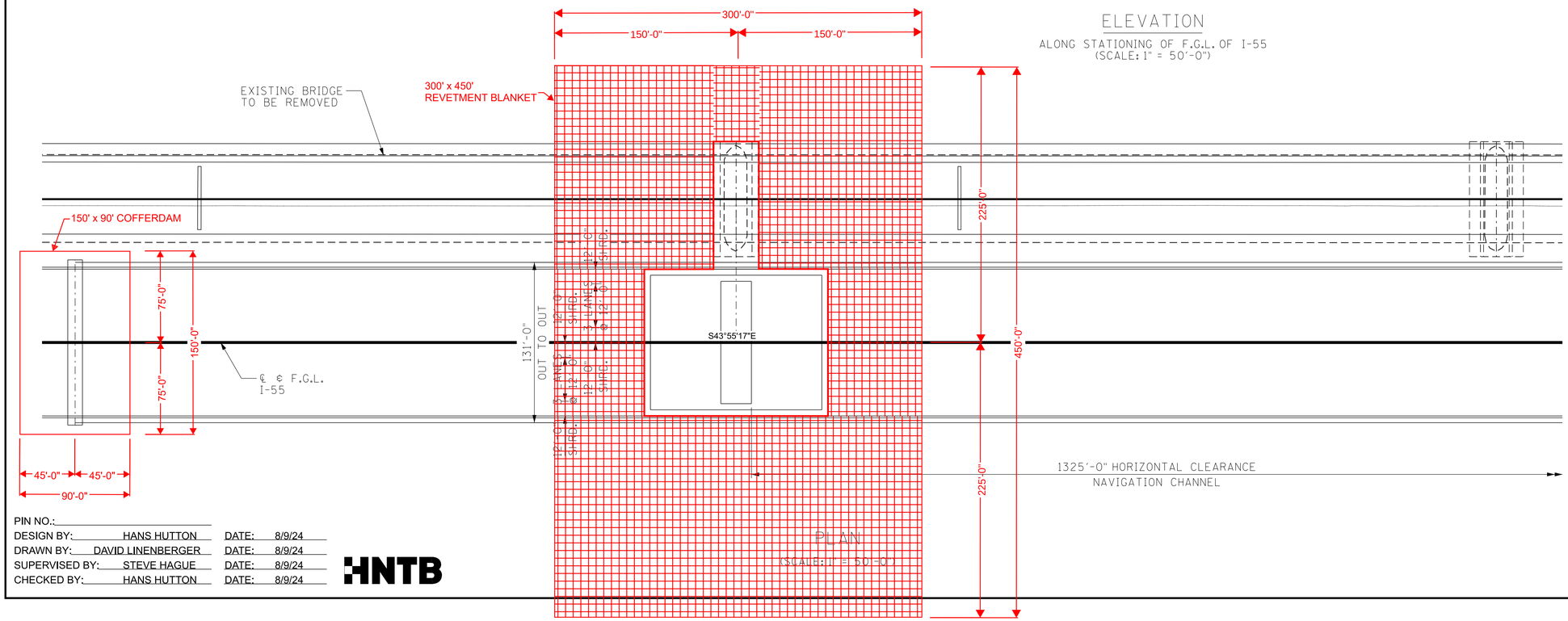


ELEVATION

ALONG STATIONING OF F.G.L. OF I-55
(SCALE: 1" = 50'-0")



PLAN

(SCALE: 1" = 50'-0")

PIN NO.:_____

DESIGN BY:	HANS HUTTON	DATE: 8/9/24
DRAWN BY:	DAVID LINENBERGER	DATE: 8/9/24
SUPERVISED BY:	STEVE HAGUE	DATE: 8/9/24
CHECKED BY:	HANS HUTTON	DATE: 8/9/24

