ILLINOIS

1. SOUNDED OCTOBER 10, 2018 & MARCH 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190321	Alton, IL	8:00	423.26	414.00	9.26
20190321	Alton, IL	14:00	423.37	414.00	9.37
20190321	Grafton, IL	8:00	428.14	418.00	10.14
20190321	Grafton, IL	14:00	428.33	418.00	10.33
20190321	Lock & Dam 25 (Lower)	8:00	438.42	418.50	19.92
20190321	Lock & Dam 25 (Lower)	14:00	438.55	418.50	20.05

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181010	Alton, IL	8:00	417.48	414.00	3.48
20181010	Alton, IL	15:00	418.31	414.00	4.31
20181010	Grafton, IL	8:00	424.30	418.00	6.30
20181010	Grafton, IL	15:00	424.64	418.00	6.64
20181010	Lock & Dam 25 (Lower)	8:00	436.86	418.50	18.36
20181010	Lock & Dam 25 (Lower)	15:00	437.16	418.50	18.66

SOUNDED OCTOBER 10, 2018

SOUNDED MARCH 21, 2019

DIKE 221.3(L)
DIKE 221.0(L)
DIKE 220.7(L)
DIKE 220.4(L)
DIKE 220.2(L)
DIKE 219.8(L)
DIKE 219.5(L)
DIKE 219.3(L)
DIKE 221.0(R)
DIKE 220.6(R)
DIKE 220.4(R)
DIKE 220.1(R)
DIKE 220.0(R)

POINT
ILLINOIS RIVER
ISLAND NO. 525
MASON ISLAND
PERRY ISLAND
MISSOURI

1,138,000 N
1,142,000 N
1,140,000 N
508,000 E
510,000 E
512,000 E
514,000 E
1,130,000 E
1,132,000 E
1,134,000 E
1,136,000 E

GREEN BUOY
RED BUOY

GAGE RECORD

	L&D 25 (LOWER), IL	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL
ZERO N.G.V.D.	407.00	410.62	403.79	400.00
MILE	241.20	228.3	218.6	203.0
MIN. POOL	418.5	418.1	418.0	414.0
10 OCT 2018	29.86(8:00) 30.16(15:00)	UNDERWATER	20.51(8:00) 20.65(15:00)	17.48(8:00) 18.31(15:00)
21 MAR 2019	31.42(8:00) 31.55(14:00)	UNDERWATER	24.35(8:00) 24.54(14:00)	23.26(8:00) 23.37(14:00)

US Army Corps of Engineers
St. Louis District

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS

MILE: 219.5 – 221.4

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 10, 2018 & MAR. 21, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##\##\##\##\##\##\##
Plot date: ##/##/####

249 METERS
800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY BOWEN ENGINEERING AND SHOULD BE INTERPRETED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

PLATE NUMBER

40

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181010	Alton, IL	8:00	417.48	414.00	3.48
20181010	Alton, IL	15:00	418.31	414.00	4.31
20181010	Grafton, IL	8:00	424.30	418.00	6.30
20181010	Grafton, IL	15:00	424.64	418.00	6.64
20181010	Lock & Dam 25 (Lower)	8:00	436.86	418.50	18.36
20181010	Lock & Dam 25 (Lower)	15:00	437.16	418.50	18.66

1. SOUNDED OCTOBER 10, 2018 & MARCH 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL

ILLINOIS

MISSOURI

CITY OF GRAFTON 1.8"

ILLINOIS RIVER

SOUNDED OCTOBER 10, 2018

SOUNDED MARCH 21, 2019

SOUNDED OCTOBER 10, 2018

SOUNDED MARCH 21, 2019

SOUNDED OCTOBER 10, 2018

SOUNDED MARCH 21, 2019

DIKE 219.2(L)

DIKE 219.3(L)

DIKE 218.8(L)

DIKE 218.4(L)

DIKE 218.2(L)

DIKE 218.1(R)

DIKE 217.7(R)

DIKE 217.4(R)

ISLAND NO. 5

ISLAND 218

RED BUOY

GREEN BUOY

1,144,000 N

1,142,000 N

1,140,000 N

1,138,000 N

514,000 E

516,000 E

518,000 E

520,000 E

522,000 E

524,000 E

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190321	Alton, IL	8:00	423.26	414.00	9.26
20190321	Alton, IL	14:00	423.37	414.00	9.37
20190321	Grafton, IL	8:00	428.14	418.00	10.14
20190321	Grafton, IL	14:00	428.33	418.00	10.33
20190321	Lock & Dam 25 (Lower)	8:00	438.42	418.50	19.92
20190321	Lock & Dam 25 (Lower)	14:00	438.55	418.50	20.05

GAGE RECORD

	L&D 25 (LOWER), IL	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL
ZERO N.G.V.D.	407.00	410.62	403.79	400.00
MILE	241.20	228.3	218.6	203.0
MIN. POOL	418.5	418.1	418.0	414.0
10 OCT 2018	29.86:8:001 30.16:15:001	UNDERWATER	20.51:8:001 20.65:15:001	17.48:8:001 18.31:15:001
21 MAR 2019	31.42:8:001 31.55:14:001	UNDERWATER	24.35:8:001 24.54:14:001	23.26:8:001 23.37:14:001

US Army Corps of Engineers
St. Louis District

U.S. ARMY ENGINEER DIVISION
OHIO RIVER DIVISION
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS

MILE: 217.5 - 219.5

Survey Date: OCT. 10, 2018 & MAR. 21, 2019

Surveyed by: BOWEN ENGINEERING

Drawn by: X

Checked by: X

Reviewed by: X

SUBMITTED: X

APPROVED: X

Plot date:

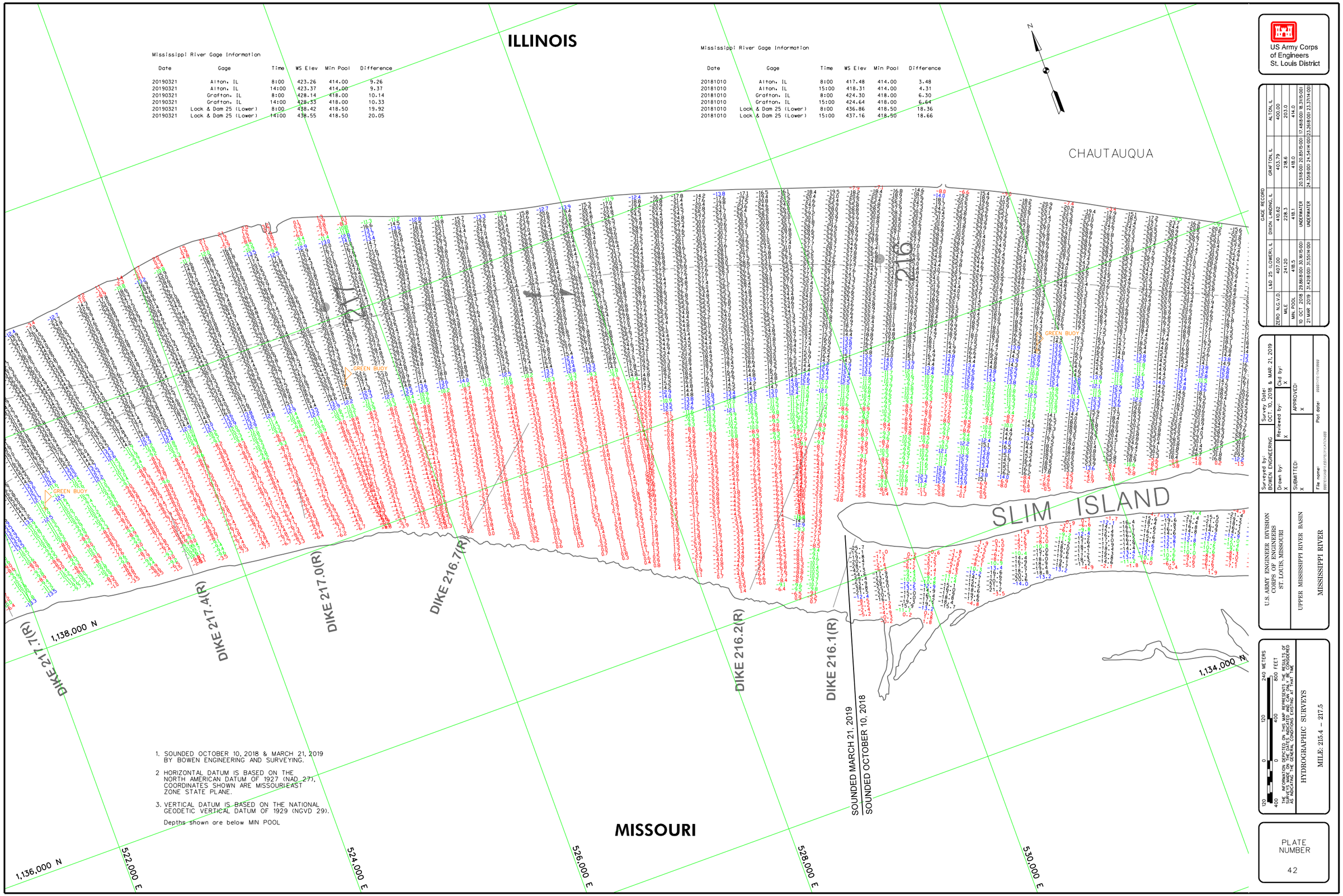
File name:

240 METERS 120 0 120 400 800 FEET 400 0

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AND IS INDICATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER

41



Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190321	Alton, IL	8:00	423.26	414.00	9.26
20190321	Alton, IL	14:00	423.37	414.00	9.37
20190321	Grafton, IL	8:00	428.14	418.00	10.14
20190321	Grafton, IL	14:00	428.33	418.00	10.33
20190321	Lock & Dam 25 (Lower)	8:00	438.42	418.50	19.92
20190321	Lock & Dam 25 (Lower)	14:00	438.55	418.50	20.05

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181010	Alton, IL	8:00	417.48	414.00	3.48
20181010	Alton, IL	15:00	418.31	414.00	4.31
20181010	Grafton, IL	8:00	424.30	418.00	6.30
20181010	Grafton, IL	15:00	424.64	418.00	6.64
20181010	Lock & Dam 25 (Lower)	8:00	436.86	418.50	18.36
20181010	Lock & Dam 25 (Lower)	15:00	437.16	418.50	18.66

1. SOUNDED OCTOBER 10, 2018 & MARCH 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 25 (LOWER), IL	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL
ZERO N.G.V.D.	407.00	410.62	403.79	400.00
MILE	241.20	228.3	218.6	203.0
MIN. POOL	418.5	418.1	418.0	414.0
10 OCT 2018	29.86(8:00) 30.16(15:00)	UNDERWATER	20.51(8:00) 20.85(15:00)	17.48(8:00) 18.31(15:00)
21 MAR 2019	31.42(8:00) 31.55(14:00)	UNDERWATER	24.35(8:00) 24.54(14:00)	23.26(8:00) 23.37(14:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 10, 2018 & MAR. 21, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 9999DESIGNBF1E85PRECIPITATION999
Plot date: 9999DIVISION99999

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

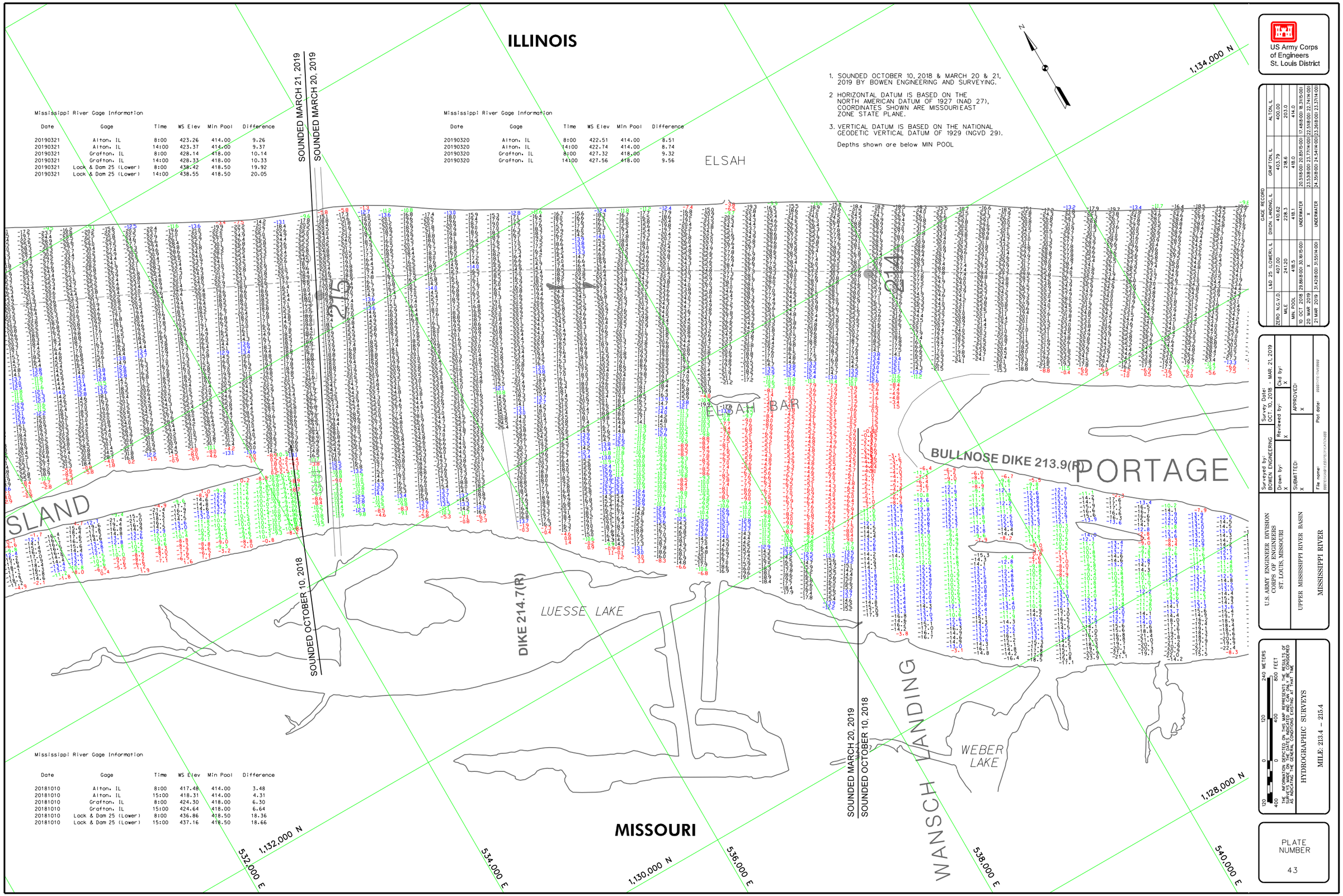
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 215.4 – 217.5

PLATE NUMBER

42



Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190321	Alton, IL	8:00	423.26	414.00	9.26
20190321	Alton, IL	14:00	423.37	414.00	9.37
20190321	Grafton, IL	8:00	428.14	418.00	10.14
20190321	Grafton, IL	14:00	428.33	418.00	10.33
20190321	Lock & Dam 25 (Lower)	8:00	438.42	418.50	19.92
20190321	Lock & Dam 25 (Lower)	14:00	438.55	418.50	20.05

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190320	Alton, IL	8:00	422.51	414.00	8.51
20190320	Alton, IL	14:00	422.74	414.00	8.74
20190320	Grafton, IL	8:00	427.32	418.00	9.32
20190320	Grafton, IL	14:00	427.56	418.00	9.56

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181010	Alton, IL	8:00	417.48	414.00	3.48
20181010	Alton, IL	15:00	418.31	414.00	4.31
20181010	Grafton, IL	8:00	424.30	418.00	6.30
20181010	Grafton, IL	15:00	424.64	418.00	6.64
20181010	Lock & Dam 25 (Lower)	8:00	436.86	418.50	18.36
20181010	Lock & Dam 25 (Lower)	15:00	437.16	418.50	18.66

1. SOUNDED OCTOBER 10, 2018 & MARCH 20 & 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 25 (LOWER), IL	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL
ZERO N.G.V.D.	407.00	410.62	403.79	400.00
MILE	241.20	228.3	218.6	203.0
MIN. POOL	418.5	418.1	418.0	414.0
10 OCT 2018	29.86(8:00) 30.16(15:00)	UNDERWATER	20.51(8:00) 20.85(15:00)	17.48(8:00) 18.31(15:00)
20 MAR 2019	X	X	23.53(8:00) 23.77(14:00)	22.51(8:00) 22.74(14:00)
21 MAR 2019	31.42(8:00) 31.55(14:00)	UNDERWATER	24.35(8:00) 24.54(14:00)	23.26(8:00) 23.37(14:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 10, 2018 - MAR. 21, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 9999DIXON-FILES\PROJECT\CAD\N999
Plot date: 9999DIXON-FILES\PROJECT\CAD\N999

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 213.4 – 215.4

PLATE NUMBER

43

1. SOUNDED OCTOBER 10, 2018 & MARCH 20, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

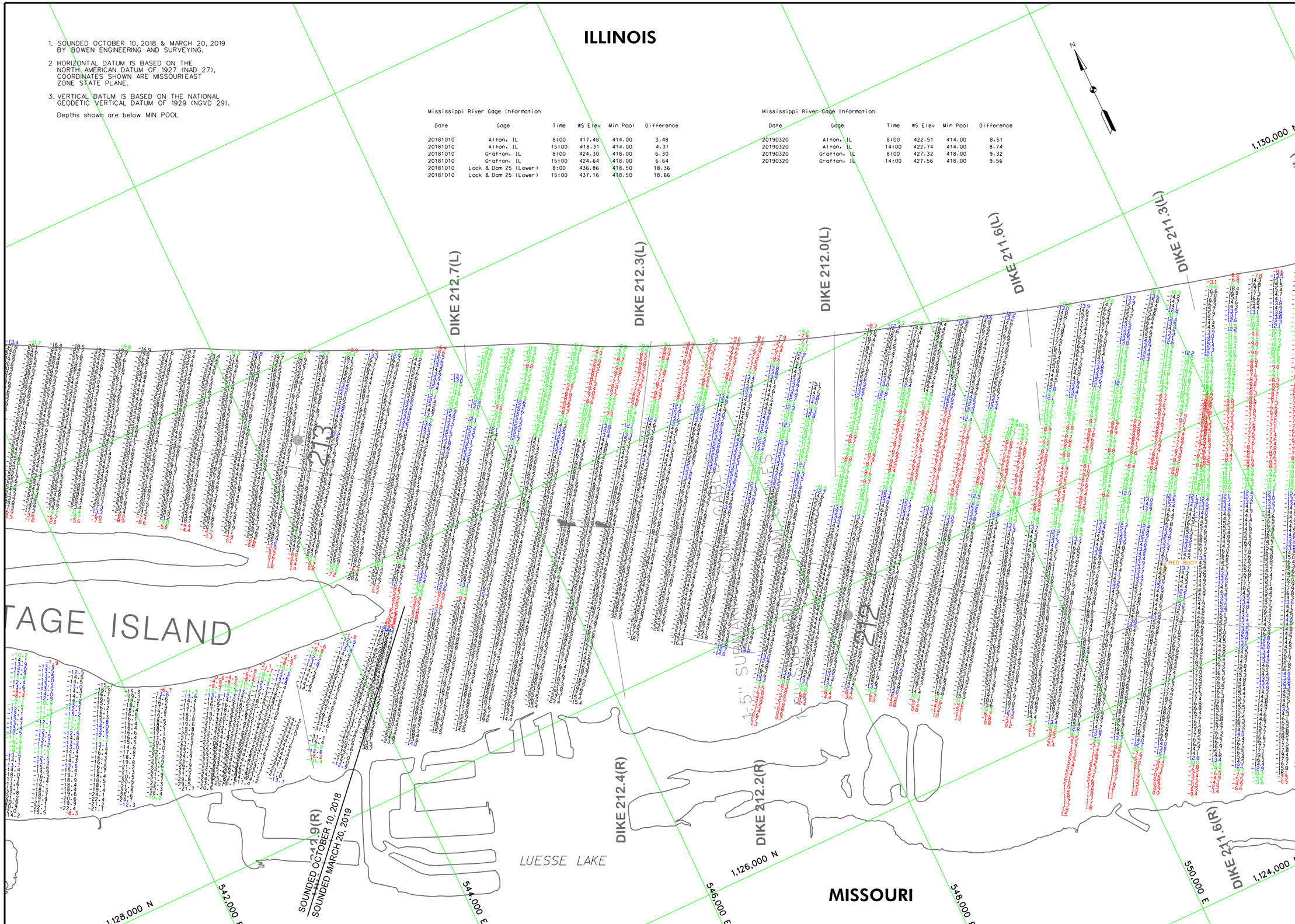
Depths shown are below MIN POOL

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181010	Alton, IL	8:00	417.48	414.00	3.48
20181010	Alton, IL	15:00	418.31	414.00	4.31
20181010	Grafton, IL	8:00	424.30	418.00	6.30
20181010	Grafton, IL	15:00	424.64	418.00	6.64
20181010	Lock & Dam 25 (Lower)	8:00	436.86	418.50	18.36
20181010	Lock & Dam 25 (Lower)	15:00	437.16	418.50	18.66

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190320	Alton, IL	8:00	422.51	414.00	8.51
20190320	Alton, IL	14:00	422.74	414.00	8.74
20190320	Grafton, IL	8:00	427.32	418.00	9.32
20190320	Grafton, IL	14:00	427.56	418.00	9.56



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L & D 25 (LOWER)	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL
ZERO N.G.V.D.	407.00	410.62	403.79	400.00
MILE	241.2	228.3	218.6	203.0
MIN. POOL	418.5	418.1	418.0	414.0
10 OCT 2018	29.86(8:00) 30.16(15:00)	UNDERWATER	20.51(8:00) 20.85(15:00)	17.48(8:00) 18.31(15:00)
20 MAR 2019	X	X	23.53(8:00) 23.77(14:00)	22.51(8:00) 22.74(14:00)

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
Survey Date: OCT. 10, 2018 & MAR. 20, 2019
File name: 9999DIXON-FIVE-DEPTH-CALCULATION.DGN
Plot date: 9999DIXON-FIVE-DEPTH-CALCULATION.DGN

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 211.4 – 213.4

PLATE NUMBER

44

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181015	Mel Price Upper	10:00	423.01	412.50	10.51
20181015	Mel Price Upper	16:00	423.05	412.50	10.55
20181015	Alton, IL	10:00	423.55	414.00	9.55
20181015	Alton, IL	16:00	423.61	414.00	9.61
20181015	Grafton, IL	10:00	428.70	418.00	10.70
20181015	Grafton, IL	16:00	428.74	418.00	10.74

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190319	Alton, IL	08:00	421.81	414.00	7.81
20190319	Alton, IL	15:00	421.99	414.00	7.99
20190319	Grafton, IL	08:00	426.46	418.00	8.46
20190319	Grafton, IL	15:00	426.69	418.00	8.69

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190320	Alton, IL	8:00	422.51	414.00	8.51
20190320	Alton, IL	14:00	422.74	414.00	8.74
20190320	Grafton, IL	8:00	427.32	418.00	9.32
20190320	Grafton, IL	14:00	427.56	418.00	9.56

1. SOUNDED OCTOBER 15, 2018 & MARCH 19 & 20, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL	MEL PRICE (UPPER)
ZERO N.G.V.D.	410.62	403.79	400.00	395.48
MILE	228.3	218.6	203.0	201.1
MIN. POOL	418.1	418.0	414.0	412.5
15 OCT 2018	X	24.9(10:00) 24.95(16:00)	23.55(10:00) 23.61(16:00)	27.53(10:00) 27.57(16:00)
19 MAR 2019	X	22.67(8:00) 22.90(15:00)	21.81(8:00) 21.99(15:00)	X
20 MAR 2019	X	23.53(8:00) 23.77(14:00)	22.51(8:00) 22.74(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 15, 2018 - MAR. 20, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name:
Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 209.2 – 211.4

PLATE NUMBER

45

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181015	Mel Price Upper	10:00	423.01	412.50	10.51
20181015	Mel Price Upper	16:00	423.05	412.50	10.55
20181015	Alton, IL	10:00	423.55	414.00	9.55
20181015	Alton, IL	16:00	423.61	414.00	9.61
20181015	Grafton, IL	10:00	428.70	418.00	10.70
20181015	Grafton, IL	16:00	428.74	418.00	10.74

1. SOUNDED OCTOBER 15, 2018 & MARCH 19, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL

ILLINOIS

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190319	Alton, IL	08:00	421.81	414.00	7.81
20190319	Alton, IL	15:00	421.99	414.00	7.99
20190319	Grafton, IL	08:00	426.46	418.00	8.46
20190319	Grafton, IL	15:00	426.69	418.00	8.69

SOUNDED OCTOBER 15, 2018
SOUNDED MARCH 19, 2019

MOTOR BOA

1,126,000 N

DIKE 208.9(L)
DIKE 208.5(L)
DIKE 208.3(L)
DIKE 207.2(L)

RED BUOY
GREEN BUOY

BARGE

DIKE 209.2 (R)
DIKE 208.8(R)
DIKE 208.4(R)
DIKE 208.0(R)
DIKE 207.6(R)
DIKE 207.2 (R)

DRESSER ISLAND

1,122,000 N
1,120,000 N

562,000 E
564,000 E
566,000 E
568,000 E
570,000 E

MISSOURI

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL	MEL PRICE (UPPER)
ZERO N.G.V.D.	410.62	403.79	400.00	395.48
MILE	228.3	218.6	203.0	201.1
MIN. POOL	418.1	418.0	414.0	412.5
15 OCT 2018	X	24.39(10:00)	24.95(16:00)	23.55(10:00)	23.61(16:00)	27.53(10:00)	27.57(16:00)
19 MAR 2019	X	22.67(8:00)	22.90(15:00)	21.81(8:00)	21.99(15:00)	X	

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Checked by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Survey Date: OCT. 15, 2018 & MAR. 19, 2019
Plot date:
File name:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS
800 FEET
120 0 120 400
400 0

THE INFORMATION REPORTED IN THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY OTHERS AND IS SHOWN FOR THE GENERAL INFORMATION AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 207.1 – 209.2

PLATE NUMBER

46

Mississippi River Gage Information

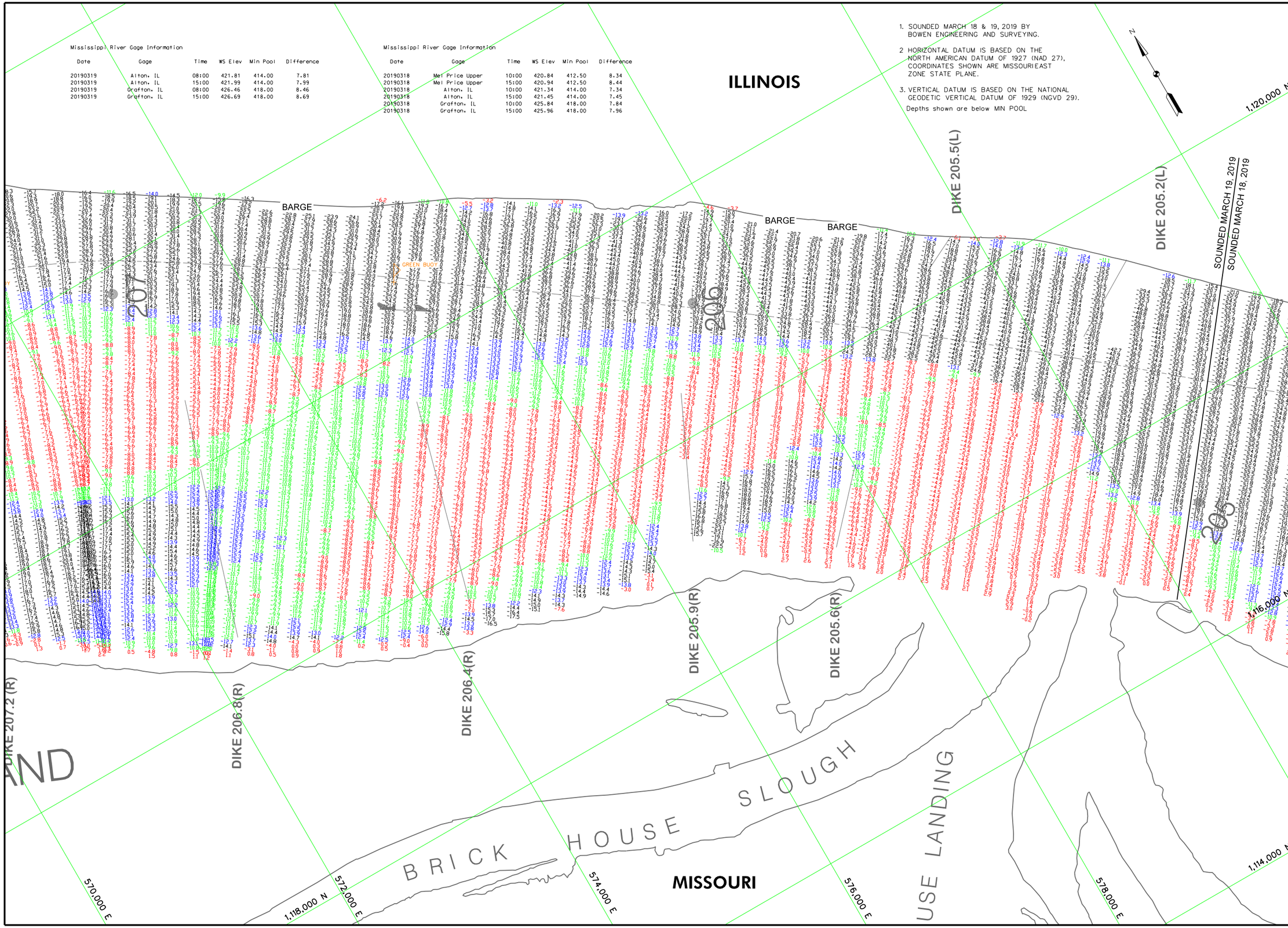
Date	Gage	Time	WS Elev	Min Pool	Difference
20190319	Alton, IL	08:00	421.81	414.00	7.81
20190319	Alton, IL	15:00	421.99	414.00	7.99
20190319	Grafton, IL	08:00	426.46	418.00	8.46
20190319	Grafton, IL	15:00	426.69	418.00	8.69

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190318	Mel Price Upper	10:00	420.84	412.50	8.34
20190318	Mel Price Upper	15:00	420.94	412.50	8.44
20190318	Alton, IL	10:00	421.34	414.00	7.34
20190318	Alton, IL	15:00	421.45	414.00	7.45
20190318	Grafton, IL	10:00	425.84	418.00	7.84
20190318	Grafton, IL	15:00	425.96	418.00	7.96

1. SOUNDED MARCH 18 & 19, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL	MEL PRICE (UPPER)
ZERO N.G.V.D.	410.62	403.79	400.00	395.48
MILE	228.3	218.6	203.0	201.1
MIN. POOL	418.1	418.0	414.0	412.5
18 MAR 2019	X	22.05(10:00) 22.17(15:00)	21.34(10:00) 21.45(15:00)	25.36(10:00) 25.46(15:00)
19 MAR 2019	X	22.67(08:00) 22.90(15:00)	21.81(08:00) 21.99(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 18 & 19, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 205.0 – 207.1

PLATE NUMBER

47

Mississippi River Gage Information

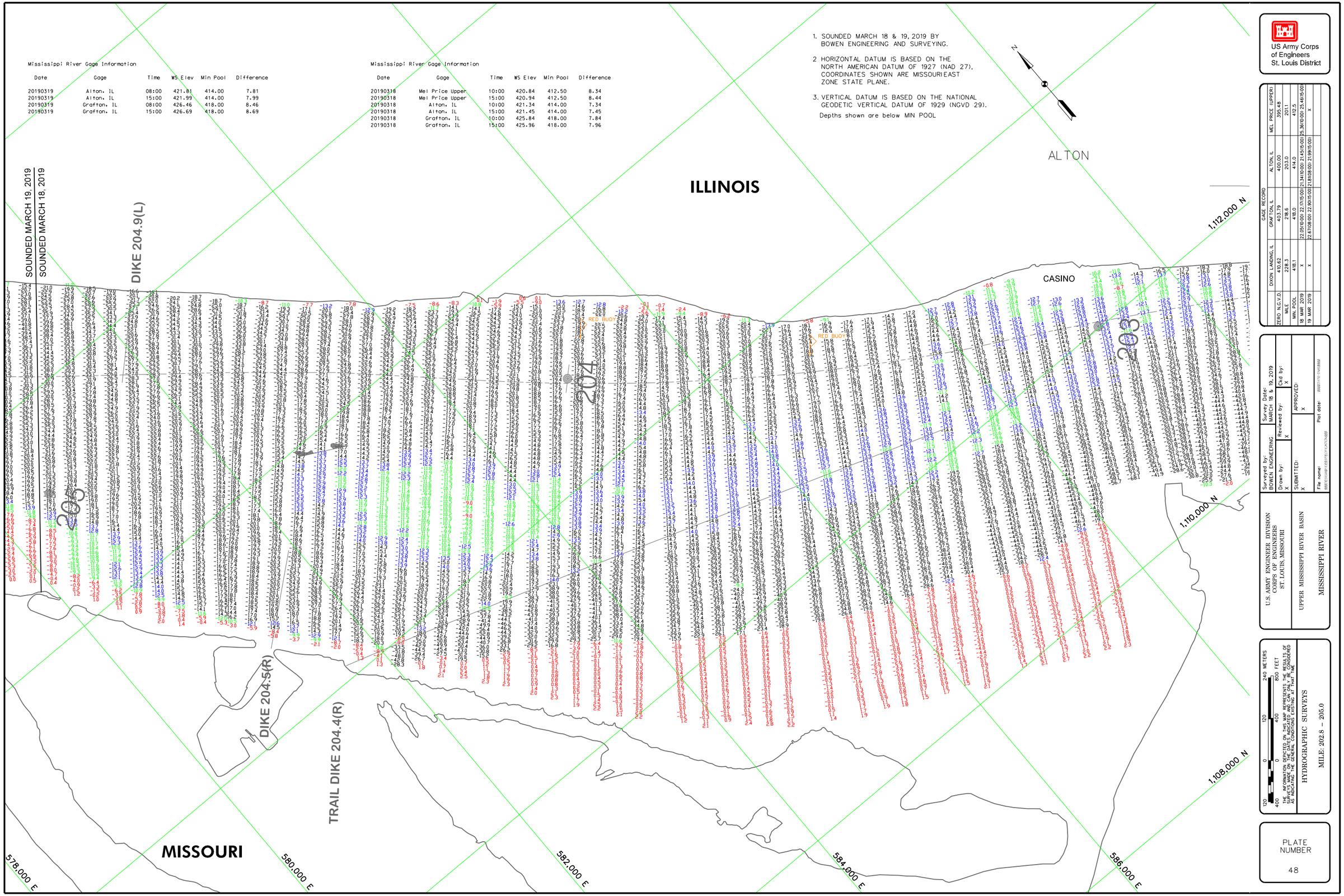
Date	Gage	Time	WS Elev	Min Pool	Difference
20190319	Alton, IL	08:00	421.81	414.00	7.81
20190319	Alton, IL	15:00	421.99	414.00	7.99
20190319	Grafton, IL	08:00	426.46	418.00	8.46
20190319	Grafton, IL	15:00	426.69	418.00	8.69

