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SEDIMENTATION AND NAVIGATION STUDY OF THE LOWER MISSISSIPPI RIVER TARPLEY ISLAND RIVER MILES 550 TO 532

HYDRAULIC MICRO MODEL INVESTIGATION

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INTRODUCTION

The U.S. Army Corps of Engineers, Vicksburg District initiated a sedimentation and navigation study of the Lower Mississippi River between Miles 550 to 532. The purpose of the study was to evaluate and propose design modifications to existing stone dike structures and to introduce new structures to this reach in an attempt to reduce repetitive dredging and improve the navigation channel in an environmentally sensitive manner.

Mr. Michael Rodgers, Hydraulic Engineer and Mr. Edward Riiff, Engineering Technician conducted the study between February 2004 and July 2004, with assistance provided by Mr. Jasen Brown, Hydraulic Engineer, under direct supervision of Mr. David Gordon Hydraulic Engineer. Other personnel also involved with the study included: Mr. Robert Davinroy, Chief of River Engineering and Mr. Claude Strauser, Chief of the Hydrologic and Hydraulics Branch.

The following personnel provided additional support for the Tarpley Island Micro Model study: Mr. Robert Barnett, Civil Engineer Technician, MVK-ED-DR, Mr. Eddie Brooks, Hydraulic Engineer, MVD, Mr. John Brooks, Hydraulic Engineer, MVD, Mr. Steve Coleman, Civil Engineer, MVK-ED-DR, Mr. Steve Ellis, Channel Improvement Coordinator, MVD, Mr. Jim Gutshall, Civil Engineer, MVK-ED-DR, Ms. Glenda Hill, Project Manager, MVK-ED, Mr. Jasper Lummus, Civil Engineer, MVK-ED-DR, Mr. Clarence Thomas, Team Leader, MVD and Mr. John Trest, Supervisory Civil Engineer, MVK-ED-DR.

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BACKGROUND

Micro modeling methodology was used to evaluate the existing sediment transport conditions and the impact of various structural design measures to improve navigation conditions in the Tarpley Island reach of the Lower Mississippi River. The U.S. Army Corps of Engineers, Vicksburg District, initiated the study.

This study was performed to investigate methods to reduce the amount of repetitive maintenance dredging that has been required in the Tarpley Island reach of the Lower Mississippi River.

1. Study Reach

The study reach consisted of 18-miles of the Lower Mississippi River, near Greenville, Mississippi. Plate 1 is a location and vicinity map of the study reach. The study area was located in Washington County, Mississippi and Chicot County, Arkansas.

Plate 2 is a 1999 aerial photograph of the reach illustrating the characteristics, configuration, and nomenclature of the Lower Mississippi River between Miles 550 and 535. The river through the Tarpley Reach is a typical alluvial system with a high sinuosity rate and meandering pattern. Eight dike fields along with a heavily revetted left descending bank (LDB) have been utilized to control the meandering process associated with this sinuous channel and to maintain a safe and dependable navigation channel.

There were a total of 38 facilities located through this reach. Thirty-four of the facilities were located in Greenville Harbor, which is in Lake Ferguson. The entrance to the harbor is located on the LDB near Mile 537. Lake Ferguson is an abandoned channel, which became detached naturally as a neck cutoff on Leland Bend as the channel meandered through the alluvial basin of western Mississippi and eastern

Arkansas. The remaining four facilities are located at Warfield Point located on the LDB at Mile 537.

At the time of this study, the Tarpley Island reach was comprised of eight dike fields containing a total of 38 structures and one weir field containing 7 structures (plate 3). None of the structures were presently notched.

Ashbrook Cutoff Dike field contained four dikes and was located along the LDB between Miles 549.2 – 548.3. Dikes 1 and 3 were 2600 feet and 1300 feet in length respectively. Dikes 2 and 4 were completely silted over with no portion exposed to the channel. All of the dikes were of stone construction.

Ashbrook – Miller Bend Dike field was located along the RDB and contained four dikes from Mile 548.2 – 546.5. Dikes ranged from 800 feet to 1600 feet. All of the dikes were of stone construction.

Ashbrook – Miller Bend Dike field included five dikes and was located on the LDB from Miles 548.0 – 545.8. The dikes range from 900 feet to 1850 feet. All of the dikes were of stone construction.

Island 82 – Miller Bend Dike field contained three dikes and was located on the RDB from Mile 545.2 – 453.3. The dikes ranged from 500 feet to 1850 feet. All of the dikes were of stone construction.

Island 82 – Miller Bend was located on the LDB and contained four dikes from Mile 545.8 – 543.8. The dikes ranged from 1500 feet to 3700 feet in length. All of the dikes were of stone construction.

Leland Neck Dike field contained three dikes and was located on the LDB from Mile 541.2 – 540.3. The dikes ranged from 1300 feet to 3700 feet in length. All of the dikes were of stone construction.

Tarpley Cutoff Dike field was located on the RDB and contained three dikes located at Mile 541.4 – 539.5. The dikes ranged from 2100 feet to 7000 feet in length. Dike 3R had a 3700 foot trail connected to it. All of the dikes were of stone construction.

Leland Bar Dike field contained five structures on the RDB located between Mile 538.3 – 536.6. The dikes ranged from 2600 feet to 9500 feet in length. All of the dikes were of stone construction.

Leland Vane Dike Field consisted of two dike structures running parallel with flow. The dikes are located on the RDB from Mile 537 – 536 and are 1200 feet in length. Both dikes are of stone construction.

Wairfield Point Dike is a single structure located on the LDB at Mile 535.5. The dike is 2000 feet in length and was constructed of stone.

Island 84 Dike Field consists of five structures located on the LDB from Miles 534.9 – 531.8. The Dikes ranged from 600 feet to 3100 feet in length. All of the dikes were of stone construction.

Vaucluse Bendway Weir Field consists of seven weirs on the RDB from Miles 533.5 – 532.8. The weirs range between 600 feet to 1100 feet in length. All of the weirs were of stone construction.

Dike Field	Dike Name	Dike Length (ft)	* Dike Elevation	Type
Ashbrook Cutoff River Miles 549.2 – 548.3L	Dike 1	2600	15 – 14; 26 – 25	Stone & Pile
	Dike 2	200	15 – 14; 26 – 25	Stone & Pile
	Dike 3	1300	15 – 14; 26 – 25	Stone & Pile
	Dike 4	200	15 – 14; 26 – 25	Stone & Pile
Ashbrook – Miller Bend Dikes River Miles 548.2 – 546.5R	Dike 1R	1050	24 – 01; 35 – 12	Stone
	Dike 2R	1300	24 – 01; 35 – 12	Stone
	Dike 3R	1600	24 – 01; 35 – 12	Stone
	Dike 4R	800	24 – 01; 35 – 12	Stone

Dike Field	Dike Name	Dike Length (ft)	* Dike Elevation	Type
Ashbrook – Miller Bend Dikes	Dike 2UL	1000	29 – 09; 40 – 20	Stone
River Miles 548.0 – 545.8L	Dike 1UL	900	29 – 09; 40 – 20	Stone
	Dike 1L	1750	29 – 09; 40 – 20	Stone
	Dike 2L	1300	29 – 09; 40 – 20	Stone
	Dike 3L	1850	29 – 09; 40 – 20	Stone
Island 82 – Miller Bend	Dike 2L	1300	24 – 15; 35 – 26	Stone
River Miles 545.8 – 543.8 L	Dike 3L	1300	24 – 15; 35 – 26	Stone
	Dike 4L	500	24 – 15; 35 – 26	Stone
Island 82 – Miller Bend	Dike 1R	1500	32 – 10; 43 – 21	Stone
River Miles 545.2 – 543.3R	Dike 2R	3700	32 – 10; 43 – 21	Stone
	Dike 3R	3150	32 – 10; 43 – 21	Stone
	Dike 4R	3150	32 – 10; 43 – 21	Stone
Tarpley Cutoff Dikes	Dike 1R	7000	25 – 11; 36 – 22	Stone
River Miles 541.4 – 539.5R	Dike 2R	2100	25 – 11; 36 – 22	Stone
	Dike 3R	3150 w/3700 trail	25 – 11; 36 – 22	Stone
Leland Neck Dikes	Dike 1	1300	24 – 07; 35 – 18	Stone
River Miles 541.2 – 540.3L	Dike 2	2100	24 – 07; 35 – 18	Stone
	Dike 3	3700	24 – 07; 35 – 18	Stone
Leland Bar Dikes	Dike 1R	6300 w/3150 arm	28 – 15; 39 – 26	Stone
River Miles 539.3 – 536.6R	Dike 2R	3700	28 – 15; 39 – 26	Stone
	Dike 3R	2640	28 – 15; 39 – 26	Stone
	Dike 4R	2900	28 – 15; 39 – 26	Stone
	Dike 5R	2600	28 – 15; 39 – 26	Stone
Leland Vane Dikes	Dike 1	1200	16; 27	Stone
River Miles 536.9 – 536.4R	Dike 2	1200	16; 27	Stone
Warfield Point - River Mile 535.3L	Dike 1	2000	08 – -04; 30 – 18	Stone
Island 84	Dike 2U	1900	16 – 09; 27 – 20	Stone
River Miles 534.8 – 531.9L	Dike 1U	3100	16 – 09; 27 – 20	Stone
	Dike 1	2700	16 – 09; 27 – 20	Stone
	Dike 2	2000	16 – 09; 27 – 20	Stone
	Dike 3	600	16 – 09; 27 – 20	Stone

Dike Field	Dike Name	Dike Length (ft)	* Dike Elevation	Type
Vaucluse Bendway Weirs River Miles 533.5 – 532.8R	Weir 1	600	-08 – -08	Stone
	Weir 2	600	-08 – -08	Stone
	Weir 3	850	-08 – -08	Stone
	Weir 4	1000	-08 – -08	Stone
	Weir 5	850	-08 – -08	Stone
	Weir 6	1000	-08 – -08	Stone
	Weir 7	1100	-08 – -08	Stone

* Dike elevation numbers represent near shore and end of dike height based on the local gages near the reach. The gage data was gathered at Arkansas City, Arkansas and Greenville, Mississippi.

2. Problem Description

The Tarpley Reach, Miles 550 through 532 is part of the Inland Waterway System of the Lower Mississippi River. Many of the commodities that are transported via the waterways travel through the Tarpley Reach to and from the largest port system in the U.S., New Orleans, Louisiana. Repetitive maintenance dredging is an ongoing solution to maintain the required navigation depth for waterways transportation thru this reach. The current problem is the deposition of sediment at the channel crossing near Mile 542. Between Miles 543 and 541.5 the channel widens and velocity is reduced. As the channel widens and velocity is reduced the ability to transport sediment reduces, therefore creating a depositional zone. As the deposition accumulates the channel becomes less efficient for navigation purposes. Repetitive dredging is the current solution for maintaining an appropriate navigation channel at this location. Any reduction in dredging through this reach while maintaining the navigation channel will increase the efficiency of waterways transportation.

Channel Alignment

Traveling downstream, the Tarpley Island Reach consists of 18 miles of the Lower Mississippi River, encompassing a straight reach thru Ashbrook Cutoff, a 3 mile bend at Miller Bend, a 4 mile straight reach thru Tarpley Cutoff, a 3 mile bend at

Leland Cutoff and a 3 mile straight reach at Leland Bar. The 2 side channels located thru the Tarpley Reach are the Chute of Island 82 and the Tarpley Island side channel. The Chute of Island 82 is a highly sinuous side channel that begins near Mile 550, meanders thru the floodplain on the RDB and enters the main channel at mile 539. The Tarpley Island side channel is located on the RDB at Mile 541.2 and continues to Mile 538.6. This side channel is fairly straight, separating Tarpley Island from the mainland on the RDB. Tarpley Island, located on the RDB of the reach from Mile 541.2 to Mile 538.8 is over 3 miles long and has a maximum width of 2000 feet. Leland Bar is located on the RDB and begins at Mile 537.5 and ends at Mile 534. Leland Bar was once located in the main channel but with the placement of the several dikes at this location, deposition occurred and the bar became part of the mainland. Generally the Tarpley Reach is typical of an alluvial system with good sinuosity and several thalweg crossings from riverbank to riverbank. Channel widening occurs at two locations at channel crossings, where deposition occurs. Aside from depositional areas, the Tarpley Reach was in good condition for waterways navigation with typical channel contraction width exceeding 1900 feet and typical channel depths exceeding –12 feet LWRP.

Thalweg alignment thru Tarpley Reach begins with a crossing from the RDB to the LDB along Miller Bend. The thalweg starts on the RDB at Mile 550 and gently crosses to the LDB at Mile 547. From Mile 547 the thalweg continues to be located along the LDB until it reaches Mile 542. Scouring is common off of the LDB structures through this stretch. At Mile 542 the thalweg abruptly crosses to the RDB along the upper portion of Tarpley Island. Traveling downstream through the Tarpley Island stretch the river becomes constricted and scouring occurs along the RDB and through the majority of the channel. As the river bends around Tarpley Island the thalweg crosses to the LDB at Mile 538.5. The thalweg continues along the LDB until Mile 536 at which time it drifts to the center and began to widen and loose energy.

3. History

Geomorphology

The Tarpley Reach is located in the greater Yazoo Basin in northwestern Mississippi, Plate 4. This is the largest basin in the Mississippi alluvial valley with an approximate area of 7,600 mi^2. The Yazoo Basin extends 200 miles from Memphis to Vicksburg and is a little over 60 miles wide near Greenwood, Mississippi. Ninety-five percent of the basin consists of Holocene meander belt and back swamp environments. Plate 5 is a map of the quaternary deposits of the Lower Mississippi Valley and shows the meander belt and abandoned channels.

Historically, the Lower Mississippi River was a highly sinuous channel with many meanders. In the early 1800's tectonic events, levee building and the loss of riparian zones increased sediment activity in the river system causing bar growth and navigation problems. In the late 1920's a series of meander cutoffs were proposed to direct the river's energy for channel improvement purposes. This would create a better navigation channel by deepening the channel and decreasing the overall travel distance while also lowering the local flood stage by increasing the slope and velocity. A total of 16 cutoffs occurred from 1929 to 1942 shortening the river by 152 miles during a 13-year span. These cutoffs were made over a 503-mile reach shortening this reach 30 percent in length. Three of the 16 cutoffs are located in the Tarpley Island Reach. (Ashbrook Cutoff, Tarpley Cutoff and Leland Cutoff)

River Mile Location	Year Opened	Bendway miles	Cutoff Distance miles	Distance River Shortened miles
549 - Ashbrook	1937	13.3	1.9	11.4
541 - Tarpley	1935	12.2	3.6	8.6
539 – Leland*	1933	11.2	1.4	9.8

* Natural Cutoff

1968 Navigation Chart

The 1968 Navigation Chart is shown on Plate 6. The Tarpley Reach consisted of eight dike fields and a total of 29 structures. The majority of structures were constructed of stone with the exception of a few pile structures located in the Ashbrook Cutoff Dike Field.

The navigation chart indicated the channel alignment was very similar to the present alignment but the planform has had some variations. Tarpley Island was in the bar phase which formed after the completion of the Tarpley cutoff. A large bar was located on the RDB near Mile 535, which has since degraded.

1976 Navigation Chart

Plate 7 is a 1976 Navigation Chart. Between 1968 and 1976 the Tarpley Cutoff Dike Field was introduced to this reach on top of the bar along the RDB. Located on the RDB of Tarpley Island from Miles 541.4 – 539.5R, the Tarpley Cutoff Dike Field consists of three dikes, Dikes 1R, 2R and 3R. Dikes were placed here to establish contraction and maintain the navigation channel through this stretch.

Once again, channel alignment was similar to the present alignment. However, at Mile 545.8 deposition in the center of the channel begins and sediment continues to accumulate near the center of the channel at Mile 545.2 and near the LDB at 544.6. The location of deposition in the center of the channel in this stretch looks to have been a hindrance to the navigation industry. The bar formation at Mile 543.5 encroached on the center of the channel reducing the channel width near Mile 542.4. Finally, the Leland Bar degraded at Mile 535.5 and the channel width increased.

1986 Navigation Chart

The 1986 Navigation Chart is shown on Plate 8. New dike construction occurred between 1976 and 1986. Two additional dikes, Dikes 1UL and 2UL were placed in the Ashbrook – Miller Bend Dike Field. These dikes were placed on the LDB

between Miles 548 and 547 to reduce the amount of bank scour and realign the thalweg towards the center of the channel. Dikes at Tarpley Cutoff Dike Field and Leland Bar Dike Field were extended to reduce the contraction width and push the river into a bend along the LDB at Leland Cutoff. Dike 1R in the Tarpley Cutoff Dike Field was extended to cross the side channel on the backside of Tarpley Island to reduce the loss of main channel flow to the side channel. A trail was added onto Dike 3R of Tarpley Cutoff to reduce the deposition at Leland Cutoff on the LDB and Tarpley Island on the RDB. Dike 1R of the Leland Bar Dike Field had an extension placed on it, angled downstream to reduce the deposition through this stretch as well.

Channel alignment has been consistent with previous navigation charts. The planform has changed with degradation occurring through the majority of the reach. Bar formations at the upper end of the reach have become part of the floodplain and the channel became clear of all depositional areas. Leland Bar near Mile 535 at the southern end of the reach continued to be located near the center of the channel.

1994 Hydrographic Survey

The 1994 Hydrographic Survey is shown on Plate 9. Overall channel trends are similar to the 1986 Navigation Chart and the 1994 Hydrographic Survey. Deposition occurred on the RDB of the Ashbrook-Miller Bend Dike Field from Mile 548 to Mile 546. The thalweg remained on the LDB thru this stretch. A depositional area was located along he RDB between Miles 545 and 541. Similar to the 1986 Navigation Chart, the 1994 Hydrographic Survey shows the channel crossing from the LDB to the RDB at Mile 542. Additional deposition occurs on the RDB at the Leland Neck Dike Field and on the RDB downstream of Dike 4R of the Tarpley Cutoff Dike Field.

1997 Hydrographic Survey

The 1997 Hydrographic Survey is on Plate 10. The overall bathymetric trends between the 1994 and 1997 hydrographic surveys are similar. Scouring occurred on the LDB from Mile 548 to Mile 542, thru the Ashbrook – Miller Bend and Island 82-Miller Bend Dike Fields. Deposition on the RDB and slight contraction of the channel width occurred from Mile 544 to Mile 541.5. Additional scouring occurred off of the Tarpley Cutoff Dike Field from Mile 541 to Mile 539. A slight reduction of deposition occurred in the center of the channel near Mile 535.

2000 Hydrographic Survey

The 2000 Hydrographic Survey is on Plate 11. Compared to the 1997 Hydrographic Survey the 2000 survey showed a reduction in scouring on the LDB from Mile 548 to Mile 545 thru the Ashbrook – Miller Bend and Island 82 – Miller Bend Dike Fields. Increased scouring on the downstream side of structures was present along the RDB thru the Ashbrook – Miller Bend Dike Field. Increased scouring also occurred on the LDB from Mile 544.5 to Mile 543.5. A reduction of scouring occurred through the Tarpley Cutoff Dike Field from Mile 541 to Mile 539. The 2000 Hydrographic Survey showed an increase in deposition near Mile 538, off of Dike 2R of the Leland Bar Dike Field. Overall, the bathymetry between the 1997 and 2000 hydrographic surveys are similar.

2002 Hydrographic Survey

The 2002 Hydrographic Survey is on Plate 12. The overall bathymetric trends between 2000 and 2002 are similar. An increase in scouring occurred along the LDB from Mile 548 to Mile 545 in the Ashbrook – Miller Bend Dike and Island 82 – Miller Bend Dike Fields. The scour holes that occurred on the downstream side of the structures located on the RDB of the Ashbrook – Miller Bend Dike Field, were filled in with sediment. The channel crossing from the LDB to the RDB located near Mile 541.8 was reduced in depth. The point bar located at Mile 538 was reduced. The remainder of the survey is consistent with the 2000 Hydrographic Survey.