HNTB

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

003

8/9/2024 11:02:55 AM
C:\CADD\LIB\PW\SOUTHEAST\DLINENBERGER\D0241713\GPE-3.DGN

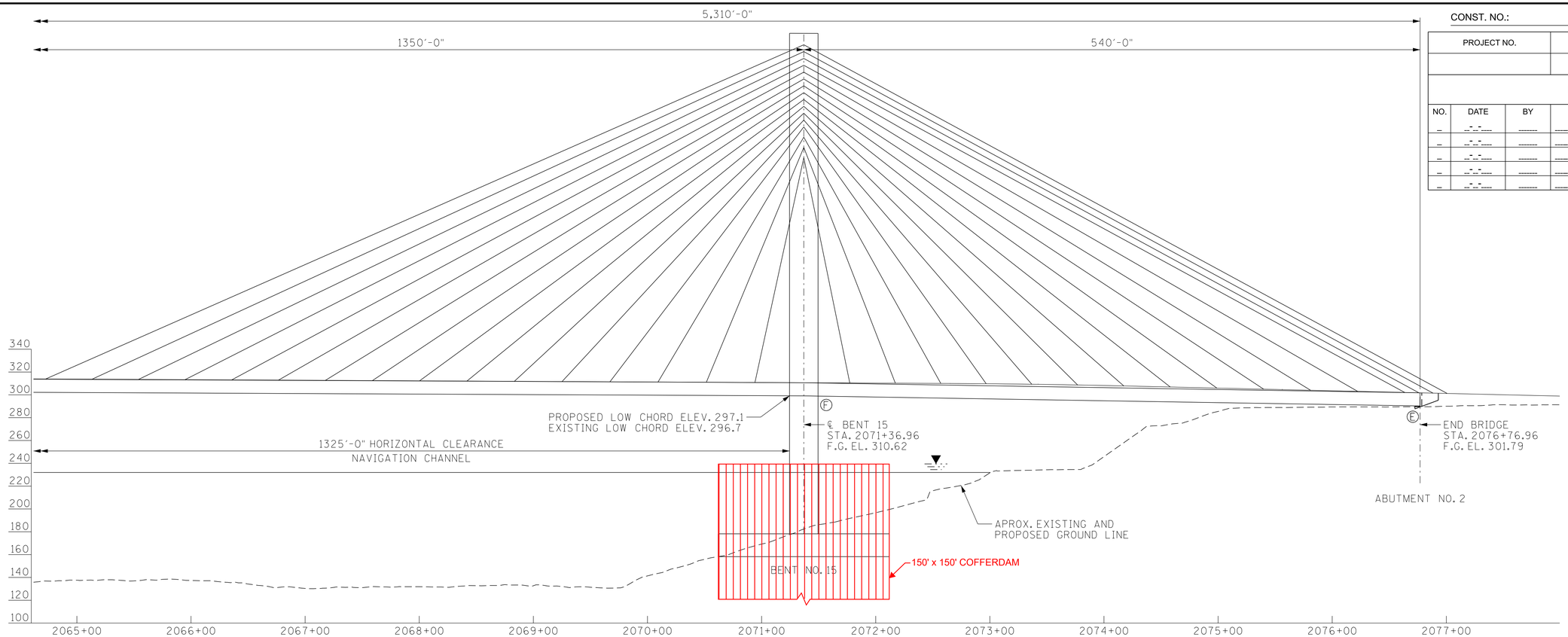
CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.
		____

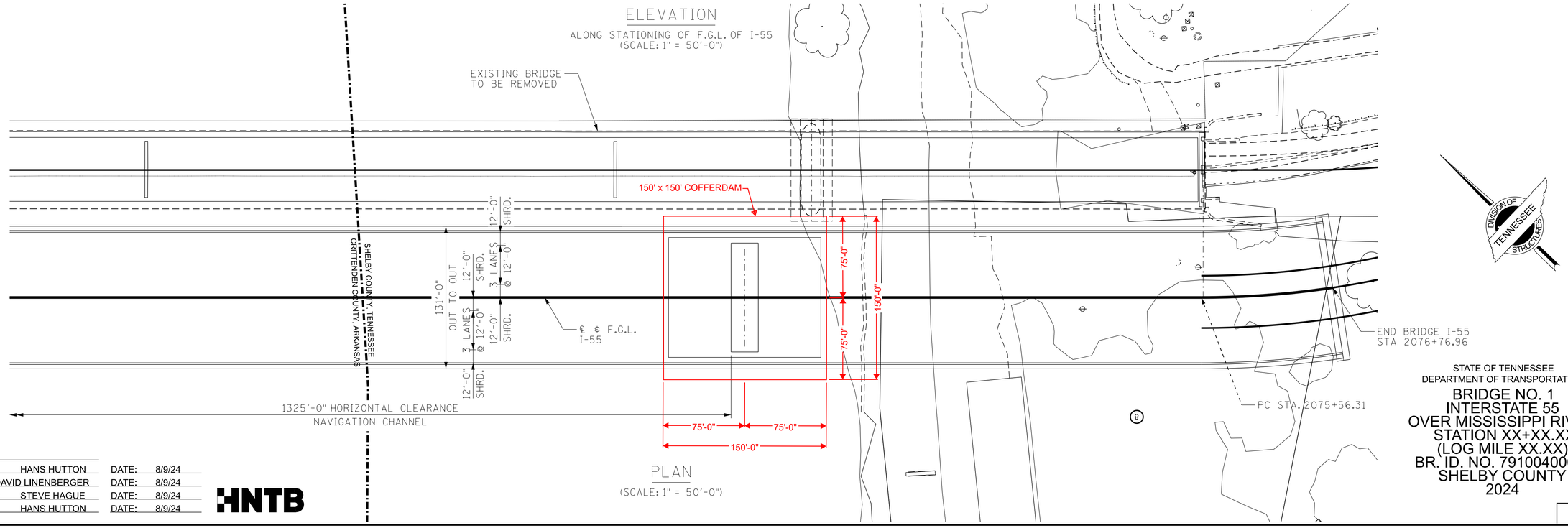
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
_	__-__-____	_____	_____
_	__-__-____	_____	_____
_	__-__-____	_____	_____
_	__-__-____	_____	_____
_	__-__-____	_____	_____