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190318	Mel Price Upper	10:00	420.84	412.50	8.34
20190318	Mel Price Upper	15:00	420.94	412.50	8.44
20190318	Alton, IL	10:00	421.34	414.00	7.34
20190318	Alton, IL	15:00	421.45	414.00	7.45
20190318	Grafton, IL	10:00	425.84	418.00	7.84
20190318	Grafton, IL	15:00	425.96	418.00	7.96

1. SOUNDED MARCH 18 & 19, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL	MEL PRICE (UPPER)
ZERO N.G.V.D.	410.62	403.79	400.00	395.48
MILE	228.3	218.6	203.0	201.1
MIN. POOL	418.1	418.0	414.0	412.5
18 MAR 2019	X	22.05(10:00) 22.17(15:00)	21.34(10:00) 21.45(15:00)	25.36(10:00) 25.46(15:00)
19 MAR 2019	X	22.67(08:00) 22.90(15:00)	21.81(08:00) 21.99(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 18 & 19, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 9999DIVISION\FILES\SPECIFICATION\999
Plot date: 9999DIVISION\FILES\SPECIFICATION\999

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

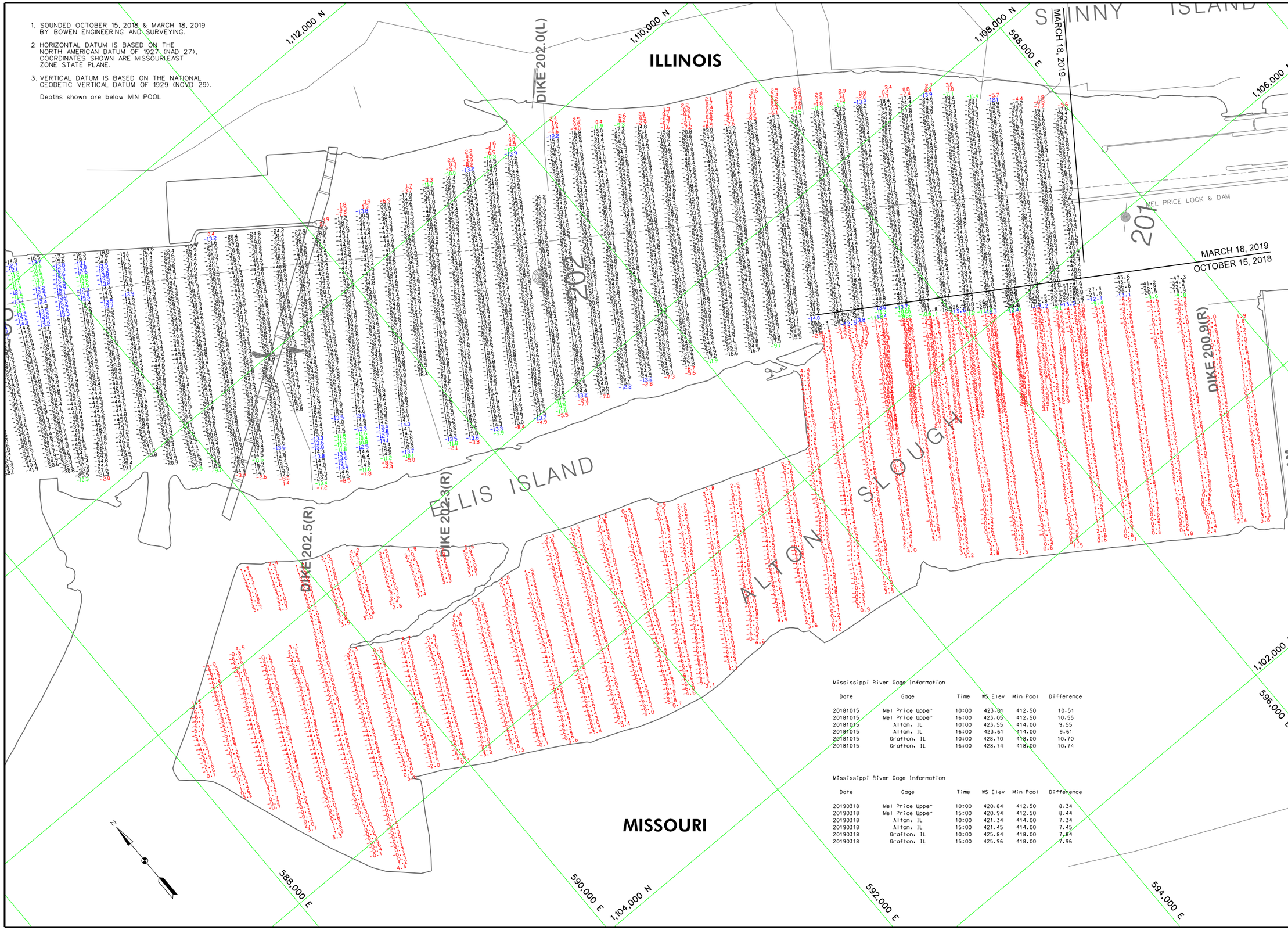
MILE: 202.8 – 205.0

PLATE NUMBER

48

1. SOUNDED OCTOBER 15, 2018 & MARCH 18, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL



Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181015	Mel Price Upper	10:00	423.01	412.50	10.51
20181015	Mel Price Upper	16:00	423.05	412.50	10.55
20181015	Alton, IL	10:00	423.55	414.00	9.55
20181015	Alton, IL	16:00	423.61	414.00	9.61
20181015	Grafton, IL	10:00	428.70	418.00	10.70
20181015	Grafton, IL	16:00	428.74	418.00	10.74

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190318	Mel Price Upper	10:00	420.84	412.50	8.34
20190318	Mel Price Upper	15:00	420.94	412.50	8.44
20190318	Alton, IL	10:00	421.34	414.00	7.34
20190318	Alton, IL	15:00	421.45	414.00	7.45
20190318	Grafton, IL	10:00	425.84	418.00	7.84
20190318	Grafton, IL	15:00	425.96	418.00	7.96

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	DIXON LANDING, IL	GRAFTON, IL	ALTON, IL	MEL PRICE (UPPER)
ZERO N.G.V.D.	410.62	403.79	400.00	395.48
MILE	228.3	218.6	203.0	201.1
MIN. POOL	418.1	418.0	414.0	412.5
15 OCT 2018	X	24.91(10:00) 24.95(16:00)	23.55(10:00) 23.61(16:00)	27.53(10:00) 27.57(16:00)
18 MAR 2019	X	22.05(10:00) 22.17(15:00)	21.34(10:00) 21.45(15:00)	25.36(10:00) 25.46(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 15, 2018 & MAR. 18, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILE: 200.9 – 202.8

PLATE NUMBER

49

ILLINOIS

SOUNDED MARCH 18, 2019

SOUNDED APRIL 24, 2019

SOUNDED OCTOBER 15, 2018

SOUNDED OCTOBER 29, 2018

1,108,000 N

1,106,000 N

SKINNY ISLAND

MEL PRICE GAGE (TAILWATER)

MEL PRICE LOCK & DAM

201

DIKE 200.9(R)

DIKE 200.3(R)

DIKE 200.0(R)

DIKE 200.0(L)

OVERFLOW DAM

138kV ALTELEC CABLES

DIKE 199.7(R)

DIKE 199.4(R)

DIKE 199.1(R)

DIKE 199.6(R)

BARGE

BARGE

BARGE

AMOCO PIPELINE CROSSING

SEE PLATE NO. 2

MAPLE ISLAND

MISSOURI

LOG JAM

596,000 E

598,000 E

600,000 E

602,000 E

604,000 E

606,000 E

1,100,000 N

1,098,000 N

APRIL 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
196	419.38	419.39	396.20	23.18	23.19
197	419.71	419.72	396.22	23.49	23.50
198	420.03	420.04	396.25	23.78	23.79
199	420.36	420.36	396.27	24.09	24.09
200	420.69	420.68	396.29	24.40	24.39
200.5	420.85	420.84	396.30	24.55	24.54

OCTOBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 12:00
197	413.50	413.38	396.22	17.28	17.16
198	413.79	413.69	396.25	17.54	17.44
199	414.08	414.00	396.27	17.81	17.73
200	414.37	414.31	396.29	18.08	18.02
200.5	414.52	414.46	396.30	18.22	18.16

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20181015	Mel Price Upper	10:00	423.01	412.50	10.51
20181015	Mel Price Upper	16:00	423.05	412.50	10.55
20181015	Alton, IL	10:00	423.55	414.00	9.55
20181015	Alton, IL	16:00	423.61	414.00	9.61
20181015	Grafton, IL	10:00	428.70	418.00	10.70
20181015	Grafton, IL	16:00	428.74	418.00	10.74

Mississippi River Gage Information

Date	Gage	Time	WS Elev	Min Pool	Difference
20190318	Mel Price Upper	10:00	420.84	412.50	8.34
20190318	Mel Price Upper	15:00	420.94	412.50	8.44
20190318	Alton, IL	10:00	421.34	414.00	7.34
20190318	Alton, IL	15:00	421.45	414.00	7.45
20190318	Grafton, IL	10:00	425.84	418.00	7.84
20190318	Grafton, IL	15:00	425.96	418.00	7.96

1. SOUNDED OCTOBER 15 & 29, 2018, AND MARCH 18 & APRIL 24, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below MIN POOL / LWRP 2014 SURFACE

N

GAGE RECORD

	MEL PRICE (UPPER)	MEL PRICE L&D TW	CHAN OF ROCKS UPPER	L&D 27 UPPER
ZERO N.G.V.D.	395.48	395.48	313.91	350.00
MILE	201.1	200.5	180.4	185.3
LWRP / MP	412.5	396.30	396.00	396.00
15 OCT 2018	27.53(10:00) 27.57(18:00)	X	X	X
29 OCT 2018	X	19.04(10:00) 18.98(12:00)	X	62.75(10:00) 62.58(12:00)
18 MAR 2019	25.36(10:00) 25.46(15:00)	X	X	X
24 APR 2019	X	25.37(08:00) 25.36(12:00)	X	88.86(08:00) 88.88(12:00)

US Army Corps of Engineers
St. Louis District

Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X
Reviewed by: X
APPROVED: X
Survey Date: OCT. 15, 2018 - APR. 24, 2019
Ckd by: X
Plot date: ########
File name: ########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

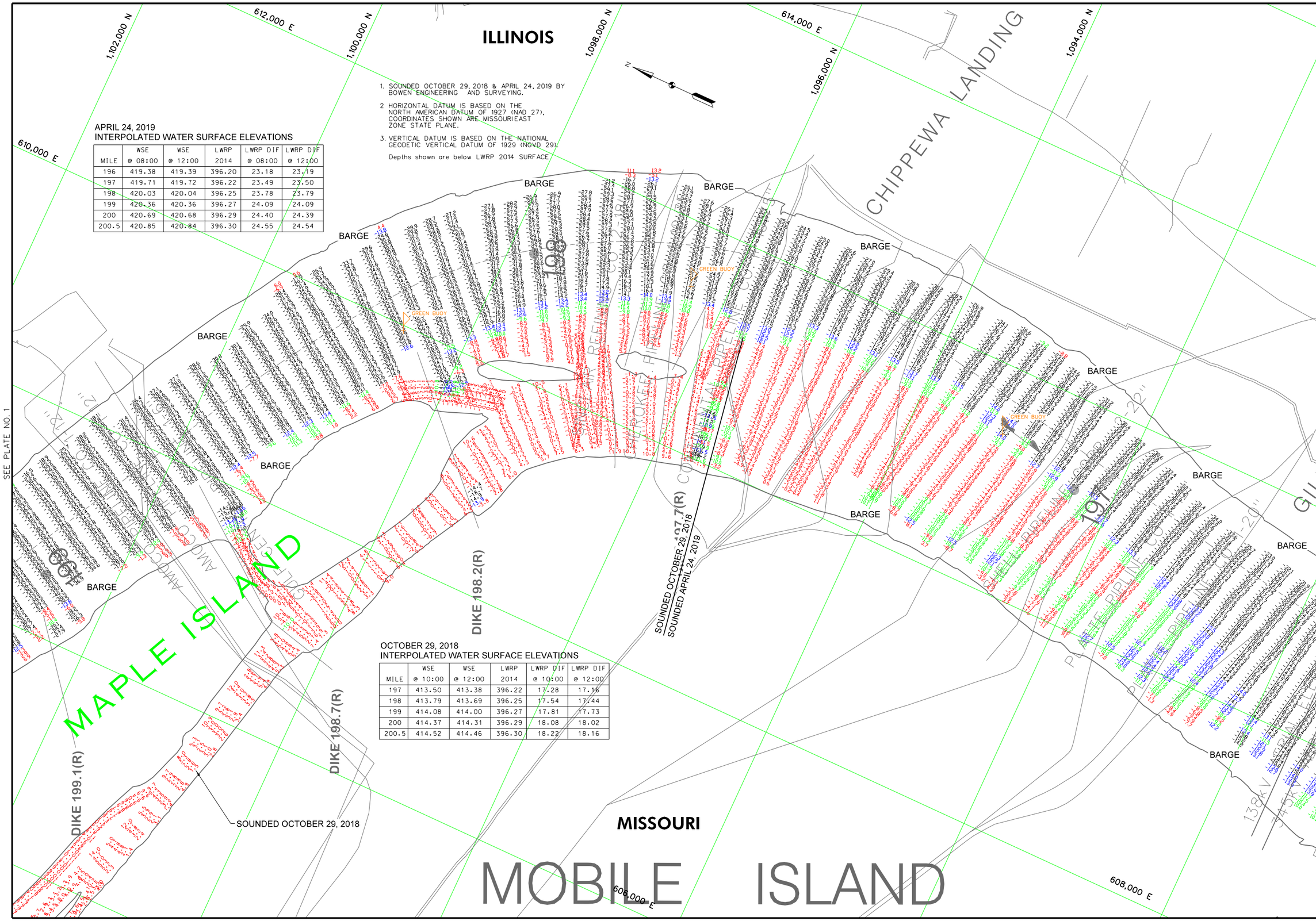
240 METERS 120 0 800 FEET 400 0

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 198.9 - 200.6

PLATE NUMBER 1



1. SOUNDED OCTOBER 29, 2018 & APRIL 24, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

APRIL 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
196	419.38	419.39	396.20	23.18	23.19
197	419.71	419.72	396.22	23.49	23.50
198	420.03	420.04	396.25	23.78	23.79
199	420.36	420.36	396.27	24.09	24.09
200	420.69	420.68	396.29	24.40	24.39
200.5	420.85	420.84	396.30	24.55	24.54

OCTOBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 12:00
197	413.50	413.38	396.22	17.28	17.16
198	413.79	413.69	396.25	17.54	17.44
199	414.08	414.00	396.27	17.81	17.73
200	414.37	414.31	396.29	18.08	18.02
200.5	414.52	414.46	396.30	18.22	18.16

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	CHAN OF ROCKS UPPER	L&D 27 UPPER
ZERO N.G.V.D.	395.48	313.91	350.00
MILE	200.5	190.4	185.3
LWRP 2014	396.30	396.00	396.00
29 OCT 2018	19.04(10:00) 18.98(12:00)	X	62.75(10:00) 62.58(12:00)
24 APR 2019	25.37(08:00) 25.36(12:00)	X	68.86(08:00) 68.88(12:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT 29, 2018 - APR 24, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name:
Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS
120 0 120 400 800 FEET
400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 196.7 – 198.9

PLATE NUMBER

2



APRIL 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 11:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 16:00
192	417.56	417.51	396.07	21.49	21.44
193	418.21	418.14	396.12	22.09	22.02
194	418.87	418.77	396.16	22.71	22.61
194.4	419.13	419.02	396.17	22.96	22.85
195	419.33	419.22	396.18	23.15	23.04
196	419.65	419.55	396.20	23.45	23.35

APRIL 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
196	419.38	419.39	396.20	23.18	23.19
197	419.71	419.72	396.22	23.49	23.50
198	420.03	420.04	396.25	23.78	23.79
199	420.36	420.36	396.27	24.09	24.09
200	420.69	420.68	396.29	24.40	24.39
200.5	420.85	420.84	396.30	24.55	24.54

1. SOUNDED APRIL 23 & 24, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE LKD TW	CHAN OF ROCKS UPPER	LKD 27 UPPER
ZERO N.G.V.D.	395.48	333.91	350.00
MILE	200.5	190.4	185.3
LWRP 2014	396.30	396.00	396.00
23 APR 2019	25.65(1100) 25.50(1600)	102.6(1200)	69.03(1100) 69.02(1600)
24 APR 2019	25.37(0800) 25.36(1200)	X	68.86(0800) 68.88(1200)

Surveyed by: BOWEN ENGINEERING
Survey Date: APRIL 23 & 24, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##ERENGINEERING\PLATES\###
Plot date: ##/##/####

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS
120
0
0
120
400
800 FEET
400
THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE CORPS OF ENGINEERS AND IS ACCURATE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 194.5 – 196.7

PLATE NUMBER
3

SEE PLATE NO. 4A

1,076,000 N 610,000 E

608,000 E

1,074,000 N

1,072,000 N

604,000 E

1,078,000 N

MARCH 14, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 11:00	
185.3	413.57	413.84	396.00	17.57	17.84	-- L&D27 UPPER
194.4	413.57	413.84	396.17	17.40	17.67	-- CONFLUENCE

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 UPPER GAGE READING TO MILE 194.4 (THE CONFLUENCE OF THE MISSISSIPPI RIVER MAIN CHANNEL AND THE UPPER END OF THE CHAIN OF ROCKS CANAL).

APRIL 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 11:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 16:00
192	417.56	417.51	396.07	21.49	21.44
193	418.21	418.14	396.12	22.09	22.02
194	418.87	418.77	396.16	22.71	22.61
194.4	419.13	419.02	396.17	22.96	22.85
195	419.33	419.22	396.18	23.15	23.04
196	419.65	419.55	396.20	23.45	23.35

LEVEE

CHAIN OF ROCKS CANAL

LEVEE

CHOUTEAU

ILLINOIS

SOUNDED MARCH 14, 2019
SOUNDED APRIL 23, 2019

WEIR 194.3(L)

WEIR 194.1(L)

WEIR 193.95(L)

WEIR 194.5(L)

DIKE 194.7(L)

H.P. 193.9(R)

H.P. 194.0(R)

H.P. 194.4(R)

H.P. 194.5(R)

DIKE 193.2(R)

DIKE 193.0(R)

DIKE 192.7(R)

DIKE 194.6(R) (PILE-KOD) (FIRST)

APPROXIMATE LEVEE SET-BACK

COLUMBIA BOTTOMS

MISSOURI

BACK ISLAND

SEE PLATE NO. 3

SEE PLATE NO. 5

1. SOUNDED MARCH 14 & APRIL 23, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI/EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD			
	MEL PRICE L&D TW	CHAN OF ROCKS UPPER	L&D 27 UPPER
ZERO N.G.V.D.	395.48	313.91	350.00
MILE	200.5	190.4 (OLD CHANNEL)	185.3
LWRP 2014	396.30	396.00	396.00
14 MAR 2019	21.00/8.00/ 21.41/11.00/	X	63.57/8.00/ 63.84/11.00/
23 APR 2019	25.63/11.00/ 25.55/16.00/	102.61/2.00/	69.13/11.00/ 69.02/16.00/

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

Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X

Survey Date: MARCH 14 & APRIL 23, 2019
Ckd by: X
Reviewed by: X
APPROVED: X
Plot date:
File name:

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

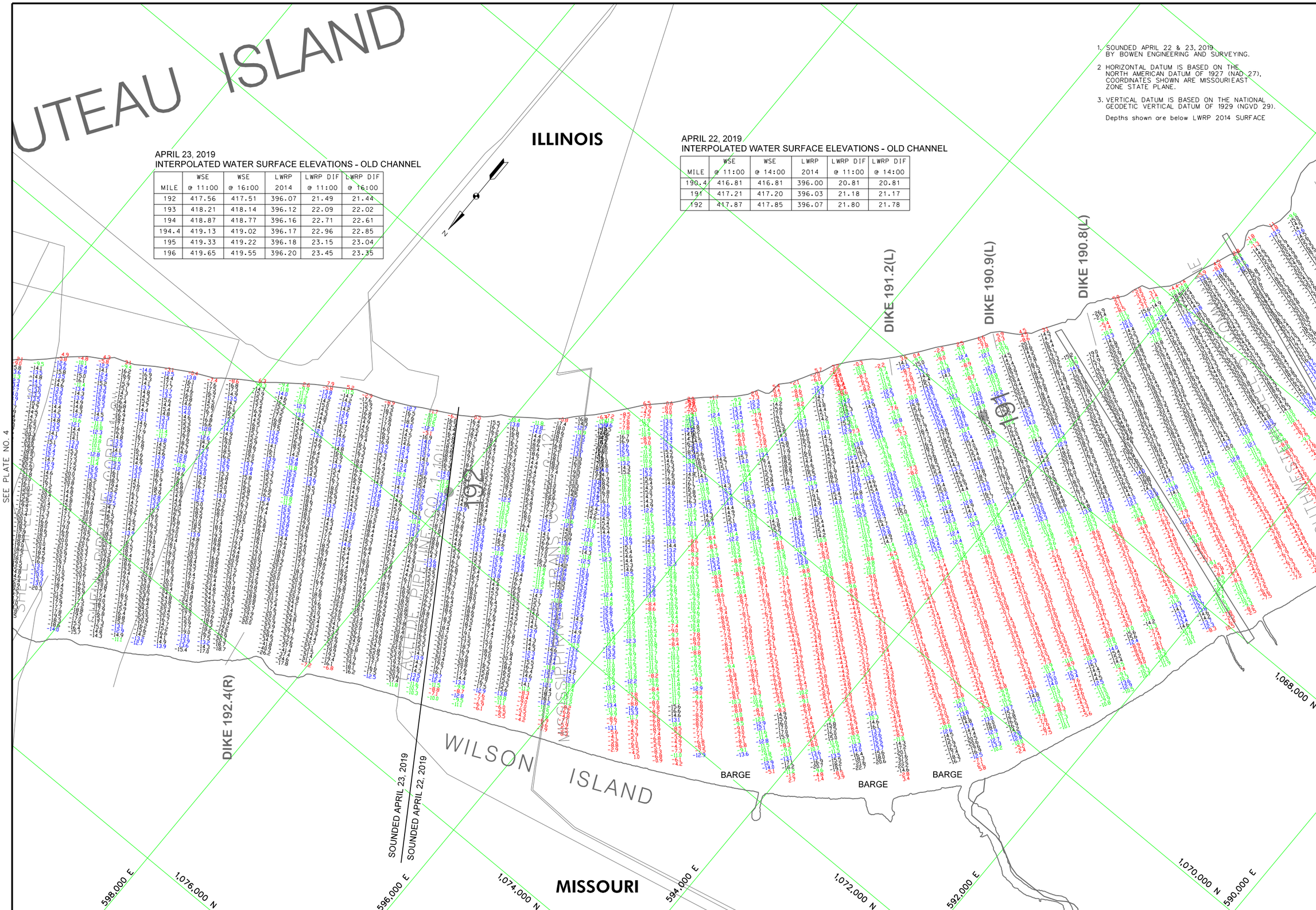
HYDROGRAPHIC SURVEYS

RIVER MILES 192.6 – 194.5

240 METERS
120 0 120 400 800 FEET
400

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME AND UNDER THE CONDITIONS NOTED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER 4



APRIL 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 11:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 16:00
192	417.56	417.51	396.07	21.49	21.44
193	418.21	418.14	396.12	22.09	22.02
194	418.87	418.77	396.16	22.71	22.61
194.4	419.13	419.02	396.17	22.96	22.85
195	419.33	419.22	396.18	23.15	23.04
196	419.65	419.55	396.20	23.45	23.35

APRIL 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 11:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 14:00
190.4	416.81	416.81	396.00	20.81	20.81
191	417.21	417.20	396.03	21.18	21.17
192	417.87	417.85	396.07	21.80	21.78

1. SOUNDED APRIL 22 & 23, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	CHAN OF ROCKS UPPER	L&D 27 UPPER
ZERO N.G.V.D.	395.48	313.91	350.00
MILE	200.5	190.4 (OLD CHANNEL)	185.3
LWRP 2014	396.30	396.00	396.00
22 APR 2019	25.98(11:00) 25.94(14:00)	102.9(12:00)	69.45(11:00) 69.41(14:00)
23 APR 2019	25.65(11:00) 25.55(16:00)	102.6(12:00)	69.13(11:00) 69.02(16:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: APRIL 22 & 23, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 9999DSIGN\FILE\SURVEY\CATCH\0000
Plot date: 9999DAY\EXTENT\0000

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

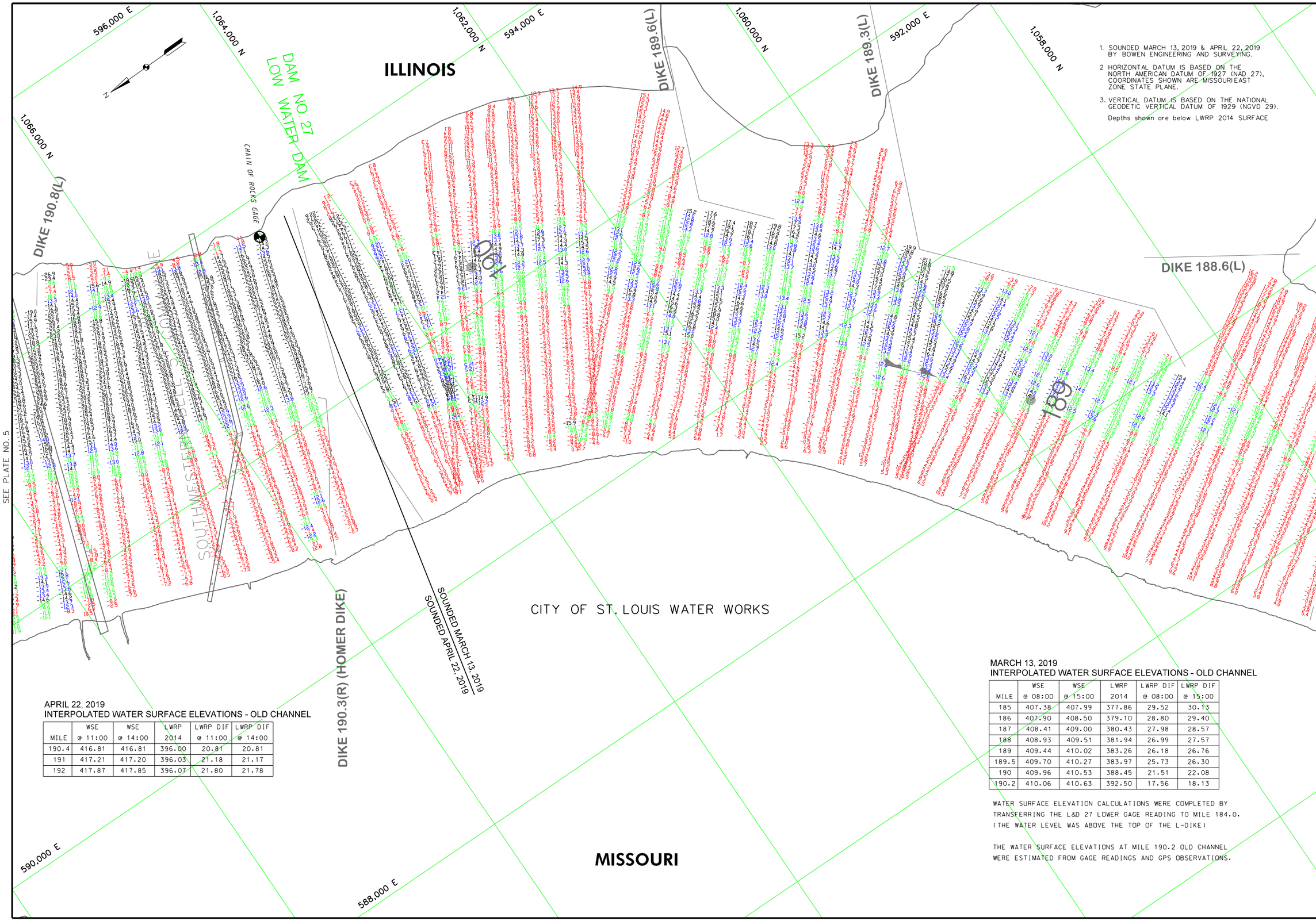
120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 190.7 – 192.6

PLATE NUMBER
5



1. SOUNDED MARCH 13, 2019 & APRIL 22, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

APRIL 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 11:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 14:00
190.4	416.81	416.81	396.00	20.81	20.81
191	417.21	417.20	396.03	21.18	21.17
192	417.87	417.85	396.07	21.80	21.78

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHAN OF ROCKS UPPER	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	313.91	350.00	350.00	379.94
MILE	190.4 (OLD CHANNEL)	185.3	185.1	180.0
LWRP 2014	396.00	396.00	376.74	376.74
13 MAR 2019	X	X	56.87(8:00) 57.48(15:00)	24.82(8:00) 25.39(15:00)
22 APR 2019	102.9(12:00)	69.45(11:00) 69.41(14:00)	X	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 13 & APRIL 22, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name:
Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

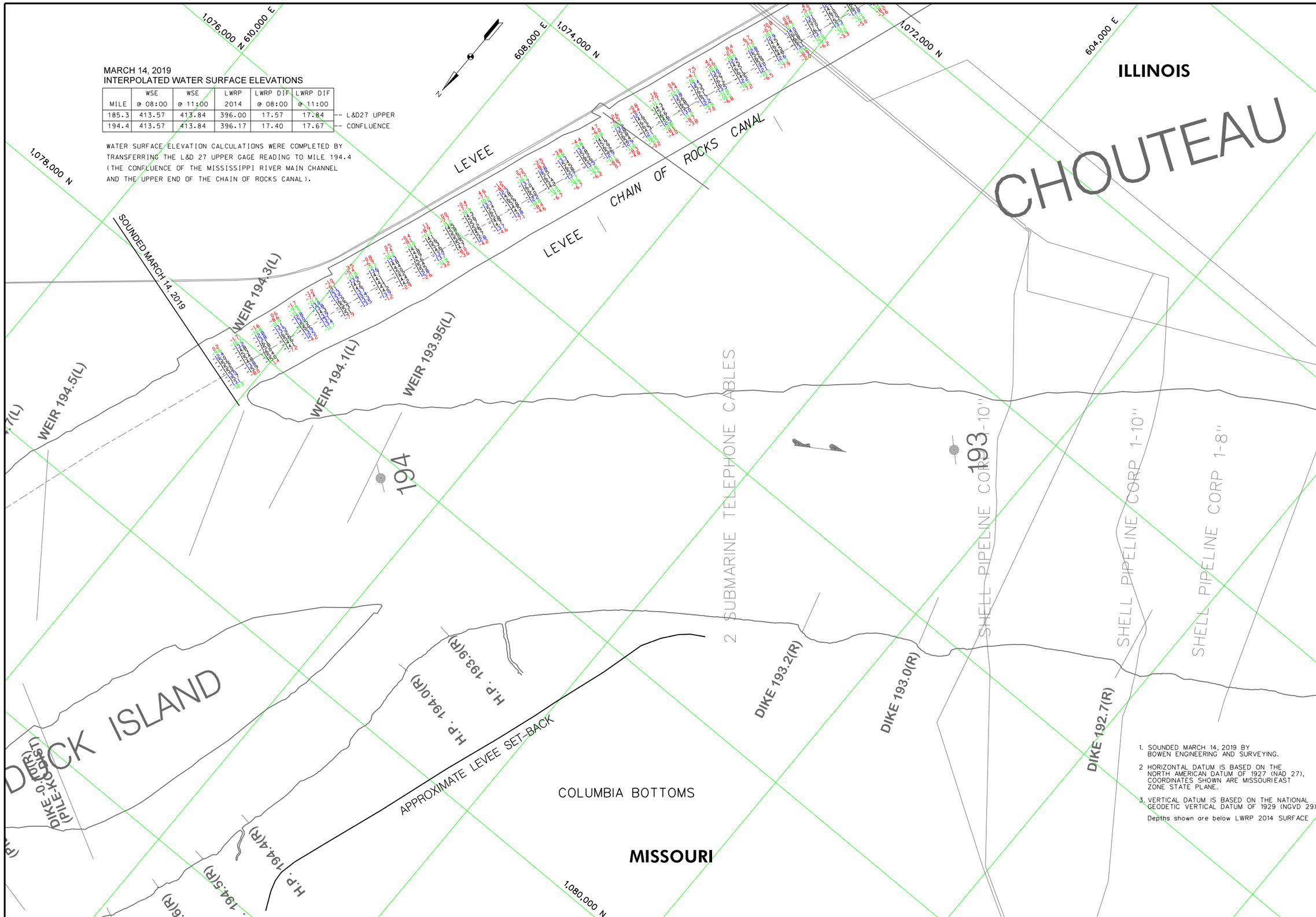
HYDROGRAPHIC SURVEYS

RIVER MILES 188.4 – 190.7

PLATE NUMBER

6

SEE PLATE NO. 4A



MARCH 14, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 11:00	
185.3	413.57	413.84	396.00	17.57	17.84	-- L&D27 UPPER
194.4	413.57	413.84	396.17	17.40	17.67	-- CONFLUENCE

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 UPPER GAGE READING TO MILE 194.4 (THE CONFLUENCE OF THE MISSISSIPPI RIVER MAIN CHANNEL AND THE UPPER END OF THE CHAIN OF ROCKS CANAL).