4. Study Purposes and Goals

As described in the Problem Section of this report, the Tarpley Island Reach has an ongoing repetitive dredging problem located at the channel crossing near Mile 542. The purpose of this study was through the use of river training structures, determine design alternatives that would reduce or prevent sediment deposition at the channel crossing thereby reducing the need for dredging. The criteria for the design alternatives was that they could not negatively affect the existing navigation channel and continue to allow sufficient flows thru the Tarpley Island Side Channel.

MICRO MODEL DESCRIPTION

1. Scales and Bed Materials

In order to investigate the sediment transport issues and habitat development described previously, a physical hydraulic micro model was designed and constructed. Plate 13 is a photograph of the hydraulic micro model used in this study. The model employed a horizontal scale of 1 inch = 1200 feet, or 1:14400, and a vertical scale of 1 inch = 55 feet, or 1:660, for a 22 to 1 distortion ratio of linear scales. This distortion supplied the necessary forces required for the simulation of sediment transport conditions similar to those of the prototype. The bed material was granular polyester urea, Type II, with a specific gravity of 1.47.

2. Appurtenances

The micro model insert was constructed according to the 1999 high-resolution aerial photography of the study reach shown on Plate 2. The insert was then mounted in a standard micro model hydraulic flume. The riverbanks were initially constructed of dense polystyrene foam and later retrofitted with galvanized steel mesh layered with oil-based clay. The banks were retrofitted in an attempt to reduce bank roughness, allowing the channel to cross from bank to bank. The model was also retrofitted with a two-foot entrance flume, allowing the channel to become aligned and stabilize prior to entering the model. The slope of the model was 0.013. River training structures in the model were made of galvanized steel mesh.

Flow into the model was regulated by customized computer hardware and software interfaced with an electronic control valve and submersible pump. This interface was used to automatically control the flow of water and sediment into the model. Discharge was monitored by a magnetic flow meter interfaced with the customized computer software. Water stages were manually checked with a mechanical three-dimensional point digitizer. Resultant bed configurations were measured and recorded with a three-dimensional laser digitizer.

MICRO MODEL TESTS

1. Model Calibration

The calibration of the micro model involved the adjustment of water discharge, sediment volume, model slope, and entrance conditions of the model. These parameters were refined until the measured bed response of the model was similar to that of the prototype.

A. Micro Model Operation

In all model tests, a steady state flow was simulated in the Lower Mississippi River channel. This served as the average design energy response of the river. Because of the constant variation experienced in the prototype, this steady state flow was used to theoretically analyze the ultimate expected sediment response. The flow was held steady at a constant flow rate of 2.72 GPM during model calibration and for all design alternative tests. The most important factor during the modeling process is the establishment of an equilibrium condition of sediment transport. The high steady flow in the model simulated an average energy condition representative of the river's ultimate channel forming flow and sediment transport potential.

B. Prototype Data and Observations

To determine the general bathymetric characteristics and sediment response trends that existed in the prototype, several present and historic hydrographic surveys and navigation charts were examined. Plates 9 –12 are plan hydrographic survey maps of the Mississippi River from 1994, 1997, 2002 and 2002 respectively. The trends from the aforementioned bathymetric surveys were used to calibrate the micro model. The trends are as follows:

- The 1994 Hydrographic Survey of the Tarpley Reach shows that the thalweg follows the LDB from Mile 548 to Mile 543. Through this stretch scouring is prevalent off of the dikes along the LDB through the Ashbrook Cutoff,

Ashbrook – Miller Bend (L) and Island 82 – Miller Bend (L) Dike Fields with depths reaching –50 feet LWRP.

- Scouring also occurs along the inner bend of the LDB at Mile 543 with depths of –30 feet LWRP.
- Two areas of deposition occur along the RDB in the Ashbrook – Miller Bend (R) and Island 82 – Miller Bend (R) Dike Fields. Island 82 - Miller Bend (R) Dike Field has the significantly more depositional area of the locations.
- At Mile 543 the channel begins to cross from the LDB to the RDB, with depths at –20 feet LWRP the thalweg begins to lose depth.
- Once the channel has crossed the thalweg began to scour off of Dike 1R of the Tarpley Cutoff Dike Field. The combination of Tarpley Island, deposition along Leland Neck Dike Field and the Tarpley Cutoff Dike Field constricts the channel and scouring up to –40 feet LWRP occurred.
- The scouring was prevalent along the RDB to the center of the channel from Mile 541.2 to Mile 539.5 was prevalent.
- The thalweg followed the outside bend at Mile 539.5 and continued to follow the LDB until it fanned out in the center of the channel at Mile 536. Thalweg depths through this stretch were between –30 to –50 feet LWRP.
- From Mile 536 to the end of the study reach at Mile 535 the thalweg continued to loose energy and decrease in depth.

2. Base Test

Model calibration was achieved once it was determined through qualitative comparisons that the prototype surveys were similar to model surveys. The resultant bathymetry of the calibrated bed response served as the base test of the micro model (Plate 13). The resulting base test served as the comparative bathymetry for all design alternative tests.

Results of the micro model base test bathymetry and a comparison to the trends of the 1994 through 2002 prototype surveys indicated the following trends:

- Similar to the prototype, as flow enters the Micro Model the thalweg was located on the RDB at Mile 548.5. The thalweg began to cross to the LDB at this point and reaches the LDB at Mile 547.8. The depths through the crossing on both the hydrographic surveys and the Micro Model exceeds –20 feet LWRP.
- The scour depths that occurred off of Dikes 2UL and 1UL of the Ashbrook – Miller Dike Field along the LDB were not as great on the base test but the general bathymetric trends were comparable.
- The scouring found on the base test, along the LDB from Dike 1L of the Ashbrook – Miller Bend Dikes through the Island 82 – Miller Bend Dike Field may be slightly exaggerated compared to prototype surveys, but the general trends between the prototype and base test bathymetry are similar.
- Both the prototype and the base test displayed scouring off of Dike 1R of the Leland Neck Dike Field. The prototype bathymetry displayed the thalweg beginning to cross from the RDB at Mile 539.5 and reach the LDB at Mile 538.5. The base test showed similar results, with the main variance being lack of overall thalweg depth on the base test. Overall bathymetric trends were comparable between the prototype and the Micro Model.
- The location and depth of the thalweg are similar in both the prototype survey and base test from Miles 539.5 to 537. There are some discrepancies involving the location and size of depositional areas but the general bathymetry is similar.
- The thalweg had similar depth in the model compared to the prototype on the LDB near Mile 538. Consolidated clays have been documented with soil profiles through this reach.
- As the channel continues from Mile 537 to Mile 535 the contraction width increases at a crossing. The thalweg begins to loose energy, decreasing in depth and velocity. With the loss of velocity, sediment began to settle out and a depositional zone started to form. The location of the depositional zone varies

slightly between the prototype and base test but the general bathymetry was similar in both.

- The bathymetric trends between the prototype and base test beyond Mile 535 were similar.

Overall, the general bathymetric trends of the model as observed in the base test were similar to those observed from the prototype surveys.

3. Design Alternative Tests

All design alternatives studied in the micro model utilized the existing dike configurations in the prototype surveys. Modifications to the dikes included increasing length and or height. Some design alternatives included the addition of dikes as well as blunt-nosed chevrons. A total of 66 design alternative plans were model tested to examine methods of modifying the sediment transport response trends that would decrease or possibly eliminate the need for dredging. The effectiveness of each design was evaluated by comparing the resultant bed configuration to that of the base test condition. Impacts or changes induced by each alternative were evaluated by observing the bathymetric response of the model.

A. Vicksburg District Alternatives

The following tables illustrate the alternatives proposed by the Vicksburg District and the resulting bathymetric affects.

Indicates the alteration of original structure properties.

Indicates the minimum contraction width of the channel associated with the given dike field.

Original Properties

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3500
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	3100
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			3100
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

MVK Alternative 1A: Plate 14

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2640	15 LWRP	542.5	2500
		2	3000	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	1440	15 LWRP	Existing	2200
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2200
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

A slight increase in overall depth through the navigation channel at Mile 542.5. Additional deposition/shoaling occurred on the RDB near Mile 542, at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

MVK Alternative 1B: Plate 15

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2640	15 LWRP	542.5	2800
		2	3000	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

A slight increase in overall depth through the navigation channel at Mile 542.5. Additional deposition/shoaling occurred on the RDB near Mile 542, at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

MVK Alternative 1C: Plate 16

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2160	15 LWRP	542.5	3100
		2	2640	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

A slight increase in overall depth through the navigation channel at Mile 542.5. Additional deposition/shoaling occurred on the RDB near Mile 542, at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

MVK Alternative 2A: Plate 17

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 3A: Plate 18

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2160	15 LWRP	542.5	2800
		2	2640	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	3100
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			3100
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

The navigation channel narrowed and deepened slightly between Miles 542.5 and 541. Deposition occurred on the RDB near Mile 542 at the location of the proposed river training structures. A reduction in scouring off of Dike 1R of the Tarpley Cutoff Dike field was observed.

MVK Alternative 3B: Plate 19

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	1800	15 LWRP	542.5	3100
		2	2160	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	3100
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			3100
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 3C: Plate 20

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2640	15 LWRP	542.5	2600
		2	3000	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	3100
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			3100
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

The navigation channel narrowed and uniformly deepened from Mile 542.5 to Mile 541. Deposition occurred on the RDB near Mile 542 at the location of the proposed river training structures. A reduction in scouring off of Dike 1R of the Tarpley Cutoff Dike field was observed.

MVK Alternative 4A: Plate 21

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2500
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 4B: Plate 22

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1680	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2500
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 4C: Plate 23

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	1440	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2500
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 4D: Plate 24

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2500
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 5A: Plate 25

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2160	15 LWRP	542.5	2800
		2	2640	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

A slight increase in depth of the navigation channel on the RDB from Mile 542.5 to Mile 541 and along the LDB at Mile 541.5 in the Leland Neck Dike Field.

MVK Alternative 5B: Plate 26

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	1800	15 LWRP	542.5	3000
		2	2160	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 5C: Plate 27

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2640	15 LWRP	542.5	2500
		2	3000	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	1920	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

A slight increase in depth of the navigation channel on the RDB near Mile 541.5. Additional deposition occurred on the RDB at the location of the proposed river training structures located upstream of Tarpley Island.

MVK Alternative 6A: Plate 28

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2500
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2500
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 6B: Plate 29

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	1440	15 LWRP	Existing	2400
		2	1200	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	720	15 LWRP	541.4	2400
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 6C: Plate 30

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	0			3400
		2	0			
RDB	Tarpley Cutoff	1	1440	15 LWRP	Existing	2400
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	2400
LDB	Leland Neck	1U	720	15 LWRP	541.4	
		1	1320	15 LWRP	Existing	
		2	1560	15 LWRP	Existing	

Results

Depths and widths of the navigation channel remained similar to the base test.

MVK Alternative 7A: Plate 31

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	1800	15 LWRP	542.5	3200
		2	2160	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2600
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2600
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Overall increase in depth of the navigation channel from Mile 542 to Mile 539. Additional deposition occurred along the RDB upstream of Tarpley Island at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

MVK Alternative 7B: Plate 32

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2160	15 LWRP	542.5	2900
		2	2640	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2600
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	
LDB	Leland Neck	1U	0			2600
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Overall increase in depth of the navigation channel from Mile 542 to Mile 539. Additional deposition occurred along the RDB upstream of Tarpley Island at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

MVK Alternative 7C: Plate 33

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	Tarpley Island	1	2640	15 LWRP	542.5	2500
		2	3000	15 LWRP	541.8	
RDB	Tarpley Cutoff	1	960	15 LWRP	Existing	2600
		2	1440	15 LWRP	Existing	
		3	1440	15 LWRP	Existing	
		Dike 3 Trail	2400	15 LWRP	Existing	2600
LDB	Leland Neck	1U	0			
		1	1080	15 LWRP	Existing	
		2	1320	15 LWRP	Existing	

Results

Overall increase in depth of the navigation channel from Mile 542 to Mile 539. Additional deposition occurred along the RDB upstream of Tarpley Island at the location of the proposed river training structures. Increased scouring occurred along the LDB from Mile 539 to Mile 537.

B. St. Louis District Alternatives

The following tables illustrate the alternatives proposed by the St. Louis District and the resulting bathymetric affects.

MVS Alternative 3: Plate 34

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	600	15 LWRP	541.7	NA					3100
		2	650	15 LWRP	541.5						
		3	750	15 LWRP	541.3						
RDB		NA				NA					

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach. Deposition did occur in the channel near Mile 535.

MVS Alternative 4: Plate 35

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	600	15 LWRP	543.6	NA					1600
		2	500	15 LWRP	543.3						
		3	600	15 LWRP	542.9						
		4	700	15 LWRP	542.5						
		5	500	15 LWRP	542.1						
		6	500	15 LWRP	541.8						
		7	850	15 LWRP	541.4						
RDB	upstream of Leland Neck	1	2700	15 LWRP	542.3	NA					1600
		2	2200	15 LWRP	541.8						

Results

A slight deepening of the navigation channel near Mile 542. Additional shoaling occurred on the RDB at the location of the proposed structures upstream of Tarpley Island.

MVS Alternative 5: Plate 36

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	600	15 LWRP	542.8	1	500	200	15 LWRP	543.2	2000
		2	600	15 LWRP	542.6						
		3	750	15 LWRP	542.3						
		4	1000	15 LWRP	542.1						
		5	850	15 LWRP	541.9						
		6	1000	15 LWRP	541.7						
		7	1000	15 LWRP	541.4						
RDB	upstream of Leland Neck	1	2500	15 LWRP	542.4	1	500	2000	15 LWRP	542.9	2000
		2	2850	15 LWRP	541.8	2	500	2300	15 LWRP	542.0	

Results

An overall increase in the depth of the navigation channel from Mile 543 through Mile 541. Additional shoaling occurred on the RDB at the location of the proposed structures upstream of Tarpley Island. A slight increase in scouring occurred on the LDB from Mile 538 to Mile 537.

MVS Alternative 6: Plate 37

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	850	15 LWRP	542.7	1	500	200	15 LWRP	543.2	1700
		2	650	15 LWRP	542.3						
		3	650	15 LWRP	541.9						
		4	850	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500	2300	15 LWRP	542.7	1700
						2	500	2150	15 LWRP	542.2	
						3	500	2300	15 LWRP	541.8	

Results

An overall increase in depth of the navigation channel from Mile 543 to 541. Additional shoaling occurred on the RDB at the location of the proposed Structures upstream of Tarpley Island. A slight increase in scouring occurred on the LDB from Mile 538 to Mile 537.

MVS Alternative 7: Plate 38

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	850	15 LWRP	543.5	NA					2200
		2	650	15 LWRP	543.0						
		3	650	15 LWRP	542.6						
		4	750	15 LWRP	542.3						
		5	850	15 LWRP	541.9						
		6	850	15 LWRP	541.4						
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.7	2200
						2	500	1850	15 LWRP	542.2	
						3	500	2250	15 LWRP	541.8	

Results

An increase in depth of the navigation channel from Mile 543 to Mile 541 and from Mile 540 to Mile 537. Slight shoaling occurred on the RDB near Mile 542 at the location of the proposed structures.

MVS Alternative 8: Plate 39

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1100	15 LWRP	543.4	1	500	1000	15 LWRP	542.5	**1400**
		2	850	15 LWRP	543.1	2	500	850	15 LWRP	542.1	
		3	1000	15 LWRP	542.7	3	500	850	15 LWRP	541.8	
		4	1000	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500	1850	15 LWRP	543.0	**1400**
						2	500	1850	15 LWRP	542.7	
						3	500	2000	15 LWRP	542.1	
						4	500	2200	15 LWRP	541.8	

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach.

MVS Alternative 10: Plate 40

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	543.4	1	500	1100	15 LWRP	542.7	1600
		2	750	15 LWRP	542.9	2	500	1200	15 LWRP	542.0	
		3	1000	15 LWRP	542.3						
		4	1000	15 LWRP	541.8						
		5	750	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.7	1600
						2	500	2000	15 LWRP	542.1	
						3	500	2100	15 LWRP	541.8	
RDB	Island 82 – Miller Bend	Trail off of 4R	2300	15 LWRP		NA					1600

Results

Depths and widths of the navigation channel remained similar to the base test from the entrance to Mile 541. Increased depth occurred in the navigation channel from Mile 541 to Mile 537.

MVS Alternative 11: Plate 41

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	543.3	1	500	850	15 LWRP	542.5	1500
		2	1000	15 LWRP	542.8						
		3	1000	15 LWRP	542.2						
		4	1300	15 LWRP	541.9						
RDB	upstream of Leland Neck	NA				1	500	2100	15 LWRP	542.7	1500
						2	500	2000	15 LWRP	542.2	
						3	500	2000	15 LWRP	541.8	
RDB	Island 82 - Miller Bend	Trail off of 4R	2300			NA					1500

Results

A slight increase in channel depth from Mile 542.5 to Mile 537. Deposition occurred on the LDB from Mile 542 to Mile 541. Deposition also occurs on the RDB near Mile 538.

MVS Alternative 12: Plate 42

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	850	15 LWRP	543.2	1	500	1000	15 LWRP	544.2	1500
		2	1000	15 LWRP	542.2	2	500	850	15 LWRP	542.8	
		3	1300	15 LWRP	541.8	3	500	1000	15 LWRP	542.6	
		Trail off of 3	1300	15 LWRP							
LDB	Island 82 – Miller Bend	Trail off of 4L	2000	15 LWRP		NA					1500
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.7	1500
						2	500	2000	15 LWRP	542.4	
						3	500	1750	15 LWRP	542.0	
						4	500	1850	15 LWRP	541.8	
RDB	Island 82 – Miller Bend	Trail off of 4L	2400			NA					1500

Results

A slight increase in channel depth from Mile 542.5 to Mile 537. Deposition occurs on the LDB from Mile 542 to Mile 541. Deposition also occurs on the

RDB near Mile 542 at the location of the proposed structures near Mile 542.

MVS Alternative 13: Plate 43

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	750	15 LWRP	543.2	1	500	850	15 LWRP	545.0	1300
		2	850	15 LWRP	542.2	2	500	750	15 LWRP	544.6	
						3	500	1200	15 LWRP	544.2	
						4	500	650	15 LWRP	542.9	
						5	500	1000	15 LWRP	542.5	
						6	500	1200	15 LWRP	542.0	
LDB	Island 82 – Miller Bend	Trail off of 4L	2000	15 LWRP		NA					1300
RDB	upstream of Leland Neck	NA				1	500	2100	15 LWRP	542.7	1300
						2	500	2000	15 LWRP	542.3	
						3	500	2000	15 LWRP	542.0	
						4	500	2000	15 LWRP	541.7	

Results

The navigation channel narrows and deepens from Mile 542.5 to Mile 541.5. Deposition occurs from mid-channel towards the LDB at Mile 541. Deposition also occurs on the RDB near Mile 538 thru Mile 537 in the main channel form Mile 536 to Mile 534.