CURVE C2
PI 2079+32.65
N 313383.4358
E 750883.2210
Δ 49°50'27" LT.
D 07°04'25"
R 810.00'
L 704.61'
T 376.34'
LC 682.60'
BC S68°50'30"E
SE 0.08 FT/FT



ELEVATION
ALONG STATIONING OF F.G.L. OF I-55
(SCALE: 1" = 50'-0")



PLAN
(SCALE: 1" = 50'-0")

PIN NO.:
DESIGN BY: HANS HUTTON DATE: 8/9/24
DRAWN BY: DAVID LINENBERGER DATE: 8/9/24
SUPERVISED BY: STEVE HAGUE DATE: 8/9/24
CHECKED BY: HANS HUTTON DATE: 8/9/24

HNTB

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 1
INTERSTATE 55
OVER MISSISSIPPI RIVER
STATION XX+XX.XX
(LOG MILE XX.XX)
BR. ID. NO. 79100400001
SHELBY COUNTY
2024

004

8/9/2024 11:04:15 AM
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APPENDIX D:

SITE PHOTOGRAPHS

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Photo 1: Mississippi River (STR-1). Top of right bank looking downstream.

Photo 2: Mississippi River (STR-1). Top of right bank looking upstream.

Photo 3: WTL-1, palustrine forested portion of the wetland.

Photo 4: WTL-1, palustrine emergent portion of the wetland.

TN TDOT Department of Transportation

Photo 5: WTL-2, palustrine emergent roadside ditch wetland, facing downslope.

Photo 6: WTL-2, palustrine emergent roadside ditch wetland facing further downslope prior to converting to upland.

Photo 7: WTL-3, palustrine forested depressional wetland, which receives stormwater runoff from a non-jurisdictional ditch.

Photo 8: WTL-3, palustrine forested depressional wetland, which receives stormwater runoff from a non-jurisdictional ditch.

Photo 9: WTL-4, palustrine forested depressional wetland. Note the strong presence of water stained leaves.

Photo 10: WTL-4, palustrine forested depressional wetland.

Photo 11: WTL-5, palustrine emergent isolated wetland with recent tire rut disturbance.

Photo 12: WTL-5, palustrine emergent isolated wetland with potential hydrology source from stormwater runoff.

Photo 13: WTL-6, palustrine scrub-shrub depressional wetland.

Photo 14: WTL-6, palustrine scrub-shrub depressional wetland. Note the strong presence of invasive species in the wetland.

Photo 15: WTL-7, palustrine emergent wetland prior to draining into a non-jurisdictional ditch.

Photo 16: WTL-7, palustrine emergent wetland in its early successional state.

Photo 17: WTL-8, palustrine emergent wetland. Note the significant presence of tire ruts likely contributing to the hydrology of the wetland.

Photo 18: WTL-8, palustrine emergent frequently disturbed wetland, which drains into a non-jurisdictional ditch.