1. SOUNDED MARCH 14, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

SEE PLATE NO. 3

SEE PLATE NO. 5

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	395.48	350.00	350.00	379.94
MILE	200.5	185.3	185.1	180.0
LWRP 2014	396.30	396.00	376.74	376.74
14 MAR 2019	21.05(8:00) 21.4(11:00)	63.57(8:00) 63.84(11:00)	X	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 14, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ###DESIGN#FILE#SPECIFICATION###
Plot date: ###DATE#TIME####

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

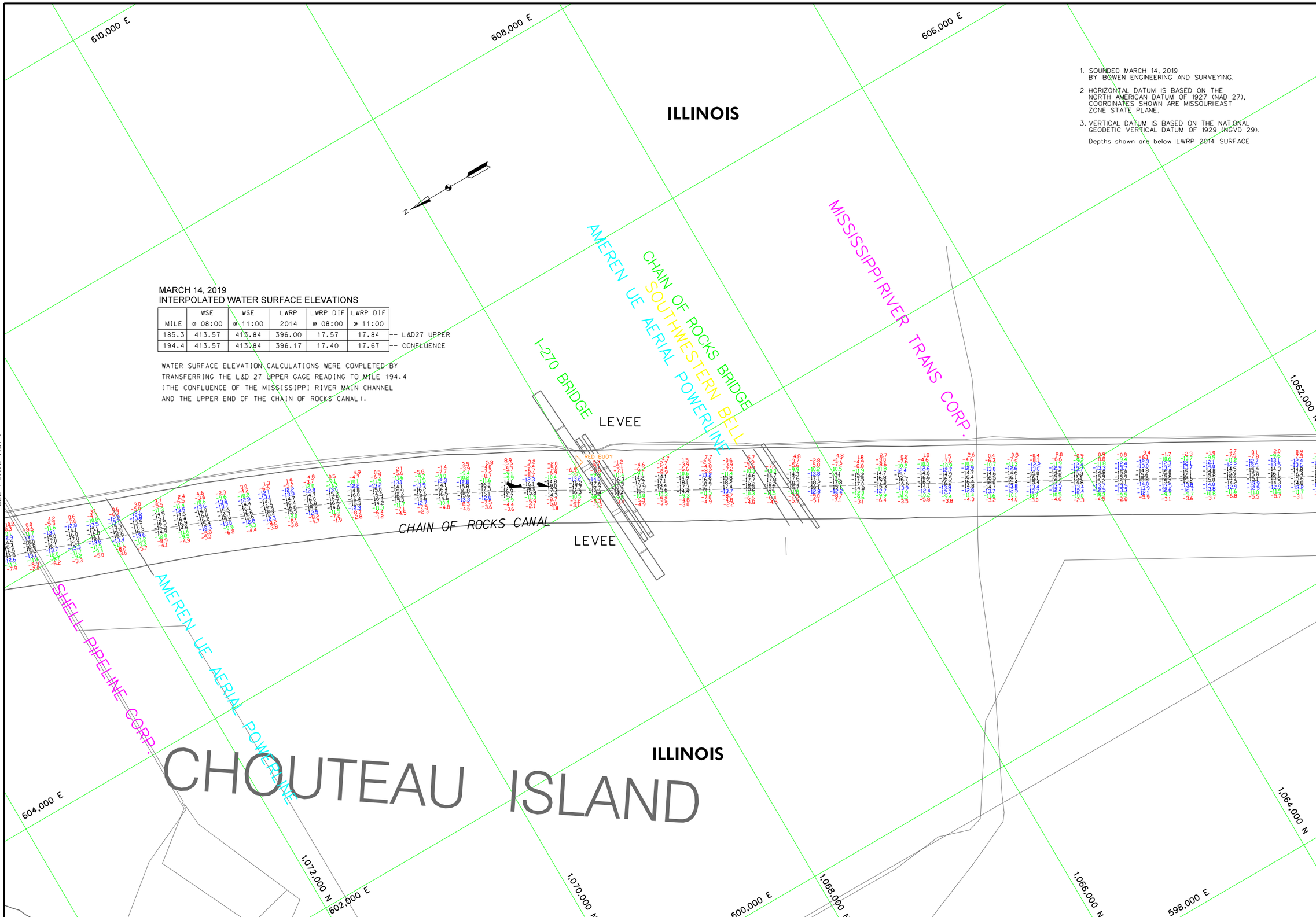
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 192.6 – 194.5

PLATE NUMBER

4



MARCH 14, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 11:00	
185.3	413.57	413.84	396.00	17.57	17.84	-- L&D27 UPPER
194.4	413.57	413.84	396.17	17.40	17.67	-- CONFLUENCE

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 UPPER GAGE READING TO MILE 194.4 (THE CONFLUENCE OF THE MISSISSIPPI RIVER MAIN CHANNEL AND THE UPPER END OF THE CHAIN OF ROCKS CANAL).

1. SOUNDED MARCH 14, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	395.48	350.00	350.00	379.94
MILE	200.5	185.3	185.1	180.0
LWRP 2014	396.30	396.00	376.74	376.74
14 MAR 2019	21.05(8:00) 21.4(11:00)	63.57(8:00) 63.84(11:00)	X	X

Survey Date: MARCH 14, 2019
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ###DESIGN#FILE#SPECIFICATION###
Plot date: ###DD/MM/YYYY#HH:MM#

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHAIN OF ROCKS CANAL

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 184.5 – 185.1

PLATE NUMBER
4A

1. SOUNDED MARCH 14, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

ILLINOIS

1,060,000 N

604,000 E

602,000 E

1,062,000 N

600,000 E

598,000 E

1,064,000 N

1,062,000 N

596,000 E

1,060,000 N

1,058,000 N

594,000 E

1,056,000 N

592,000 E

1,054,000 N

CHAIN OF ROCKS CANAL

LEVEE

LEVEE

SEE PLATE NO. 4A

SEE PLATE NO. 4C

ILLINOIS

MARCH 14, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 11:00	
185.3	413.57	413.84	396.00	17.57	17.84	-- L&D27 UPPER
194.4	413.57	413.84	396.17	17.40	17.67	-- CONFLUENCE

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 UPPER GAGE READING TO MILE 194.4 (THE CONFLUENCE OF THE MISSISSIPPI RIVER MAIN CHANNEL AND THE UPPER END OF THE CHAIN OF ROCKS CANAL).

GAGE RECORD

	MEL PRICE L&D TW	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	395.48	350.00	350.00	379.94
MILE	200.5	185.3	185.1	180.0
LWRP 2014	396.30	396.00	376.74	376.74
14 MAR 2019	21.0508-500	21.4111-500	63.5768-500	63.8411-500

US Army Corps of Engineers
St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X
Survey Date: MARCH 14, 2019
Reviewed by: X
Ckd by: X
APPROVED: X
File name: 88888888-88888888-88888888
Plot date: 88888888888888

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER
CHAIN OF ROCKS CANAL

HYDROGRAPHIC SURVEYS

RIVER MILES 184.5 - 185.1

0 120 240 METERS
0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS ACCOMPLISHED AT THE TIME AND DATES NOTED AND IS INDICATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER

4B

MARCH 14, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 11:00	
185.3	413.57	413.84	396.00	17.57	17.84	-- L&D27 UPPER
194.4	413.57	413.84	396.17	17.40	17.67	-- CONFLUENCE

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 UPPER GAGE READING TO MILE 194.4 (THE CONFLUENCE OF THE MISSISSIPPI RIVER MAIN CHANNEL AND THE UPPER END OF THE CHAIN OF ROCKS CANAL).

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
182	403.17	403.93	376.74	26.43	27.19
183	403.66	404.42	376.74	26.92	27.68
184	404.15	404.91	376.74	27.41	28.17
185.1	404.15	404.91	376.74	27.41	28.17

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

1. SOUNDED MARCH 12, 13 & 14, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO	
ZERO N.G.V.D.	395.48	350.00	350.00	379.94	
MILE	200.5	185.3	185.1	180.0	
LWRP 2014	396.30	396.00	376.74	376.74	
12 MAR 2019		X	54.50'@00:54.91'@15:00	22.25'@09:00	23.01'@15:00
13 MAR 2019					X
14 MAR 2019	21.05'@8:00	21.41'@15:00	63.57'@09:00	63.84'@11:00	56.87'@8:00 57.48'@15:00	24.82'@09:00	25.39'@15:00	X

SEE PLATE NO. 4B

SEE PLATE NO. 9

ILLINOIS

SOUNDED MARCH 14, 2019

SOUNDED MARCH 12, 2019

LOCK 27

BARGE

CHAIN OF ROCKS CANAL

GABARET ISLAND

ILLINOIS

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
184	404.15	404.91	376.74	27.41	28.17
185	404.68	405.44	377.86	26.82	27.58

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 185.0 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

SOUNDED MARCH 12, 2019
SOUNDED MARCH 13, 2019

Survey Date:	MARCH 12, 13 & 14, 2019
Surveyed by:	BOWEN ENGINEERING
Reviewed by:	X
Drawn by:	X
Ckd by:	X
APPROVED:	X
SUBMITTED:	X
File name:	###\###\###\###\###
Plot date:	###

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER
CHAIN OF ROCKS CANAL

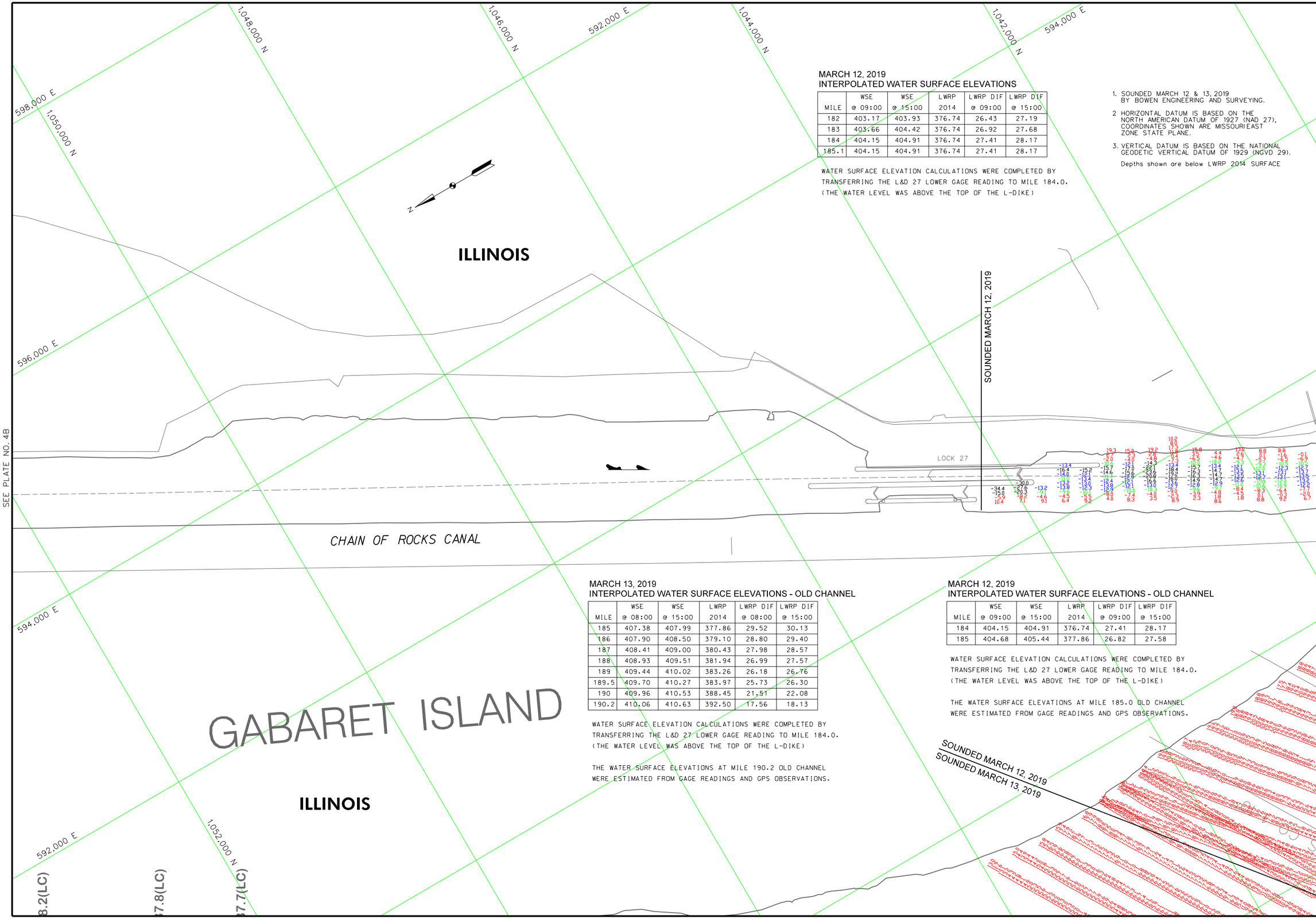
240 METERS
800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 184.5 – 185.1

PLATE NUMBER
4C



MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
182	403.17	403.93	376.74	26.43	27.19
183	403.66	404.42	376.74	26.92	27.68
184	404.15	404.91	376.74	27.41	28.17
185.1	404.15	404.91	376.74	27.41	28.17

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

1. SOUNDED MARCH 12 & 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
184	404.15	404.91	376.74	27.41	28.17
185	404.68	405.44	377.86	26.82	27.58

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 185.0 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MEL PRICE L&D TW	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	395.48	350.00	350.00	379.94
MILE	200.5	185.3	185.1	180.0
LWRP 2014	396.30	396.00	376.74	376.74
12 MAR 2019	X	X	54.15(9:00) 54.91(15:00)	22.25(9:00) 23.01(15:00)
13 MAR 2019	X	X	56.87(8:00) 57.48(15:00)	24.82(8:00) 25.39(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 12 & 13, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

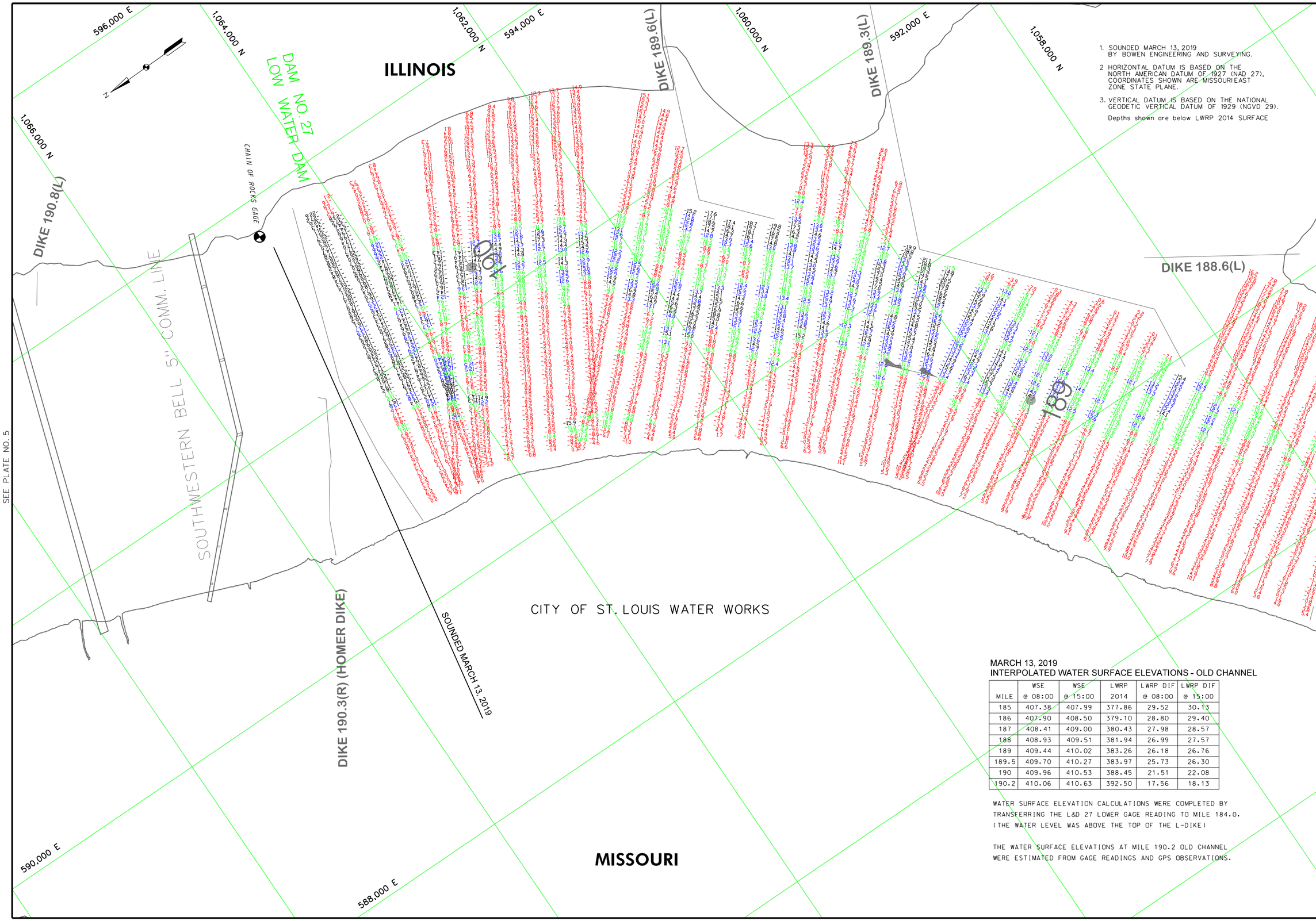
MISSISSIPPI RIVER
CHAIN OF ROCKS CANAL

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 184.5 – 185.1

PLATE NUMBER
4C



1. SOUNDED MARCH 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHAIN OF ROCKS, MO	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	313.91	350.00	350.00	379.94
MILE	190.4 (OLD CHANNEL)	185.3	185.1	180.0
LWRP 2014	X	396.00	376.74	376.74
13 MAR 2019	X	X	56.87(8:00) 57.48(15:00)	24.82(8:00) 25.39(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 13, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ###DESIGNBFILE##PROPERTY#CATION###
Plot date: ###DATE:TIME####

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 188.4 – 190.7

PLATE NUMBER

6

SEE PLATE NO. 6A

SEE PLATE NO. 6

SEE PLATE NO. 8

MOSENTHEIN ISLAND

DIKE 188.6(L)

DIKE 188.5(L)

588,000E

DIKE 187.6(L)

DIKE 187.0(L)

DIKE 186.3(L)

ILLINOIS

MISSOURI

SAWYER

188

187

CELL

584,000 E

582,000 E

1,060,000 N

1,058,000 N

580,000 E

1,056,000 N

1,050,000 N

1,052,000 N

1. SOUNDED MARCH 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

US Army Corps of Engineers St. Louis District

GAGE RECORD

	CHAN OF ROCKS, MO	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	313.91	350.00	350.00	379.94
MILE	198.4 (OLD CHANNEL)	185.3	185.1	180.0
LWRP 2014	X	396.00	376.74	376.74
13 MAR 2019	X	X	56.87/8.000 57.48/15.000	24.82/8.000 25.39/15.000

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 13, 2019
Ckd by: X
Drawn by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
File name: ###\SURVEY\###PLATS\###
Plot date: ##/##/## ##:##

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

249 METERS 800 FEET
0 120 400
120 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE ENGINEER DISTRICT, ST. LOUIS AND IS ACCURATE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 186.4 – 188.4

PLATE NUMBER

7

SEE PLATE NO. 6A

SEE PLATE NO. 4C

SEE PLATE NO. 7

SEE PLATE NO. 9

MOSENTHIEN ISLAND

MOSENTHIEN CHUTE

ILLINOIS

MISSOURI

CHAIN OF ROCKS CANAL

DIKE 186.3 (L)

DIKE 185.8(L)

DIKE 185.3(L)

DIKE 184.4(L)

MISSISSIPPI RIVER TRANS. CO.

NATURAL GAS PIPELINE CO. 1-10"

AGE PIPELINE CO. 1-10"

SOUNDED MARCH 12, 2019
SOUNDED MARCH 13, 2019

BARGE

584.000 E

586,000 E

588,000 E

580,000 E

1,048,000 N

1,046,000 N

1,044,000 N

1,042,000 N

1,040,000 N

1. SOUNDED MARCH 12 & 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
185	407.38	407.99	377.86	29.52	30.13
186	407.90	408.50	379.10	28.80	29.40
187	408.41	409.00	380.43	27.98	28.57
188	408.93	409.51	381.94	26.99	27.57
189	409.44	410.02	383.26	26.18	26.76
189.5	409.70	410.27	383.97	25.73	26.30
190	409.96	410.53	388.45	21.51	22.08
190.2	410.06	410.63	392.50	17.56	18.13

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 190.2 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
184	404.15	404.91	376.74	27.41	28.17
185	404.68	405.44	377.86	26.82	27.58

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 185.0 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHAN OF ROCKS, MO	L&D 27 UPPER	L&D 27 LOWER	ST. LOUIS, MO
ZERO N.G.V.D.	313.91	350.00	350.00	379.94
MILE	184.4 (OLD CHANNEL)	185.3	185.1	180.0
LWRP 2014	X	396.00	376.74	376.74
12 MAR 2019	X	X	54.50'@00 54.91'@15:00	22.25'@09:00 23.01'@15:00
13 MAR 2019	X	X	56.87'@00 57.46'@15:00	24.82'@09:00 25.39'@15:00

Surveyed by: BOWEN ENGINEERING | Survey Date: MARCH 12 & 13, 2019
Drawn by: X | Reviewed by: X | Ckd by: X
SUBMITTED: X | APPROVED: X
File name: ######SURFACE\PLATES\###### | Plot date: ######/##/#### ##:##:##

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS 120 0 0 120 400 800 FEET

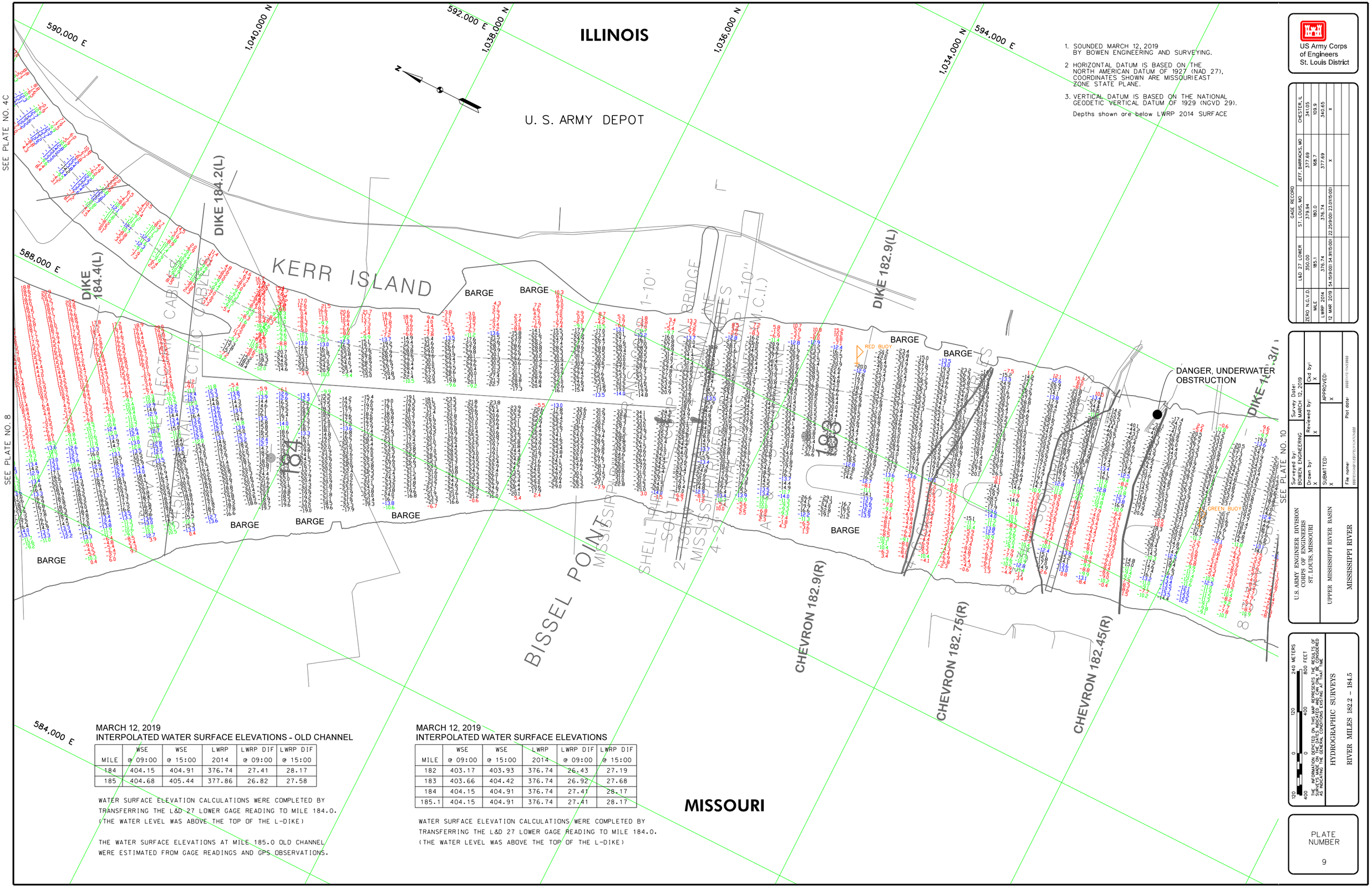
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE ORGANIZATION AND DATE SHOWN AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 184.3 - 186.4

PLATE NUMBER

8



1. SOUNDED MARCH 12, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 27 LOWER	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL
ZERO N.G.V.D.	350.00	379.94	377.69	341.05
MILE	185.1	180.0	168.7	109.9
LWRP 2014	376.74	376.74	377.69	340.65
12 MAR 2019	54.15(9.00)	54.91(5.00)	22.25(9.00)	23.01(5.00)

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS - OLD CHANNEL

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
184	404.15	404.91	376.74	27.41	28.17
185	404.68	405.44	377.86	26.82	27.58

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

THE WATER SURFACE ELEVATIONS AT MILE 185.0 OLD CHANNEL WERE ESTIMATED FROM GAGE READINGS AND GPS OBSERVATIONS.

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
182	403.17	403.93	376.74	26.43	27.19
183	403.66	404.42	376.74	26.92	27.68
184	404.15	404.91	376.74	27.41	28.17
185.1	404.15	404.91	376.74	27.41	28.17

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

Survey Date: MARCH 12, 2019
Drawn by: X
Checked by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date:
File name: p:\projects\mr\dwg\mr184.dgn

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

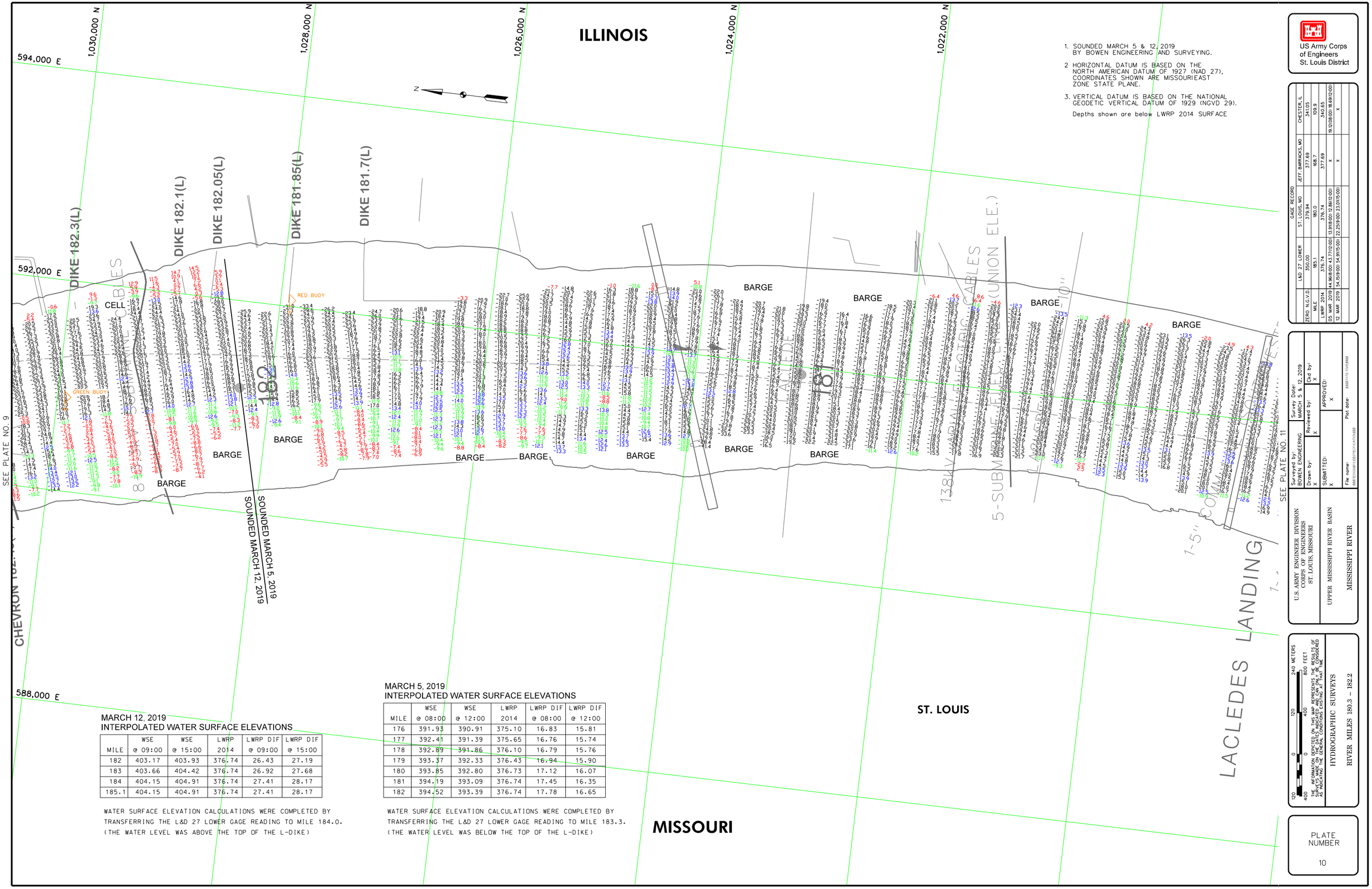
HYDROGRAPHIC SURVEYS

RIVER MILES 182.2 – 184.5

240 METERS 120 0 800 FEET 400 0

THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME AND DATES NOTED AND IS INTENDED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER 9



1. SOUNDED MARCH 5 & 12, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 27 LOWER	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL
ZERO N.G.V.D.	350.00	379.94	377.69	341.05
MILE	185.1	180.0	168.7	109.9
LWRP 2014	376.74	376.74	377.69	340.65
05 MAR 2019	44.96(8:00) 43.71(12:00)	13.91(8:00) 12.86(12:00)	X	19.12(08:00) 18.68(12:00)
12 MAR 2019	54.15(9:00) 54.91(15:00)	22.25(9:00) 23.01(15:00)	X	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 5 & 12, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ###\ENGRAP\GEOPROP\PLATES\###
Plot date: ###/##/## ##:##:## ##

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS 120 0 0 120 400 800 FEET 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS ACCOMPLISHED AT THE TIME INDICATED AND MAY NOT BE AS INDICATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME OR AFTER

HYDROGRAPHIC SURVEYS

RIVER MILES 180.3 – 182.2

PLATE NUMBER 10

MARCH 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
182	403.17	403.93	376.74	26.43	27.19
183	403.66	404.42	376.74	26.92	27.68
184	404.15	404.91	376.74	27.41	28.17
185.1	404.15	404.91	376.74	27.41	28.17

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 184.0. (THE WATER LEVEL WAS ABOVE THE TOP OF THE L-DIKE)

MARCH 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
176	391.93	390.91	375.10	16.83	15.81
177	392.41	391.39	375.65	16.76	15.74
178	392.89	391.86	376.10	16.79	15.76
179	393.37	392.33	376.43	16.94	15.90
180	393.85	392.80	376.73	17.12	16.07
181	394.19	393.09	376.74	17.45	16.35
182	394.52	393.39	376.74	17.78	16.65