MVS Alternative 14: Plate 44

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1100	15 LWRP	542.2	1	500	1000	15 LWRP	545.0	1500
						2	500	1100	15 LWRP	544.6	
						3	500	1000	15 LWRP	544.3	
						4	500	850	15 LWRP	543.6	
						5	500	700	15 LWRP	543.1	
						6	500	2100	15 LWRP	542.7	
RDB	upstream of Leland Neck	NA				1	500	1000	15 LWRP	542.5	1500
						2	500	2000	15 LWRP	542.4	
						3	500	2000	15 LWRP	542.0	
						4	500	2000	15 LWRP	541.7	

Results

An overall increase in the depth of the navigation channel from Mile 542.5 to Mile 541.5. A area of deposition occurred along the LDB at Mile 541.5. Scouring increased along the LDB from Mile 540 to Mile 537.

MVS Alternative 15: Plate 45

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1100	15 LWRP	542.2	1	500	1000	15 LWRP	544.6	1800
						2	500	1100	15 LWRP	544.3	
						3	500	1000	15 LWRP	543.6	
						4	500	850	15 LWRP	543.2	
						5	500	700	15 LWRP	542.7	
						6	500	2100	15 LWRP	542.7	
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.4	1800
						2	500	2000	15 LWRP	542.0	
						3	500	1000	15 LWRP	541.8	
						4	500	2000	15 LWRP	541.7	

Results

An overall increase in the depth of the navigation channel from Mile 542.5 to Mile 541.5. A area of deposition occurred along the LDB at Mile 541.5. Scouring increased along the LDB from Mile 540 to Mile 537.

MVS Alternative 16: Plate 46

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	750	15 LWRP	542.9	1	500	1000	15 LWRP	541.8	1200
		2	1200	15 LWRP	542.2	2	500	850	15 LWRP	545.0	
						3	500	1100	15 LWRP	544.7	
						4	500	1200	15 LWRP	544.3	
						5	500	750	15 LWRP	543.7	
						6	500	750	15 LWRP	543.2	
						7	500	2350	15 LWRP	542.8	
RDB	upstream of Leland Neck	NA				1	500	1000	15 LWRP	542.5	1200
						2	500	2500	15 LWRP	542.4	
						3	500	2000	15 LWRP	542.0	
						4	500	2250	15 LWRP	541.8	

Results

An overall increase in the depth of the navigation channel from Mile 542.5 to Mile 541.5. Scouring increased off of Dike 1R of the Tarpley Cuttoff Dike Field and along the LDB near Mile 537.

MVS Alternative 17: Plate 47

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	NA				1	500	750	15 LWRP	544.8	1700
						2	500	850	15 LWRP	544.2	
						3	500	200	15 LWRP	543.1	
						4	500	2000	15 LWRP	542.8	
						5	500	200	15 LWRP	542.6	
						6	500	2250	15 LWRP	542.4	
RDB	upstream of Leland Neck	NA				1	500	2250	15 LWRP	542.0	1700
						2	500	500	15 LWRP	541.9	
						3	500	500	15 LWRP	541.5	
						4	500	3000	15 LWRP	541.5	

Results

Increased scouring occurred along the LDB on the Ashbrook – Miller Dike Field from Mile 547 to Mile 545. The channel crossing in the alternative was more apparent and has greater depth compared to the base test. There was increased deposition along the RDB near Mile 542 at the location of the proposed chevrons. The contraction width decreased thru this portion of the reach. Increased deposition occurred on the RDB near Mile 537 and on the LDB near Mile 535.

MVS Alternative 18: Plate 48

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	650	15 LWRP	543.0	1	500	1000	15 LWRP	544.8	1600
		2	650	15 LWRP	542.5	2	500	1000	15 LWRP	544.2	
		3	1000	15 LWRP	542.1	3	500	1200	15 LWRP	543.5	
		4	1100	15 LWRP	541.6						
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.8	1600
						2	500	2250	15 LWRP	542.4	
						3	500	2250	15 LWRP	542.0	
						4	500	3000	15 LWRP	541.5	

Results

The contraction width of the channel decreased from Mile 543 to Mile 541. The depth of the channel at the crossing near mile 542 has deepened. An increase in deposition occurred on the RDB near Mile 542 at the location of the proposed chevrons. Additional deposition also occurred along the RDB from Mile 539 to Mile 537 as well as in the canter of the channel near Mile 534.5.

MVS Alternative 19: Plate 49

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1400	15 LWRP	543.0	1	500	1100	15 LWRP	544.8	1300
		2	1300	15 LWRP	542.5	2	500	1850	15 LWRP	544.2	
		3	1500	15 LWRP	542.1	3	500	1350	15 LWRP	543.5	
		4	1500	15 LWRP	541.6						
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.8	1300
						2	500	2200	15 LWRP	542.4	
						3	500	2200	15 LWRP	542.0	
						4	500	3000	15 LWRP	541.5	

Results

Increased scouring occurred along the LDB near Mile 543. Deposition occurred along the RDB at the location of the proposed chevrons. The channel crossing that occurred near Mile 542 was more defined on the alternative compared to the base test. Additional deposition occurred along the RDB near Mile 538 and along the LDB from Mile 535 to Mile 535.

MVS Alternative 20: Plate 50

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	600	15 LWRP	542.9	NA					1300
		2	600	15 LWRP	542.5						
		3	800	15 LWRP	541.9						
		4	800	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500	2000	15 LWRP	542.8	1300
						2	500	2200	15 LWRP	542.4	
						3	500	2200	15 LWRP	542.0	
						4	500	3000	15 LWRP	541.5	

Results

The channel crossing near Mile 542 was more defined and increased in overall depth at this point. Deposition occurred along the RDB at the location of the proposed chevrons near Mile 542. Deposition also occurred along the RDB near Mile 538 and along the LDB from Mile 535.5 to Mile 534.

MVS Alternative 21A: Plate 51

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Warfield Point	NA				1	500	900	15 LWRP	536.1	3700
						2	500	900	15 LWRP	535.9	
RDB	upstream of Leland Neck	NA				1	500	1700	15 LWRP	542.9	2700
						2	500	1900	15 LWRP	542.6	
						3	500	1900	15 LWRP	542.3	
						4	500	2100	15 LWRP	541.8	

Results

An increase in deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons. There was little change in the channel at the crossing near Mile 542. A bar and side channel formed on the LDB near Mile 536 at Warfield Point.

MVS Alternative 21B: Plate 52

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Warfield Point	NA				1	500	700	15 LWRP	536.1	3700
						2	500	1000	15 LWRP	535.9	
RDB	upstream of Leland Neck	NA				1	500	1700	15 LWRP	542.9	2500
						2	500	2500	15 LWRP	542.6	
						3	500	2200	15 LWRP	542.2	
						4	500	2700	15 LWRP	541.7	

Results

An increase in deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons. Increased channel depth occurred at the Channel crossing near Mile 542. A bar with side channel formed on the LDB near Mile 536 at Warfield Point.

MVS Alternative 21C: Plate 53

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Warfield Point	NA				1	500	800	15 LWRP	536.1	3700
						2	500	800	15 LWRP	535.9	
RDB	upstream of Leland Neck	NA				1	500	2500	15 LWRP	542.9	2300
						2	500	2900	15 LWRP	542.6	
						3	500	2600	15 LWRP	542.2	
						4	500	3000	15 LWRP	541.7	

Results

An increase in deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons. Increased channel depth occurred at the Channel crossing near Mile 542. A bar with side channel formed on the LDB near Mile 536 at Warfield Point.

MVS Alternative 22A: Plate 54

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	500	15 LWRP	542.7	NA					2700
		2	400	15 LWRP	542.4						
		3	400	15 LWRP	542.1						
RDB	upstream of Leland Neck	NA				1	500	2500	15 LWRP	542.9	2700
						2	500	2900	15 LWRP	542.6	
						3	500	2600	15 LWRP	542.2	
						4	500	3000	15 LWRP	541.7	

Results

Additional scouring occurred off of the proposed chevrons placed near Mile 542. Deposition occurred along the RDB near Mile 542.

MVS Alternative 22B: Plate 55

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.2	NA					2500
		2	650	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500	2200	15 LWRP	542.0	2500
						2	500	2200	15 LWRP	542.4	
						3	500	2000	15 LWRP	542.8	

Results

Additional scouring occurred off of the proposed chevrons placed near Mile 542. Deposition occurred along the RDB near Mile 542.

MVS Alternative 23A: Plate 56

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	NA				1	500 w/850' trail	1700	15 LWRP	542.9	2800
						2	500 w/850' trail	2000	15 LWRP	542.3	
						3	500 w/850' trail	2250	15 LWRP	541.8	

Results

Increased scouring occurred along the LDB from Mile 549 to Mile 543 thru the Ashbrook – Miller Bend and Island 82 – Miller Bend Dike Fields.
Additional scouring occurred off of the proposed chevrons placed near Mile 542. Deposition occurred along the RDB near mile 542.

MVS Alternative 23B: Plate 57

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	NA				1	500 w/750' trail	1800	15 LWRP	542.9	2500
						2	500 w/850' trail	2200	15 LWRP	542.4	
						3	500 w/850' trail	2400	15 LWRP	541.8	

Results

Slight scouring occurred off of the dikes along the LDB in the Island 82 – Miller Bend Dike Fields. Deposition occurred on the RDB, at the location of the proposed chevrons near Mile 542 and along the RDB near Mile 538.

MVS Alternative 23C: Plate 58

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	NA				1	500 w/750' trail	2000	15 LWRP	542.9	2500
						2	500 w/850' trail	2200	15 LWRP	542.4	
						3	500 w/850' trail	2400	15 LWRP	541.8	

Results

Slight scouring occurred off of the dikes along the LDB in the Island 82 – Miller Bend Dike Fields. Deposition occurred on the RDB, at the location of the proposed chevrons near Mile 542 and along the RDB near Mile 538.

MVS Alternative 24A: Plate 59

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	250	15 LWRP	542.2	NA					2800
		2	300	15 LWRP	542						
		3	400	15 LWRP	541.8						
		4	500	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500 w/650' trail	1850	15 LWRP	542.8	2800
						2	500 w/750' trail	2000	15 LWRP	542.4	
						3	500 w/850' trail	2000	15 LWRP	541.9	

Results

Scouring occurred along the LDB from Mile 543 to Mile 542. Deposition increased along the RDB at the location of the proposed chevrons near Mile 542, along the RDB near Mile 538 and in the channel near Mile 535.

MVS Alternative 24B: Plate 60

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	250	15 LWRP	542.2	NA					2500
		2	250	15 LWRP	542						
		3	350	15 LWRP	541.8						
		4	500	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500 w/650' trail	2000	15 LWRP	542.8	2500
						2	500 w/750' trail	2200	15 LWRP	542.4	
						3	500 w/850' trail	2200	15 LWRP	541.9	

Results

Increased scouring occurred along the LDB from Mile 543 to Mile 542. Scouring also occurred off of the proposed chevrons near Mile 542. Increased deposition occurred along the RDB near Mile 542 and along the RDB near 538.

MVS Alternative 24C: Plate 61

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	250	15 LWRP	542.2	NA					2500
		2	250	15 LWRP	542						
		3	350	15 LWRP	541.8						
		4	500	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500 w/650' trail	2200	15 LWRP	542.8	2500
						2	500 w/750' trail	2500	15 LWRP	542.4	
						3	500 w/850' trail	2500	15 LWRP	541.9	

Results

Increased scouring occurred along the LDB from Mile 543 to Mile 542. Scouring also occurred off of the proposed chevrons near Mile 542. Increased deposition occurred along the RDB near Mile 542 and along the RDB near 538.

MVS Alternative 24D: Plate 62

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	200	15 LWRP	542.7	NA					2500
		2	250	15 LWRP	542.2						
		3	250	15 LWRP	542						
		4	350	15 LWRP	541.8						
		5	500	15 LWRP	541.5						
RDB	upstream of Leland Neck	NA				1	500 w/650 trail	2200	15 LWRP	542.8	2500
						2	500 w/750 trail	2500	15 LWRP	542.4	
						3	500 w/850 trail	2500	15 LWRP	541.9	

Results

Scouring occurred along the LDB from Mile 543 to Mile 542. Deposition increased along the RDB at the location of the proposed chevrons near Mile 542 and along the RDB near Mile 538.

MVS Alternative 25A: Plate 63

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	NA				1	500	2100	15 LWRP	542.9	2500
						2	500	1300	15 LWRP	542.7	
						3	500	2400	15 LWRP	542.5	
						4	500	1150	15 LWRP	542.3	
						5	500	2100	15 LWRP	542.1	
						6	500	1150	15 LWRP	541.9	
						7	500	2400	15 LWRP	541.7	

Results

Increased scouring occurred along the LDB from Mile 543 to Mile 542. Additional deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons, on the RDB near Mile 538 and in the center of the channel near Mile 536.

MVS Alternative 25B: Plate 64

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	NA				1	500	2100	15 LWRP	542.9	2500
						2	500	2400	15 LWRP	542.5	
						3	500	2100	15 LWRP	542.1	
						4	500	2400	15 LWRP	541.7	

Results

Reduced scouring occurred along the LDB from Mile 548 to Mile 544. Increased scouring occurred along the LDB from Mile 543 to Mile 542. Additional deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons, on the RDB near Mile 538 and in the center of the channel near Mile 536.

MVS Alternative 26A: Plate 65

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					1900
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						

Results

Reduced scouring occurred along the LDB from Mile 548 to Mile 544. A slight increase in scouring from Mile 543.5 to Mile 543.

MVS Alternative 26B: Plate 66

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					2200
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500	1750	15 LWRP	542.9	2800
						2	500	2000	15 LWRP	542.6	
						3	500	2000	15 LWRP	542.2	
						4	500	2400	15 LWRP	541.8	

Results

Reduced scouring occurred along the LDB from Mile 548 to Mile 544. Additional deposition occurred along the RDB near Mile 542.

MVS Alternative 26C: Plate 67

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					2200
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500 w/900' trail	1800	15 LWRP	542.9	2800
						2	500 w/900' trail	2200	15 LWRP	542.4	
						3	500 w/900' trail	2200	15 LWRP	541.8	

Results

Reduced scouring occurred along the LDB from Mile 548 to Mile 544. Scouring occurred off of the proposed chevrons located near Mile 542. Additional deposition occurred along the RDB near Mile 542.

MVS Alternative 27A: Plate 68

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					2200
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500 w/900' trail	1800	20 LWRP	542.9	2800
						2	500 w/900' trail	2200	15 LWRP	542.4	
						3	500 w/900' trail	2200	15 LWRP	541.8	

Results

Increased scouring developed along the LDB from Mile 543 to Mile 542. Scouring occurred off of the proposed chevrons located near Mile 542.

Additional deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons, along the RDB near Mile 538 an in the center of the channel from Mile 536 to Mile 534.

MVS Alternative 27B: Plate 69

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					2200
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500 w/900' trail	1800	20 LWRP	542.9	2500
						2	500 w/900' trail	2200	20 LWRP	542.4	
						3	500 w/900' trail	2200	15 LWRP	541.8	

Results

Increased scouring developed along the LDB from Mile 543 to Mile 542. Scouring occurred off of the proposed chevrons located near Mile 542. Additional deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons, along the RDB near Mile 538 an in the center of the channel from Mile 536 to Mile 534.

MVS Alternative 27C: Plate 70

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	upstream of Leland Bar	1	1000	15 LWRP	544.1	NA					2200
		2	600	15 LWRP	543.6						
		3	400	15 LWRP	543.3						
RDB	upstream of Leland Neck	NA				1	500 w/900' trail	1800	20 LWRP	542.9	2500
						2	500 w/900' trail	2200	20 LWRP	542.4	
						3	500 w/900' trail	2200	20 LWRP	541.8	

Results

Increased scouring developed along the LDB from Mile 543 to Mile 542. Scouring occurred off of the proposed chevrons located near Mile 542. Additional deposition occurred along the RDB near Mile 542 at the location of the proposed chevrons, along the RDB near Mile 538 an in the center of the channel from Mile 536 to Mile 534.

MVS Alternative 28A: Plate 71

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Island 82 – Miller Bend	4U		20 LWRP		NA					1600

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach.

MVS Alternative 28B: Plate 72

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Island 82 - Miller Bend	3U		20 LWRP		NA					1900
		4U		20 LWRP							

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach

MVS Alternative 28C: Plate 73

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
LDB	Island 82 - Miller Bend	2U		20 LWRP		NA					1600
		3U		20 LWRP							
		4U		20 LWRP							

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach.

MVS Alternative 29A: Plate 74

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1	2200	15 LWRP	542.4	NA					3000
		2	2500	15 LWRP	541.8						

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach.

MVS Alternative 29B: Plate 75

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1	2500	15 LWRP	542.7	NA					2500
		2	2700	15 LWRP	541.8						

Results

Depths and widths of the navigation channel remained similar to the base test through most of the reach.

MVS Alternative 29C: Plate 76

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1	2200	15 LWRP	542.7	NA					3000
		2	2500	15 LWRP	542						

Results

Scouring occurred off of the tips of the proposed dikes located on the RDB near Mile 542, increasing the depth of the navigation channel thru this section.

The remainder of the reach had similar bathymetry to the base test.

MVS Alternative 29D: Plate 77

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1 w/250' notch	2500	15 LWRP	542.7	NA					2500
		2 w/250' notch	2700	15 LWRP	542						

Results

Scouring occurred off of the tips of the proposed dikes located on the RDB near Mile 542, increasing the depth of the navigation channel thru this section.

The notches had little affect to the bathymetry. The remainder of the reach had similar bathymetry to the base test.

MVS Alternative 29E: Plate 78

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1 w/250' notch	2250	15 LWRP	542.3	NA					3000
		2 w/250' notch	2600	15 LWRP	541.8						

Results

Scouring occurred off of the tips of the proposed dikes located on the RDB near Mile 542, increasing the depth of the navigation channel thru this section. The notches allowed flow to the Tarpley Island side channel. The remainder of the reach had similar bathymetry to the base test.

MVS Alternative 29F: Plate 79

Bank	Dike Field	Dike	Length (ft)	Height (ft)	Location (mile)	Chevron	Chevron Size (ft)	Distance (ft)	Height (ft)	Location (mile)	Contraction Width (ft)
RDB	upstream of Leland Neck	1 w/350' notch	2850	15 LWRP	542.3	NA					2300
		2 w/350' notch	2850	15 LWRP	541.8						

Results

Scouring occurred off of the tips of the proposed dikes located on the RDB near Mile 542, increasing the depth of the navigation channel thru this section. The notches allowed flow to the Tarpley Island side channel. The remainder of the reach had similar bathymetry to the base test.

CONCLUSIONS

1. Summary

Sixty-six alternative design tests were conducted in this study. All alternatives sought to reduce or eliminate repetitive dredging at the channel crossing near Mile 542. The designs also sought to improve conditions at the Warfield Point and maintain flow through the side channel at Tarpley Island. The placement of river training structures at the proposed Tarpley Island Dike Field returned the best results for increased navigation depth. The tests included a standard set of dikes, a set of blunt-nosed chevrons and a combination of both. None of the designs tested in the model created additional problems locations downstream of the reach.

During alternative testing on this model, the Vicksburg District set a minimum contraction width of 2500 feet through this reach. MVS alternatives 3 – 20 were developed prior to the aforementioned set minimum width of 2500 feet.

2. Analysis

Designs implemented in the model sought to reduce dredging by either moderate or significant amounts at the location of the channel crossing near Mile 542. The following table summarizes the effect of each design.