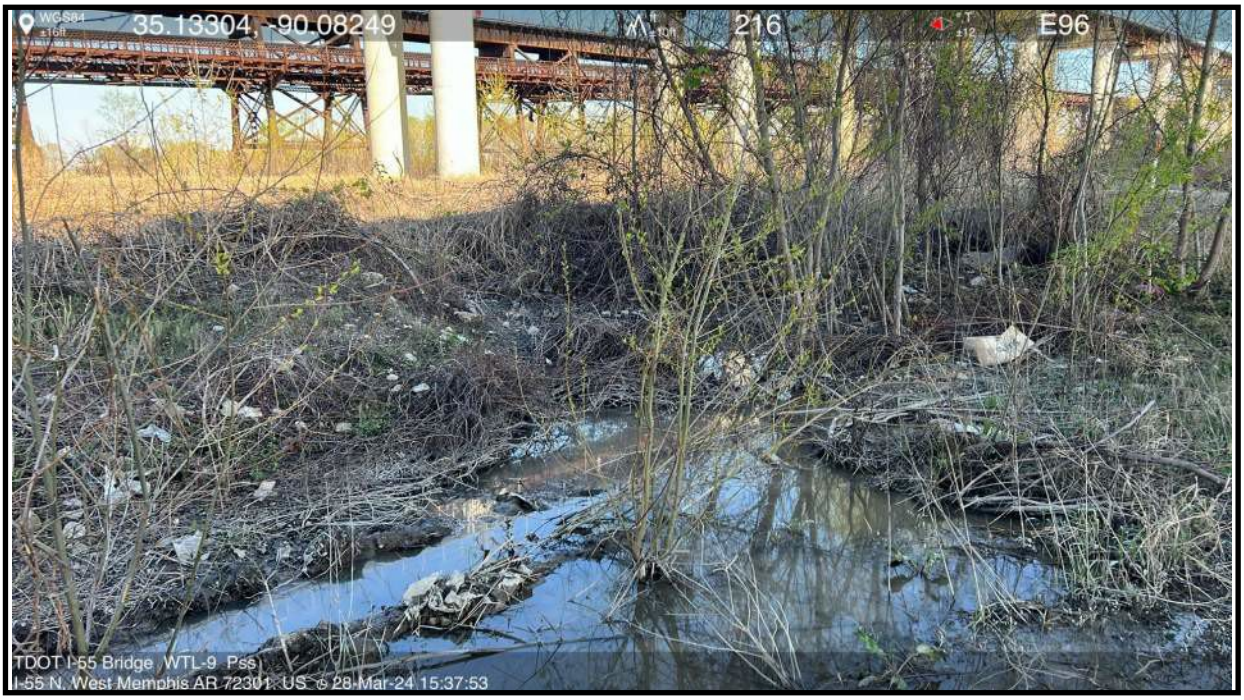

Photo 19: WTL-9, palustrine scrub-shrub wetland Note the significant presence of tire ruts likely contributing to the hydrology of the wetland.

Photo 20: WTL-9, palustrine scrub-shrub frequently disturbed wetland, which drains into a non-jurisdictional ditch.

Photo 21: View of general conditions on western end of the project study area.

Photo 22: View of general conditions on the eastern end of the project study area looking towards the Mississippi River.

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APPENDIX E:

USFWS Correspondence & Consultation History

25 Mar 2024 – TDOT initiated coordination in IPaC.

8 April 2024– FWS responds to TDOT, informing the agency that the federally endangered Pallid Sturgeon (*Scaphirhynchus albus*) has been documented throughout this reach of the Mississippi River and a qualified individual should assess potential impacts and determine if the proposed project may affect this species.

24 June 2024- TDOT requests clarification on the recommended time restrictions for in-stream work.

25 June 2024 – FWS responds to TDOT clarifying that the preferred time of year for in-stream work to occur is between November 15 - January 15.

28 June 2024- TDOT requests NLAA concurrence for Pallid Sturgeon for minor geotechnical drilling.

8 July 2024 - FWS responds to TDOT, informing the agency that the Service concurs with the NLAA finding for the geotechnical drilling.