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 183.3. (THE WATER LEVEL WAS BELOW THE TOP OF THE L-DIKE)

1. SOUNDED MARCH 5, 2019
BY BOWEN ENGINEERING AND SURVEYING.

2 HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.

3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 27 LOWER	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL
ZERO N.G.V.D.	350.00	379.94	377.69	341.05
MILE	185.1	180.0	168.7	109.9
LWRP 2014	376.74	376.74	377.69	340.65
05 MAR 2019	44.96(8:00) 43.71(12:00)	13.91(8:00) 12.66(12:00)	X	19.12(08:00) 18.68(12:00)

ILLINOIS

MISSOURI

ST. LOUIS

LACLEDES LANDING

COMMONWEALTH EDISON (WESTERN BELL)

1-5" COMMONWEALTH EDISON (WESTERN BELL)

1-4" COMMONWEALTH EDISON (WESTERN BELL)

WEIR 179.9(L)

WEIR 179.8(L)

WEIR 179.6(L)

DIKE 178.5(L)

DIKE 178.4(L)

138kV AERIAL ELECTRIC CABLES

BARGE

MARCH 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
176	391.93	390.91	375.10	16.83	15.81
177	392.41	391.39	375.65	16.76	15.74
178	392.89	391.86	376.10	16.79	15.76
179	393.37	392.33	376.43	16.94	15.90
180	393.85	392.80	376.73	17.12	16.07
181	394.19	393.09	376.74	17.45	16.35
182	394.52	393.39	376.74	17.78	16.65

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 183.3. (THE WATER LEVEL WAS BELOW THE TOP OF THE L-DIKE)

594,000 E

1,018,000 N

1,016,000 N

1,014,000 N

1,012,000 N

1,010,000 N

590,000 E

588,000 E

1,002,000 N

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 5, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########\##########.##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS

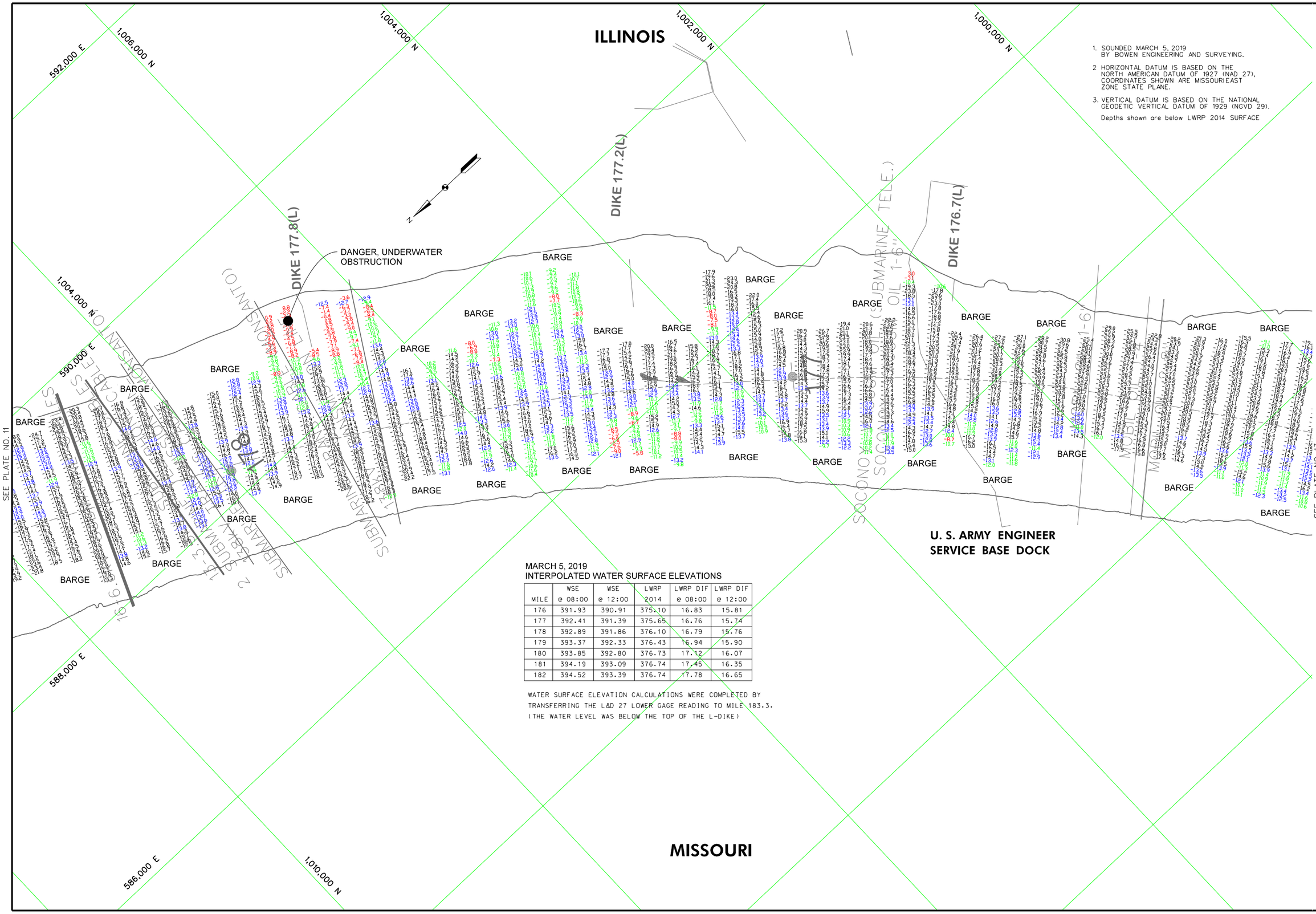
RIVER MILES 178.2 –180.3

240 METERS 0 120 800 FEET 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ST. LOUIS DISTRICT, CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER 11

SEE PLATE NO. 12



1. SOUNDED MARCH 5, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
176	391.93	390.91	375.10	16.83	15.81
177	392.41	391.39	375.65	16.76	15.74
178	392.89	391.86	376.10	16.79	15.76
179	393.37	392.33	376.43	16.94	15.90
180	393.85	392.80	376.73	17.12	16.07
181	394.19	393.09	376.74	17.45	16.35
182	394.52	393.39	376.74	17.78	16.65

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 183.3. (THE WATER LEVEL WAS BELOW THE TOP OF THE L-DIKE)

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 27 LOWER	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL
ZERO N.G.V.D.	350.00	379.94	377.69	341.05
MILE	185.1	180.0	168.7	109.9
LWRP 2014	376.74	376.74	377.69	340.65
05 MAR 2019	44.96(8:00) 43.77(12:00)	13.91(8:00) 12.86(12:00)	X	19.12(08:00) 18.69(12:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 5, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name:
Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

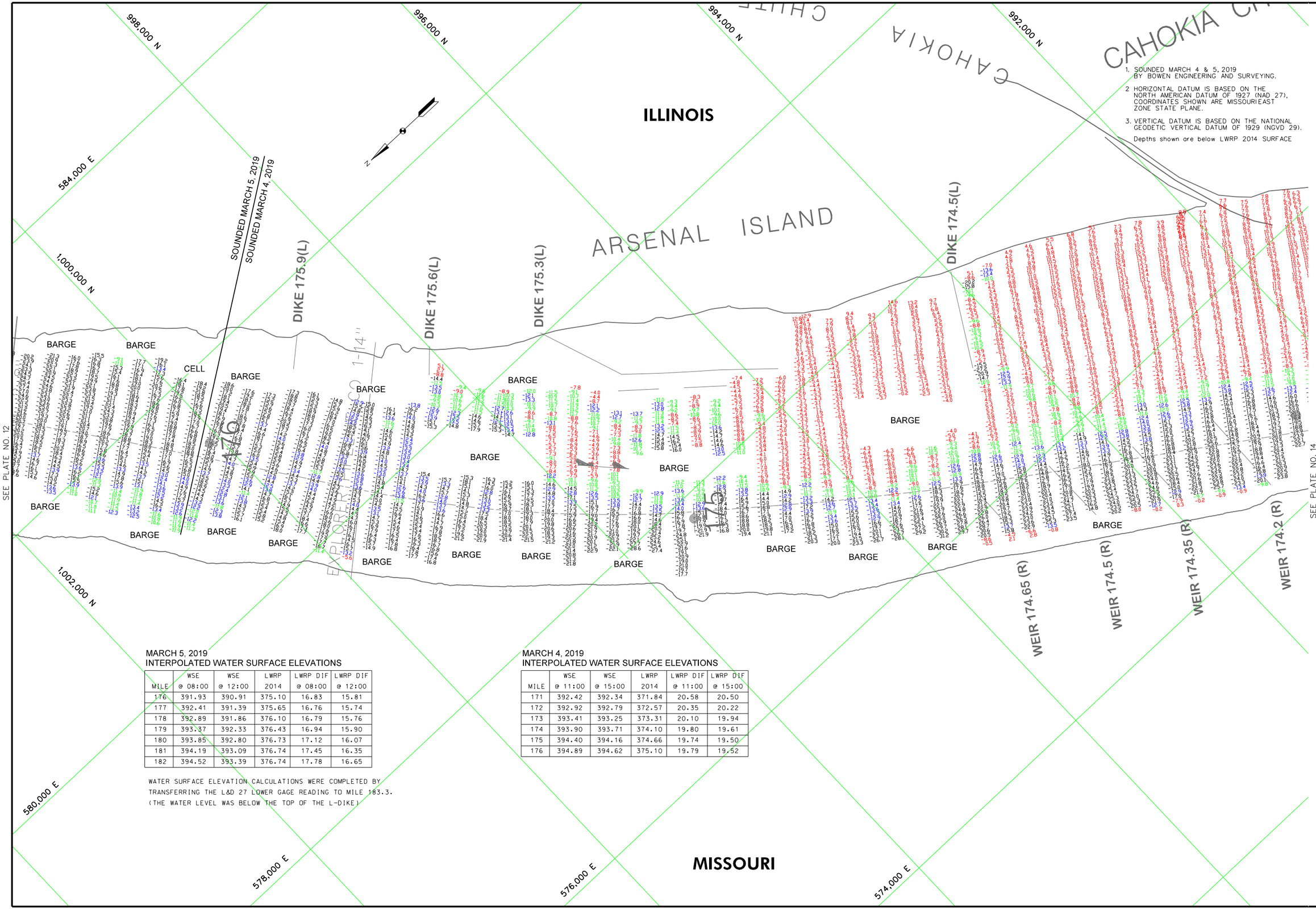
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 176.2 – 178.2

PLATE NUMBER

12



1. SOUNDED MARCH 4 & 5, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	L&D 27 LOWER	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL
ZERO N.G.V.D.	350.00	379.94	377.69	341.05
MILE	185.1	180.0	168.7	109.9
LWRP 2014	376.74	376.74	377.69	340.65
04 MAR 2019	X	16.92(1100) 16.50(1505)	13.61(1200)	21.90(1100) 20.92(1505)
05 MAR 2019	44.36(0800) 43.77(1200)	13.91(0800) 12.86(1200)	X	19.12(0800) 18.68(1200)

MARCH 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 12:00
176	391.93	390.91	375.10	16.83	15.81
177	392.41	391.39	375.65	16.76	15.74
178	392.89	391.86	376.10	16.79	15.76
179	393.37	392.33	376.43	16.94	15.90
180	393.85	392.80	376.73	17.12	16.07
181	394.19	393.09	376.74	17.45	16.35
182	394.52	393.39	376.74	17.78	16.65

WATER SURFACE ELEVATION CALCULATIONS WERE COMPLETED BY TRANSFERRING THE L&D 27 LOWER GAGE READING TO MILE 183.3. (THE WATER LEVEL WAS BELOW THE TOP OF THE L-DIKE)

MARCH 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 15:00
171	392.42	392.34	371.84	20.58	20.50
172	392.92	392.79	372.57	20.35	20.22
173	393.41	393.25	373.31	20.10	19.94
174	393.90	393.71	374.10	19.80	19.61
175	394.40	394.16	374.66	19.74	19.50
176	394.89	394.62	375.10	19.79	19.52

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 4 & 5, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date:
File name:

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

UPPER MISSISSIPPI RIVER BASIN

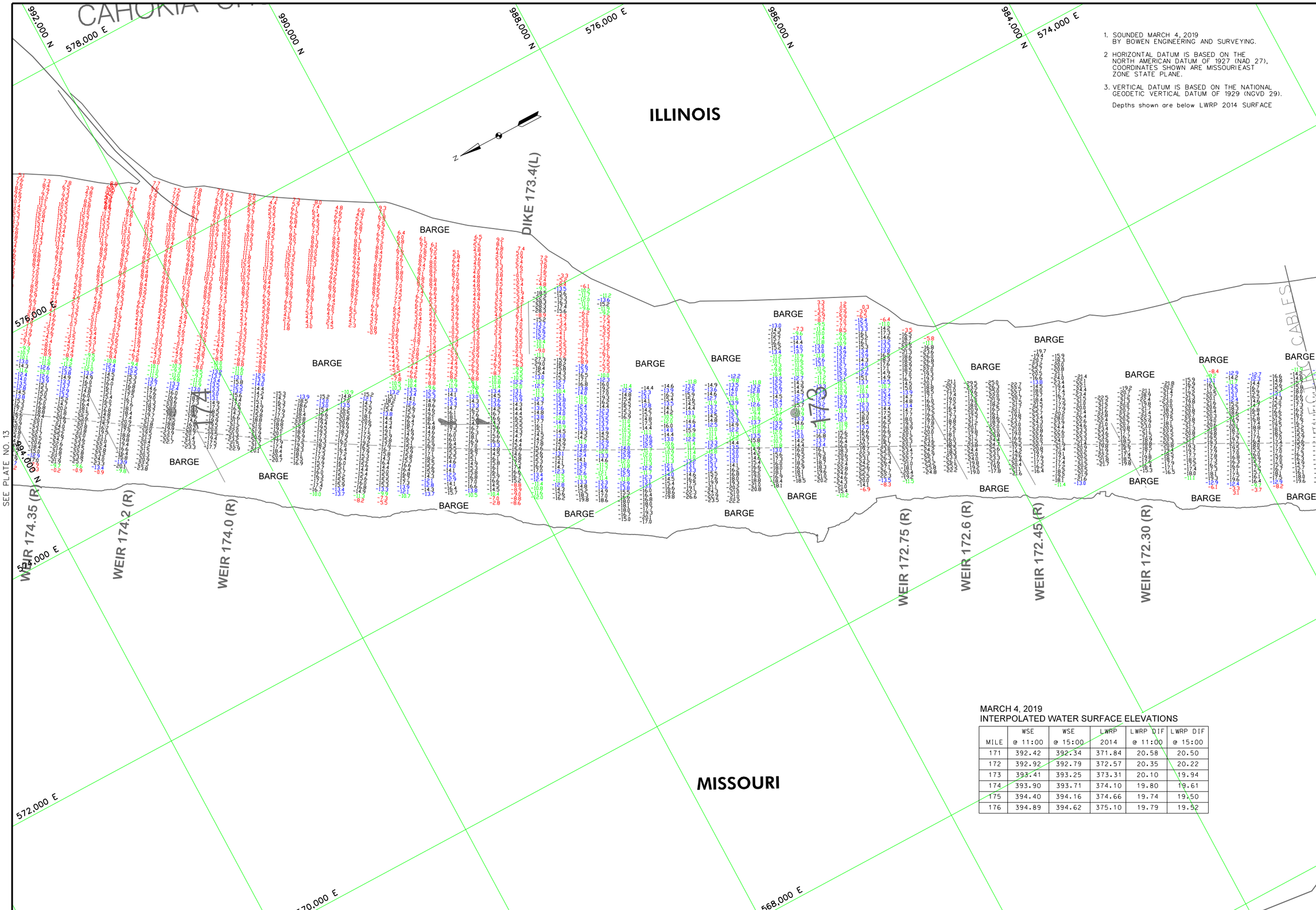
MISSISSIPPI RIVER

240 METERS
800 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ENGINEER DISTRICT AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 174.1 – 176.2

PLATE NUMBER
13



1. SOUNDED MARCH 4, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 15:00
171	392.42	392.34	371.84	20.58	20.50
172	392.92	392.79	372.57	20.35	20.22
173	393.41	393.25	373.31	20.10	19.94
174	393.90	393.71	374.10	19.80	19.61
175	394.40	394.16	374.66	19.74	19.50
176	394.89	394.62	375.10	19.79	19.52

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
04 MAR 2019	16.92(11:00) 16.50(15:00)	13.6(12:00)	21.10(11:00) 20.92(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: MARCH 4, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name:
Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

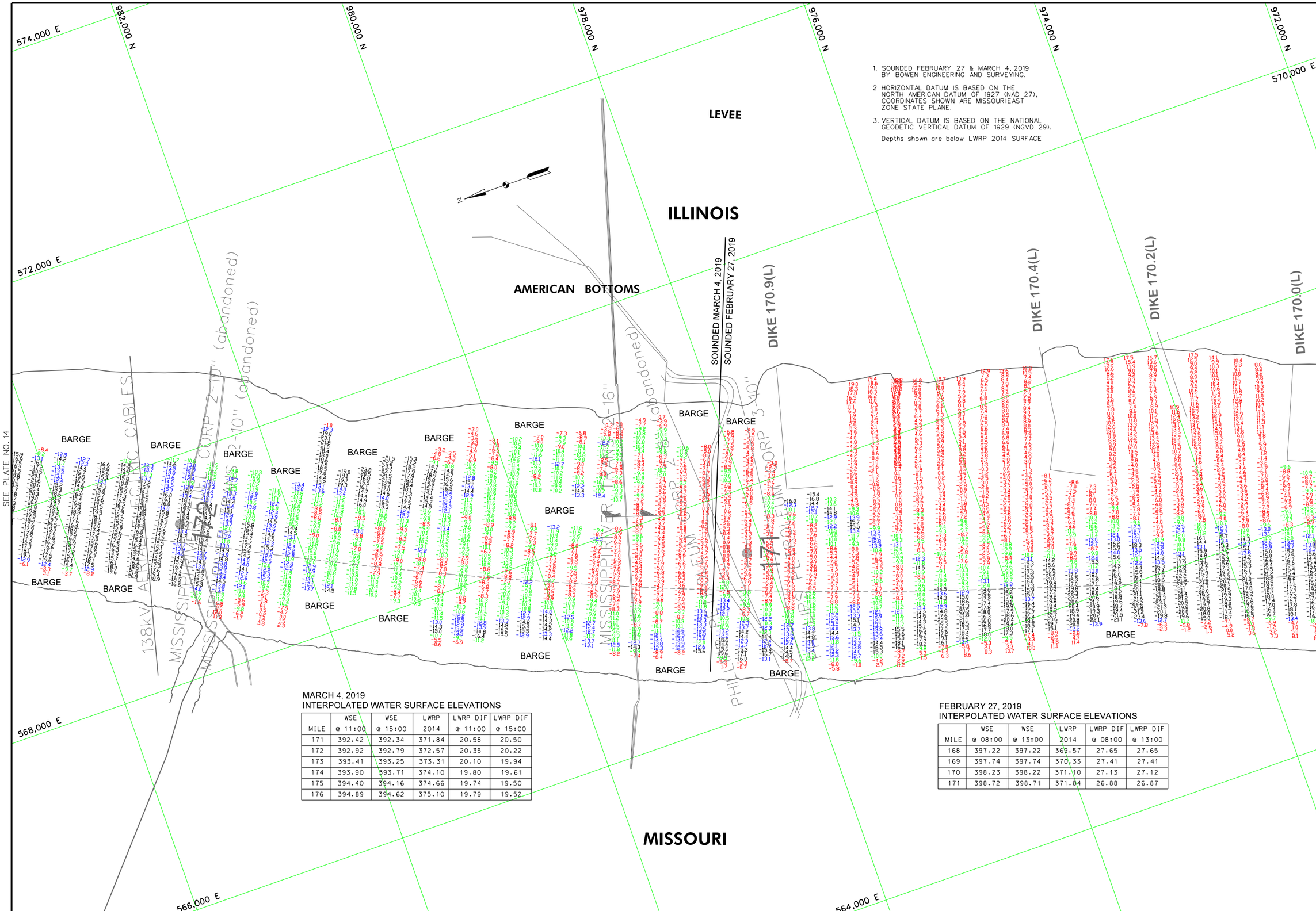
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 172.2 – 174.1

PLATE NUMBER

14



1. SOUNDED FEBRUARY 27 & MARCH 4, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MARCH 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 15:00
171	392.42	392.34	371.84	20.58	20.50
172	392.92	392.79	372.57	20.35	20.22
173	393.41	393.25	373.31	20.10	19.94
174	393.90	393.71	374.10	19.80	19.61
175	394.40	394.16	374.66	19.74	19.50
176	394.89	394.62	375.10	19.79	19.52

FEBRUARY 27, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 13:00
168	397.22	397.22	369.57	27.65	27.65
169	397.74	397.74	370.33	27.41	27.41
170	398.23	398.22	371.10	27.13	27.12
171	398.72	398.71	371.84	26.88	26.87

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
27 FEB 2019	23.20(8:00) 23.36(13:00)	19.9(12:00)	25.31(8:00) 25.69(13:00)	X
04 MAR 2019	16.92(11:00) 16.50(15:00)	13.61(12:00)	21.10(11:00) 20.92(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 27 & MARCH 4, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ###\DESIGN\FIELDSURVEY\CAD\DWG
Plot date: ###

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 170.1 – 172.2

PLATE NUMBER

15

1. SOUNDED FEBRUARY 27, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

ILLINOIS

MISSOURI

CARROLL I

BARGE

BARGE

BARGE

DIKE 170.2(L)

DIKE 170.0(L)

DIKE 169.45(L)

DIKE 168.8(L)

DIKE 168.6(L)

DIKE 168.5(L)

170

169

570,000 E

568,000 E

566,000 E

564,000 E

572,000 E

972,000 N

970,000 N

968,000 N

966,000 N

964,000 N

974,000 N

SEE PLATE NO. 15

SEE PLATE NO. 17

MISSISSIPPI RIVER TRANS

FEBRUARY 27, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 13:00
168	397.22	397.22	369.57	27.65	27.65
169	397.74	397.74	370.33	27.41	27.41
170	398.23	398.22	371.10	27.13	27.12
171	398.72	398.71	371.84	26.88	26.87

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
27 FEB 2019	23.208:001	23.161:001	19.912:001	25.318:001
				25.691:001
				x

Survey Date: FEBRUARY 27, 2019
Ckd by: X
Reviewed by: X
APPROVED: X
Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X
File name: 180102RIVERTRANS
Plot date: 3/8/2019

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS
120
0
800 FEET
400
0

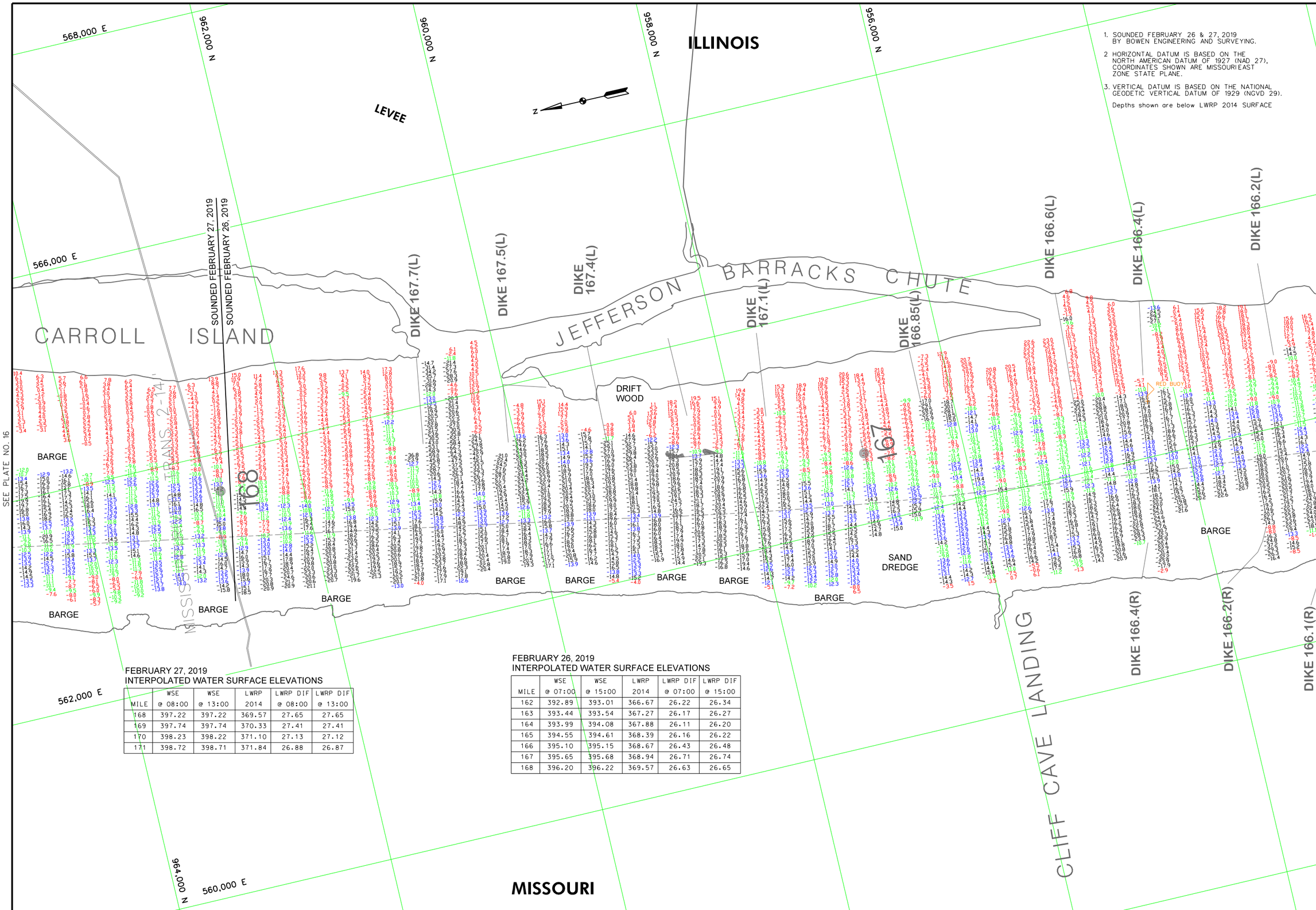
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE CONDITIONS OF THE RIVER AS SURVEYED. ANY CHANGES MAY OCCUR AFTER THE SURVEY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 168.2 – 170.1

PLATE NUMBER

16



1. SOUNDED FEBRUARY 26 & 27, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 27, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 13:00
168	397.22	397.22	369.57	27.65	27.65
169	397.74	397.74	370.33	27.41	27.41
170	398.23	398.22	371.10	27.13	27.12
171	398.72	398.71	371.84	26.88	26.87

FEBRUARY 26, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 15:00
162	392.89	393.01	366.67	26.22	26.34
163	393.44	393.54	367.27	26.17	26.27
164	393.99	394.08	367.88	26.11	26.20
165	394.55	394.61	368.39	26.16	26.22
166	395.10	395.15	368.67	26.43	26.48
167	395.65	395.68	368.94	26.71	26.74
168	396.20	396.22	369.57	26.63	26.65

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
26 FEB 2019	21.80(7:00) 22.60(15:00)	18.9(15:00)	23.06(7:00) 24.08(15:00)	x
27 FEB 2019	23.20(8:00) 23.36(13:00)	19.9(12:00)	25.31(8:00) 25.69(13:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 26 & 27, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 99BOWENFIELDSPECIFICATION.DGN
Plot date: 99BOWENFIELDSPECIFICATION.DGN

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

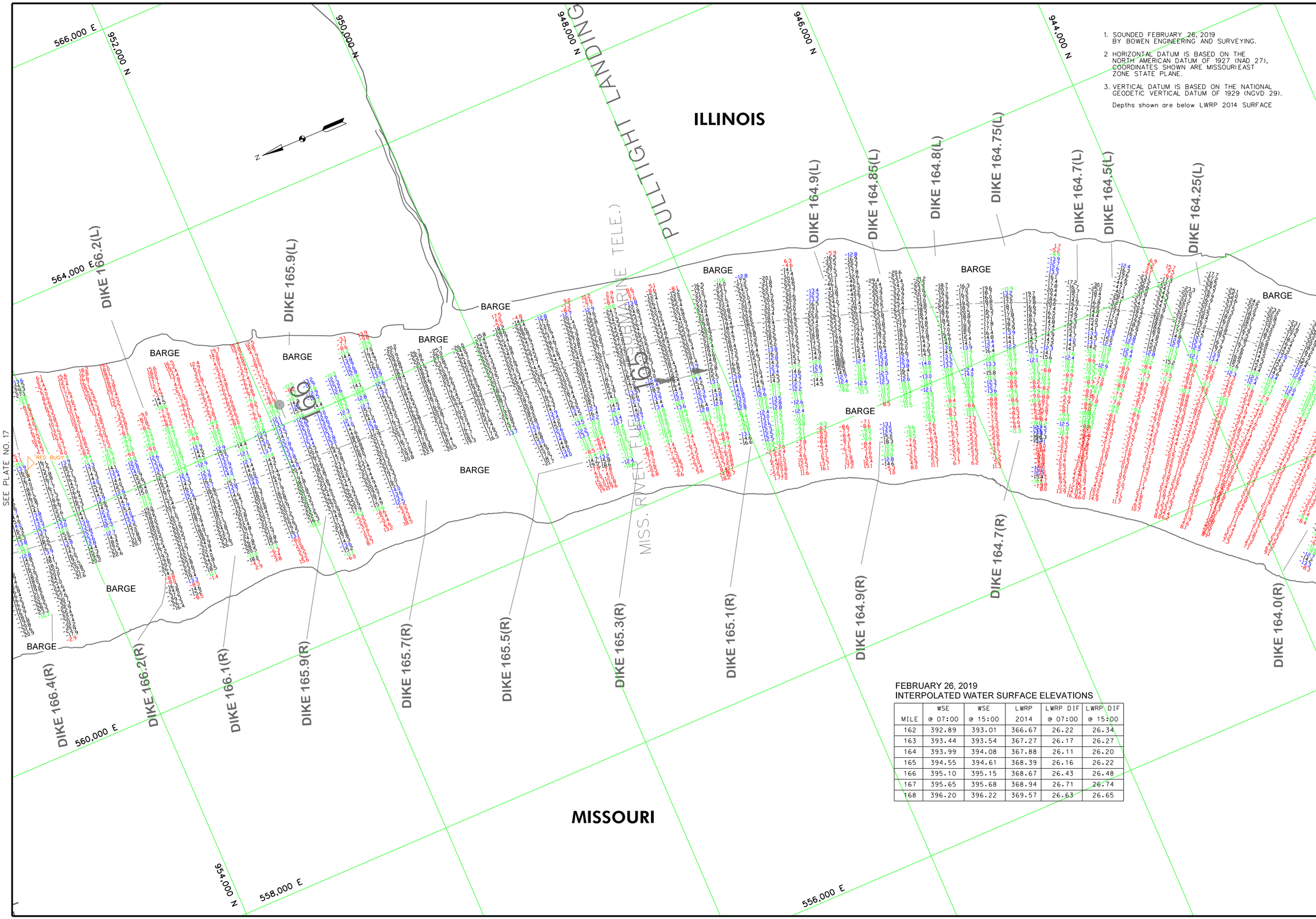
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 166.3 – 168.2

PLATE NUMBER

17



1. SOUNDED FEBRUARY 26, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 26, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 15:00
162	392.89	393.01	366.67	26.22	26.34
163	393.44	393.54	367.27	26.17	26.27
164	393.99	394.08	367.88	26.11	26.20
165	394.55	394.61	368.39	26.16	26.22
166	395.10	395.15	368.67	26.43	26.48
167	395.65	395.68	368.94	26.71	26.74
168	396.20	396.22	369.57	26.63	26.65

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
26 FEB 2019	21.80(7:00) 22.60(15:00)	18.9(15:00)	23.06(7:00) 24.08(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 26, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##### DESIGN\FILE\SURVEY\CAD\DWG\
Plot date: ##### DATE:TIME:####