Alternative	Effect on Depth of Navigation Channel at Miles 542.5 to 541.5				Effect of depth at Warfield Point		Alternative	Effect on Depth of Navigation Channel at Miles 542.5 to 541.5				Effect of Depth at Warfield Point	
	None	Slight Increase	Moderate Increase	Significant Increase	None	Increased Depths		None	Slight Increase	Moderate Increase	Significant Increase	None	Increased Depths
MVK 1A		X			X		MVS 17		X			X	
MVK 1B		X			X		MVS 18				X	X	
MVK 1C		X			X		MVS 19			X		X	
MVK 2	X				X		MVS 20			X		X	
MVK 3A			X		X		MVS 21A		X			X	
MVK 3B			X		X		MVS 21B			X		X	
MVK 3C				X	X		MVS 21C				X	X	
MVK 4A	X				X		MVS 22A			X		X	
MVK 4B	X				X		MVS 22B			X		X	
MVK 4C	X				X		MVS 23A		X			X	
MVK 4D	X				X		MVS 23B		X			X	
MVK 5A		X			X		MVS 23C		X			X	
MVK 5B		X			X		MVS 24A		X			X	
MVK 5C			X		X		MVS 24B		X			X	
MVK 6A	X				X		MVS 24C		X			X	
MVK 6B	X				X		MVS 24D		X			X	
MVK 6C	X				X		MVS 25A		X			X	
MVK 7A			X			X	MVS 25B		X			X	
MVK 7B			X			X	MVS 26A	X				X	
MVK 7C			X			X	MVS 26B		X			X	
MVS 3	X				X		MVS 26C		X			X	
MVS 4		X			X		MVS 27A			X		X	
MVS 5				X	X		MVS 27B			X		X	
MVS 6			X		X		MVS 27C			X		X	
MVS 7			X		X		MVS 28A	X				X	
MVS 8		X			X		MVS 28B	X				X	
MVS 10	X				X		MVS 28C	X				X	
MVS 11		X			X		MVS 29A	X				X	
MVS 12		X			X		MVS 29B	X				X	
MVS 13			X		X		MVS 29C			X		X	
MVS 14				X	X		MVS 29D		X			X	
MVS 15				X	X		MVS 29E			X		X	
MVS 16				X	X		MVS 29F		X			X	

As shown in the previous table, twenty-six designs had either a moderate or significant increase in depth at the channel crossing near Mile 542. Those designs were MVK Alternatives 3A, 3B, 3C, 5C, 7A, 7B, and 7C and MVS Alternatives 5, 6, 7, 13, 14, 15, 16, 18, 19, 20, 21B, 21C, 22A, 22B, 27A, 27B, 27C, 29C and 29E. MVS Alternatives 5, 6, 7, 13, 14, 15, 16, 18, 19 and 20 did not meet the required 2500 feet of contraction width and therefore, will not be analyzed. The analyses of the alternatives that met the minimum required contraction width of 2500 feet are below.

- MVK Alternative 3A: The model indicated a moderate increase in depth at the channel crossing near Mile 524. This design consisted of 2 dikes (at 15 feet LWRP) with a combined length of 4800 feet. The dikes were placed upstream of Tarpley Island and could negatively impact the side channel by restricting its flow. This design alternative is feasible.
- MVK Alternative 3B: The model indicated a moderate increase in depth at the channel crossing near Mile 524. This design consisted of 2 dikes (at 15 feet LWRP) with a combined length of 4100 feet. The dikes were placed upstream of Tarpley Island and could negatively impact the side channel by restricting its flow. This design alternative is feasible.
- MVK Alternative 3C: The model indicated a significant increase in depth at the channel crossing near Mile 542. The design consisted of 2 dikes (at 15 feet LWRP) with a combined length of 5600 feet. The dikes were placed upstream of Tarpley Island and could negatively impact the side channel by restricting its flow. This design alternative is feasible.
- MVK Alternative 5C: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB upstream of Tarpley Island and placing Dike 1U as well as extending Dike 1 and Dike 2 of the Leland Neck Dike Field. The combined length of new dikes and extensions was 6700 feet. Due to the

extensive amount of material needed, the possibility of negatively affecting the side channel and average results, this design may not be feasible.

- MVK Alternative 7A: The model indicated a moderate increase in depth at the channel crossing near Mile 542 and along the LDB at Warfield Point facilities. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB upstream of Tarpley Island and extending Dike 2R and Dike 3R of the Tarpley Cuttoff Dike Field. The combined length of new dikes and extensions was 5700 feet. The two dikes placed upstream of Tarpley Island could possibly impact the side channel by restricting its flow. This design alternative is feasible.
- MVK Alternative 7B: The model indicated a moderate increase in depth at the channel crossing near Mile 542 and along the LDB at the Warfield Point facilities. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB upstream of Tarpley Island and extending Dike 2R and Dike 3R of the Tarpley Cuttoff Dike Field. The combined length of new dikes and extensions was 6500 feet. The two dikes placed upstream of Tarpley Island could possibly impact the side channel by restricting its flow. This design alternative is feasible.
- MVK Alternative 7C: The model indicated a moderate increase in depth at the channel crossing near Mile 542 and along the LDB at the Warfield Point facilities. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB upstream of Tarpley Island and extending Dike 2R and Dike 3R of the Tarpley Cuttoff Dike Field. The combined length of new dikes and extensions was 7300 feet. The two dikes placed upstream of Tarpley Island could possibly impact the side channel by restricting its flow. This design alternative is feasible.
- MVS Alternative 21B: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 4 chevrons (at 15 feet LWRP) placed near the RDB upstream of Tarpley Island and 2 chevrons (at 15 feet LWRP) off of the LDB near Mile 536. The two chevrons located near mile 536 did not increase channel depth at Warfield Point. This design alternative is feasible for the channel crossing near Mile 542.
- MVS Alternative 21C: The model indicated a significant increase in depth at the channel crossing near Mile 542. The design consisted of 4 chevrons (at 15 feet

LWRP) placed near the RDB upstream of Tarpley Island and 2 chevrons (at 15 feet LWRP) off of the LDB near Mile 536. The two chevrons located near mile 536 did not increase channel depth at Warfield Point. This design alternative is feasible for the channel crossing near Mile 542.

- MVS Alternative 22A: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 3 dikes (at 15 feet LWRP) placed on the LDB, upstream of Leland Neck and 4 chevrons placed (at 15 feet LWRP) near the RDB upstream of Tarpley Island. Due to the amount of material needed for construction and the average results, this design will not be feasible.
- MVS Alternative 22B: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 3 dikes (at 15 feet LWRP) placed on the LDB, upstream of Leland Neck and 3 chevrons (at 15 feet LWRP) placed near the RDB upstream of Tarpley Island. Due to the amount of material needed for construction and the average results, this design will not be feasible.
- MVS Alternative 27A: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 3 dikes (at 15 feet LWRP) placed on the LDB, upstream of Leland Neck and 3 chevrons with trail dikes (Chevron 1 at 20 feet LWRP and Chevrons 2 & 3 at 15 feet LWRP) placed near the RDB upstream of Tarpley Island. Due to the amount of material needed for construction and average results, this design will not be feasible.
- MVS Alternative 27B: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 3 dikes (at 15 feet LWRP) placed on the LDB, upstream of Leland Neck and 3 chevrons with trail dikes (Chevrons 1 & 2 at 20 feet LWRP and Chevron 2 at 15 feet LWRP) placed near the RDB upstream of Tarpley Island. Due to the amount of material needed for construction and average results, this design will not be feasible.
- MVS Alternative 27C: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 3 dikes (at 15 feet LWRP) placed on the LDB, upstream of Leland Neck and 3 chevrons with trail

dikes (at 20 feet LWRP) placed near the RDB upstream of Tarpley Island. Due to the amount of material needed for construction and average results, this design will not be feasible.

- MVS Alternative 29C: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB, upstream of Tarpley Island. The combined length of new dikes was 5200 feet. Due to the possibility of negatively affecting the side channel and average results, this design will not be fea
- MVS Alternative 29E: The model indicated a moderate increase in depth at the channel crossing near Mile 542. The design consisted of 2 dikes (at 15 feet LWRP) placed on the RDB, upstream of Tarpley Island. The dikes each had a 250 foot notch in them to allow flow to the side channel. The combined length of new dikes was 4850 feet. This design alternative is feasible.

The model showed that without drastically changing the position of the navigation channel, the only feasible means to decrease dredging in the navigation channel was through the use of dike and/or chevron structures along the RDB upstream of Mile 542. The model showed that the designs in Alternatives MVK 3C and MVS 21C were most effective at establishing depth in the navigation channel while maintaining the required 2500 feet of minimum contraction width or drastically shifting the channel thalweg.

3. Recommendations

Of the Alternatives, Alternatives MVK 3C and MVS 21C produced the most favorable results by reducing the repetitive dredging problems at the channel crossing near Mile 542. Alternative MVS 21C created the most environmental benefits by allowing extensive flow to continue in the Tarpley Island Side Channel and the structures acting as aquatic habitat themselves. This design consisted of adding four chevrons near the RDB, upstream of Tarpley Island and two chevrons along the LDB near Mile 536 at Warfield Point. The chevrons located downstream at Warfield Point did not perform as expected and it is not recommended that these structures be considered at this time. MVK alternatives 7A, 7B and 7C showed the best results for the transport of sediment through Warfield Point. A possible solution would be to add the dike extensions proposed by MVK alternatives 7A, 7B and 7C to the Tarpley Cutoff Dike Field.

Tarpley Island Chevrons:

- Chevron 1 located at Mile 542.9, near the RDB, 2500 feet off of the LDB, 500 feet wide and 500 feet long at a height of +15 feet LWRP
- Chevron 2 located at Mile 542.6, near the RDB, 2900 feet off of the LDB, 500 feet wide and 500 feet long at a height of +15 feet LWRP.
- Chevron 3 located at Mile 542.2, near the RDB, 2600 feet off of the LDB, 500 feet wide and 500 feet long at a height of +15 feet LWRP.
- Chevron 4 located at Mile 541.7, near the RDB, 3000 feet off of the LDB, 500 feet wide and 500 feet long at a height of +15 feet LWRP.

When this design is constructed, it may be built in phases to assist with cost and to allow for gradual changes for tow pilots navigating this reach. The project should be constructed from upstream to downstream.

4. Interpretation of Model Test Results

In the interpretation and evaluation of the results of the tests conducted, it should be remembered that the results of these model tests were qualitative in nature. Any hydraulic model, whether physical or numerical, is subject to biases introduced as a result of the inherent complexities that exist in the prototype. Anomalies in actual hydrographic events, such as prolonged periods of high or low flows are not reflected in these results, nor are complex physical phenomena, such as the existence of underlying rock formations or other non-erodible variables. Flood flows were not simulated in this study.

This model study was intended to serve as a tool for the river engineer to guide in assessing the general trends that could be expected to occur in the actual river from a variety of imposed design alternatives. Measures for the final design may be modified based upon engineering knowledge and experience, real estate and construction considerations, economic and environmental impacts, or any other special requirements.

For more information

For more information about micro modeling or the Applied River Engineering Center, please contact Michael Rodgers or David Gordon at:

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Or you can visit us on the World Wide Web at:
http://www.mvs.usace.army.mil/engr/river/river.htm

APPENDIX OF PLATES

Plate number 1 through 80 follow:

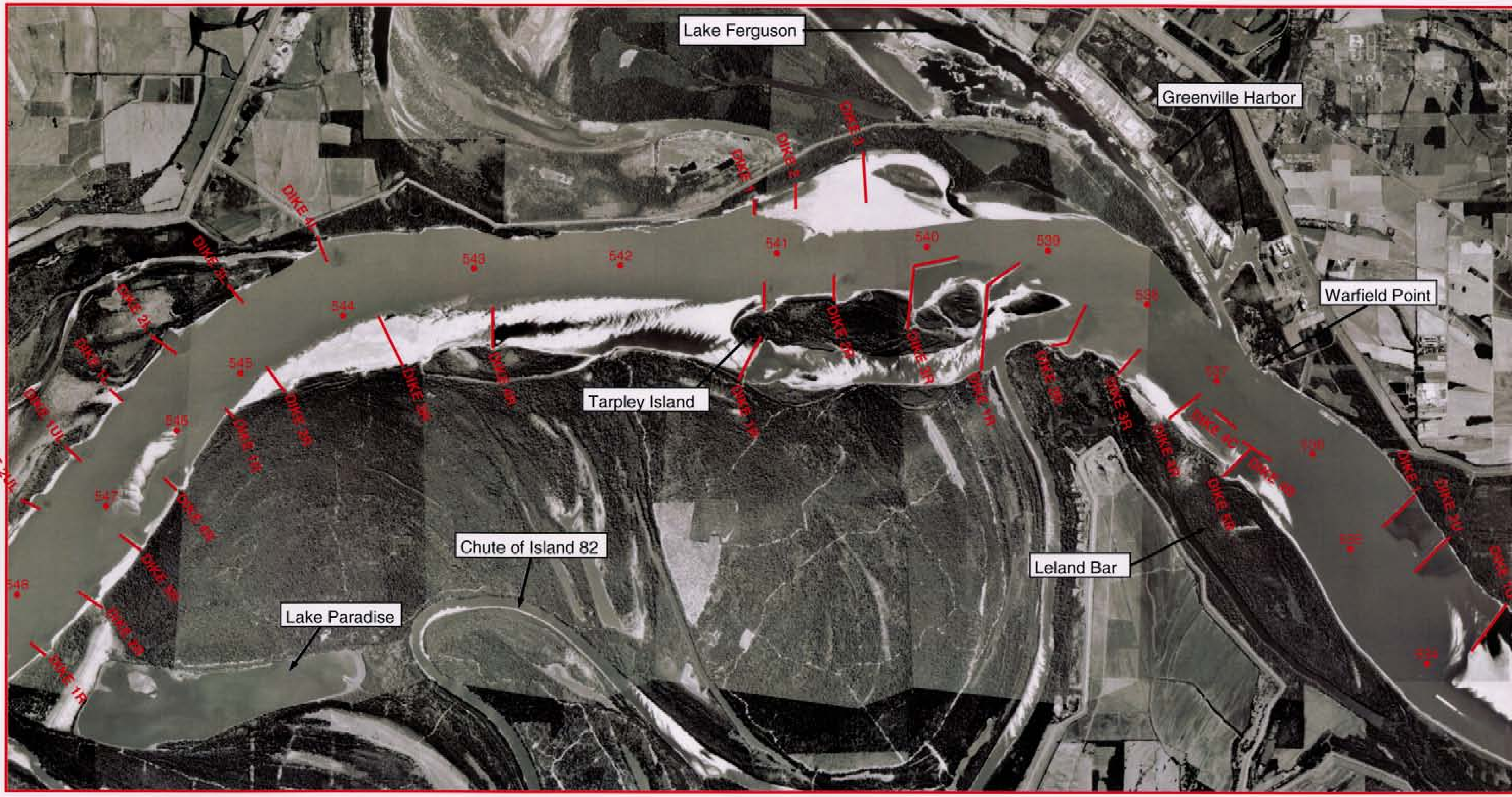
1. Location and Vicinity Map of the Study Reach
2. 1999 Aerial Photograph
3. Dike Field Locations
4. Map of Yazoo basin
5. Map of Quaternary Deposits
6. 1968 Navigation Chart
7. 1976 Navigation Chart
8. 1986 Navigation Chart
9. 1994 Hydrographic Survey
10. 1997 Hydrographic Survey
11. 2000 Hydrographic Survey
12. 2002 Hydrographic Survey
13. Tarpley Micro Model
14. Base Test
15. MVK Alternative 1A
16. MVK Alternative 1B
17. MVK Alternative 1C
18. MVK Alternative 2A
19. MVK Alternative 3A
20. MVK Alternative 3B
21. MVK Alternative 3C
22. MVK Alternative 4A
23. MVK Alternative 4B
24. MVK Alternative 4C
25. MVK Alternative 4D
26. MVK Alternative 5A
27. MVK Alternative 5B
28. MVK Alternative 5C

29. MVK Alternative 6A
30. MVK Alternative 6B
31. MVK Alternative 6C
32. MVK Alternative 7A
33. MVK Alternative 7B
34. MVK Alternative 7C
35. MVS Alternative 3
36. MVS Alternative 4
37. MVS Alternative 5
38. MVS Alternative 6
39. MVS Alternative 7
40. MVS Alternative 8
41. MVS Alternative 10
42. MVS Alternative 11
43. MVS Alternative 12
44. MVS Alternative 13
45. MVS Alternative 14
46. MVS Alternative 15
47. MVS Alternative 16
48. MVS Alternative 17
49. MVS Alternative 18
50. MVS Alternative 19
51. MVS Alternative 20
52. MVS Alternative 21A
53. MVS Alternative 21B
54. MVS Alternative 21C
55. MVS Alternative 22A
56. MVS Alternative 22B
57. MVS Alternative 23A
58. MVS Alternative 23B
59. MVS Alternative 23C

60. MVS Alternative 24A
61. MVS Alternative 24B
62. MVS Alternative 24C
63. MVS Alternative 24D
64. MVS Alternative 25A
65. MVS Alternative 25B
66. MVS Alternative 26A
67. MVS Alternative 26B
68. MVS Alternative 26C
69. MVS Alternative 27A
70. MVS Alternative 27B
71. MVS Alternative 27C
72. MVS Alternative 28A
73. MVS Alternative 28B
74. MVS Alternative 28C
75. MVS Alternative 29A
76. MVS Alternative 29B
77. MVS Alternative 29C
78. MVS Alternative 29D
79. MVS Alternative 29E
80. MVS Alternative 29F

STUDY LOCATION

	U.S. ARMY ENGINEER DISTRICT, VICKSBURG CORPS OF ENGINEERS VICKSBURG, MISSISSIPPI
PREPARED BY: E. RIFF CHECKED BY: M. RODGERS APPLIED RIVER ENGINEERING CENTER	TARPLEY ISLAND MICRO MODEL STUDY MISSISSIPPI RIVER MILES 550.0 TO 532.0 LOCATION AND VICINITY MAP OF THE STUDY REACH
	PLATE NO. 1



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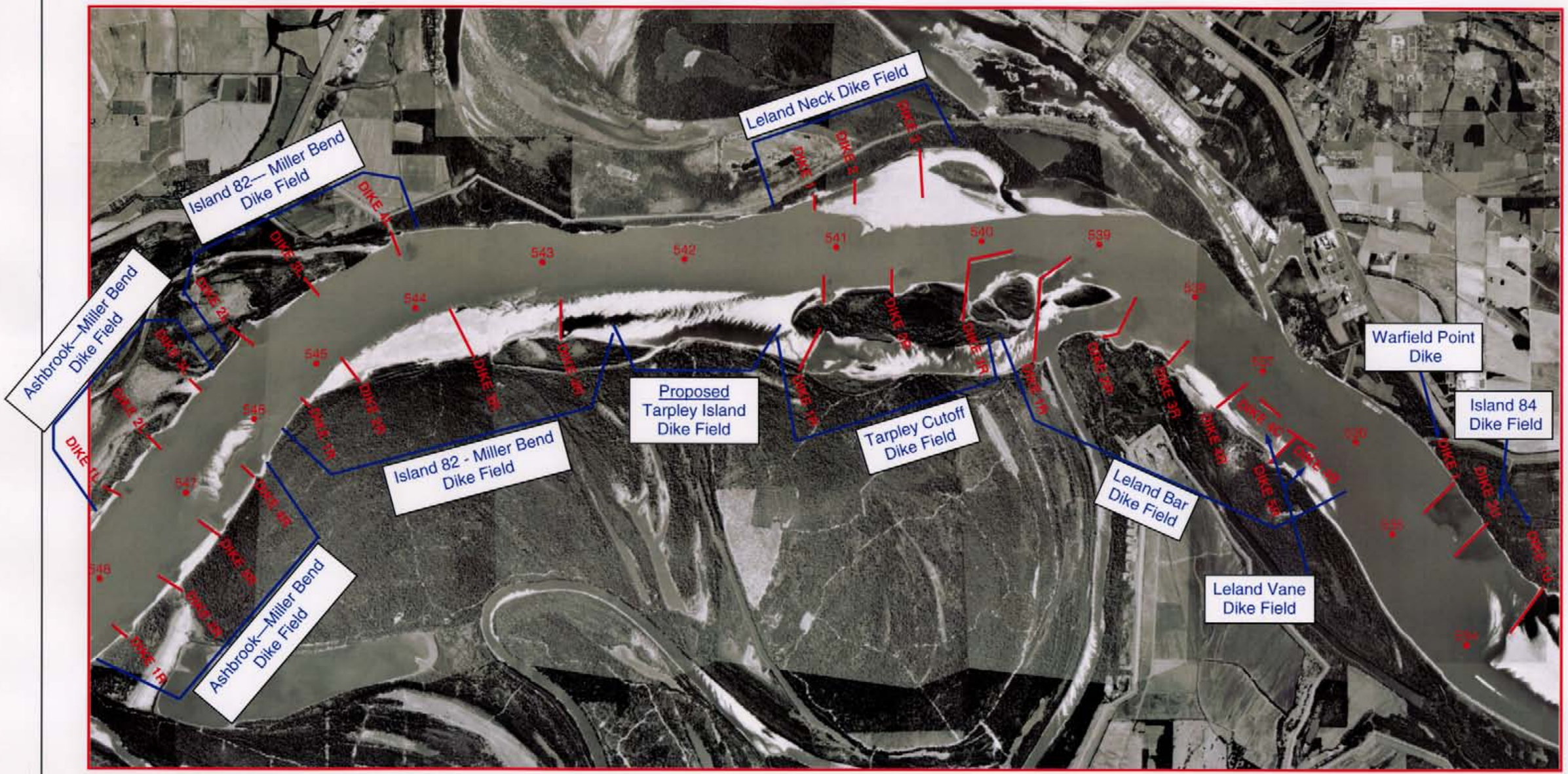
APPLIED RIVER ENGINEERING CENTER