XX September 2024 – TDOT Ecology Section submits Biological Assessment to the U.S. Fish and Wildlife Service (via the Federal Highway Administration), with a determination of **likely to adversely affect, but not likely to jeopardize the continued existence of the Pallid Sturgeon (*Scaphirhynchus albus*).**

From: Griffith, John <john_griffith@fws.gov>
Sent: Tuesday, June 25, 2024 9:58 AM
To: Rita M. Thompson
Subject: Re: [EXTERNAL] RE: IPaC delivered Official Species List for project: TDOT; I-55/MS River Bridge (America's River Crossing); pin 132733.01
Attachments: ERDC Regulatory Pallid Report 3-8-2010.pdf; Sturgeon Query MS River.xlsx

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Rita,

Your interpretation on the timing restrictions is correct. These instream prohibitions attempt to avoid the spawning periods and when YOY may be present in the project area. Specifically, if gravel substrate is absent, spawning is unlikely to take place so the operational window for instream disturbance can be expanded from Nov 15 - Jan 15 (with spawning habitat) to Nov 15 - March 31 (without spawning habitat). We took these instream timeframes from the COE's Engineer Research and Development Center (ERDC) recommendations for sand and gravel mining in the Mississippi River based on a fairly extensive pallid survey effort (see attached- I've highlighted the timeframe recommendations). Todd Slack with ERDC also provided me with survey query information showing that pallid sturgeon adults and YOY have been captured by trotline and trawl surveys in Shelby Co. I haven't looked at the actual lat/longs of the capture sites, but they are provided and could be helpful information as well. Thanks for the question!

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-261-3755 (cell)

From: Rita M. Thompson <Rita.M.Thompson@tn.gov>
Sent: Monday, June 24, 2024 4:22 PM
To: Griffith, John <john_griffith@fws.gov>
Subject: [EXTERNAL] RE: IPaC delivered Official Species List for project: TDOT; I-55/MS River Bridge (America's River Crossing); pin 132733.01

John,

Thank you for your response. There have been some questions concerning the recommendation for the prohibition of in-stream work to minimize impacts to the federally endangered pallid sturgeon (Scaphirhynchus albus). Specifically, questions have come up about the Service's recommendations for the timing of in-stream work. Your correspondence states, "If suitable substrate is present within the project area, we recommend that a protective timeframe be implemented for instream construction (e.g., installation of piles and sheet piling) from November 15 through January 15 to avoid impacts to gravid females and YOY. If firm gravel or sandy substrate does not occur within the project area, this timeframe for instream work could be expanded to November 15 through March 31."

TDOT would like to clarify the intent of the recommendations in regards to the pallid sturgeon:

Suitable substrate for spawning exists within project area: In-stream work could occur between November 15 through January 15 with no instream work from January 16 to November 14 for a given year.

Unsuitable substrate for spawning exists within project area: In-stream work could occur between November 15 through March 31 with no instream work from April 1 to November 14 of a given year.

Please respond to let me know if my understanding of the recommendations are accurate.

Thanks,

Rita Thompson| Statewide Technical Specialist
Environmental Division / Tech Studies Office – Ecology Unit
James K. Polk, 9th Floor
505 Deaderick Street
Nashville, TN 37243
p. 615-253-2459
rita.m.thompson@tn.gov

From: Griffith, John <john_griffith@fws.gov>
Sent: Monday, April 8, 2024 1:58 PM
To: Rita M. Thompson <Rita.M.Thompson@tn.gov>
Cc: Lewis, Lindsey <lindsey_lewis@fws.gov>; Cindy Osborne <Cindy.Osborne@arkansas.gov>; Anne.Ewing@ardot.gov; Sikula, Nicole R <nicole_sikula@fws.gov>
Subject: [EXTERNAL] Re: IPaC delivered Official Species List for project: TDOT; I-55/MS River Bridge (America's River Crossing); pin 132733.01

Rita,

Thank you for your correspondence regarding the proposed replacement of the Interstate (I-) 55 Bridge (America's River Crossing) over the Mississippi River in Crittenden County, Arkansas and Shelby County, Tennessee. The preliminary bridge typical section for the Build Alternative includes four 12-foot travel lanes (two in either direction), two 12-foot auxiliary lanes, and a 12-foot shoulder in each direction. Although the plans are currently being refined, the project would likely involve construction of multiple instream piers and demolition of the existing I-55 crossing. You are requesting a list of federally threatened or endangered species that may be present in the project area.