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

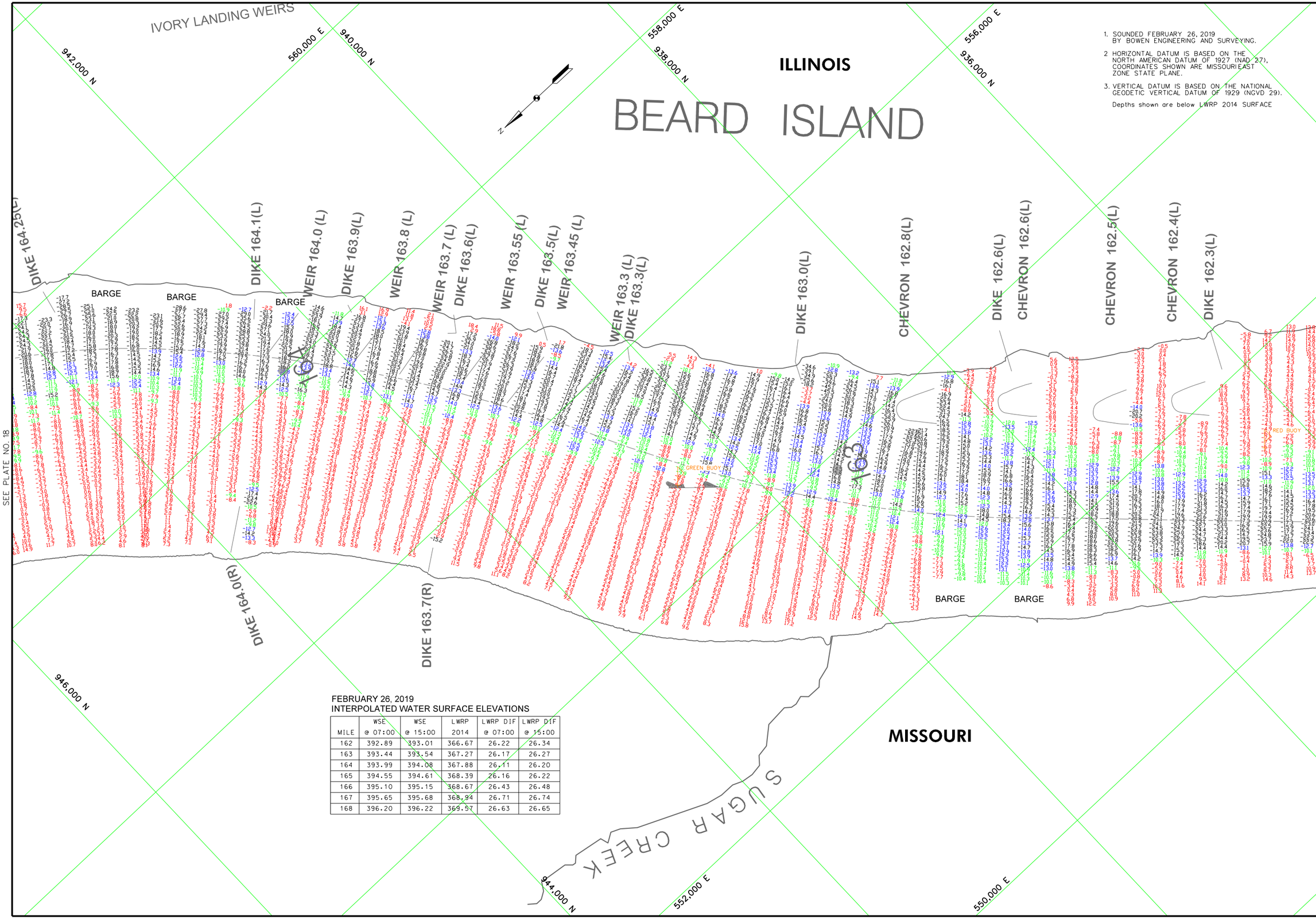
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 164.3 – 166.3

PLATE NUMBER

18



1. SOUNDED FEBRUARY 26, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 26, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 15:00
162	392.89	393.01	366.67	26.22	26.34
163	393.44	393.54	367.27	26.17	26.27
164	393.99	394.08	367.88	26.11	26.20
165	394.55	394.61	368.39	26.16	26.22
166	395.10	395.15	368.67	26.43	26.48
167	395.65	395.68	368.94	26.71	26.74
168	396.20	396.22	369.57	26.63	26.65

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
26 FEB 2019	21.80(7:00) 22.60(15:00)	18.9(15:00)	23.06(7:00) 24.08(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 26, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

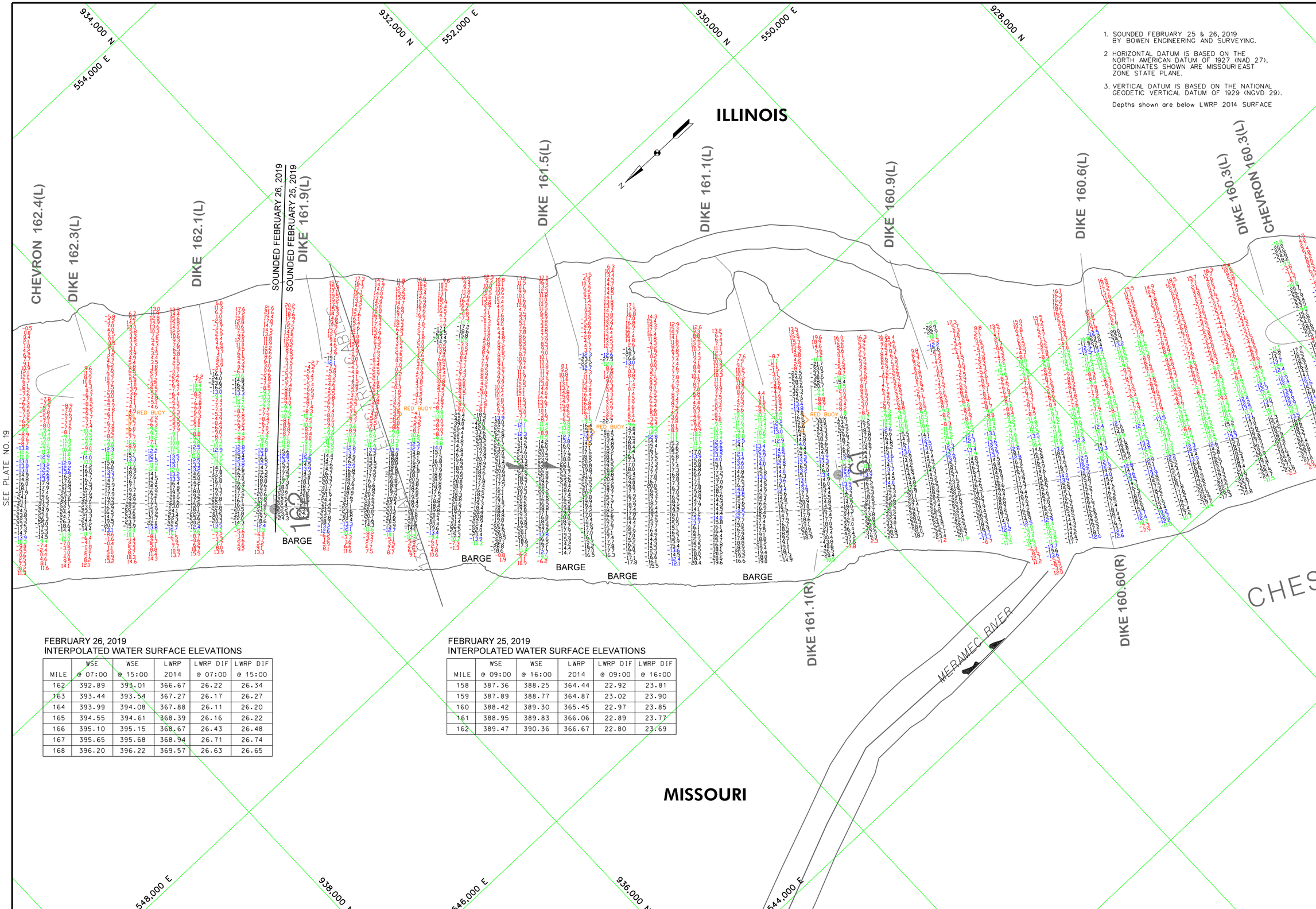
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 162.3 – 164.3

PLATE NUMBER

19



1. SOUNDED FEBRUARY 25 & 26, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 26, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 15:00
162	392.89	393.01	366.67	26.22	26.34
163	393.44	393.54	367.27	26.17	26.27
164	393.99	394.08	367.88	26.11	26.20
165	394.55	394.61	368.39	26.16	26.22
166	395.10	395.15	368.67	26.43	26.48
167	395.65	395.68	368.94	26.71	26.74
168	396.20	396.22	369.57	26.63	26.65

FEBRUARY 25, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 16:00
158	387.36	388.25	364.44	22.92	23.81
159	387.89	388.77	364.87	23.02	23.90
160	388.42	389.30	365.45	22.97	23.85
161	388.95	389.83	366.06	22.89	23.77
162	389.47	390.36	366.67	22.80	23.69

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	JEFF. BARRACKS, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	377.69	341.05	328.92
MILE	180.0	168.7	109.9	94.1
LWRP 2014	376.74	377.69	340.65	331.05
25 FEB 2019	19.05(9:00) 19.93(16:00)	X	20.88(9:00) 21.78(16:00)	X
26 FEB 2019	21.80(7:00) 22.60(15:00)	18.9(15:00)	23.06(7:00) 24.08(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 25 & 26, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 0000TOPOGRAPHIC/EXPERIMENTAL/0000
Plot date: 0000/01/01/TIME/0000

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

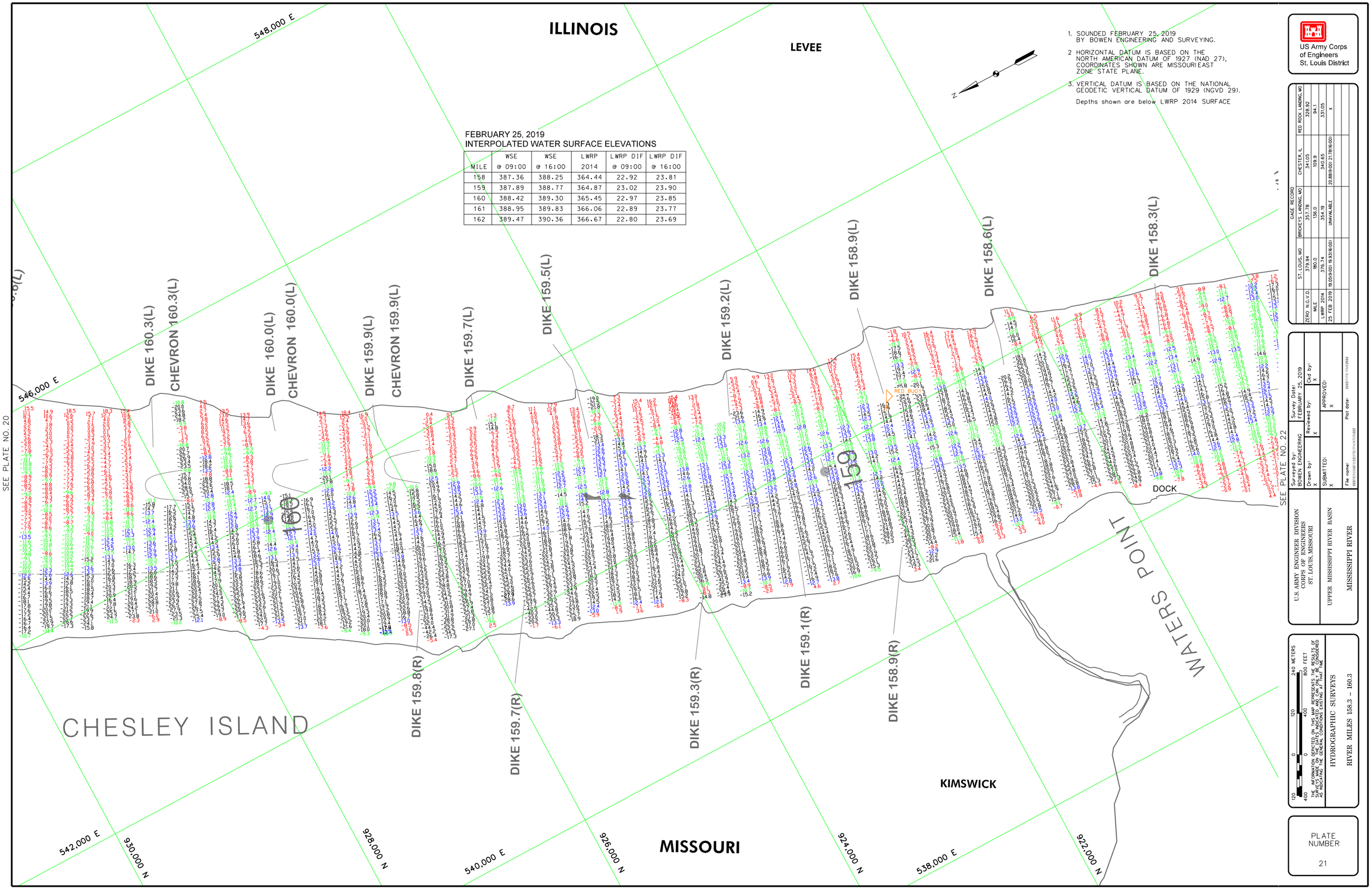
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 160.3 – 162.3

PLATE NUMBER

20



FEBRUARY 25, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 16:00
158	387.36	388.25	364.44	22.92	23.81
159	387.89	388.77	364.87	23.02	23.90
160	388.42	389.30	365.45	22.97	23.85
161	388.95	389.83	366.06	22.89	23.77
162	389.47	390.36	366.67	22.80	23.69

1. SOUNDED FEBRUARY 25, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
25 FEB 2019	19.05(9:00) 19.93(16:00)	UNAVAILABLE	20.88(9:00) 21.78(16:00)	X

Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X
Survey Date: FEBRUARY 25, 2019
Reviewed by: X
Ckd by: X
APPROVED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 158.3 – 160.3

PLATE NUMBER

21

1. SOUNDED FEBRUARY 21 & 25, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
21 FEB 2019	15.78/7:00/ 15.64/16:00/	UNAVAILABLE	20.45/7:00/ 20.26/16:00/	x
25 FEB 2019	19.05/9:00/ 19.93/16:00/	UNAVAILABLE	20.88/9:00/ 21.78/16:00/	x

ILLINOIS

MISSOURI

LEVEE

DIKE 158.3(L)
DIKE 158.1(L)
DIKE 158.0(L)
DIKE 157.8(L)
DIKE 157.3(L)
DIKE 157.1(L)
DIKE 156.9(L)
DIKE 156.7(L)
DIKE 156.3(L)
DIKE 158.1(R)
DIKE 157.7(R)
DIKE 157.3(R)

SOUNDED FEBRUARY 25, 2019
SOUNDED FEBRUARY 21, 2019

544,000 E
542,000 E
538,000 E
536,000 E
916,000 N
918,000 N
920,000 N
912,000 N
914,000 N
922,000 N

DOCK
BARGE
SULPHUR SPRINGS

SEE PLATE NO. 21
SEE PLATE NO. 23

FEBRUARY 25, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 16:00
158	387.36	388.25	364.44	22.92	23.81
159	387.89	388.77	364.87	23.02	23.90
160	388.42	389.30	365.45	22.97	23.85
161	388.95	389.83	366.06	22.89	23.77
162	389.47	390.36	366.67	22.80	23.69

FEBRUARY 21, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 16:00
152	382.05	381.89	361.86	20.19	20.03
153	382.54	382.38	362.29	20.25	20.09
154	383.03	382.87	362.71	20.32	20.16
155	383.52	383.36	363.14	20.38	20.22
156	384.00	383.85	363.61	20.39	20.24
157	384.49	384.34	364.02	20.47	20.32
158	384.98	384.82	364.44	20.54	20.38

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 21 & 25, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
APPROVED: X
SUBMITTED: X
File name: ##########
Plot date: ##########

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

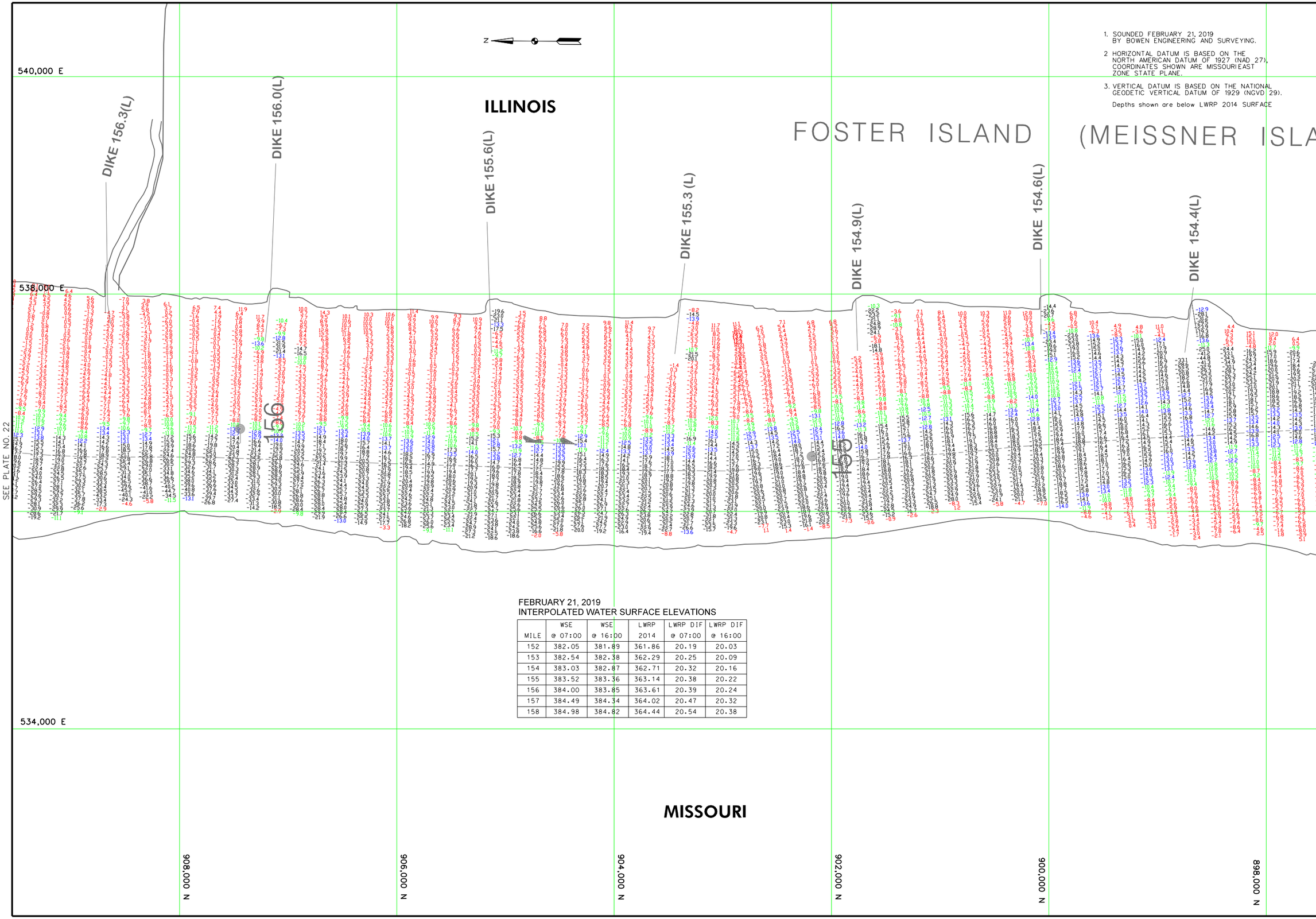
240 METERS 120 0 400 800 FEET

THIS INFORMATION REPRESENTS ONLY THE RESULTS OF SURVEYS PERFORMED ON THE DATES INDICATED AND AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILES 156.2 – 158.3

PLATE NUMBER 22



1. SOUNDED FEBRUARY 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 21, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 16:00
152	382.05	381.89	361.86	20.19	20.03
153	382.54	382.38	362.29	20.25	20.09
154	383.03	382.87	362.71	20.32	20.16
155	383.52	383.36	363.14	20.38	20.22
156	384.00	383.85	363.61	20.39	20.24
157	384.49	384.34	364.02	20.47	20.32
158	384.98	384.82	364.44	20.54	20.38

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
21 FEB 2019	15.78(7:00) 15.64(16:00)	UNAVAILABLE	20.45(7:00) 20.26(16:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 21, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: 9999DIVISION\FILES\PROJECTS\MISSISSIPPI RIVER\MISSISSIPPI RIVER BASIN
Plot date: 9999DIVISION\FILES\PROJECTS\MISSISSIPPI RIVER

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

MILES 154.3 – 156.2

PLATE NUMBER

23

SNER ISLAND)

ILLINOIS

MISSOURI

LEVEE

LAND

DIKE 152.8(L)

DONVILLE

HARRIS

DIKE 154.4(L)

DIKE 154.1(L)

DIKE 153.9(L)

DIKE 153.7(L)

DIKE 153.6(L)

DIKE 153.3(L)

DIKE 153.1(L)

DIKE 153.0(L)

DIKE 152.5(L)

DIKE 152.2(L)

DRIFT WOOD

DRIFT WOOD

DRIFT WOOD

AT&T CO.

GULF PIPELINE 2-5"

SEE PLATE NO. 23

SEE PLATE NO. 25

540,000 E

538,000 E

534,000 E

N 898,000

N 896,000

N 894,000

N 892,000

N 890,000

DIKE 154.0(R)

DIKE 153.7(R)

DIKE 153.5(R)

DIKE 153.25(R)

DIKE 153.1(R)

154

153

HERCULANEUM

1. SOUNDED FEBRUARY 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.

2 HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.

3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 21, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 16:00
152	382.05	381.89	361.86	20.19	20.03
153	382.54	382.38	362.29	20.25	20.09
154	383.03	382.87	362.71	20.32	20.16
155	383.52	383.36	363.14	20.38	20.22
156	384.00	383.85	363.61	20.39	20.24
157	384.49	384.34	364.02	20.47	20.32
158	384.98	384.82	364.44	20.54	20.38

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
21 FEB 2019	15,787,001 10,641,6-001	UNAVAILABLE	20,457-001 20,261,6-001	x

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 21, 2019
Drawn by: X
Reviewed by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
File name: ##########\REFERENCE\PLATES\###
Plot date: ##########\SITE\TIME###

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS 120 0 800 FEET 400 0

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY PERFORMED ON THE DATE INDICATED AND IS ONLY REPRESENTATIVE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 152.2 – 154.4

PLATE NUMBER 24

1. SOUNDED FEBRUARY 20 & 21, 2019 BY BOWEN ENGINEERING AND SURVEYING.

2 HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.

3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
20 FEB 2019	15,737,000 5,801,400	UNAVAILABLE	20,517,000 20,601,400	x
21 FEB 2019	15,787,000 5,641,800	UNAVAILABLE	20,457,000 20,261,800	x

ILLINOIS

MISSOURI

542,000 E

538,000 E

536,000 E

534,000 E

888,000 N

886,000 N

884,000 N

882,000 N

880,000 N

SEE PLATE NO. 24

SEE PLATE NO. 26

DIKE 152.2(L)

DIKE 152.1(L)

SOUNDED FEBRUARY 21, 2019

SOUNDED FEBRUARY 20, 2019

DIKE 151.8(L)

DIKE 151.5(L)

DIKE 151.3(L)

DIKE 151.1(L)

DIKE 151.0(L)

DIKE 150.7(L)

DIKE 150.7(L) (PILE)

DIKE 150.3(L)

DIKE 151.8(R)

DIKE 151.5(R)

DIKE 151.3(R)

DIKE 150.6(R)

DIKE 150.5(R)

DIKE 150.4(R)

DIKE 150.2(R)

BARGE

BARGE

BARGE

BARGE

HERCULANEUM

FEBRUARY 21, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 16:00
152	382.05	381.89	361.86	20.19	20.03
153	382.54	382.38	362.29	20.25	20.09
154	383.03	382.87	362.71	20.32	20.16
155	383.52	383.36	363.14	20.38	20.22
156	384.00	383.85	363.61	20.39	20.24
157	384.49	384.34	364.02	20.47	20.32
158	384.98	384.82	364.44	20.54	20.38

FEBRUARY 20, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 14:00
146	379.27	379.35	359.07	20.20	20.28
147	379.89	379.97	359.70	20.19	20.27
148	380.52	380.60	360.19	20.33	20.41
149	381.14	381.22	360.58	20.56	20.64
150	381.76	381.84	361.02	20.74	20.82
151	382.38	382.47	361.44	20.94	21.03
152	383.01	383.09	361.86	21.15	21.23

Survey Date:	FEBRUARY 20 & 21, 2019
Surveyed by:	Ckd by:
BOWEN ENGINEERING	Reviewed by: X
Drawn by: X	Reviewed by: X
SUBMITTED: X	APPROVED: X
File name:	Plot date:

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

UPPER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER

240 METERS 120 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 150.2 – 152.2

PLATE NUMBER

25

FEBRUARY 20, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 14:00
146	379.27	379.35	359.07	20.20	20.28
147	379.89	379.97	359.70	20.19	20.27
148	380.52	380.60	360.19	20.33	20.41
149	381.14	381.22	360.58	20.56	20.64
150	381.76	381.84	361.02	20.74	20.82
151	382.38	382.47	361.44	20.94	21.03
152	383.01	383.09	361.86	21.15	21.23

1. SOUNDED FEBRUARY 20, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
20 FEB 2019	15,737,000	5,801,400	UNAVAILABLE	20,517,000
			20,601,400	X

ELEVATIONS ARE REFERRED TO N.G.V.D. CONTOURS ARE BELOW 1958-57 LOW WATER REFERENCE PLANE, ILLWRP (54,000 CFS)

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

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 20, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ########

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
800 FEET
0 0
120 400
120 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME INDICATED AND MAY NOT BE ACCURATE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 148.3 – 150.3

PLATE NUMBER
26

ILLINOIS

MISSOURI

CALICO ISLAND

CALICO CHUTE

CALICO CHUTE LIGHT

RED BUOY

BARGE

BARGE

SELMA HOLLOW

546,000 E

544,000 E

548,000 E

540,000 E

542,000 E

N 868,000

N 866,000

N 864,000

N 862,000

N 860,000

DIKE 148.1(L)

DIKE 147.7(L)

DIKE 147.3(L)

DIKE 147.1(L)

DIKE 147.0(L)

DIKE 146.8(L)

DIKE 146.7(L)

DIKE 146.4(L)

DIKE 146.3(L)

DIKE 146.25(L)

DIKE 146.2(L)

DIKE 146.1(L)

DIKE 146.6(R)

DIKE 146.3(R)

SEE PLATE NO. 26

SEE PLATE NO. 28

1. SOUNDED FEBRUARY 20, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE, STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 20, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 14:00
146	379.27	379.35	359.07	20.20	20.28
147	379.89	379.97	359.70	20.19	20.27
148	380.52	380.60	360.19	20.33	20.41
149	381.14	381.22	360.58	20.56	20.64
150	381.76	381.84	361.02	20.74	20.82
151	382.38	382.47	361.44	20.94	21.03
152	383.01	383.09	361.86	21.15	21.23

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
20 FEB 2019	15,737,000 5.80E14 000	UNAVAILABLE	20,517,000 20.60E14 000	x

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

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
SUBMITTED: X
APPROVED: X
Survey Date: FEBRUARY 20, 2019
Reviewed by: X
Plot date: ######## 7:##:## ##
File name: M:\######\######\######\######\######.dgn

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME INDICATED AND IS INTENDED TO BE USED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

0 120 240 METERS
0 400 800 FEET

HYDROGRAPHIC SURVEYS
RIVER MILES 146.2 – 148.3

PLATE NUMBER
27

862,000 N

860,000 N

858,000 N

556,000 E

1. SOUNDED FEBRUARY 18, 19 & 20, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

ILLINOIS

DIKE 146.4(L)
DIKE 146.3(L)
DIKE 146.25(L)
DIKE 146.2(L)
DIKE 146.1(L)
DIKE 145.9(L)
DIKE 145.3(L)
DIKE 145.4(L)
DIKE 145.0(L)
DIKE 144.7(L)
DIKE 144.6(L)
DIKE 144.5(L)
DIKE 144.3(L)
DIKE 144.1(L)

OSBORNE CHUTE

SOUNDED FEBRUARY 20, 2019
SOUNDED FEBRUARY 19, 2019
SOUNDED FEBRUARY 18, 2019

BARGE
BARGE
BARGE
BARGE
BARGE

RED BUOY

MICHAELS TOWHEAD

DIKE 146.3(R)
DIKE 145.4(R)
DIKE 145.2(R)
DIKE 145.1(R)
DIKE 145.0(R)
DIKE 144.9(R)
DIKE 144.5(R)
DIKE 144.2(R)
DIKE 144.15(R)

SEE PLATE NO. 27

SEE PLATE NO. 29

856,000 N

546,000 E

854,000 N

548,000 E

550,000 E

852,000 N

552,000 E

554,000 E

MISSOURI

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
18 FEB 2019	16.58/9:00	18.33/14:00	UNAVAILABLE	22.60/9:00 22.54/14:00	X
19 FEB 2019	16.45/8:00	16.37/09:00	UNAVAILABLE	21.56/8:00 21.43/09:00	X
20 FEB 2019	15.73/7:00	15.80/14:00	UNAVAILABLE	20.51/7:00 20.60/14:00	X

Survey Date: FEBRUARY 18, 19, & 20, 2019
Surveyed by: BOWEN ENGINEERING
Reviewed by: X
Drawn by: X
Ckd by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 144.2 – 146.2

240 METERS
800 FEET
120 0 120
400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AND IS INDICATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
28

FEBRUARY 20, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 07:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 07:00	LWRP DIF @ 14:00
146	379.27	379.35	359.07	20.20	20.28
147	379.89	379.97	359.70	20.19	20.27
148	380.52	380.60	360.19	20.33	20.41
149	381.14	381.22	360.58	20.56	20.64
150	381.76	381.84	361.02	20.74	20.82
151	382.38	382.47	361.44	20.94	21.03
152	383.01	383.09	361.86	21.15	21.23

FEBRUARY 19, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 9:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 09:00
145	379.52	379.42	358.44	21.08	20.98
146	380.01	379.90	359.07	20.94	20.83

FEBRUARY 18, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 14:00
140	378.65	378.48	355.92	22.73	22.56
141	379.15	378.98	356.37	22.78	22.61
142	379.64	379.47	356.81	22.83	22.66
143	380.14	379.97	357.20	22.94	22.77
144	380.64	380.46	357.60	23.04	22.86
145	381.13	380.95	358.44	22.69	22.51

1. SOUNDED FEBRUARY 18, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

856,000 N
854,000 N
852,000 N
850,000 N
564,000 E
556,000 E
558,000 E
560,000 E
562,000 E
848,000 N
846,000 N

ILLINOIS
MISSOURI

DIKE 144.1(L)
DIKE 144.0(L)
DIKE 143.8(L)
DIKE 143.6(L)
DIKE 143.4(L)
DIKE 142.2(L)
DIKE 144.2(R)
DIKE 144.15(R)
DIKE 144.1(R)
DIKE 144.0(R)
DIKE 143.7(R)
DIKE 143.4(R)
DIKE 143.0(R)
DIKE 142.5(R)
DIKE 142.4(R)
DIKE 142.3(R)

LOWRY LANDING
KEMPER LANDING
HARLOW ISLAND (PERRY TOWHEAD)

144
143

RED BUOY
GREEN BUOY
BARGE

SEE PLATE NO. 28
SEE PLATE NO. 30

FEBRUARY 18, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 14:00
140	378.65	378.48	355.92	22.73	22.56
141	379.15	378.98	356.37	22.78	22.61
142	379.64	379.47	356.81	22.83	22.66
143	380.14	379.97	357.20	22.94	22.77
144	380.64	380.46	357.60	23.04	22.86
145	381.13	380.95	358.44	22.69	22.51

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
18 FEB 2019	18.58/9:00 18.33/14:00	UNAVAILABLE	22.60/9:00 22.54/14:00	x

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 18, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ##########

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

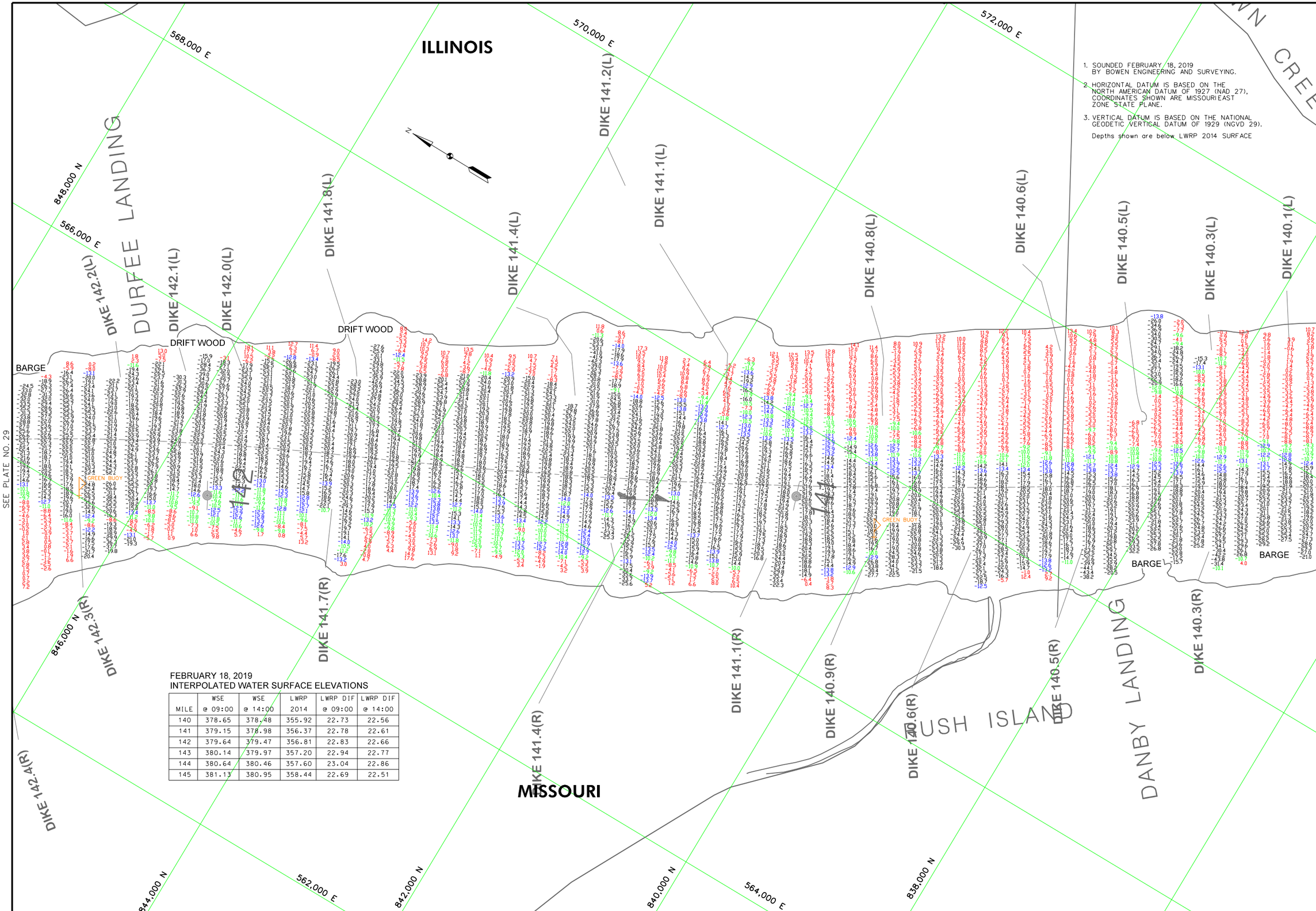
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
800 FEET
0 120 400
0 120 400