TARPLEY ISLAND MICRO MODEL
MISSISSIPPI RIVER MILES 550-532

1999 AERIAL PHOTOGRAPH

PLATE NO. 2



N

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ST. LOUIS, MISSOURI

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CHECKED BY: R. Daehling

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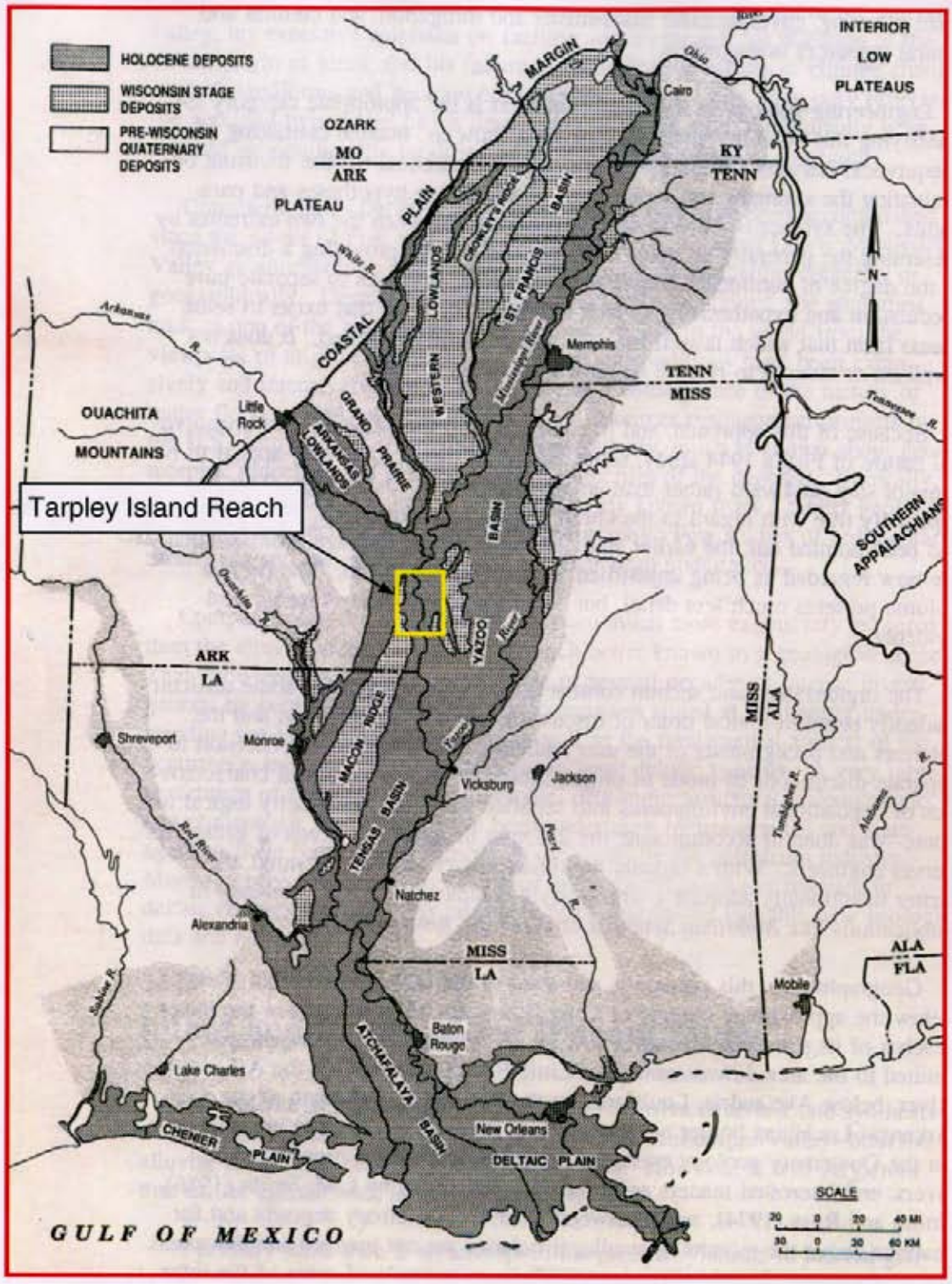
TARPLEY ISLAND MICRO MODEL
MISSISSIPPI RIVER MILES 550-532

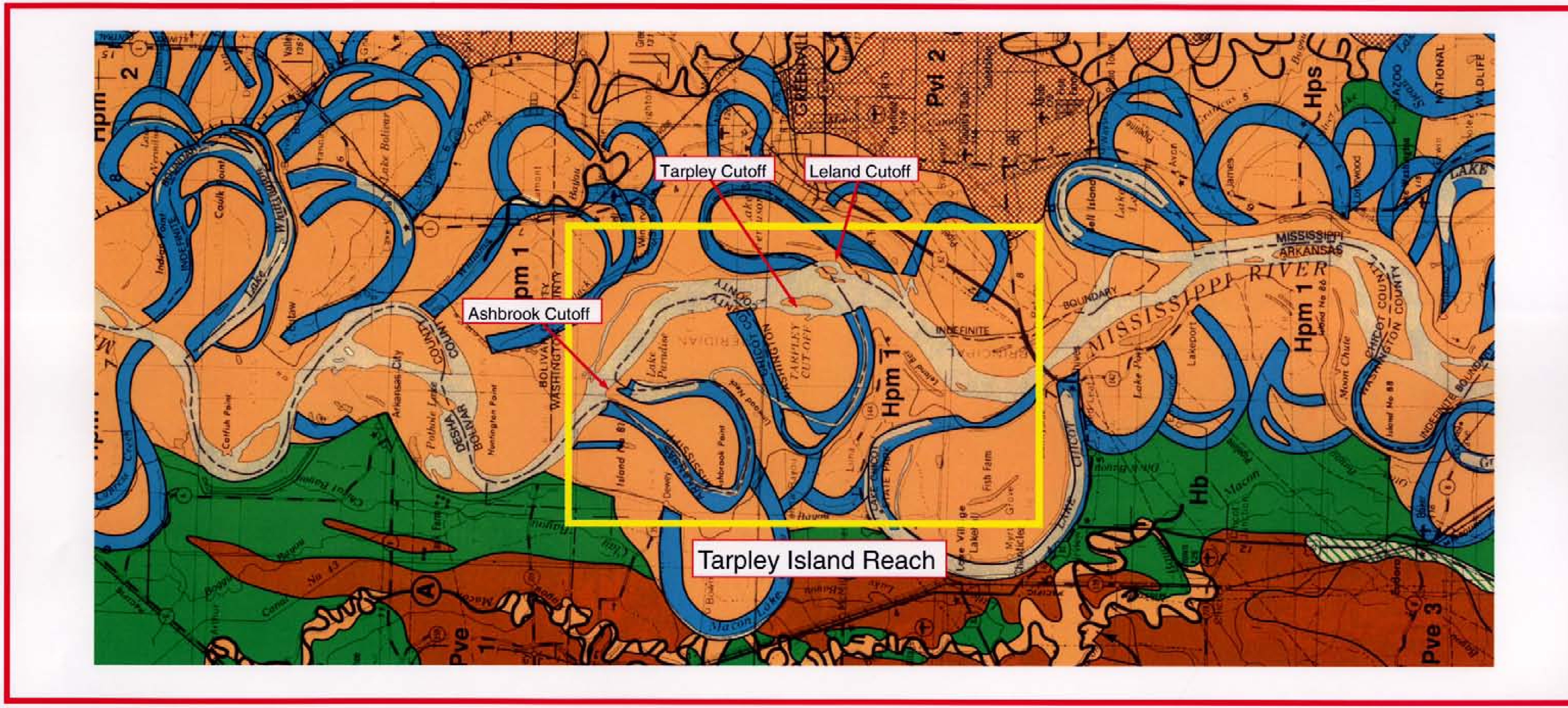
DIKE FIELDS

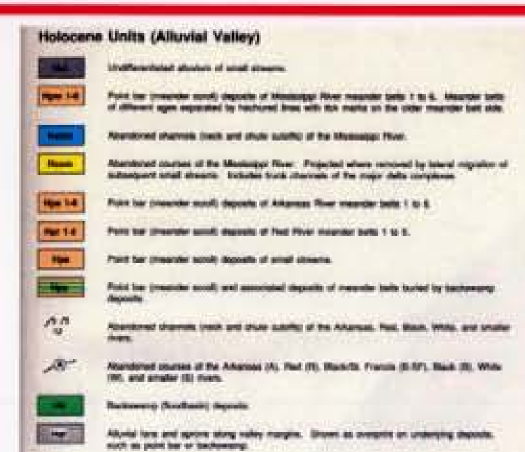
5280' 3520' 1760' 0 1 Mile

PLATE NO. 3



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
PREPARED BY: M. Rodgers CHECKED BY: R. Davinroy APPLIED RIVER ENGINEERING CENTER	TARPLEY ISLAND MICRO MODEL MISSISSIPPI RIVER MILES 550—532 GEOMORPHOLGY OF THE LOWER MISSISSIPPI VALLEY
	PLATE NO. 4





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CHECKED BY: R. Davinroy

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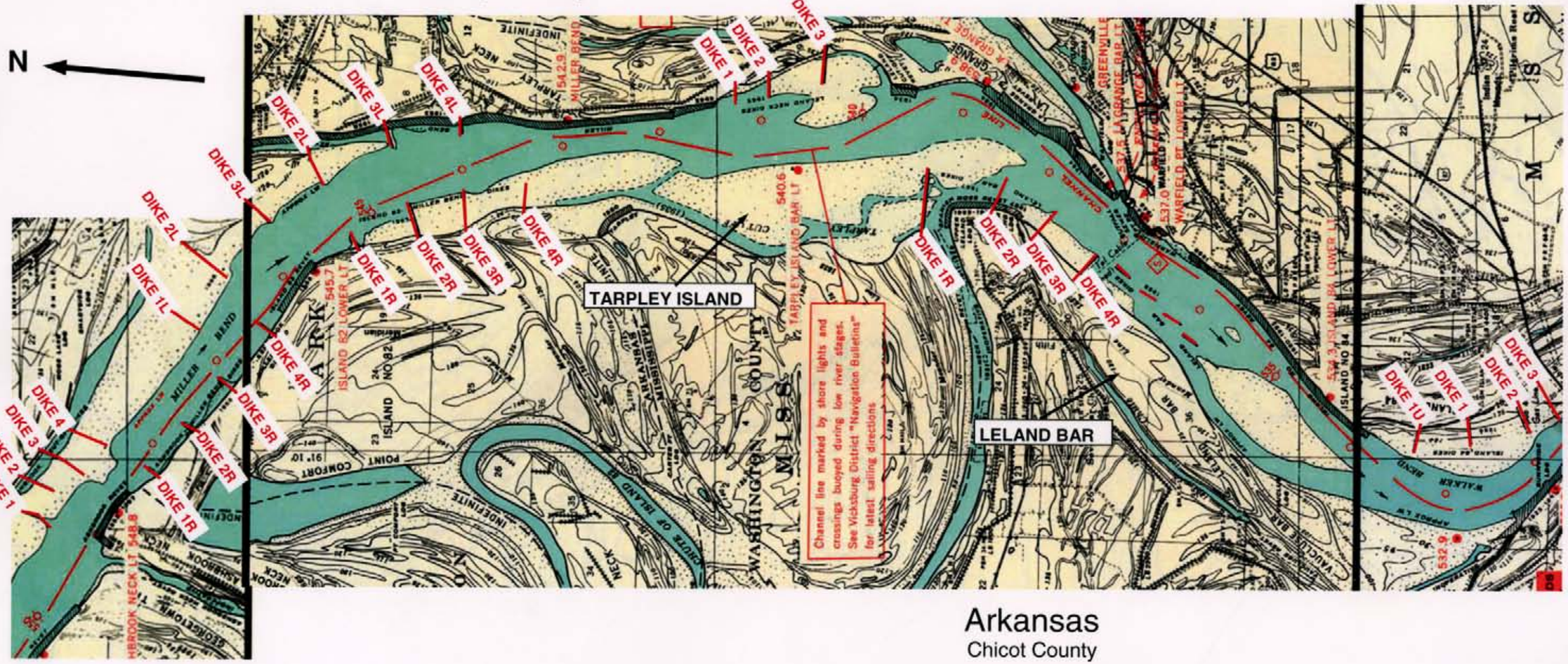
TARPLEY ISLAND MICRO MODEL

QUATERNARY DEPOSITS OF THE LOWER MISSISSIPPI VALLEY

3 Miles 2 1 0 3 6 Miles

PLATE NO. 5

Mississippi
Washington County



Arkansas
Chicot County

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PREPARED BY: M. Rodgers
CHECKED BY: R. Daenny

APPLIED RIVER ENGINEERING CENTER

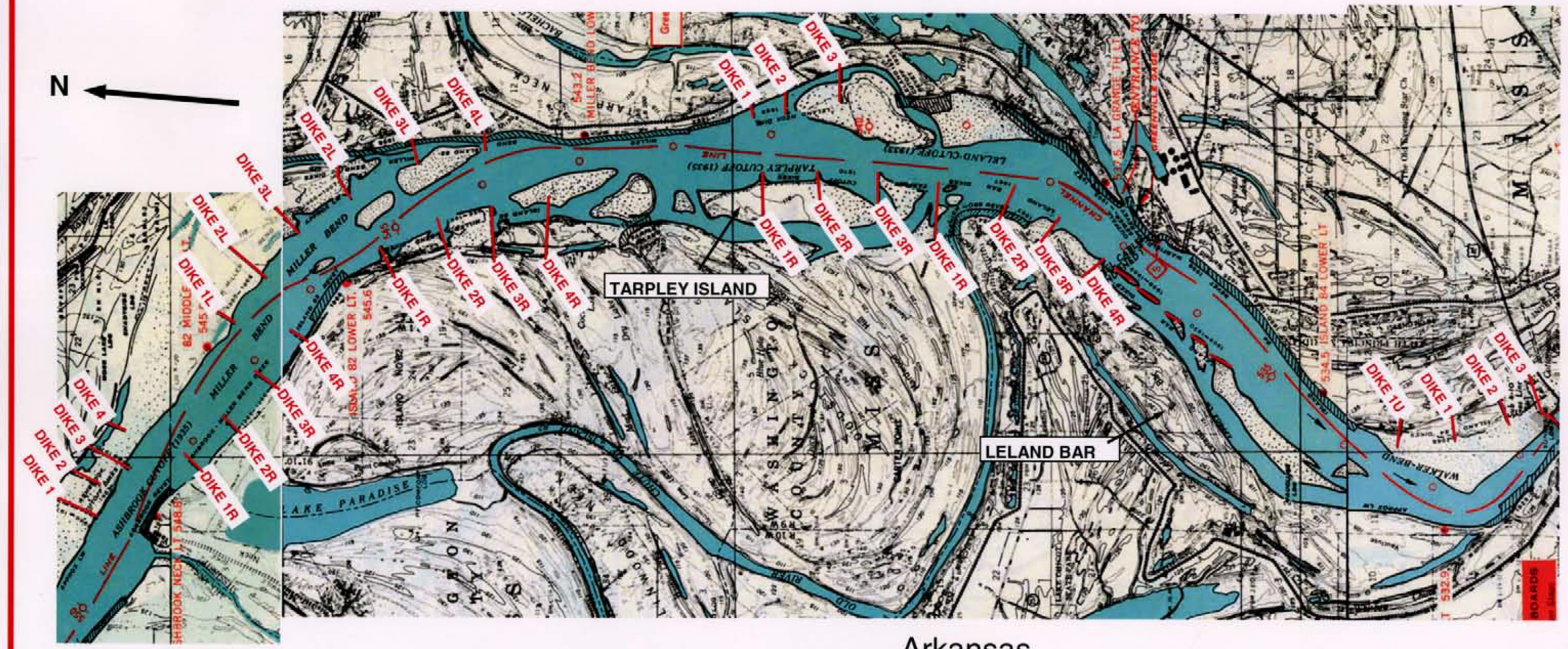
TARPLEY ISLAND MICRO MODEL
MISSISSIPPI RIVER MILES 550-532