A review of available information indicates that the federally endangered pallid sturgeon (Scaphirhynchus albus) occurs in this reach of the Mississippi River. Records for both adult and young of the year (YOY) were documented in trot line and trawl surveys (see attached spreadsheet). Habitat for pallid sturgeon is defined as large, turbid, free-flowing riverine habitat. The species occurs in strong current over firm gravel or sandy substrate. If suitable substrate is present within the project area, we recommend that a protective timeframe be implemented for instream construction (e.g., installation of piles and sheet piling) from November 15 through January 15 to avoid impacts to gravid females and YOY. If firm gravel or sandy substrate does not occur within the project area, this timeframe for instream work could be expanded to November 15 through March 31. A qualified individual should assess potential impacts and determine if the proposed activities may affect this species. As a designated

representative for the Federal Highway Administration (FHWA), the Tennessee Department of Transportation may submit its assessment and findings directly to this office for review and concurrence. A finding of "may affect" can be addressed through formal consultation by the FHWA, except when the Service concurs, in writing, that a proposed action “is not likely to adversely affect” listed species.

This email will serve as our official project response. We look forward to working with you in the further development of this project. Thanks,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-261-3755 (cell)

From: Administrator Email <ecosphere_support@ecosphere.fws.gov>
Sent: Monday, March 25, 2024 3:26 PM
To: Griffith, John <john_griffith@fws.gov>; Tennessee ES, FWS <tennesseeES@fws.gov>; Sykes, Robbie <robbie_sykes@fws.gov>; Alexander, Steven <steven_alexander@fws.gov>
Subject: IPaC delivered Official Species List for project: TDOT; I-55/MS River Bridge (America's River Crossing); pin 132733.01

To: IPaC point(s) of contact for Tennessee Ecological Services Field Office
Project Location: Arkansas and Tennessee

IPaC has delivered an official Section 7 species list on behalf of your office. For your convenience, IPaC has created an ETK project (2024-0067838) with a new associated 'Species List Provided' event. A PDF file of the species list document is attached to the event and contact information for the project can be found on the last page of the PDF.

IPaC has automatically set the consultation status to "Closed". If you need to do any additional work in this project (e.g., add staff, add events, change lead office, etc.), you must first change the status to "active" so that you can edit the project. You can access the project via the link, above.

Lead FWS Office:
The Arkansas Ecological Services Field Office is currently designated as the lead office for Section 7 on this project. The following additional offices have jurisdiction and have been notified: Tennessee Ecological Services Field Office. If another office is the lead office on this project, please access the project (via the link above) and update it. IPaC will not reset the Lead Office once it has been updated by a biologist.

*Projects created in ETK by IPaC have not been assigned to an FWS staff member. To identify the staff assigned to this project, please access the project (via the link above) and add their name(s).

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, Tennessee 38501
(931) 528-6481

July 8, 2024

Ms. Rita Thompson
Tennessee Department of Transportation
Environmental Division
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: FWS# 2024-0067838. Proposed replacement of the Interstate 55 Bridge (America's River Crossing) over the Mississippi River; PIN 132733.01, Shelby County, Tennessee and Crittenden County, Arkansas.

Dear Ms. Thompson:

Thank you for your correspondence dated June 28, 2024, requesting our review of preliminary drillings for pier placement on the proposed Interstate 55 Bridge (America's River Crossing) over the Mississippi River in Shelby County, Tennessee and Crittendon County, Arkansas. The project would involve geotechnical drilling to assess three piers in the water, with 4 to 5 drill holes per pier extending 50 to 100 feet deep into the riverbed. The auger holes would be approximately 7 inches in diameter, resulting in a total substrate disturbance footprint of approximately 16 square feet. Drilling activities would be staged from a barge launched from an existing ramp. Due to the small disturbance footprint, TDOT has determined that the geotechnical drilling activity is "not likely to adversely affect" the federally endangered pallid sturgeon (*Scaphirhynchus albus*). We have reviewed the information provided and offer the following comments.

Our records indicate that the pallid sturgeon occurs in this reach of the Mississippi River. However, based on the small area of substrate disturbance, likely marginal habitat around piers, and science indicating species tolerance to acoustic disturbance, we concur with your determination of "not likely to adversely affect" to pallid sturgeon as a result of the geotechnical drilling. We are not aware of any other federally listed or proposed species that could be impacted by the project. Therefore, based on the best information available at this time, we believe that your obligations have been fulfilled for all species that currently receive protection under the Endangered Species Act of 1973 (ESA). Obligations under section 7 of the ESA must be reconsidered if (1) new information reveals impacts of the proposed action that may affect

listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

If you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

NICOLE SIKULA

Digitally signed by NICOLE SIKULA
Date: 2024.07.08 15:58:07 -05'00'

Acting Field Supervisor

xc: Casey Parker, TWRA, Jackson, TN