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ENGINEER DISTRICT INDICATED AND IS RECORDED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 142.2 – 144.2

PLATE NUMBER
29



1. SOUNDED FEBRUARY 18, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 18, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 14:00
140	378.65	378.48	355.92	22.73	22.56
141	379.15	378.98	356.37	22.78	22.61
142	379.64	379.47	356.81	22.83	22.66
143	380.14	379.97	357.20	22.94	22.77
144	380.64	380.46	357.60	23.04	22.86
145	381.13	380.95	358.44	22.69	22.51

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
18 FEB 2019	18.58(9:00) 18.33(14:00)	UNAVAILABLE	22.65(9:00) 22.54(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 18, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 140.2 – 142.2

PLATE NUMBER
30

WN CREEK

574,000 E

838,000 N

836,000 N

576,000 E

834,000 N

832,000 N

578,000 E

BEAGLES ISLAND

ILLINOIS

DIKE 140.3(L)

DIKE 140.1(L)

DIKE 140.0(L)

SOUNDED FEBRUARY 18, 2019

SOUNDED FEBRUARY 13, 2019

DIKE 139.8(L)

DIKE 139.5(L)

DIKE 139.3(L)

DIKE 139.0(L)

DURFEE BAR

DIKE 138.8(L)

DIKE 138.45(L)

DIKE 138.4(L)

DIKE 138.1(L)

RED BUOY

BARGE

BARGE

BARGE

BARGE

BARGE

BARGE

BARGE

BARGE

DRIFT WOOD

DIKE 140.3(R)

DIKE 139.4(R)

LEE ISLAND

MISSOURI

568,000 E

830,000 N

570,000 E

828,000 N

1. SOUNDED FEBRUARY 13 & 18, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 18, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 14:00
140	378.65	378.48	355.92	22.73	22.56
141	379.15	378.98	356.37	22.78	22.61
142	379.64	379.47	356.81	22.83	22.66
143	380.14	379.97	357.20	22.94	22.77
144	380.64	380.46	357.60	23.04	22.86
145	381.13	380.95	358.44	22.69	22.51

FEBRUARY 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
135	376.44	376.60	353.81	22.63	22.79
136	376.92	377.08	354.23	22.69	22.85
137	377.39	377.55	354.69	22.70	22.86
138	377.87	378.03	355.08	22.79	22.95
139	378.35	378.51	355.50	22.85	23.01
140	378.82	378.99	355.92	22.90	23.07

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
13 FEB 2019	17.96@8:00	8.25@15:00	UNAVAILABLE	23.42@8:00 / 23.50@9:00
18 FEB 2019	15.58@9:00	8.33@14:00	UNAVAILABLE	22.65@9:00 / 22.54@14:00

Survey Date: FEBRUARY 13 & 18, 2019
Surveyed by: BOWEN ENGINEERING
Reviewed by: X
Drawn by: X
Ckd by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ########

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

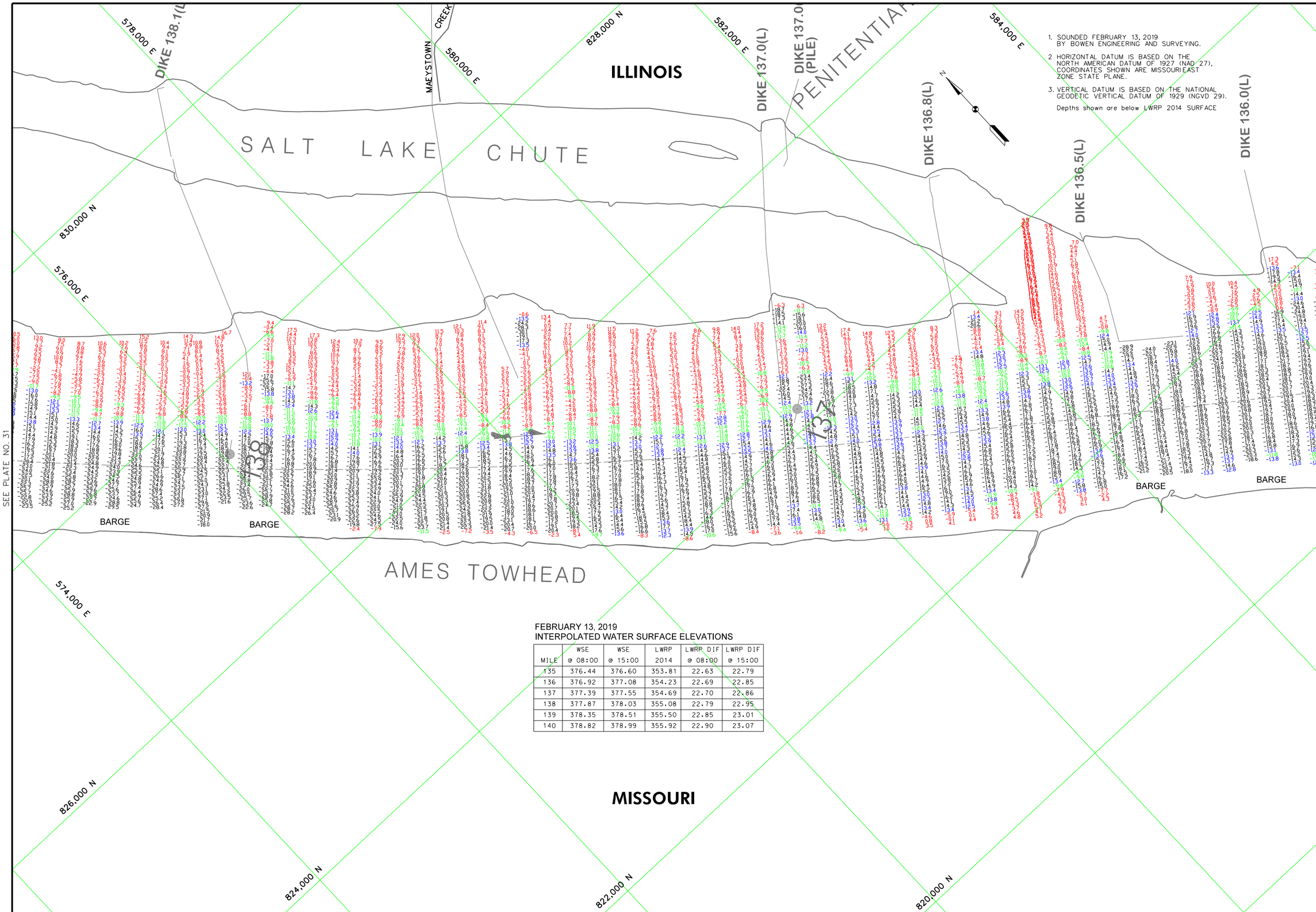
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

249 METERS
120 0 120
800 FEET
400 0 400

THE INFORMATION REFLECTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 138.2 - 140.2

PLATE NUMBER
31



1. SOUNDED FEBRUARY 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
135	376.44	376.60	353.81	22.63	22.79
136	376.92	377.08	354.23	22.69	22.85
137	377.39	377.55	354.69	22.70	22.86
138	377.87	378.03	355.08	22.79	22.95
139	378.35	378.51	355.50	22.85	23.01
140	378.82	378.99	355.92	22.90	23.07

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
13 FEB 2019	17.96(8:00) 18.25(15:00)	UNAVAILABLE	23.42(8:00) 23.50(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 13, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 136.2 – 138.2

PLATE NUMBER
32

1. SOUNDED FEBRUARY 12 & 13, 2019 BY BOWEN ENGINEERING AND SURVEYING.

2 HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.

3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

586,000 E
824,000 N
588,000 E
822,000 N
590,000 E
592,000 E
820,000 N
582,000 E
818,000 N
584,000 E
816,000 N
814,000 N

LEVEE

ILLINOIS

MISSOURI

DIKE 136.0(L)
DIKE 135.7(L)
DIKE 135.6(L)
DIKE 135.3(L)
DIKE 135.2(L)
DIKE 134.9(L)
DIKE 134.8(L)
DIKE 134.6(L)
DIKE 134.7(R)
DIKE 134.3(L)
DIKE 134.0(L)

SYCAMORE LANDING

SALT POINT

SOUNDED FEBRUARY 12, 2019
SOUNDED FEBRUARY 13, 2019

BARGE
BARGE
BARGE
BARGE
BARGE
BARGE

SEE PLATE NO. 32
SEE PLATE NO. 34

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
12 FEB 2019	18.47(10:00)	UNAVAILABLE	24.40(10:00)	24.07(16:00)
13 FEB 2019	17.90(8:00)	18.23(15:00)	UNAVAILABLE	23.42(8:00)
		UNAVAILABLE		23.50(15:00)

FEBRUARY 13, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 08:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 08:00	LWRP DIF @ 15:00
135	376.44	376.60	353.81	22.63	22.79
136	376.92	377.08	354.23	22.69	22.85
137	377.39	377.55	354.69	22.70	22.86
138	377.87	378.03	355.08	22.79	22.95
139	378.35	378.51	355.50	22.85	23.01
140	378.82	378.99	355.92	22.90	23.07

FEBRUARY 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 16:00
131	375.37	375.09	351.99	23.38	23.10
132	375.84	375.56	352.53	23.31	23.03
133	376.31	376.03	353.04	23.27	22.99
134	376.78	376.51	353.41	23.37	23.10
135	377.25	376.98	353.81	23.44	23.17

240 METERS
800 FEET
120 0 120 400
400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

US Army Corps of Engineers
St. Louis District

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

Survey Date: FEBRUARY 12 & 13, 2019
Surveyed by: BOWEN ENGINEERING
Reviewed by: X
Drawn by: X
Ckd by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ########

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 134.2 – 136.2

PLATE NUMBER
33

ILLINOIS

MISSOURI

FORT CHARTRES ISLAND

FORT CHARTRES CHUTE

FORT CHARTRES

592,000 E

594,000 E

596,000 E

598,000 E

600,000 E

818,000 N

814,000 N

812,000 N

DIKE 134.3(L)

DIKE 134.0(L)

DIKE 133.7(L)

DIKE 133.3(L)

DIKE 133.0(L)

DIKE 132.6(L)

DIKE 132.3(R)

DIKE 132.6(R)

DIKE 132.5(R)

DIKE 132.5(R) (PILE)

DIKE 132.3(R)

DIKE 132.1(R)

DIKE 131.9(R)

WEIR 133.0 (R)

WEIR 132.9 (R)

WEIR 132.8 (R)

WEIR 132.7 (R)

T POINT

SEE PLATE NO. 33

SEE PLATE NO. 35

1. SOUNDED FEBRUARY 12, 2019 BY BOWEN ENGINEERING AND SURVEYING.

2 HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.

3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 16:00
131	375.37	375.09	351.99	23.38	23.10
132	375.84	375.56	352.53	23.31	23.03
133	376.31	376.03	353.04	23.27	22.99
134	376.78	376.51	353.41	23.37	23.10
135	377.25	376.98	353.81	23.44	23.17

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
12 FEB 2019	18.47(0.00)	18.30(6.00)	UNAVAILABLE	24.40(10.00)
			24.07(6.00)	X

US Army Corps of Engineers St. Louis District

U.S. ARMY ENGINEER DIVISION OHIO RIVER DIVISIONS ST. LOUIS, MISSOURI

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
SUBMITTED: X
Survey Date: FEBRUARY 12, 2019
Reviewed by: X
APPROVED: X
Plot date: ########
File name: ########

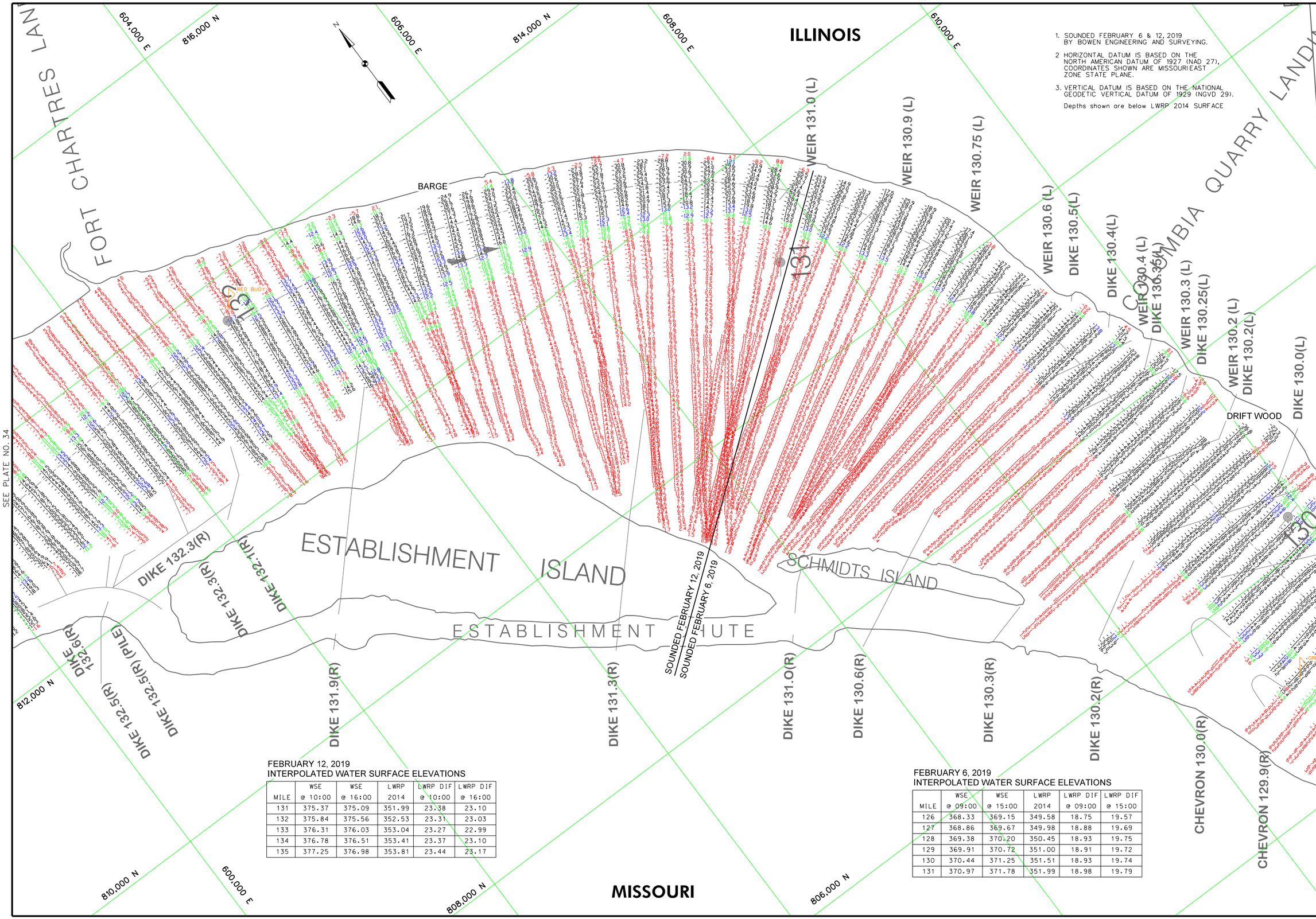
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 132.2 – 134.2

240 METERS
800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED DURING THE PERIOD INDICATED AND MAY NOT BE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
34



1. SOUNDED FEBRUARY 6 & 12, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 12, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 16:00
131	375.37	375.09	351.99	23.38	23.10
132	375.84	375.56	352.53	23.31	23.03
133	376.31	376.03	353.04	23.27	22.99
134	376.78	376.51	353.41	23.37	23.10
135	377.25	376.98	353.81	23.44	23.17

FEBRUARY 6, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
126	368.33	369.15	349.58	18.75	19.57
127	368.86	369.67	349.98	18.88	19.69
128	369.38	370.20	350.45	18.93	19.75
129	369.91	370.72	351.00	18.91	19.72
130	370.44	371.25	351.51	18.93	19.74
131	370.97	371.78	351.99	18.98	19.79

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
06 FEB 2019	16.35(09:00) 17.58(15:00)	UNAVAILABLE	18.76(09:00) 19.64(15:00)	X
12 FEB 2019	18.47(10:00) 18.30(16:00)	UNAVAILABLE	24.40(10:00) 24.07(16:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 6 & 12, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####PRESSIONBFILE#SPECIFICATION###

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

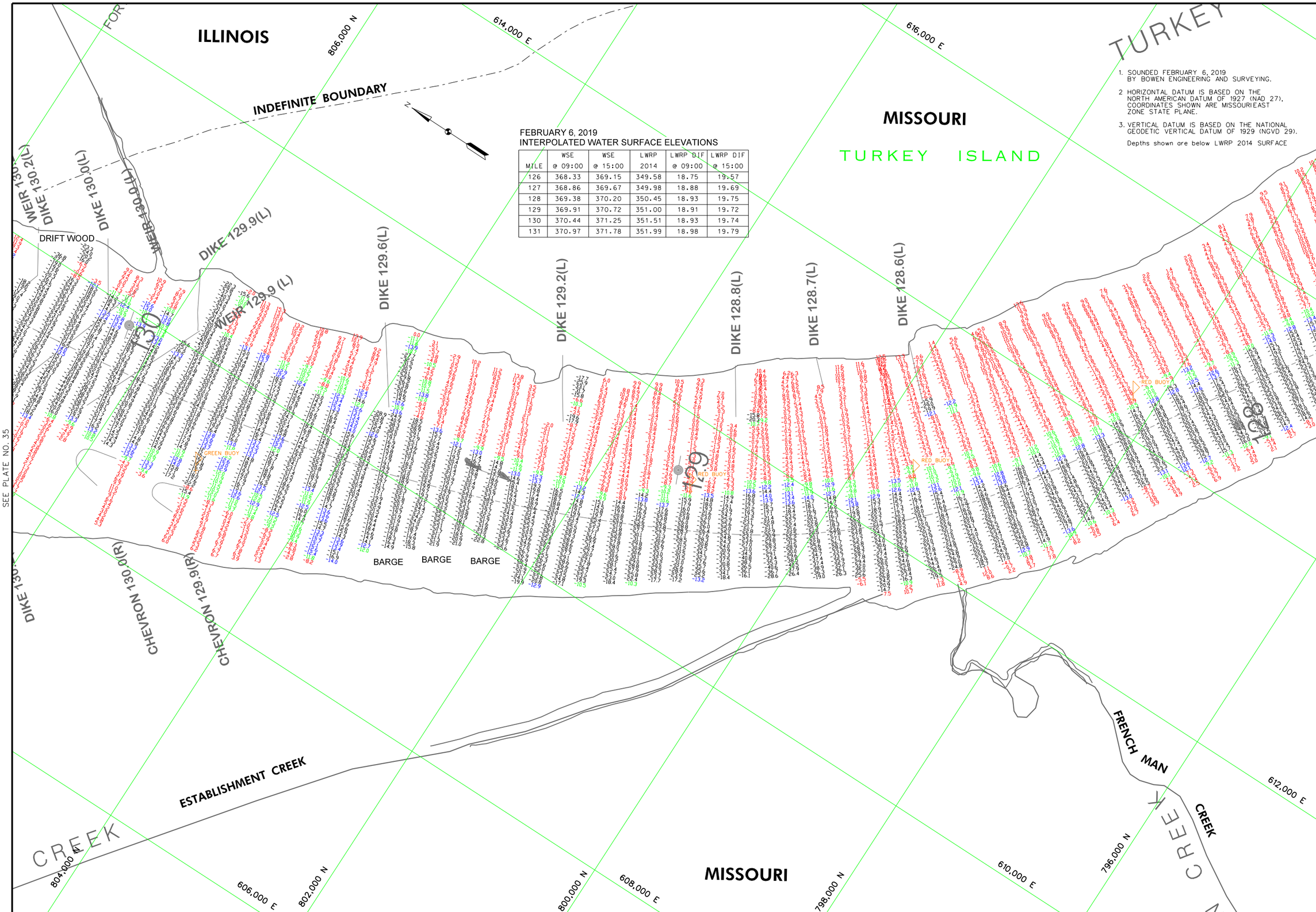
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 130.0 – 132.2

PLATE NUMBER
35



FEBRUARY 6, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
126	368.33	369.15	349.58	18.75	19.57
127	368.86	369.67	349.98	18.88	19.69
128	369.38	370.20	350.45	18.93	19.75
129	369.91	370.72	351.00	18.91	19.72
130	370.44	371.25	351.51	18.93	19.74
131	370.97	371.78	351.99	18.98	19.79

1. SOUNDED FEBRUARY 6, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
06 FEB 2019	16.95(09:00) 17.58(15:00)	UNAVAILABLE	18.76(09:00) 19.64(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 6, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME:####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

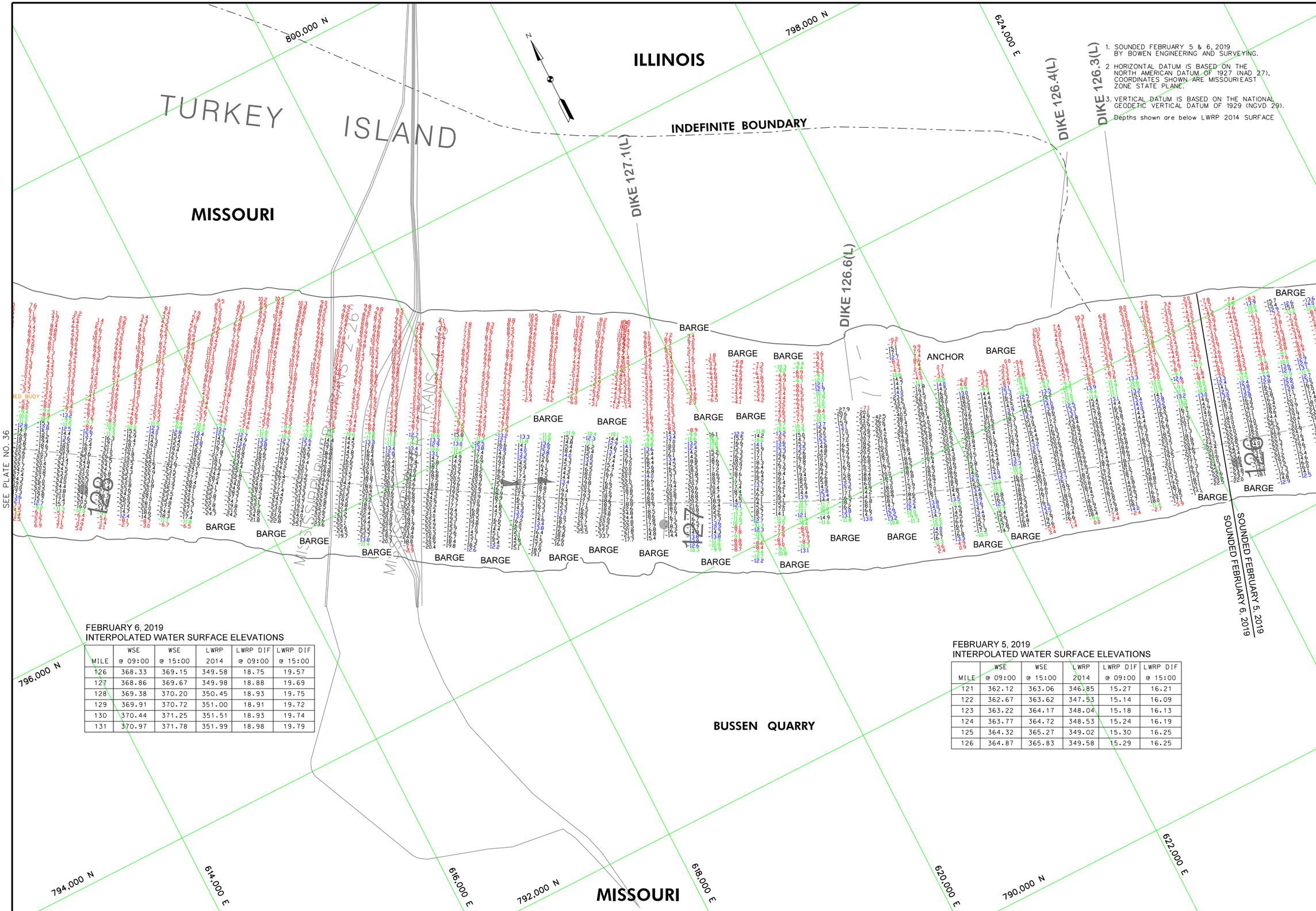
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 128.0 – 130.0

PLATE NUMBER
36



1. SOUNDED FEBRUARY 5 & 6, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 6, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
126	368.33	369.15	349.58	18.75	19.57
127	368.86	369.67	349.98	18.88	19.69
128	369.38	370.20	350.45	18.93	19.75
129	369.91	370.72	351.00	18.91	19.72
130	370.44	371.25	351.51	18.93	19.74
131	370.97	371.78	351.99	18.98	19.79

FEBRUARY 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
121	362.12	363.06	346.85	15.27	16.21
122	362.67	363.62	347.53	15.14	16.09
123	363.22	364.17	348.04	15.18	16.13
124	363.77	364.72	348.53	15.24	16.19
125	364.32	365.27	349.02	15.30	16.25
126	364.87	365.83	349.58	15.29	16.25

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
05 FEB 2019	14.62(09:00) 15.72(15:00)	UNAVAILABLE	14.97(09:00) 15.88(15:00)	x
06 FEB 2019	16.95(09:00) 17.58(15:00)	UNAVAILABLE	18.76(09:00) 19.64(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 5 & 6, 2019
Drawn by: x
Ckd by: x
Reviewed by: x
SUBMITTED: x
APPROVED: x
Plot date: 0000DATE:TIME0000
File name: 0000DESIGN0FILE0SPECIFICATION000

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 126.0 – 128.0

PLATE NUMBER
37

1. SOUNDED FEBRUARY 5, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
121	362.12	363.06	346.85	15.27	16.21
122	362.67	363.62	347.53	15.14	16.09
123	363.22	364.17	348.04	15.18	16.13
124	363.77	364.72	348.53	15.24	16.19
125	364.32	365.27	349.02	15.30	16.25
126	364.87	365.83	349.58	15.29	16.25

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	351.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
05 FEB 2019	14.62(9:00) 15.72(15:00)	UNAVAILABLE	14.97(9:00) 15.88(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 5, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS 800 FEET
0 0
120 400
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 124.0 – 126.0

PLATE NUMBER
38

SEE PLATE NO. 37

SEE PLATE NO. 39

796,000 N
794,000 N
792,000 N
790,000 N
788,000 N
786,000 N
632,000 E
634,000 E
624,000 E
626,000 E
628,000 E
630,000 E

MISSOURI ILLINOIS RR

ILLINOIS

MISSOURI

STE. GENEVIEVE

MUD LANDING

LITTLE ROCK LANDING

BAUMSTARK TOWHEAD

SOUNDED FEBRUARY 5, 2019

BARGE BARGE BARGE BARGE CELL CELL

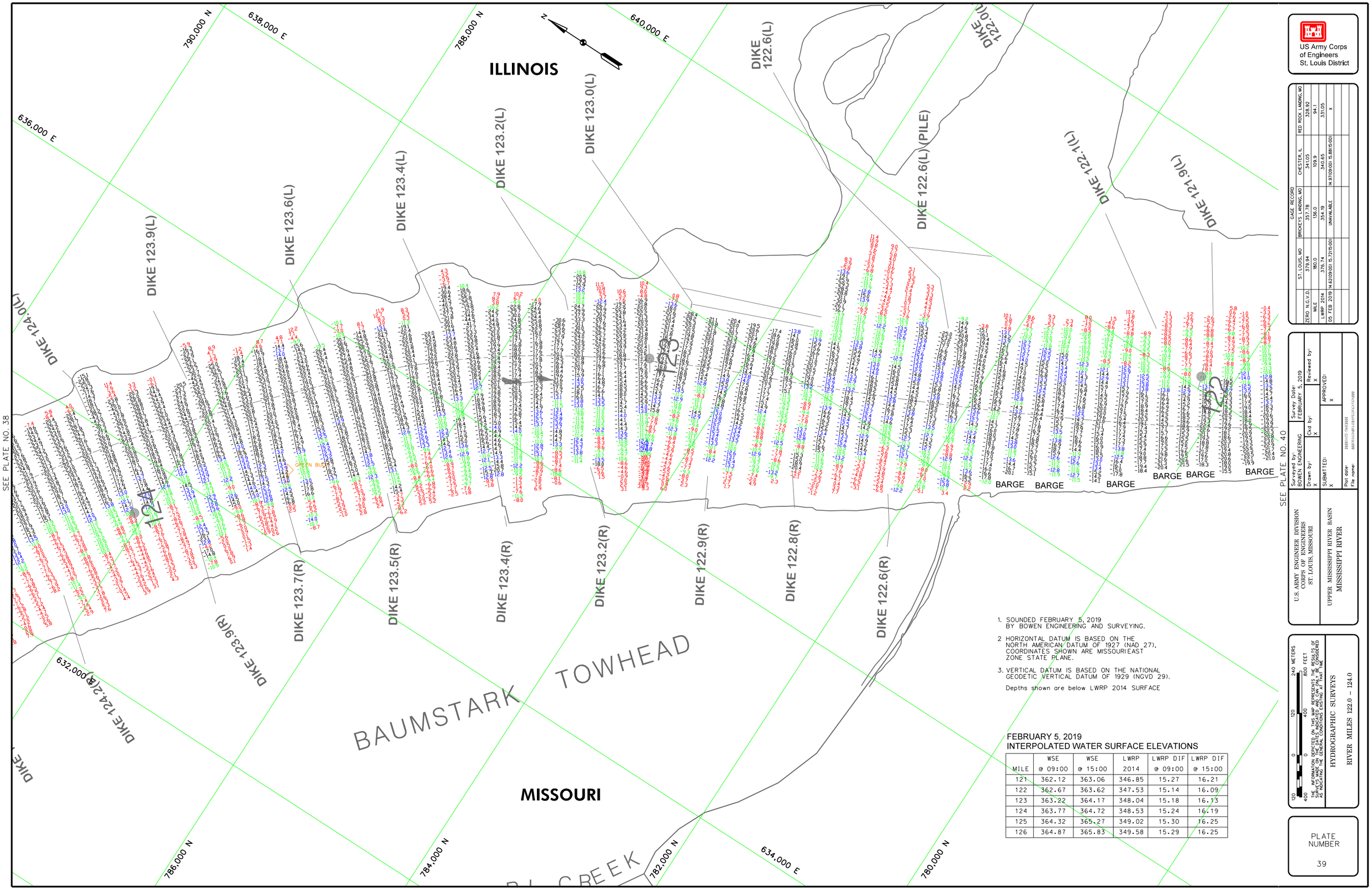
BARGE BARGE BARGE BARGE BARGE

DIKE 125.3(L)
DIKE 125.2(L)
DIKE 124.9(L)
DIKE 124.7(L)
DIKE 124.5(L)
DIKE 124.2(L)
DIKE 124.0(L)

DIKE 124.9(R)
DIKE 124.7(R)
DIKE 124.5(R)
DIKE 124.2(R)
DIKE 123.9(R)

125

124



1. SOUNDED FEBRUARY 5, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
121	362.12	363.06	346.85	15.27	16.21
122	362.67	363.62	347.53	15.14	16.09
123	363.22	364.17	348.04	15.18	16.13
124	363.77	364.72	348.53	15.24	16.19
125	364.32	365.27	349.02	15.30	16.25
126	364.87	365.83	349.58	15.29	16.25

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
05 FEB 2019	14.62(09:00) 15.72(15:00)	UNAVAILABLE	14.97(09:00) 15.88(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 5, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME0000
File name: 0000SSIGNDFILE0SPECIFICATION000

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 122.0 – 124.0

PLATE NUMBER

39

ILLINOIS

MISSOURI

MORO CHUTE

DIKE 122.0(L)

DIKE 121.1(L)

DIKE 122.1(L)

DIKE 121.9(L)

DIKE 121.7(L)

DIKE 121.5(L)

DIKE 121.2(L)

DIKE 121.0(L)

DIKE 120.7(L)

DIKE 120.2(L)

DIKE 121.45(R)

DIKE 121.35(R)

DIKE 121.2(R)

784,000 N

782,000 N

778,000 N

776,000 N

774,000 N

640,000 E

642,000 E

644,000 E

646,000 E

648,000 E

SEE PLATE NO. 39

SEE PLATE NO. 41

BARGE

BARGE

BARGE

SOUNDED FEBRUARY 5, 2019

SOUNDED FEBRUARY 4, 2019

RED BUOY

RED BUOY

DREDGE PIPE

WEIR 120.15 (R)

WEIR 120.3 (R)

WEIR 120.4 (R)

WEIR 120.5 (R)

WEIR 120.6 (R)

WEIR 120.7 (R)

WEIR 120.8 (R)

WEIR 120.05 (R)