1968 NAVIGATION CHART

5280' 3520' 1760' 0 1 Mile

PLATE NO.
6

Mississippi
Washington County

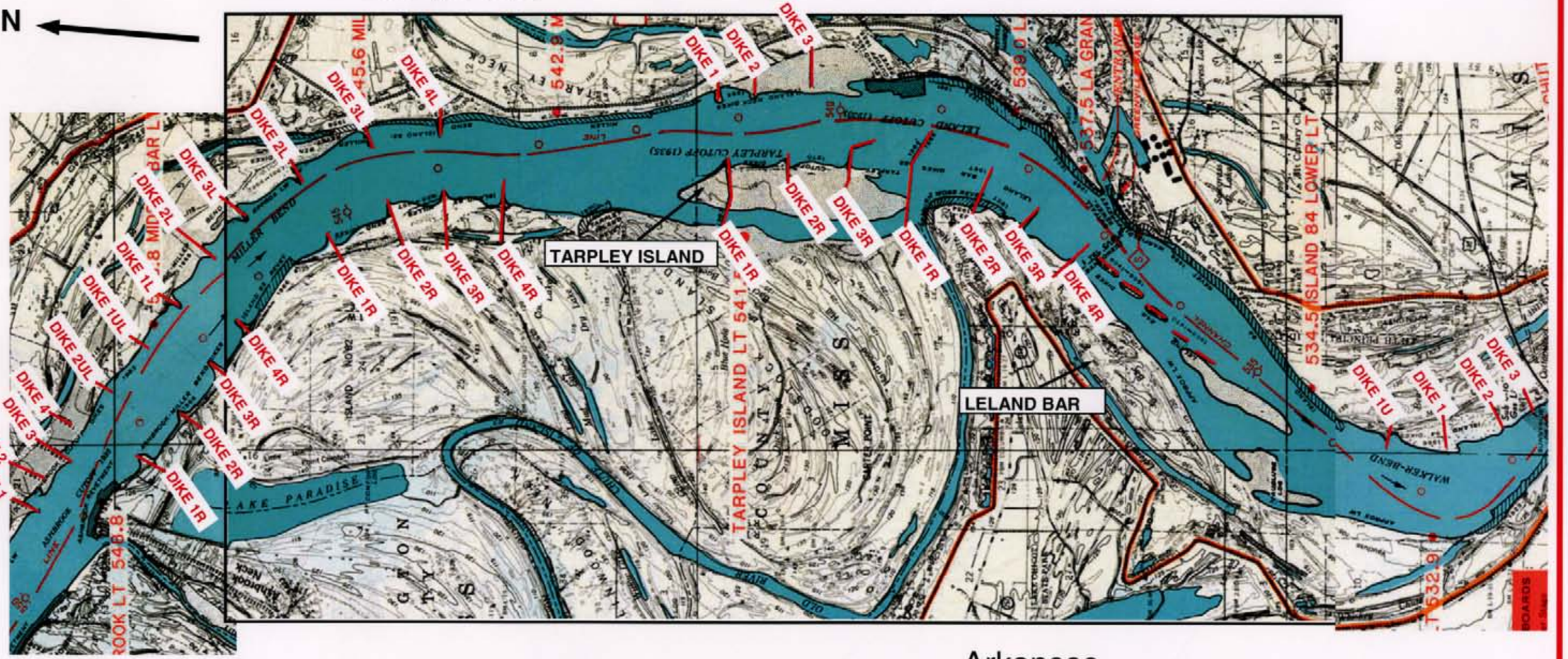


Arkansas
Chicot County

	U.S ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
PREPARED BY: M. Rodgers CHECKED BY: R. Dawning APPLIED RIVER ENGINEERING CENTER	TARPLEY ISLAND MICRO MODEL MISSISSIPPI RIVER MILES 550-532 1976 NAVIGATION CHART 5280' 3520' 1760' 0 1 Mile
	PLATE NO. 7

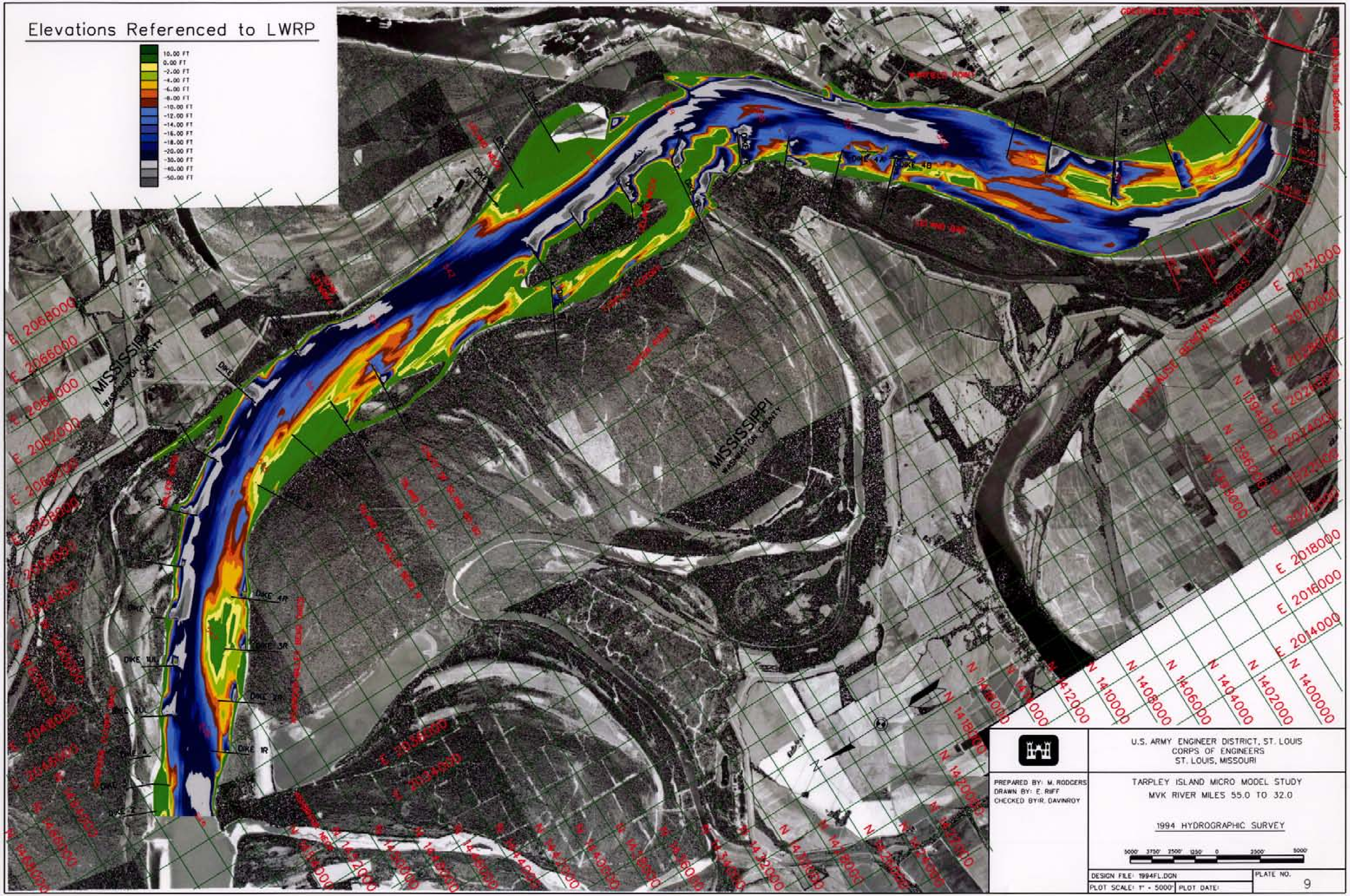
Mississippi
Washington County

N



Arkansas
Chicot County

	U.S ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
PREPARED BY: M. Rodgers CHECKED BY: R. Dawmmy APPLIED RIVER ENGINEERING CENTER	TARPLEY ISLAND MICRO MODEL MISSISSIPPI RIVER MILES 550-532 1986 NAVIGATION CHART 5280' 3520' 1760' 0 1 Mile
	PLATE NO. 8



Elevations Referenced to LWRP
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-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
E 2018000
E 2016000
E 2014000
N 1400000
N 1402000
N 1404000
N 1406000
N 1408000
N 1410000
N 1412000
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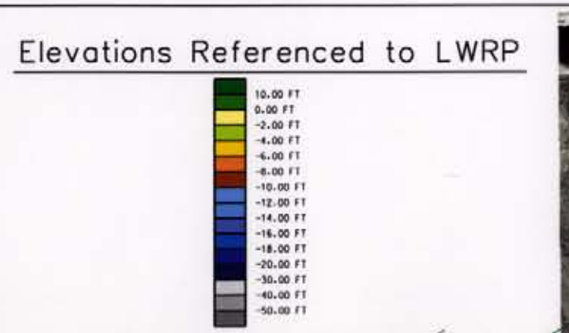
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
1994 HYDROGRAPHIC SURVEY
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: 1994FL.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO.
9

Elevations Referenced to LWRP



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CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

1997 HYDROGRAPHIC SURVEY

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: 1997FL.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 10

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

DIKE 4A
DIKE 4B
DIKE 3R
DIKE 1UL
DIKE 2R
DIKE 2UL
DIKE 1R
DIKE 3
DIKE 2
MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

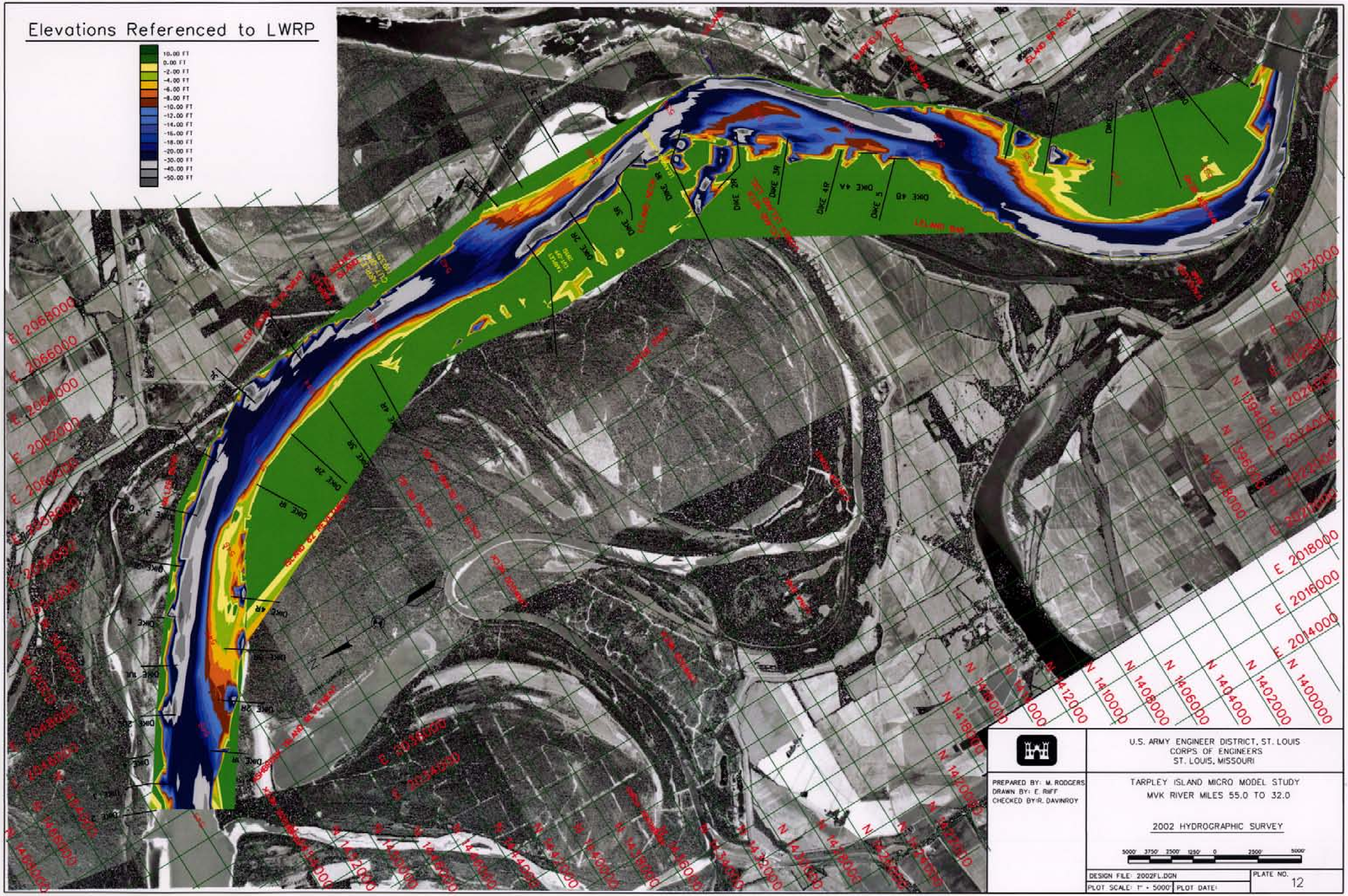
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

2000 HYDROGRAPHIC SURVEY

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: 2000FL.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:
PLATE NO. 11



U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

2002 HYDROGRAPHIC SURVEY

DESIGN FILE: 2002FL.DGN	PLATE NO. 12
PLOT SCALE: 1" = 5000'	PLOT DATE:

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MO

PREPARED BY: E. RIFF
CHECKED BY: M. RODGERS

APPLIED RIVER ENGINEERING CENTER

TARPLEY ISLAND MICRO MODEL
MISSISSIPPI RIVER MILES 555 TO 532

TARPLEY ISLAND MICRO MODEL

PLATE NO.
13

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

DIKE 2
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 1UL
DIKE 2UL
DIKE 1R
DIKE A
DIKE 1
DIKE 2
DIKE 3
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

BASE TEST

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: BASETEST.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 14

ELEVATIONS REFERENCED TO LW

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

3 - NEW DIKES ADDED

3 - EXISTING DIKES EXTENDED

DIKE 4L
DIKE 3L
DIKE 2L
DIKE 1L
DIKE 1UL
DIKE 2UL
DIKE 4
DIKE 3
DIKE 2
DIKE 1
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R

E 2068000
E 2066000
E 2064000
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 1A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK1A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 15

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

3 - NEW DIKES ADDED

2 - EXISTING DIKES EXTENDED

DIKE 4L
DIKE 3L
DIKE 2L
DIKE 1L
DIKE 1UL
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY:R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 1B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK1B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 16

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

3 - NEW DIKES ADDED

2 - EXISTING DIKES EXTENDED

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4UL
DIKE 3UL
DIKE 2UL
DIKE 1UL
DIKE 4L
DIKE 3L
DIKE 2L
DIKE 1L

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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 1C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK1C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 17

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

1 - NEW DIKE ADDED

DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 1
DIKE 2
DIKE 3
DIKE 4

E 2068000
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 2A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK2A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 18

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 4A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK4A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:
PLATE NO. 22

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW DIKES ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

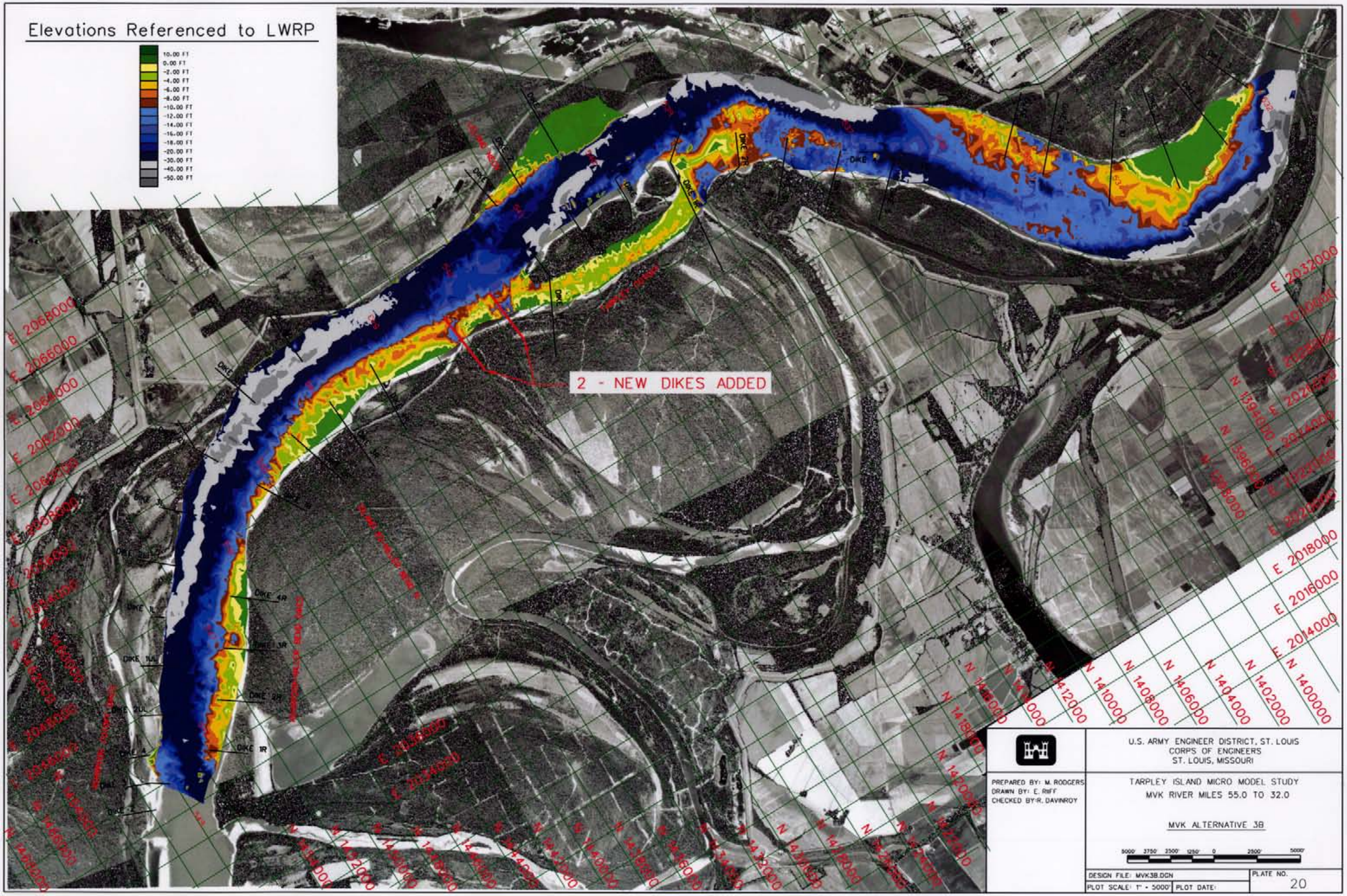
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 3A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK3A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 19


Elevations Referenced to LWRP
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2 - NEW DIKES ADDED
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 3L
DIKE 4L
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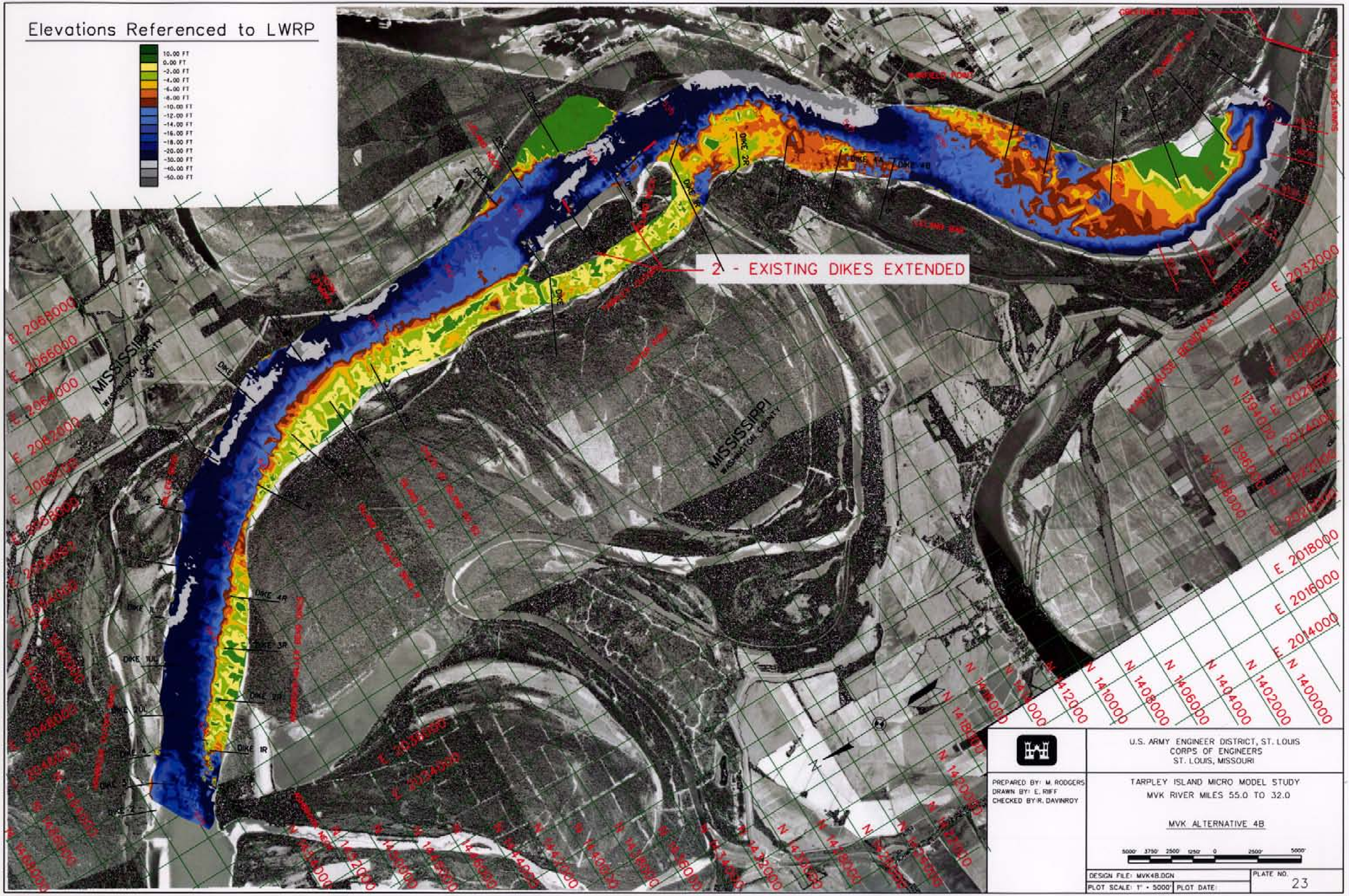
N 8000
N 6000
N 4000
N 2000
N 0
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVK ALTERNATIVE 3B
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVK3B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO. 20



Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
2 - EXISTING DIKES EXTENDED
MISSISSIPPI
WASHINGTON COUNTY
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4A
DIKE 4B
DIKE 2R
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
E 2032000
E 2018000
E 2016000
E 2014000
N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVK ALTERNATIVE 4B
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVK4B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO. 23

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW DIKES ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 3C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK3C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO. 21

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

DIKE 1L
DIKE 2L
DIKE 3L
DIKE 4L
DIKE 1UL
DIKE 2UL
DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R

E 2068000
E 2066000
E 2064000
E 2062000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
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E 2014000
E 2012000

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N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 4C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK4C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 24

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - EXISTING DIKES EXTENDED

DIKE 1R
DIKE 1UL
DIKE 2R
DIKE 2UL
DIKE 3R
DIKE 4R
DIKE 4A

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY:R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 4D

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK4D.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 25

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED

2 - NEW DIKES ADDED

DIKE 4R
DIKE 3R
DIKE 1UL
DIKE 1R
DIKE 2UL
DIKE 4
DIKE 2
DIKE 3
DIKE 2R
DIKE 1R

E 2068000
E 2066000
E 2064000
E 2062000
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E 2052000
E 2050000
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N 1406000
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N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 5A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK5A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 26

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED

2 - NEW DIKES ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

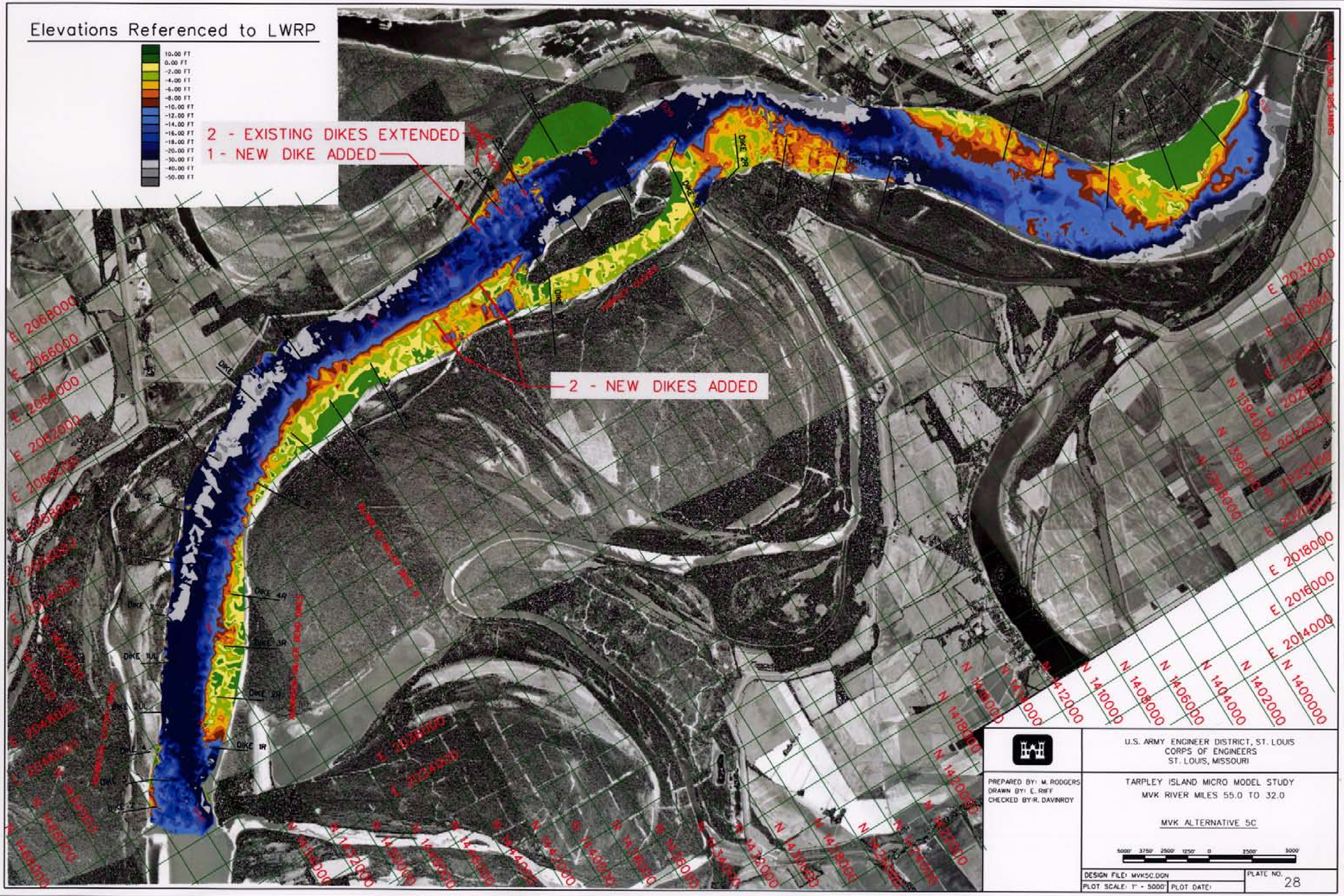
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 5B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK5B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 27


Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED
2 - NEW DIKES ADDED
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVK ALTERNATIVE 5C
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVK5C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO. 28

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED

3 - EXISTING DIKES EXTENDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY:R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 6A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK6A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 29

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED

3 - EXISTING DIKES EXTENDED

DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 1
DIKE 2
DIKE 3
DIKE 4

E 2068000
E 2066000
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SUNNYSIDE NEWS-HERALD

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RAFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

ALTERNATIVE 6B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK6B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 30

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED
1 - NEW DIKE ADDED
3 - EXISTING DIKES EXTENDED

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 4
DIKE 5
DIKE 2

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
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E 2050000
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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

ALTERNATIVE 6C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK6C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:
PLATE NO. 31

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

2 - NEW DIKES ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

ALTERNATIVE 7A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK7A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 32

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

2 - NEW DIKES ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVK ALTERNATIVE 7B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK7B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 33

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - EXISTING DIKES EXTENDED

2 - NEW DIKES ADDED

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 5
DIKE 4
DIKE 3
DIKE 2
DIKE 1

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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. ROGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

ALTERNATIVE 7C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVK7C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 34

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

DIKE 4A
DIKE 4B
DIKE 3R
DIKE 3
DIKE 3A
DIKE 3L
DIKE 1UL
DIKE 2UL
DIKE 4
DIKE 1
DIKE 2
DIKE 1R

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
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E 2046000
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E 2014000

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N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 3

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS3.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 35

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

3 - NEW DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4UL
DIKE 3UL
DIKE 2UL
DIKE 1UL

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U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIEF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 4

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS4.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 36

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

2 - NEW DIKES ADDED

3 - NEW CHEVRONSS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4
DIKE 3
DIKE 2
DIKE 1
DIKE 4A
DIKE 3A
DIKE 2A
DIKE 2C
DIKE 1A

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N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 5

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS5.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 37

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

4 - NEW CHEVRONSS ADDED

DIKE 1
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N 1382000
N 1380000
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N 1364000
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N 1346000
N 1344000
N 1342000
N 1340000
N 1338000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. ROGGERS
DRAWN BY: E. RIFF
CHECKED BY:R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 6

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS6.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 38

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

6 - NEW DIKES ADDED

3 - NEW CHEVRONS ADDED

DIKE 2R
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 4
DIKE 3
DIKE 2
DIKE 1

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
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E 2046000
E 2044000
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E 2016000
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N 1414000
N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 7

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS7.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 39

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

1 - NEW CHEVRON ADDED

6 - NEW CHEVRONS ADDED

2 - EXISTING DIKE WITH TRAIL DIKE ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. ROGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 12

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MV512.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 43

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

7 - NEW CHEVRONS ADDED

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4UL
DIKE 3UL
DIKE 2UL
DIKE 1UL

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2032000
E 2030000
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N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS8.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 40

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

5 - NEW DIKES ADDED

4 - NEW CHEVRONS ADDED

1 - EXISTING DIKE WITH TRAIL DIKE ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 10

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS10.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 41

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

1 - EXISTING DIKE WITH TRAIL DIKE ADDED

10 - NEW CHEVRONS ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 13

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS13.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 44

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

4 - NEW CHEVRONS ADDED

1 - EXISTING DIKE WITH TRAIL DIKE ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4A
DIKE 4B
DIKE W
DIKE 4L
DIKE 3L
DIKE 2L
DIKE 1L

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
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N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIEF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 11

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS11.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 42

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

1 - NEW DIKE ADDED

10 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4A
DIKE 4B
DIKE 2R
DIKE 1R
DIKE 3R
DIKE 1UL
DIKE 2UL
DIKE 4R
DIKE 1L
DIKE 2L
DIKE 3L
DIKE 4L

E 2068000
E 2066000
E 2064000
E 2062000
E 2032000
E 2030000
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E 2022000
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N 1412000
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N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 14

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS14.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 45

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

1 - NEW DIKE ADDED

10 - NEW CHEVRONS ADDED

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
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E 2036000
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E 2016000
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N 1394000
N 1396000
N 1398000
N 1400000
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N 1454000
N 1456000
N 1458000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 15

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS15.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 46

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW DIKE ADDED

11 - NEW CHEVRONS ADDED

DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 4A
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 1
DIKE 2
DIKE 3
DIKE 4

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
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E 2048000
E 2046000
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E 2040000
E 2038000
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E 2020000
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E 2016000
E 2014000

N 1446000
N 1444000
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N 1412000
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N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 16

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS16.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 47

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

9 - NEW CHEVRONS ADDED

DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 4A
DIKE 4B
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 4
DIKE 3
DIKE 2
DIKE 1
MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
E 2044000
E 2042000
E 2040000
E 2038000
E 2036000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
N 1398000
N 1396000
N 1394000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 17

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS17.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 48

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

7 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4A
DIKE 4B
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 3UL
DIKE 4UL
DIKE 1
DIKE 2
DIKE 3
DIKE 4

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
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E 2048000
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E 2020000
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N 1412000
N 1410000
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N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

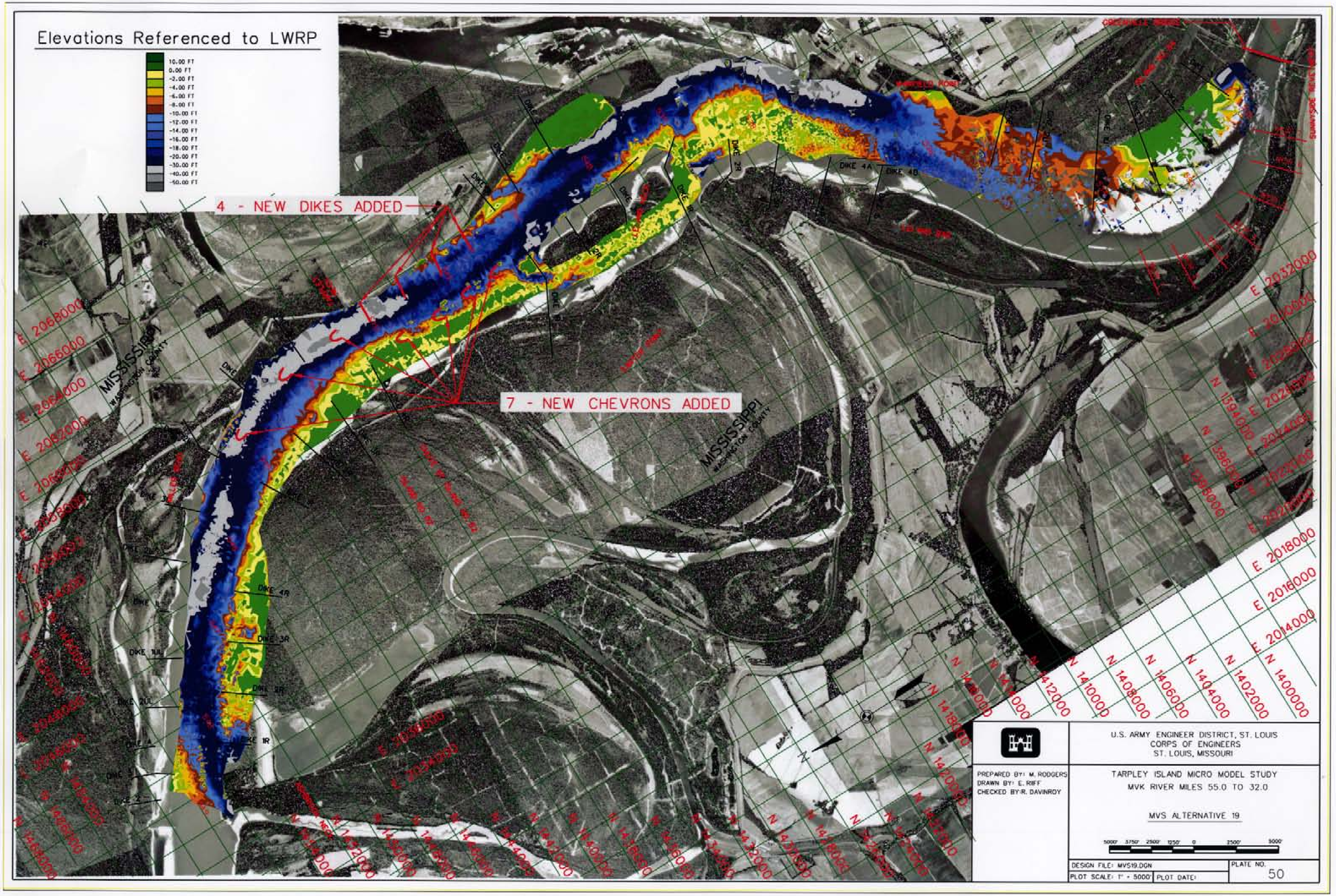
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 18

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS18.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 49



Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
4 - NEW DIKES ADDED
7 - NEW CHEVRONS ADDED
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4A
DIKE 4B
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 10L
DIKE 20L
E 2068000
E 2066000
E 2064000
E 2062000
E 2032000
E 2018000
E 2016000
E 2014000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVS ALTERNATIVE 19
DESIGN FILE: MVS19.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO.
50

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

4 - NEW CHEVRONS ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 20

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS20.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 51

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW CHEVRONS ADDED

4 - NEW CHEVRONS ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 21A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS21A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 52

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW CHEVRONS ADDED

4 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 1
DIKE 1R
DIKE 2
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 10L
DIKE 20L

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
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E 2014000

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N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 21B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS21B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 53

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW CHEVRONS ADDED

4 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
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N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 21C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS21C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 54

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

4 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 1R
DIKE 2R
DIKE 3R
DIKE 4R
DIKE 1WL
DIKE 2WL
DIKE A
DIKE 1
DIKE 2

E 2068000
E 2066000
E 2064000
E 2062000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000
E 2012000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 22A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS22A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 55

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

3 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 22B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS22B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 56

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 3L
DIKE 2L
DIKE 1L
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R

N

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

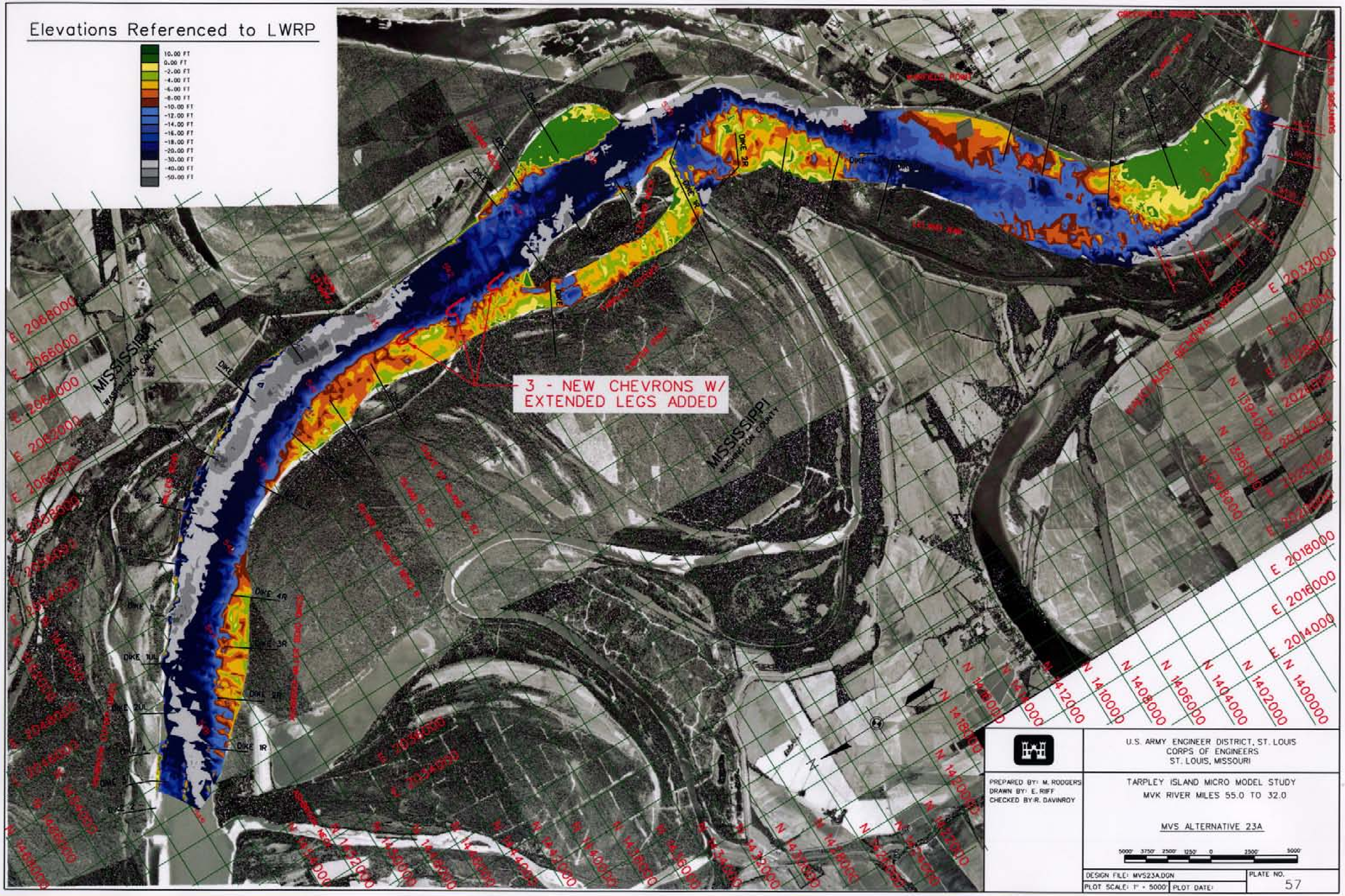
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 24A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS24A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 60


Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
3 - NEW CHEVRONS W/
EXTENDED LEGS ADDED
MISSISSIPPI
WASHINGTON COUNTY
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1L
DIKE 1UL
DIKE 2UL
DIKE 2R
E 2068000
E 2066000
E 2064000
E 2062000
E 2032000
E 2018000
E 2016000
E 2014000
N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVS ALTERNATIVE 23A
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVS23A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO.
57

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 2A
DIKE 3
DIKE 4

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
E 2044000
E 2042000
E 2040000
E 2038000
E 2036000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 23B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS23B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 58

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 3R
DIKE 4R
DIKE 1R
DIKE 1UL
DIKE 2R
DIKE 2UL
DIKE A
DIKE 1

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 24B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS24B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 61

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW CHEVRONS ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 2R
DIKE 4R
DIKE 3R
DIKE 1UL
DIKE 2UL
DIKE 1R
DIKE A
DIKE 1
DIKE 2

E 2068000
E 2066000
E 2064000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000
E 2012000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 23C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS23C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 59

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

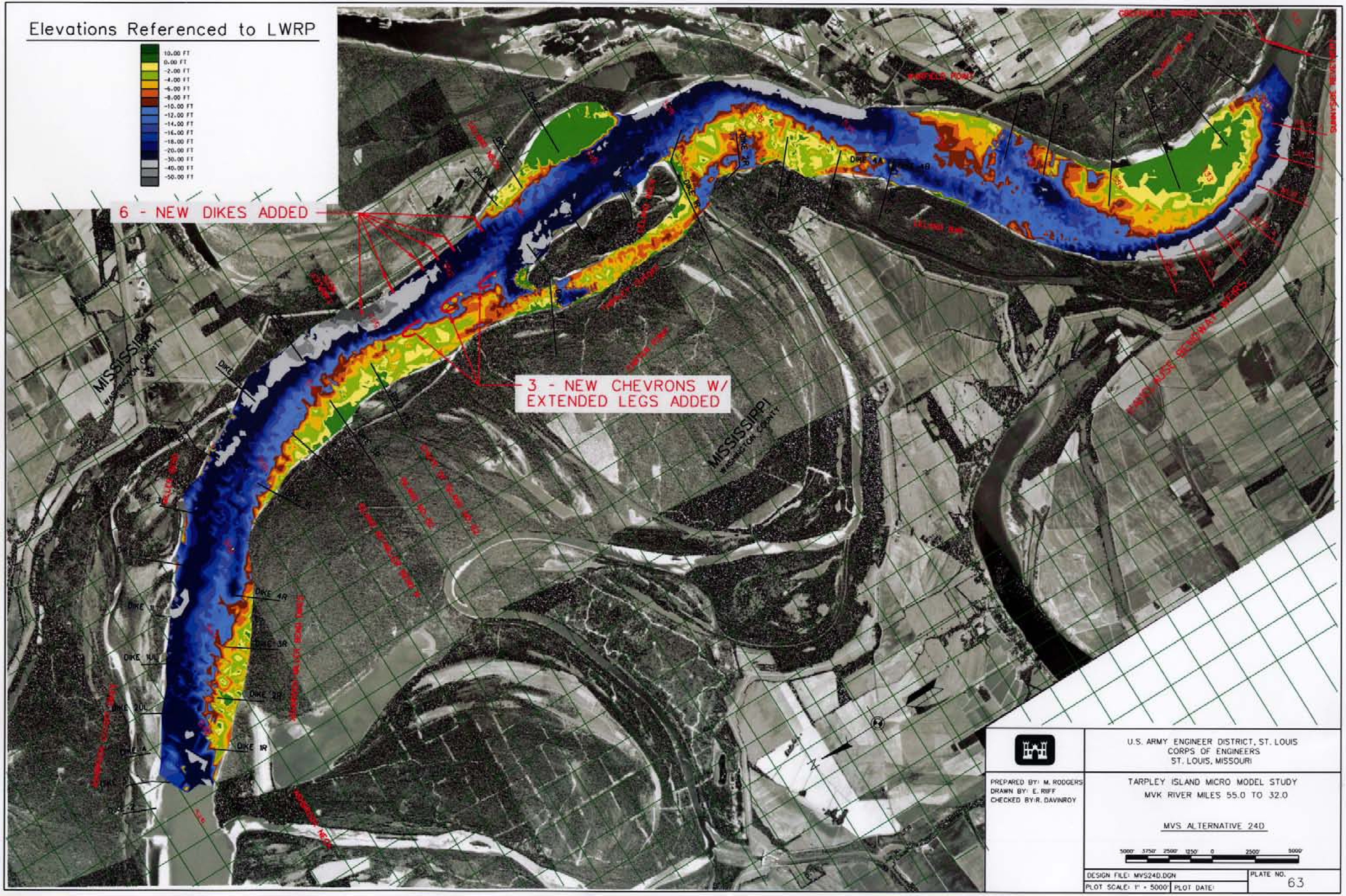
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 24C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS24C.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 62


Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
6 - NEW DIKES ADDED
3 - NEW CHEVRONS W/
EXTENDED LEGS ADDED
MISSISSIPPI
WASHINGTON COUNTY
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 2UL
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVS ALTERNATIVE 24D
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVS24D.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO.
63

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

7 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 25A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS25A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 64

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

4 - NEW CHEVRONS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4
DIKE 3
DIKE 2

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 25B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS25B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 65

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 100
DIKE 200
DIKE 4
DIKE 3
DIKE 2
DIKE 1

MISSISSIPPI
WASHINGTON COUNTY

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
E 2044000
E 2042000
E 2040000
E 2038000
E 2036000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
N 1398000
N 1396000
N 1394000
N 1392000
N 1390000
N 1388000
N 1386000
N 1384000
N 1382000
N 1380000
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N 1370000
N 1368000
N 1366000
N 1364000
N 1362000
N 1360000
N 1358000
N 1356000
N 1354000
N 1352000
N 1350000
N 1348000
N 1346000
N 1344000
N 1342000
N 1340000
N 1338000
N 1336000
N 1334000
N 1332000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 26A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS26A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 66

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

4 - NEW CHEVRONS ADDED

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

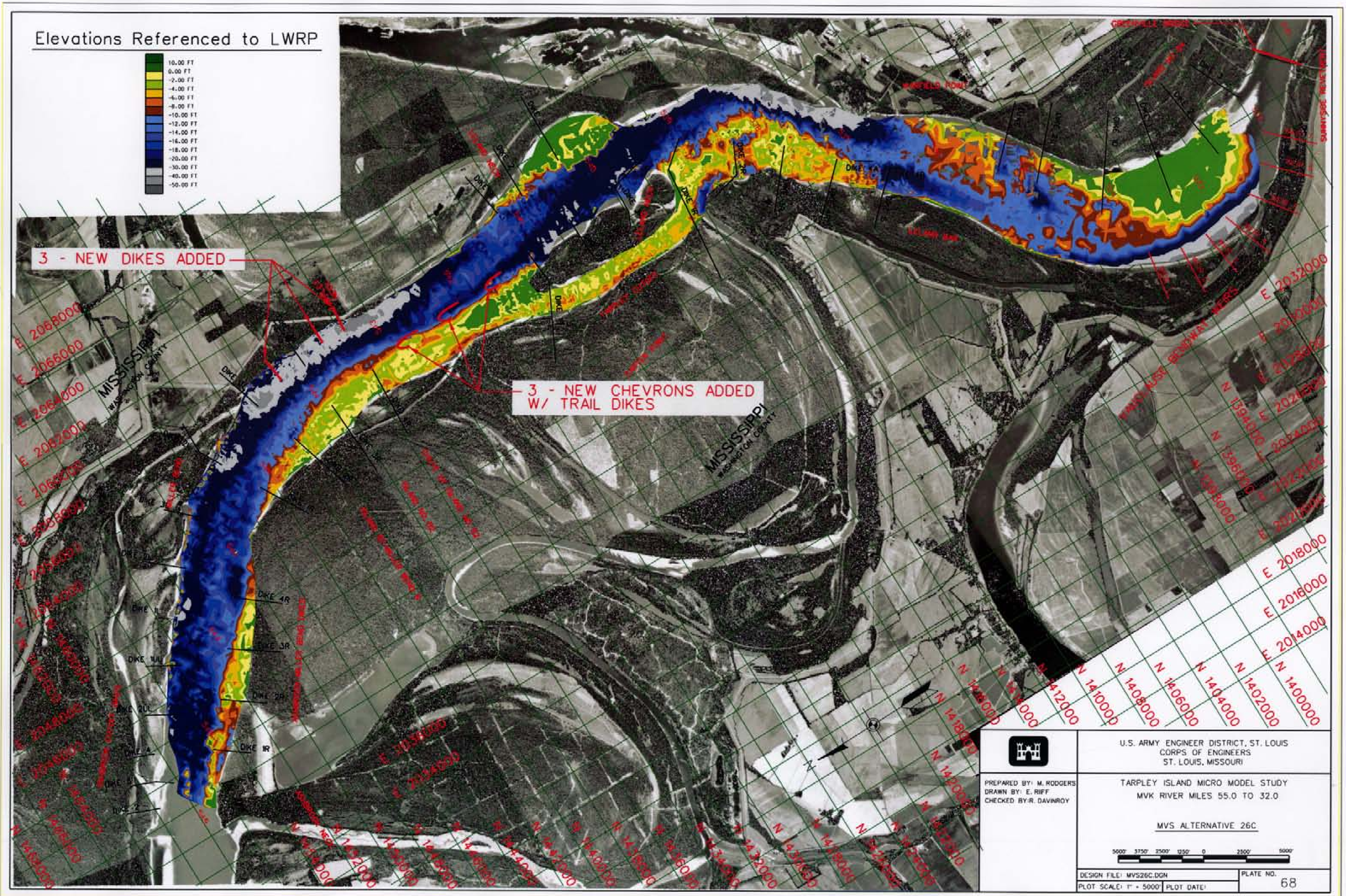
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 26B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS26B.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 67


Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
3 - NEW DIKES ADDED
3 - NEW CHEVRONS ADDED W/ TRAIL DIKES
MISSISSIPPI
MISSISSIPPI
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVS ALTERNATIVE 26C
DESIGN FILE: MVS26C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO.
68

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4A
DIKE 3A
DIKE 2A
DIKE 1A
DIKE 4
DIKE 3
DIKE 2
DIKE 1

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1394000
N 1396000
N 1398000

N 1400000
N 1402000
N 1404000
N 1406000
N 1408000
N 1410000
N 1412000
N 1414000
N 1416000
N 1418000
N 1420000
N 1422000
N 1424000
N 1426000
N 1428000
N 1430000
N 1432000
N 1434000
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N 1452000
N 1454000
N 1456000
N 1458000
N 1460000
N 1462000
N 1464000
N 1466000
N 1468000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 27A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS27A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 69

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

MARFIELD POINT

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1L
DIKE 2UL
DIKE 4

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
E 2044000
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E 2040000
E 2038000
E 2036000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1394000
N 1396000
N 1398000
N 1400000
N 1402000
N 1404000
N 1406000
N 1408000
N 1410000
N 1412000
N 1414000
N 1416000
N 1418000
N 1420000
N 1422000
N 1424000
N 1426000
N 1428000
N 1430000
N 1432000
N 1434000
N 1436000
N 1438000
N 1440000
N 1442000
N 1444000
N 1446000

	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	TARPLEY ISLAND MICRO MODEL STUDY MVK RIVER MILES 55.0 TO 32.0 MVS ALTERNATIVE 27B 5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVS27B.DGN PLOT SCALE: 1" = 5000' PLOT DATE:	PLATE NO. 70

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

3 - NEW DIKES ADDED

3 - NEW CHEVRONS W/ EXTENDED LEGS ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 27C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS27C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 71

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

EXISTING DIKES 4L
EL. @ 20 LWRP

MISSISSIPPI
WASHINGTON COUNTY

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4L
DIKE 3L
DIKE 2L
DIKE 1L

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2058000
E 2056000
E 2054000
E 2052000
E 2050000
E 2048000
E 2046000
E 2044000
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E 2040000
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E 2036000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 28A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS28A.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 72

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

EXISTING DIKES 3L AND 4L
EL. @ 20 LWRP

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE A
DIKE 2

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 28B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS28B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 73

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

EXISTING DIKES 2L, 3L AND 4L
EL. @ 20 LWRP

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1L
DIKE 2UL
DIKE 4
DIKE 3

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 28C

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS28C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 74

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 3R
DIKE 4R
DIKE A
DIKE 1
DIKE 2

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2034000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000
E 2012000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
N 1418000
N 1420000
N 1422000
N 1424000
N 1426000
N 1428000
N 1430000
N 1432000
N 1434000
N 1436000
N 1438000
N 1440000
N 1442000
N 1444000
N 1446000
N 1448000
N 1450000
N 1452000
N 1454000
N 1456000
N 1458000
N 1460000
N 1462000
N 1464000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
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TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 29A

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS29A.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 75

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 4A

E 2068000
E 2066000
E 2064000
E 2062000
E 2060000
E 2032000
E 2030000
E 2028000
E 2026000
E 2024000
E 2022000
E 2020000
E 2018000
E 2016000
E 2014000

N 1412000
N 1410000
N 1408000
N 1406000
N 1404000
N 1402000
N 1400000
N 1442000
N 1440000
N 1438000
N 1436000
N 1434000
N 1432000
N 1430000
N 1428000
N 1426000
N 1424000
N 1422000
N 1420000
N 1418000
N 1416000
N 1414000

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. ROGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

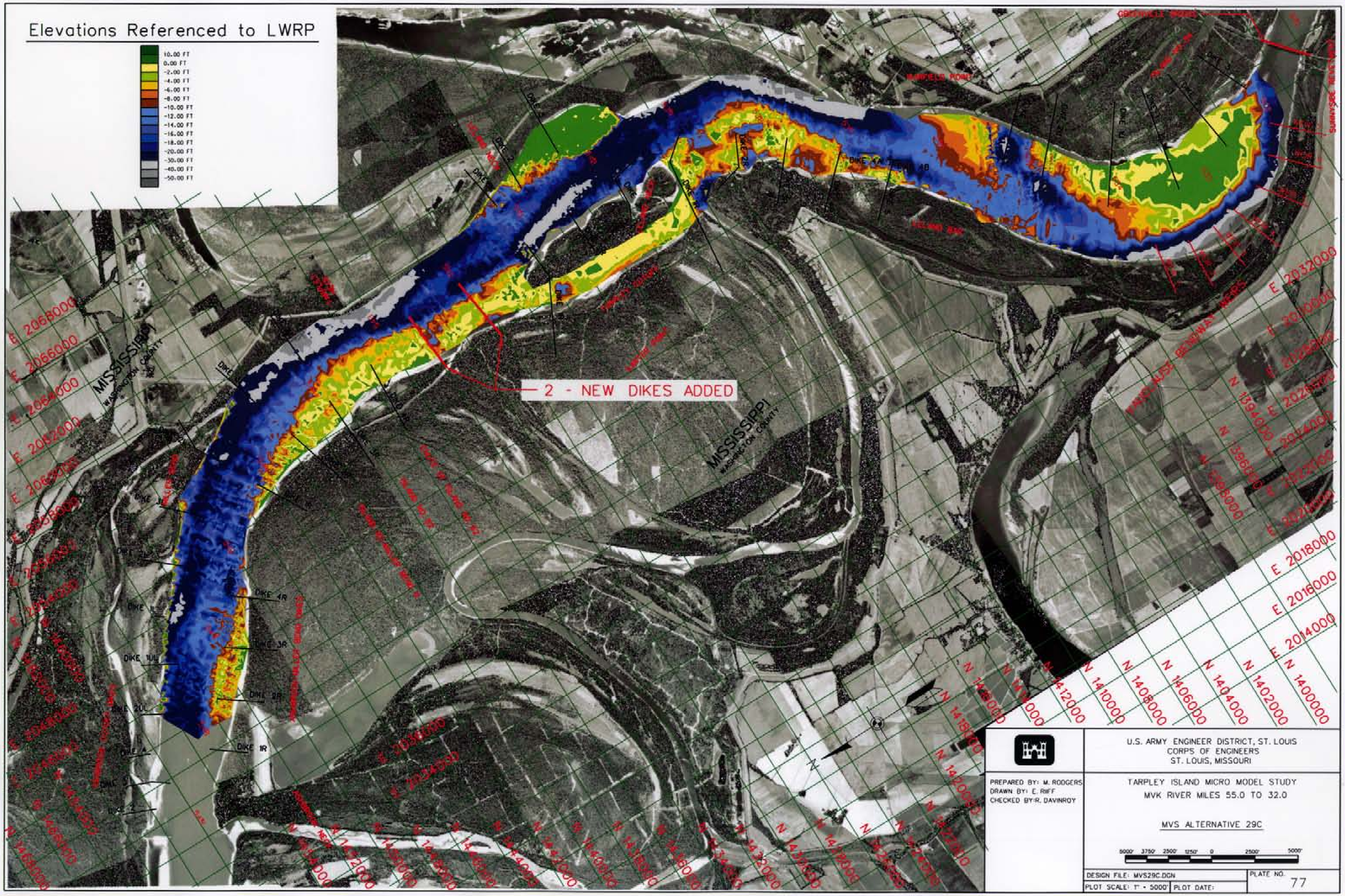
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 29B

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS29B.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 76


Elevations Referenced to LWRP
10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT
2 - NEW DIKES ADDED
MISSISSIPPI
WASHINGTON COUNTY
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI
PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY
TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0
MVS ALTERNATIVE 29C
5000' 3750' 2500' 1250' 0 2500' 5000'
DESIGN FILE: MVS29C.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:
PLATE NO. 77

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW SLOTTED DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 1L
DIKE 2L
DIKE 1UL
DIKE 20L
DIKE A
DIKE 1
DIKE 2
DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY: R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 29D

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS29D.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 78

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW SLOTTED DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 1UL
DIKE 2UL
DIKE 4
DIKE 3
DIKE 2

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. ROGGERS
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TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 29E

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS29E.DGN
PLOT SCALE: 1" = 5000'
PLOT DATE:

PLATE NO. 79

Elevations Referenced to LWRP

10.00 FT
0.00 FT
-2.00 FT
-4.00 FT
-6.00 FT
-8.00 FT
-10.00 FT
-12.00 FT
-14.00 FT
-16.00 FT
-18.00 FT
-20.00 FT
-30.00 FT
-40.00 FT
-50.00 FT

2 - NEW SLOTTED DIKES ADDED

MISSISSIPPI
WASHINGTON COUNTY

DIKE 4R
DIKE 3R
DIKE 2R
DIKE 1R
DIKE 4
DIKE 3
DIKE 2

U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: M. RODGERS
DRAWN BY: E. RIFF
CHECKED BY:R. DAVINROY

TARPLEY ISLAND MICRO MODEL STUDY
MVK RIVER MILES 55.0 TO 32.0

MVS ALTERNATIVE 29F

5000' 3750' 2500' 1250' 0 2500' 5000'

DESIGN FILE: MVS29F.DGN
PLOT SCALE: 1" = 5000' PLOT DATE:

PLATE NO. 80