CHANNEL LINE

CHANNEL LINE

1. SOUNDED FEBRUARY 4 & 5, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 5, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 09:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 09:00	LWRP DIF @ 15:00
121	362.12	363.06	346.85	15.27	16.21
122	362.67	363.62	347.53	15.14	16.09
123	363.22	364.17	348.04	15.18	16.13
124	363.77	364.72	348.53	15.24	16.19
125	364.32	365.27	349.02	15.30	16.25
126	364.87	365.83	349.58	15.29	16.25

FEBRUARY 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 14:00
116	358.57	358.58	343.76	14.81	14.82
117	359.06	359.07	344.25	14.81	14.82
118	359.55	359.57	344.84	14.71	14.73
119	360.05	360.06	345.31	14.74	14.75
120	360.54	360.56	346.08	14.46	14.48
121	361.04	361.05	346.85	14.19	14.20

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
04 FEB 2019	10.26\10:00\ 0.3\14:00\	UNAVAILABLE	14.50\10:00\ 14.5\14:00\	X
05 FEB 2019	14.62\09:00\ 15.72\15:00\	UNAVAILABLE	14.97\09:00\ 15.88\15:00\	X

US Army Corps of Engineers St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Survey Date: FEBRUARY 4 & 5, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

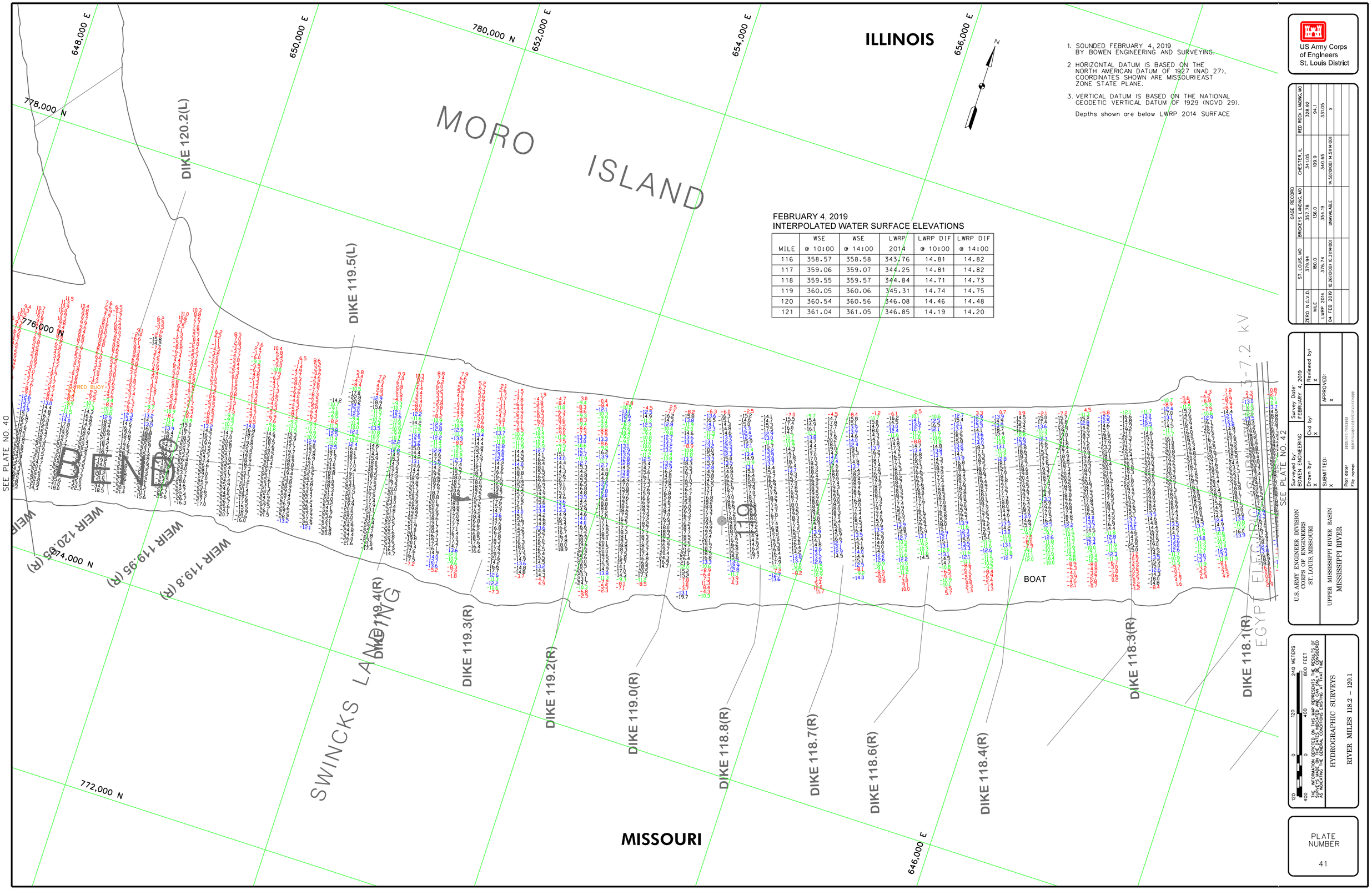
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 120.1 – 122.0

0 120 240 METERS
0 400 800 FEET

THE INFORMATION REFLECTED IN THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND IS SHOWN ONLY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
40



1. SOUNDED FEBRUARY 4, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

FEBRUARY 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 14:00
116	358.57	358.58	343.76	14.81	14.82
117	359.06	359.07	344.25	14.81	14.82
118	359.55	359.57	344.84	14.71	14.73
119	360.05	360.06	345.31	14.74	14.75
120	360.54	360.56	346.08	14.46	14.48
121	361.04	361.05	346.85	14.19	14.20

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
04 FEB 2019	10.26(10:00) 10.31(14:00)	UNAVAILABLE	14.50(10:00) 14.51(14:00)	X

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Survey Date: FEBRUARY 4, 2019
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 118.2 – 120.1

PLATE NUMBER
41

782,000 N

780,000 N

776,000 N

774,000 N

660,000 E

662,000 E

664,000 E

666,000 E

668,000 E

KASKASKIA RIVER

ILLINOIS

MISSOURI

ELLIS GROVE

ELLIS GROVE LANDING

BEAVER ISLAND

Kaskaskia Chute

BARGE

GREEN BUOY

INDEFINITE BOUNDARY

WEIR 117.2 (L)

WEIR 117.1 (L)

WEIR 117.0 (L)

WEIR 116.9 (L)

WEIR 116.8 (L)

WEIR 116.7 (L)

WEIR 116.6 (L)

WEIR 116.5 (L)

WEIR 116.3 (L)

WEIR 116.2 (L)

WEIR 116.1 (L)

WEIR 116.0(L)

DIKE 118.3(R)

DIKE 118.1(R)

DIKE 117.9(R)

DIKE 117.6(R)

DIKE 117.5(R)

DIKE 117.1(R)

DIKE 116.6(R)

DIKE 116.3(R)

PILE DIKE 116.6 (R)

SOUNDED FEBRUARY 4, 2019

SOUNDED JANUARY 29, 2019

SOUNDED JANUARY 28, 2019

116

FEBRUARY 4, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 14:00
116	358.57	358.58	343.76	14.81	14.82
117	359.06	359.07	344.25	14.81	14.82
118	359.55	359.57	344.84	14.71	14.73
119	360.05	360.06	345.31	14.74	14.75
120	360.54	360.56	346.08	14.46	14.48
121	361.04	361.05	346.85	14.19	14.20

JANUARY 29, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 11:00
116	359.27	359.15	343.76	15.51	15.39
117	359.74	359.62	344.25	15.49	15.37

JANUARY 28, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
112	358.26	358.06	341.85	16.41	16.21
113	358.74	358.55	342.34	16.40	16.21
114	359.22	359.03	342.84	16.38	16.19
115	359.70	359.51	343.27	16.43	16.24
116	360.18	359.99	343.76	16.42	16.23

1. SOUNDED JANUARY 28, 29 & FEBRUARY 4, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

GAGE RECORD	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
28 JAN 2019	10.98'@'00	10.95'@'14:00	UNAVAILABLE	16.20'@'00
29 JAN 2019	9.75'@'00	9.52'@'11:00	UNAVAILABLE	15.32'@'00
04 FEB 2019	15.26'@'00	10.31'@'14:00	UNAVAILABLE	14.50'@'00

US Army Corps of Engineers
St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Survey Date: JAN. 28, 29 & FEB. 4, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 116.0 – 118.2

240 METERS 120 0
800 FEET 400 0

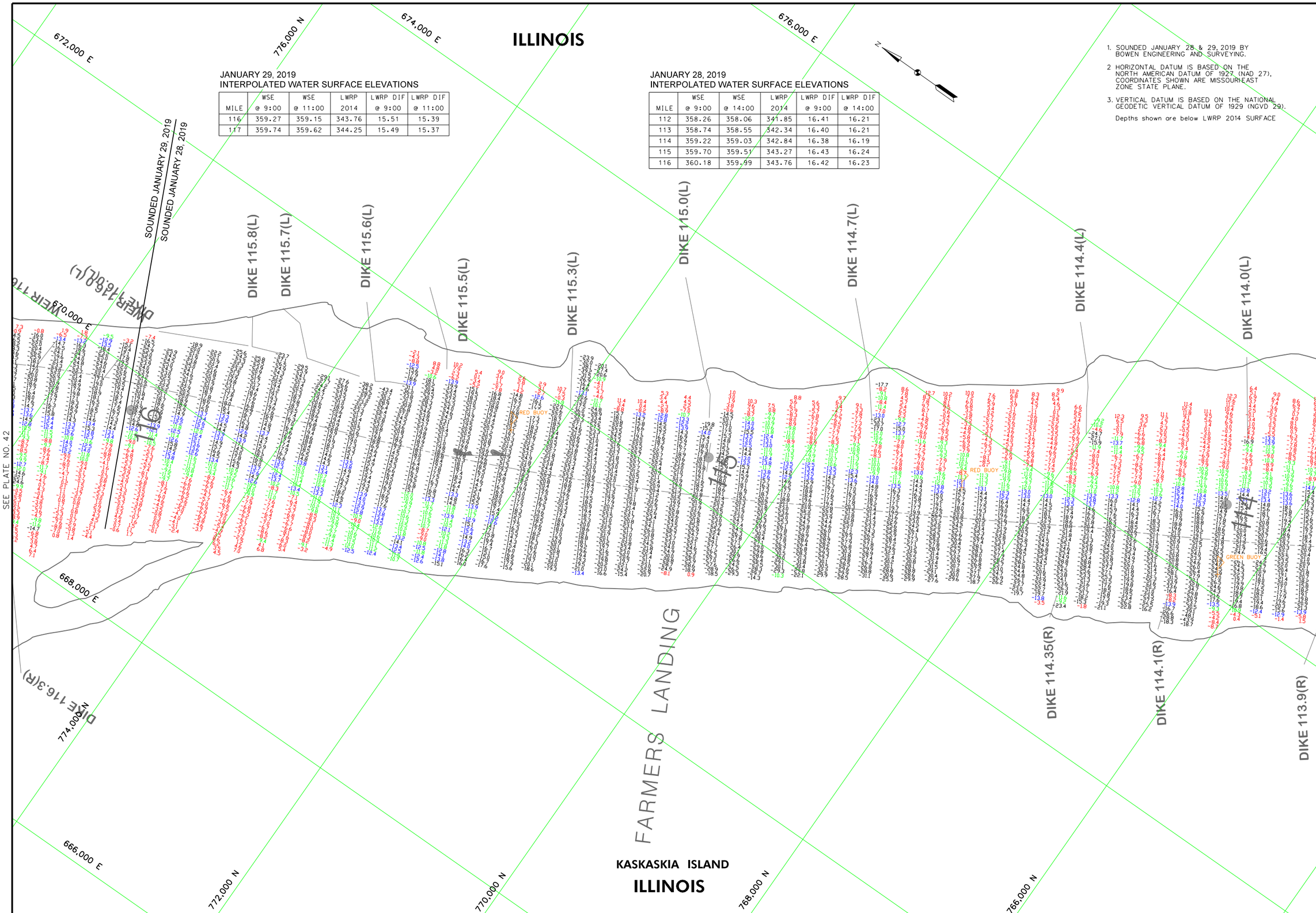
THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND IS APPLICABLE ONLY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER 42

SEE PLATE NO. 41

SEE PLATE NO. 43

SEE PLATE NO. 43



JANUARY 29, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 11:00
116	359.27	359.15	343.76	15.51	15.39
117	359.74	359.62	344.25	15.49	15.37

JANUARY 28, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
112	358.26	358.06	341.85	16.41	16.21
113	358.74	358.55	342.34	16.40	16.21
114	359.22	359.03	342.84	16.38	16.19
115	359.70	359.51	343.27	16.43	16.24
116	360.18	359.99	343.76	16.42	16.23

1. SOUNDED JANUARY 28 & 29, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI-EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
28 JAN 2019	10.98(9:00) 10.95(14:00)	UNAVAILABLE	16.20(9:00) 16.00(14:00)	X
29 JAN 2019	9.75(9:00) 9.52(11:00)	UNAVAILABLE	15.32(9:00) 15.21(11:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 28 & 29, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME0000
File name: 0000DESIGN0FILE0SPECIFICATION000

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

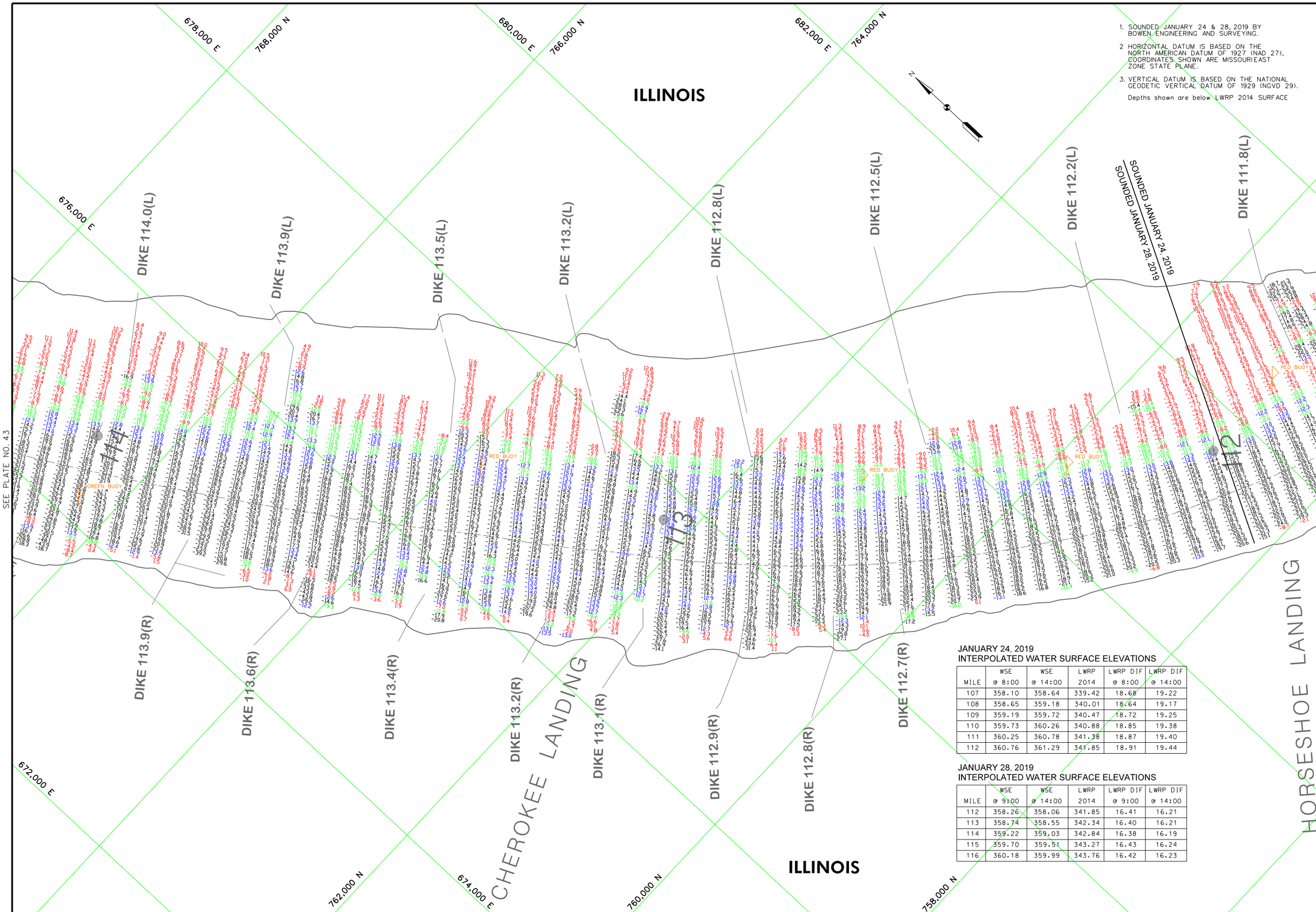
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 114.0 – 116.0

PLATE NUMBER

43



1. SOUNDED JANUARY 24 & 28, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
107	358.10	358.64	339.42	18.68	19.22
108	358.65	359.18	340.01	18.64	19.17
109	359.19	359.72	340.47	18.72	19.25
110	359.73	360.26	340.88	18.85	19.38
111	360.25	360.78	341.38	18.87	19.40
112	360.76	361.29	341.85	18.91	19.44

JANUARY 28, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
112	358.26	358.06	341.85	16.41	16.21
113	358.74	358.55	342.34	16.40	16.21
114	359.22	359.03	342.84	16.38	16.19
115	359.70	359.51	343.27	16.43	16.24
116	360.18	359.99	343.76	16.42	16.23

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
24 JAN 2019	15.84(8:00) 16.29(14:00)	UNAVAILABLE	18.63(8:00) 19.16(14:00)	22.17(8:00) 22.71(14:00)
28 JAN 2019	10.98(9:00) 10.95(14:00)	UNAVAILABLE	16.20(9:00) 16.00(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 24 & 28, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 112.0 – 114.0

PLATE NUMBER
44

JANUARY 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
107	358.10	358.64	339.42	18.68	19.22
108	358.65	359.18	340.01	18.64	19.17
109	359.19	359.72	340.47	18.72	19.25
110	359.73	360.26	340.88	18.85	19.38
111	360.25	360.78	341.38	18.87	19.40
112	360.76	361.29	341.85	18.91	19.44

JANUARY 28, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
112	358.26	358.06	341.85	16.41	16.21
113	358.74	358.55	342.34	16.40	16.21
114	359.22	359.03	342.84	16.38	16.19
115	359.70	359.51	343.27	16.43	16.24
116	360.18	359.99	343.76	16.42	16.23

1. SOUNDED JANUARY 24 & 28, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
24 JAN 2019	15.84(8:00) 16.29(14:00)	UNAVAILABLE	18.63(8:00) 19.16(14:00)	22.17(8:00) 22.71(14:00)
28 JAN 2019	15.98(9:00) 16.95(14:00)	UNAVAILABLE	16.20(9:00) 16.00(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 24 & 28, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 110.0 – 112.0

240 METERS 120 0 0 120 400 800 FEET

THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY OTHERS AND IS SHOWN AS RECEIVED BY THE CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

PLATE NUMBER 45

SEE PLATE NO. 46

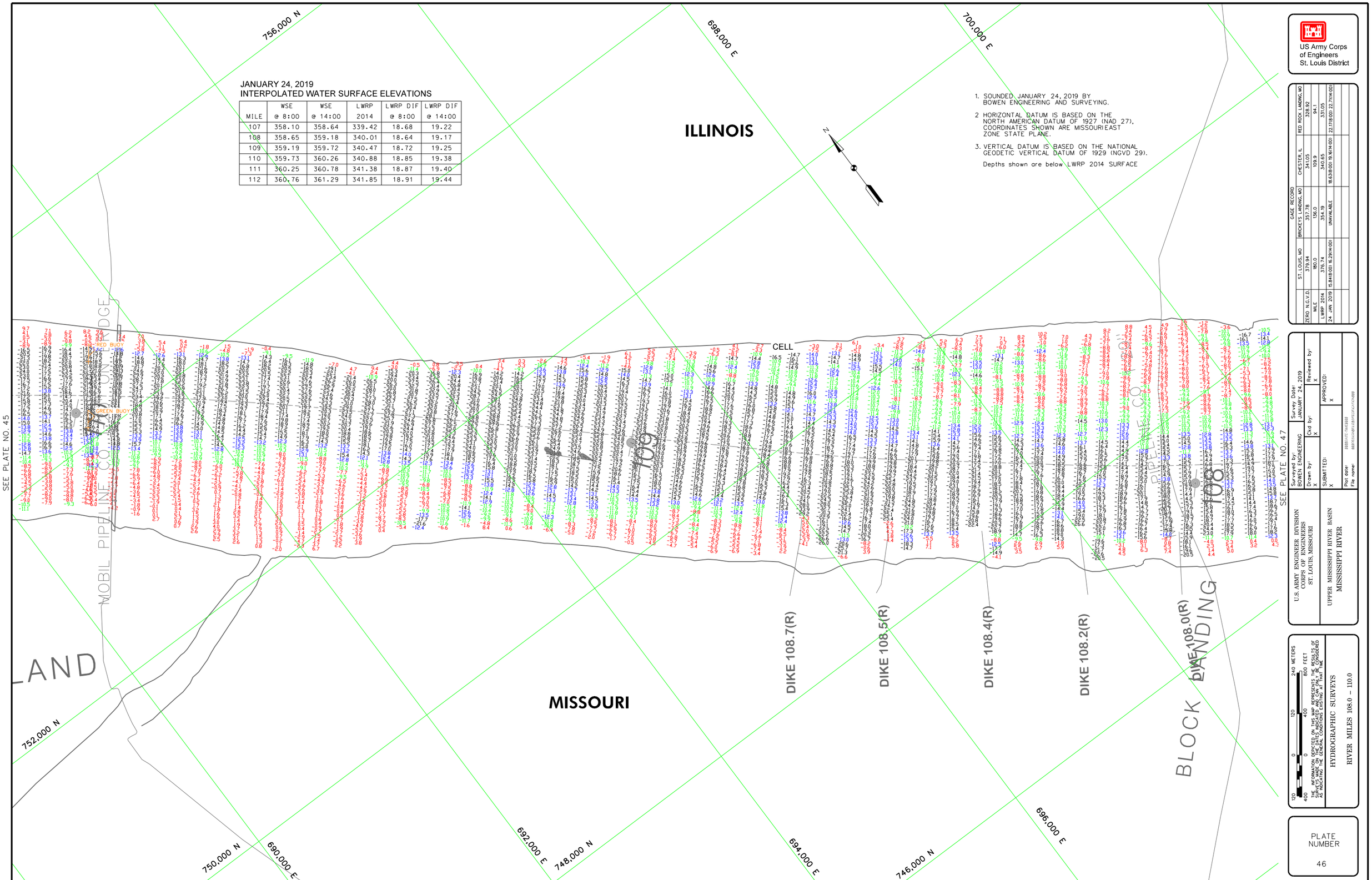
762,000 N
760,000 N
758,000 N
756,000 N
754,000 N
752,000 N
680,000 E
682,000 E
684,000 E
686,000 E
688,000 E
690,000 E
692,000 E

ILLINOIS
KASKASKIA ISLAND
HORSESHOE LANDING
KLONDIKE LANDING
HORSE ISLAND
MISSOURI
OLD RIVER
INDEFINITE BOUNDARY
MOBIL PIPELINE
CHESTER BRIDGE

DIKE 112.2(L)
DIKE 111.8(L)
DIKE 111.4(L)
DIKE 111.1(L)
DIKE 111.45(R)
DIKE 111.35(R)
DIKE 111.3(R)
DIKE 111.1(R)
DIKE 111.0(R)
DIKE 110.9(R)
DIKE 110.5(R)
DIKE 110.4(R)
DIKE 110.2(R)

SOUNDED JANUARY 28, 2019
SOUNDED JANUARY 24, 2019

RED BUOY
GREEN BUOY



JANUARY 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
107	358.10	358.64	339.42	18.68	19.22
108	358.65	359.18	340.01	18.64	19.17
109	359.19	359.72	340.47	18.72	19.25
110	359.73	360.26	340.88	18.85	19.38
111	360.25	360.78	341.38	18.87	19.40
112	360.76	361.29	341.85	18.91	19.44

1. SOUNDED JANUARY 24, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEYS LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
24 JAN 2019	15.84(8:00) 16.29(14:00)	UNAVAILABLE	18.63(8:00) 19.16(14:00)	22.17(8:00) 22.71(14:00)

Survey Date: JANUARY 24, 2019
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

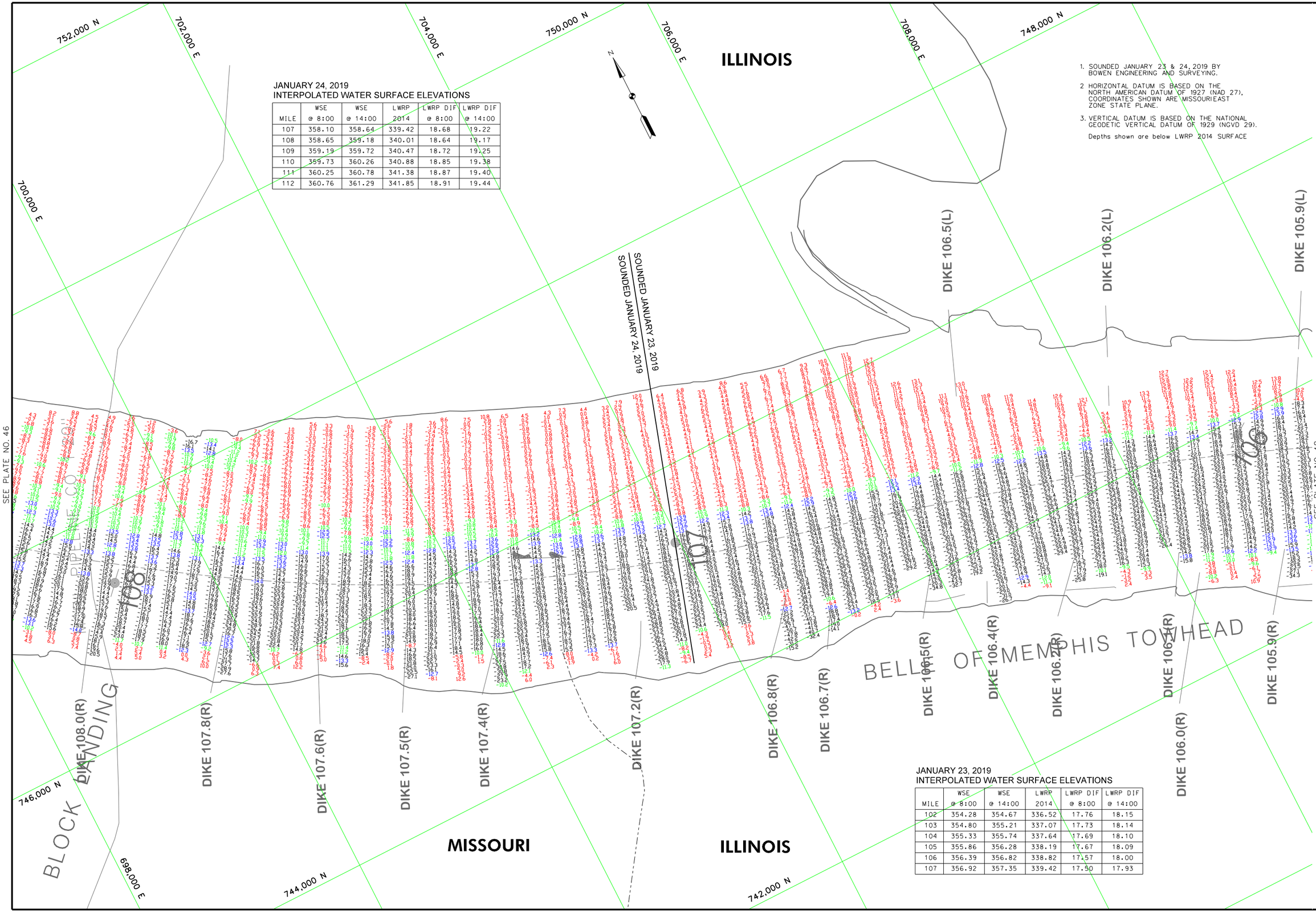
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 108.0 – 110.0

PLATE NUMBER
46



JANUARY 24, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
107	358.10	358.64	339.42	18.68	19.22
108	358.65	359.18	340.01	18.64	19.17
109	359.19	359.72	340.47	18.72	19.25
110	359.73	360.26	340.88	18.85	19.38
111	360.25	360.78	341.38	18.87	19.40
112	360.76	361.29	341.85	18.91	19.44

1. SOUNDED JANUARY 23 & 24, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
102	354.28	354.67	336.52	17.76	18.15
103	354.80	355.21	337.07	17.73	18.14
104	355.33	355.74	337.64	17.69	18.10
105	355.86	356.28	338.19	17.67	18.09
106	356.39	356.82	338.82	17.57	18.00
107	356.92	357.35	339.42	17.50	17.93

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	ST. LOUIS, MO	BRICKEY'S LANDING, MO	CHESTER, IL	RED ROCK LANDING, MO
ZERO N.G.V.D.	379.94	357.78	341.05	328.92
MILE	180.0	136.0	109.9	94.1
LWRP 2014	376.74	354.19	340.65	331.05
23 JAN 2019	X	X	17.41(8:00) 17.86(14:00)	21.17(8:00) 21.51(14:00)
24 JAN 2019	15.84(8:00) 16.29(14:00)	UNAVAILABLE	18.63(8:00) 19.16(14:00)	22.17(8:00) 22.71(14:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 23 & 24, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

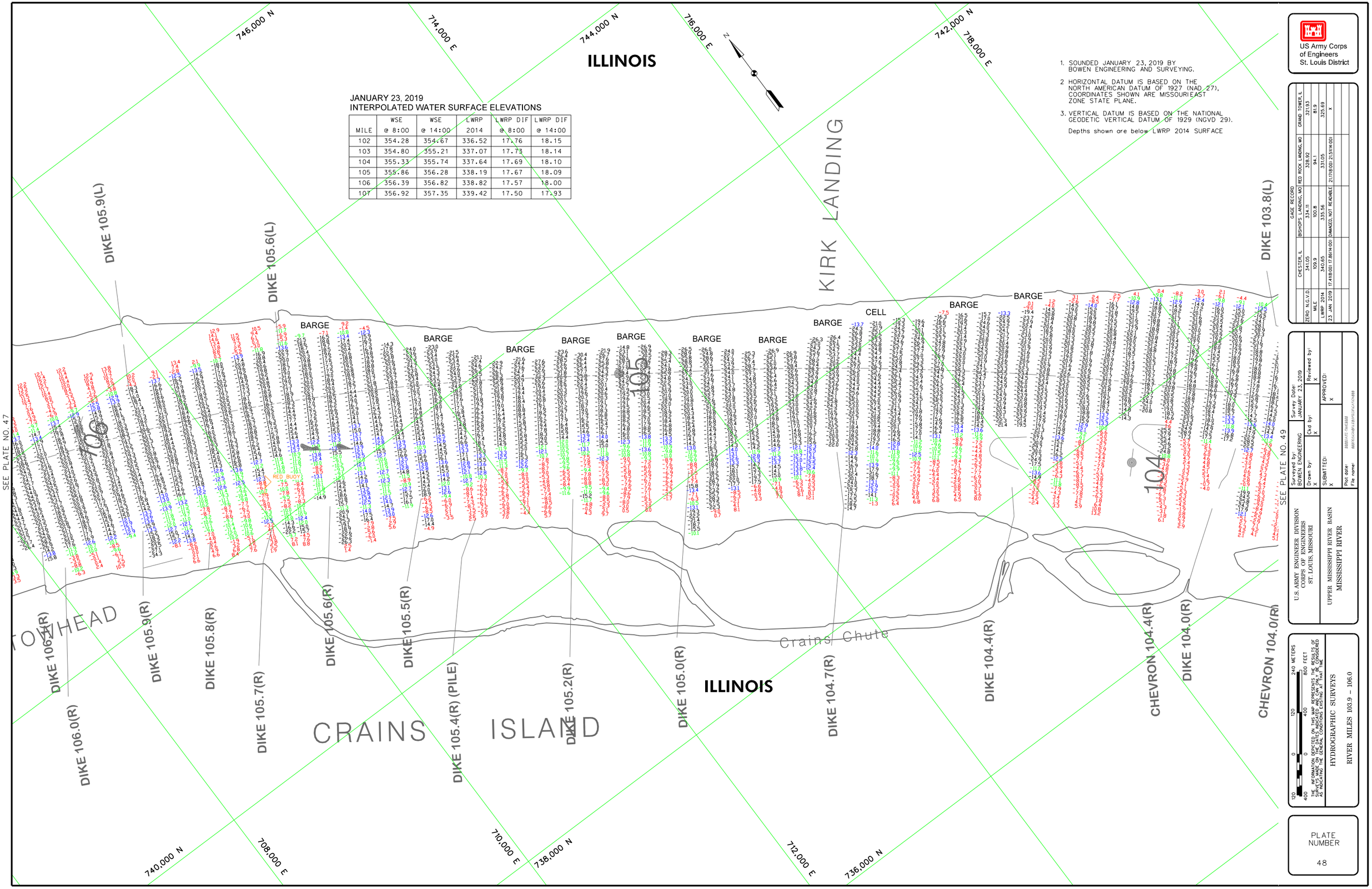
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 106.0 – 108.0

PLATE NUMBER
47



JANUARY 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
102	354.28	354.67	336.52	17.76	18.15
103	354.80	355.21	337.07	17.73	18.14
104	355.33	355.74	337.64	17.69	18.10
105	355.86	356.28	338.19	17.67	18.09
106	356.39	356.82	338.82	17.57	18.00
107	356.92	357.35	339.42	17.50	17.93

1. SOUNDED JANUARY 23, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
23 JAN 2019	17.41@8:00 17.86@14:00	DAMAGED, NOT READABLE	21.71@8:00 21.51@14:00	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 23, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########## 12:46:23 PM
File name: P:\########\DWG\########.DGN

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 103.9 – 106.0

0 120 240 METERS
0 400 800 FEET
THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE CORPS OF ENGINEERS AND IS CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

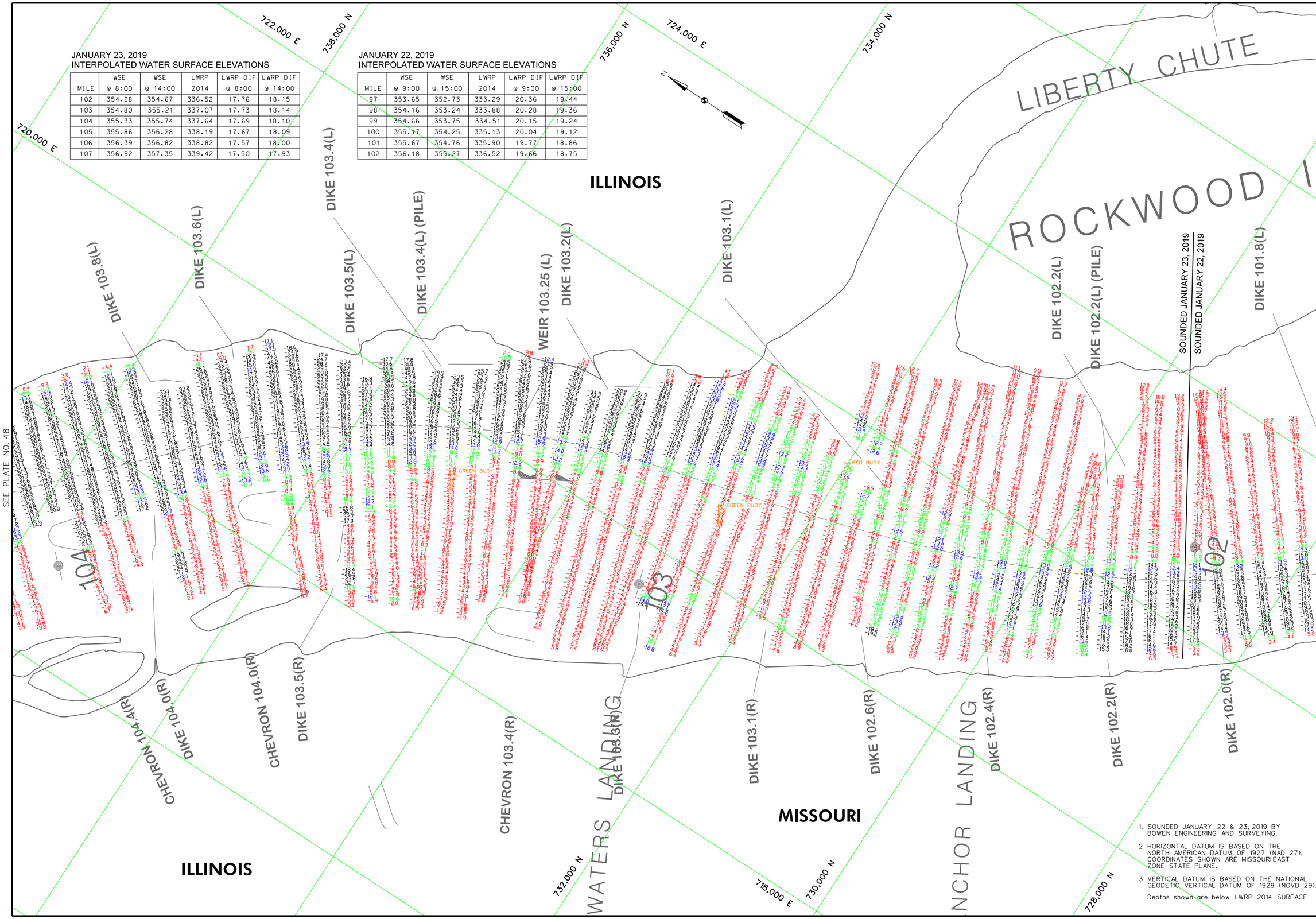
PLATE NUMBER
48

JANUARY 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
102	354.28	354.67	336.52	17.76	18.15
103	354.80	355.21	337.07	17.73	18.14
104	355.33	355.74	337.64	17.69	18.10
105	355.86	356.28	338.19	17.67	18.09
106	356.39	356.82	338.82	17.57	18.00
107	356.92	357.35	339.42	17.50	17.93

JANUARY 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
97	353.65	352.73	333.29	20.36	19.44
98	354.16	353.24	333.88	20.28	19.36
99	354.66	353.75	334.51	20.15	19.24
100	355.17	354.25	335.13	20.04	19.12
101	355.67	354.76	335.90	19.77	18.86
102	356.18	355.27	336.52	19.66	18.75



1. SOUNDED JANUARY 22 & 23, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
22 JAN 2019	19.12(9:00) 18.23(15:00)	DAMAGED, NOT READABLE	23.27(9:00) 22.34(15:00)	X
23 JAN 2019	17.41(8:00) 17.86(14:00)	DAMAGED, NOT READABLE	21.17(8:00) 21.51(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 22 & 23, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

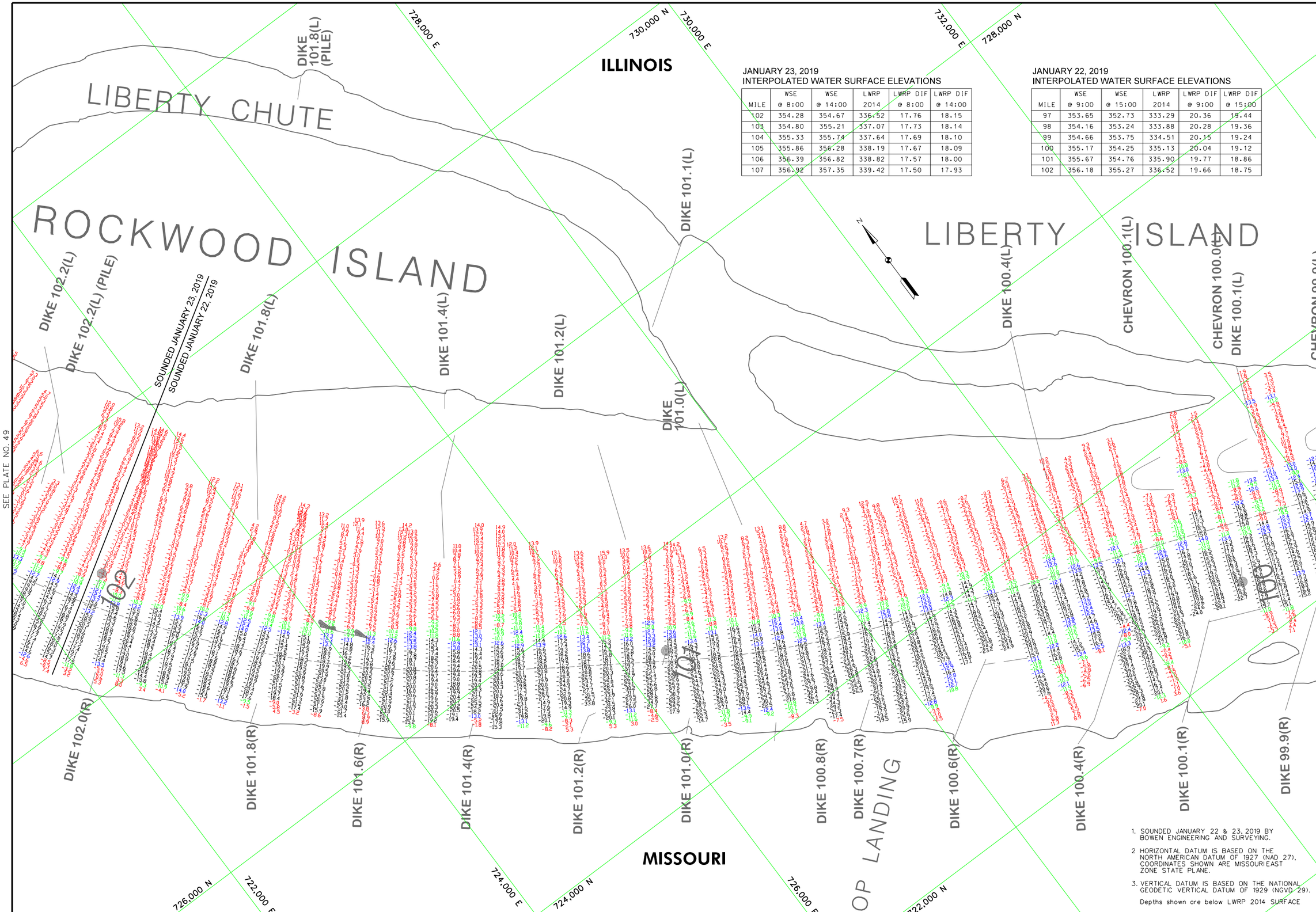
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 102.0 – 103.9

PLATE NUMBER

49



JANUARY 23, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
102	354.28	354.67	336.52	17.76	18.15
103	354.80	355.21	337.07	17.73	18.14
104	355.33	355.74	337.64	17.69	18.10
105	355.86	356.28	338.19	17.67	18.09
106	356.39	356.82	338.82	17.57	18.00
107	356.92	357.35	339.42	17.50	17.93

JANUARY 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
97	353.65	352.73	333.29	20.36	19.44
98	354.16	353.24	333.88	20.28	19.36
99	354.66	353.75	334.51	20.15	19.24
100	355.17	354.25	335.13	20.04	19.12
101	355.67	354.76	335.90	19.77	18.86
102	356.18	355.27	336.52	19.66	18.75

1. SOUNDED JANUARY 22 & 23, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
22 JAN 2019	19.12(9:00) 18.23(15:00)	DAMAGED, NOT READABLE	23.27(9:00) 22.34(15:00)	X
23 JAN 2019	17.41(8:00) 17.86(14:00)	DAMAGED, NOT READABLE	21.17(8:00) 21.51(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 22 & 23, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

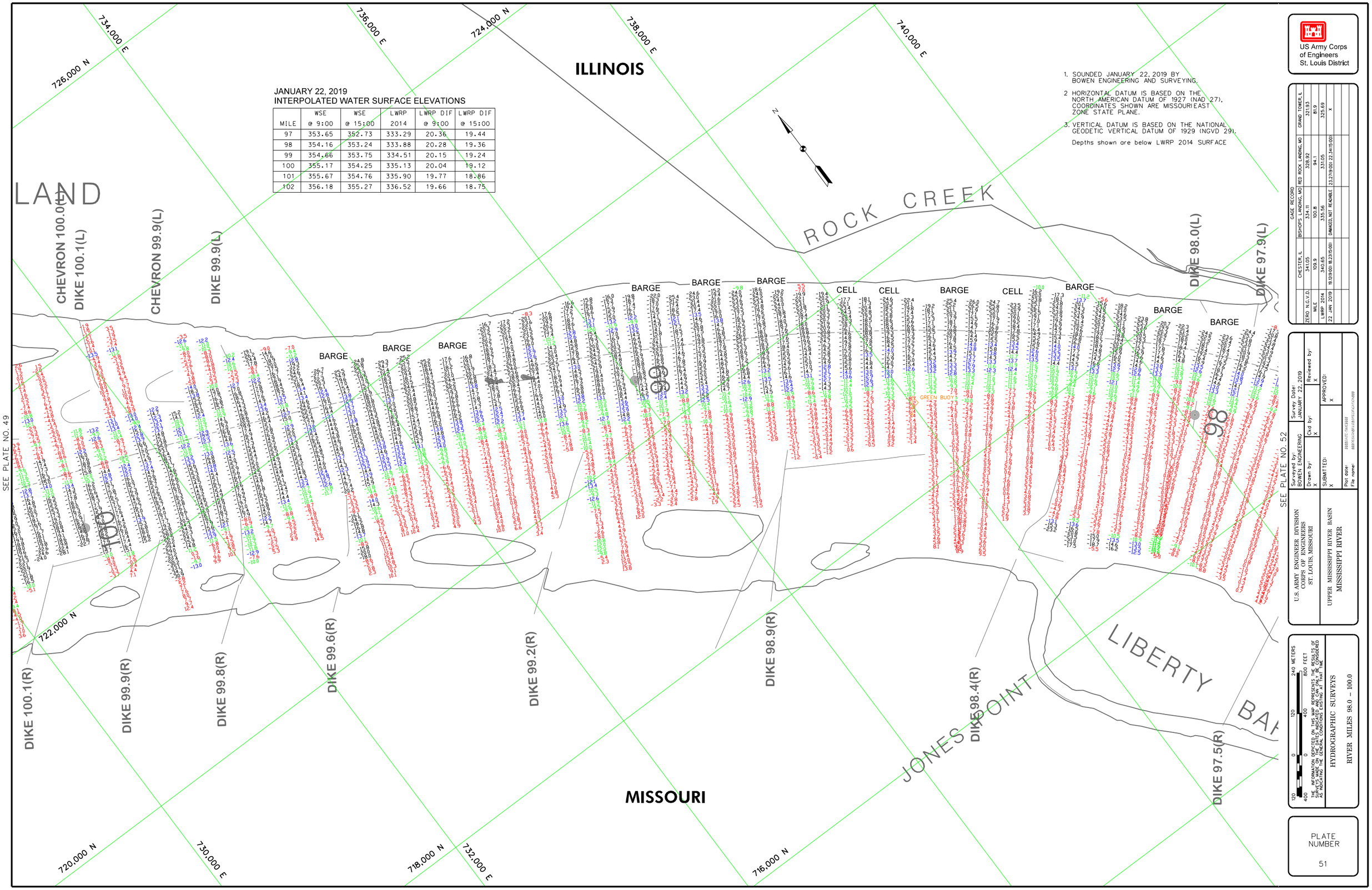
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 100.0 – 102.0

PLATE NUMBER
50



JANUARY 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
97	353.65	352.73	333.29	20.36	19.44
98	354.16	353.24	333.88	20.28	19.36
99	354.66	353.75	334.51	20.15	19.24
100	355.17	354.25	335.13	20.04	19.12
101	355.67	354.76	335.90	19.77	18.86
102	356.18	355.27	336.52	19.66	18.75

1. SOUNDED JANUARY 22, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
22 JAN 2019	19.12(19:00) 18.23(15:00)	DAMAGED, NOT READABLE	23.27(19:00) 22.34(15:00)	X

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

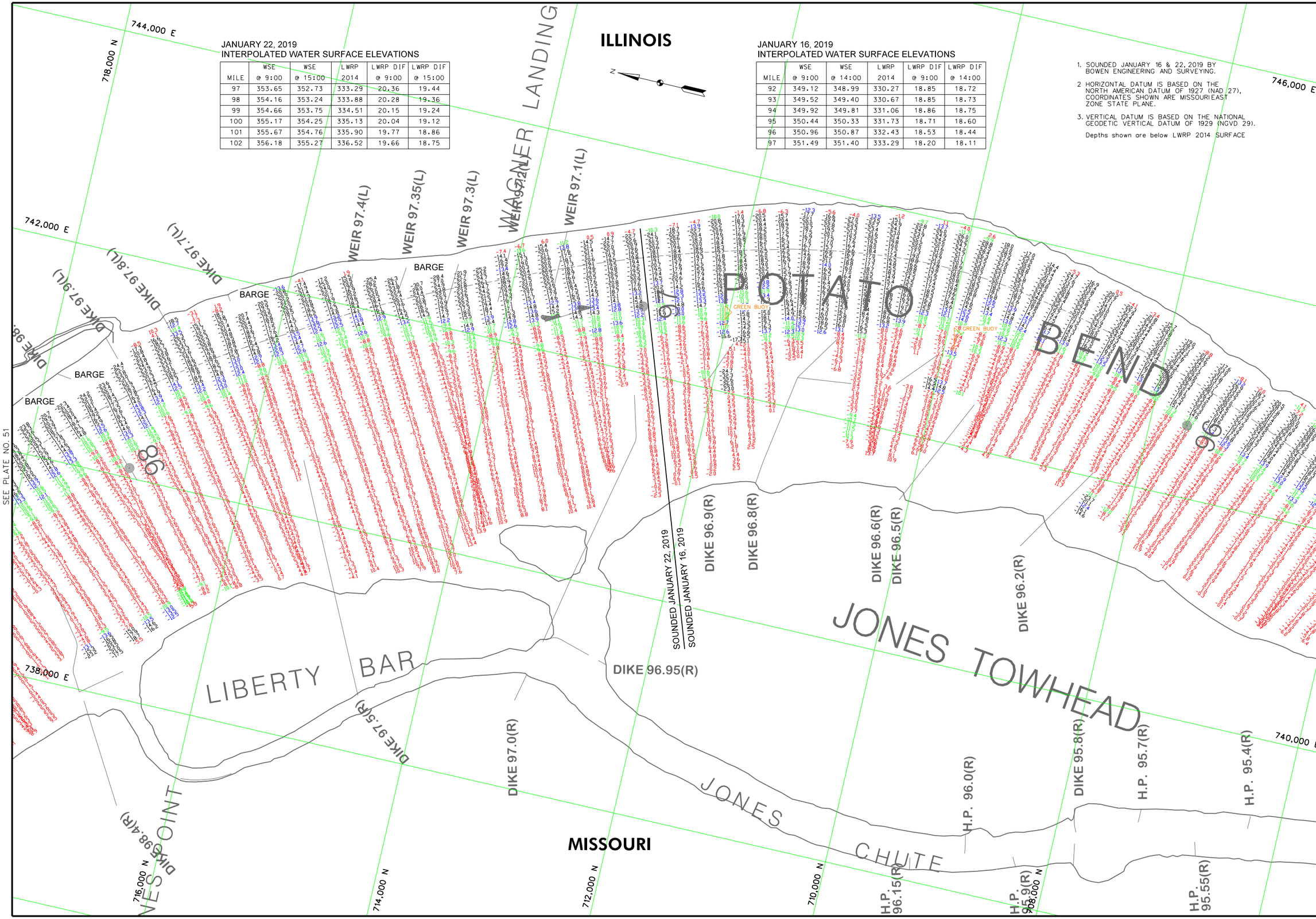
Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 22, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE/TIME####
File name: ####PRESSIONIFILE#SPECIFICATION###

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 98.0 – 100.0

PLATE NUMBER
51



JANUARY 22, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
97	353.65	352.73	333.29	20.36	19.44
98	354.16	353.24	333.88	20.28	19.36
99	354.66	353.75	334.51	20.15	19.24
100	355.17	354.25	335.13	20.04	19.12
101	355.67	354.76	335.90	19.77	18.86
102	356.18	355.27	336.52	19.66	18.75

JANUARY 16, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
92	349.12	348.99	330.27	18.85	18.72
93	349.52	349.40	330.67	18.85	18.73
94	349.92	349.81	331.06	18.86	18.75
95	350.44	350.33	331.73	18.71	18.60
96	350.96	350.87	332.43	18.53	18.44
97	351.49	351.40	333.29	18.20	18.11

1. SOUNDED JANUARY 16 & 22, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
16 JAN 2019	17.26(9:00) 17.25(14:00)	DAMAGED, NOT READABLE	21.04(9:00) 20.93(14:00)	23.35(9:00) 22.93(14:30)
22 JAN 2019	19.12(9:00) 18.23(15:00)	DAMAGED, NOT READABLE	23.27(9:00) 22.34(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 16 & 22, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

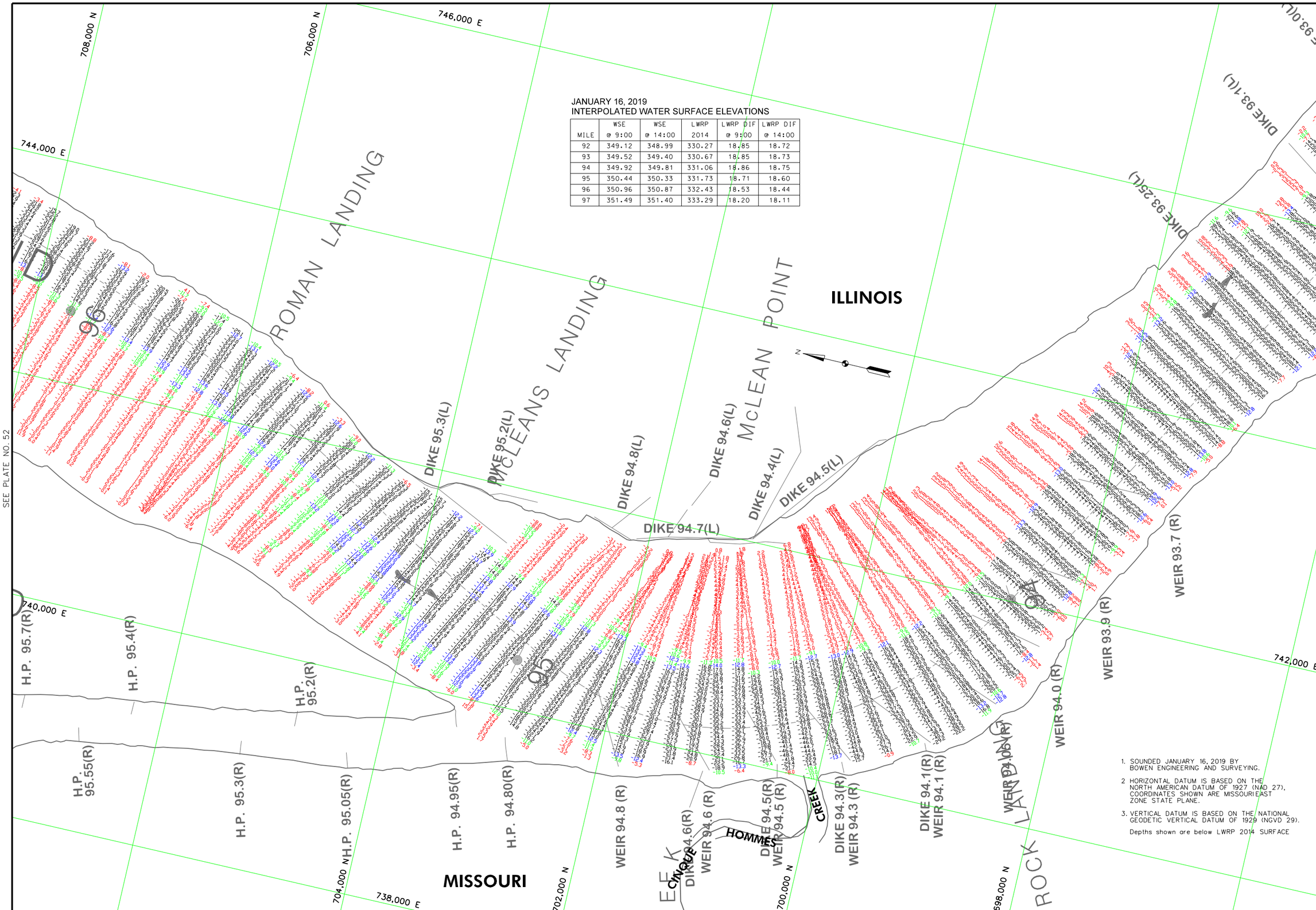
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 95.8 – 98.0

PLATE NUMBER
52



JANUARY 16, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
92	349.12	348.99	330.27	18.85	18.72
93	349.52	349.40	330.67	18.85	18.73
94	349.92	349.81	331.06	18.86	18.75
95	350.44	350.33	331.73	18.71	18.60
96	350.96	350.87	332.43	18.53	18.44
97	351.49	351.40	333.29	18.20	18.11

1. SOUNDED JANUARY 16, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
16 JAN 2019	17.26(9:00) 17.25(14:00)	DAMAGED, NOT READABLE	21.04(9:00) 20.93(14:00)	23.35(9:00) 22.93(14:30)

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

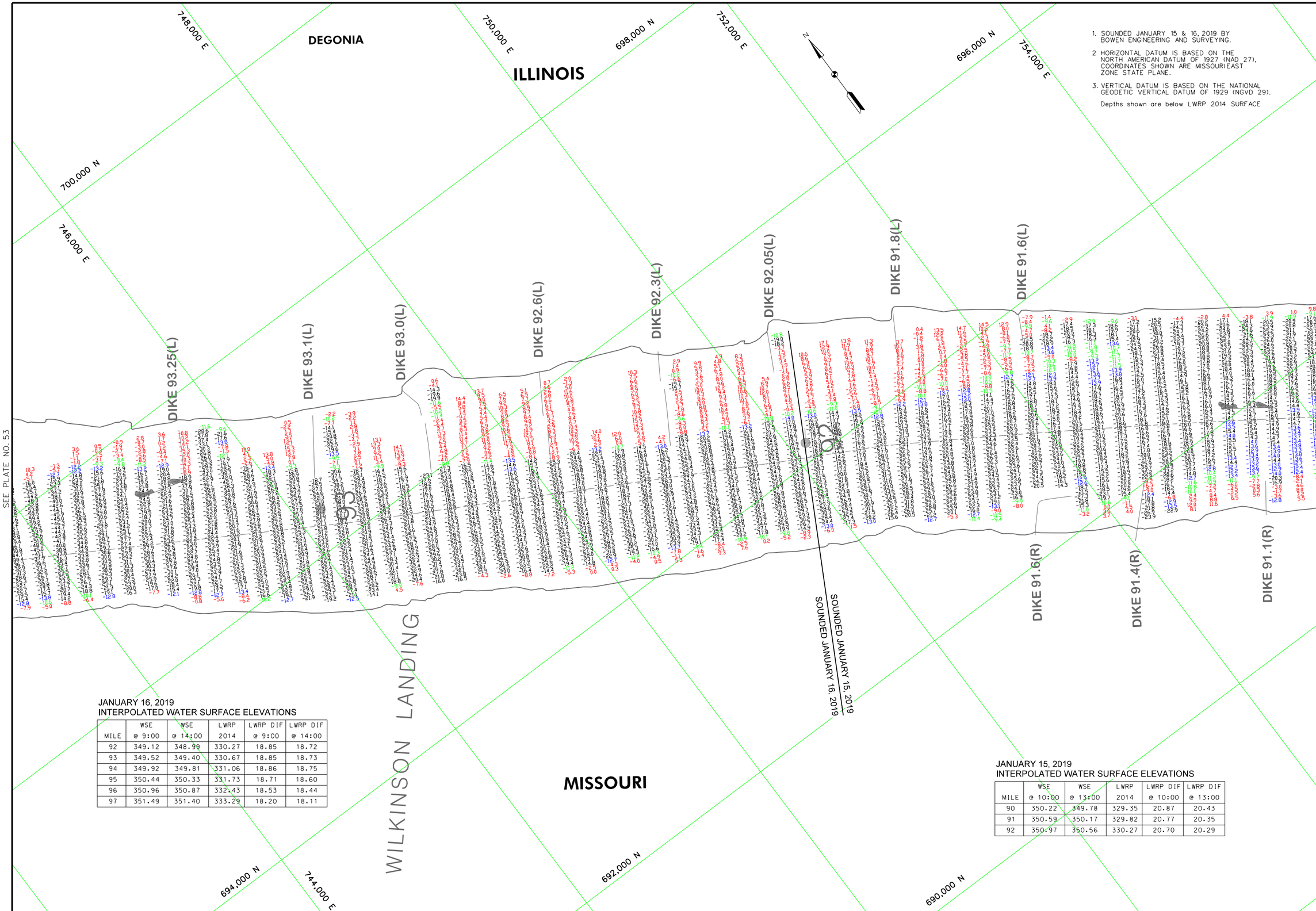
Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 16, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 93.5 – 95.8

PLATE NUMBER
53



1. SOUNDED JANUARY 15 & 16, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 16, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
92	349.12	348.99	330.27	18.85	18.72
93	349.52	349.40	330.67	18.85	18.73
94	349.92	349.81	331.06	18.86	18.75
95	350.44	350.33	331.73	18.71	18.60
96	350.96	350.87	332.43	18.53	18.44
97	351.49	351.40	333.29	18.20	18.11

JANUARY 15, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 13:00
90	350.22	349.78	329.35	20.87	20.43
91	350.59	350.17	329.82	20.77	20.35
92	350.97	350.56	330.27	20.70	20.29

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
15 JAN 2019	X	X	22.84(10:00) 22.46(13:00)	25.24(10:00) 24.68(13:00)
16 JAN 2019	17.26(9:00) 17.25(14:00)	DAMAGED, NOT READABLE	21.04(9:00) 20.93(14:00)	23.15(9:00) 22.93(14:30)

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 15 & 16, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME$$$$
File name: 0000DESIGN$FILE$SPECIFICATION$$$

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

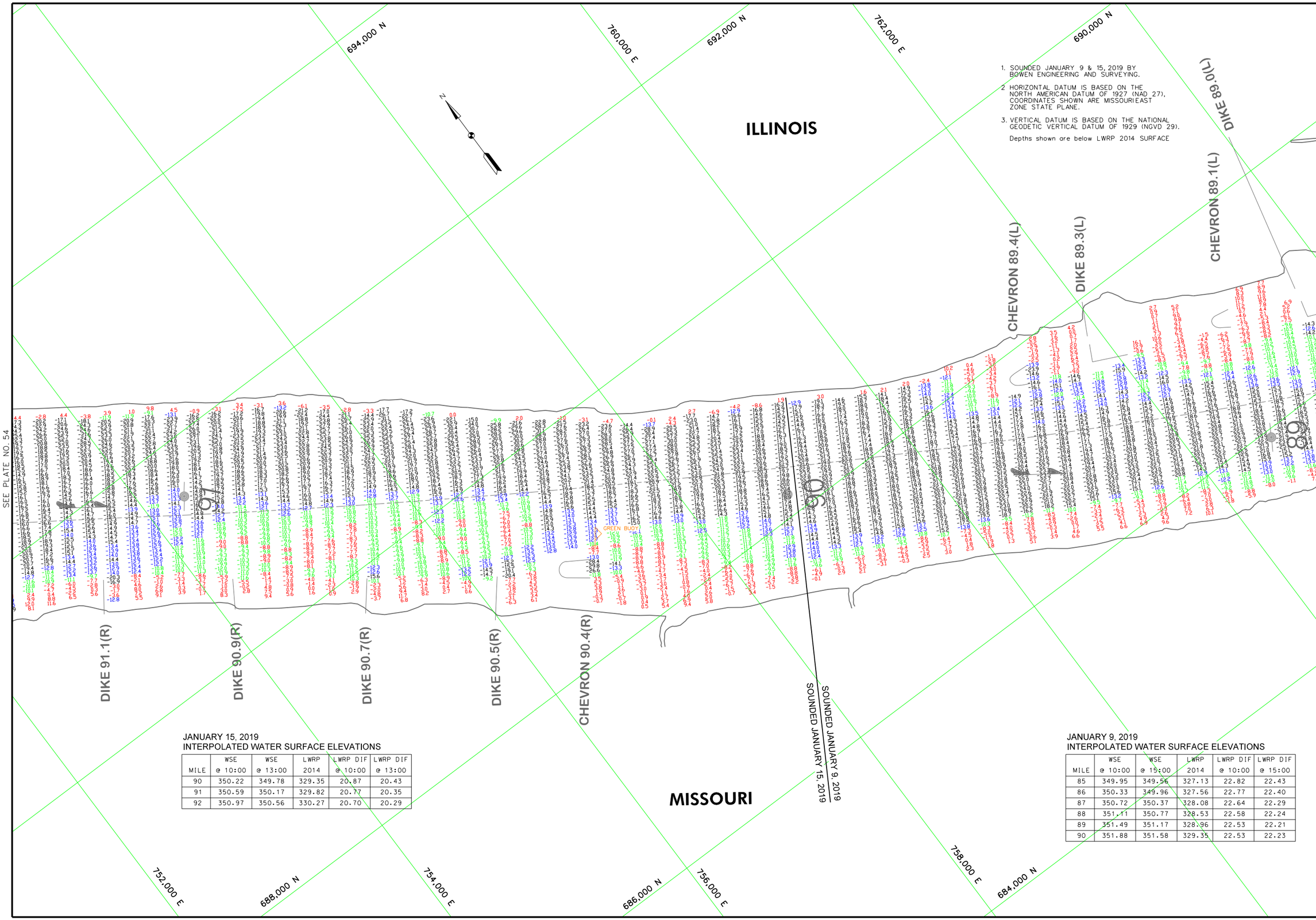
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 91.2 – 93.5

PLATE NUMBER
54



1. SOUNDED JANUARY 9 & 15, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 15, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 13:00
90	350.22	349.78	329.35	20.87	20.43
91	350.59	350.17	329.82	20.77	20.35
92	350.97	350.56	330.27	20.70	20.29

JANUARY 9, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
85	349.95	349.56	327.13	22.82	22.43
86	350.33	349.96	327.56	22.77	22.40
87	350.72	350.37	328.08	22.64	22.29
88	351.11	350.77	328.53	22.58	22.24
89	351.49	351.17	328.96	22.53	22.21
90	351.88	351.58	329.35	22.53	22.23

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
09 JAN 2019	X	X	24.54(10/00) 24.31(15/00)	26.82(10/00) 26.38(15/00)
15 JAN 2019	X	X	22.84(10/00) 22.46(13/00)	25.24(10/00) 24.68(13/00)

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 9 & 15, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME9999
File name: 9999DESIGN$FILE$SPECIFICATION$$

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

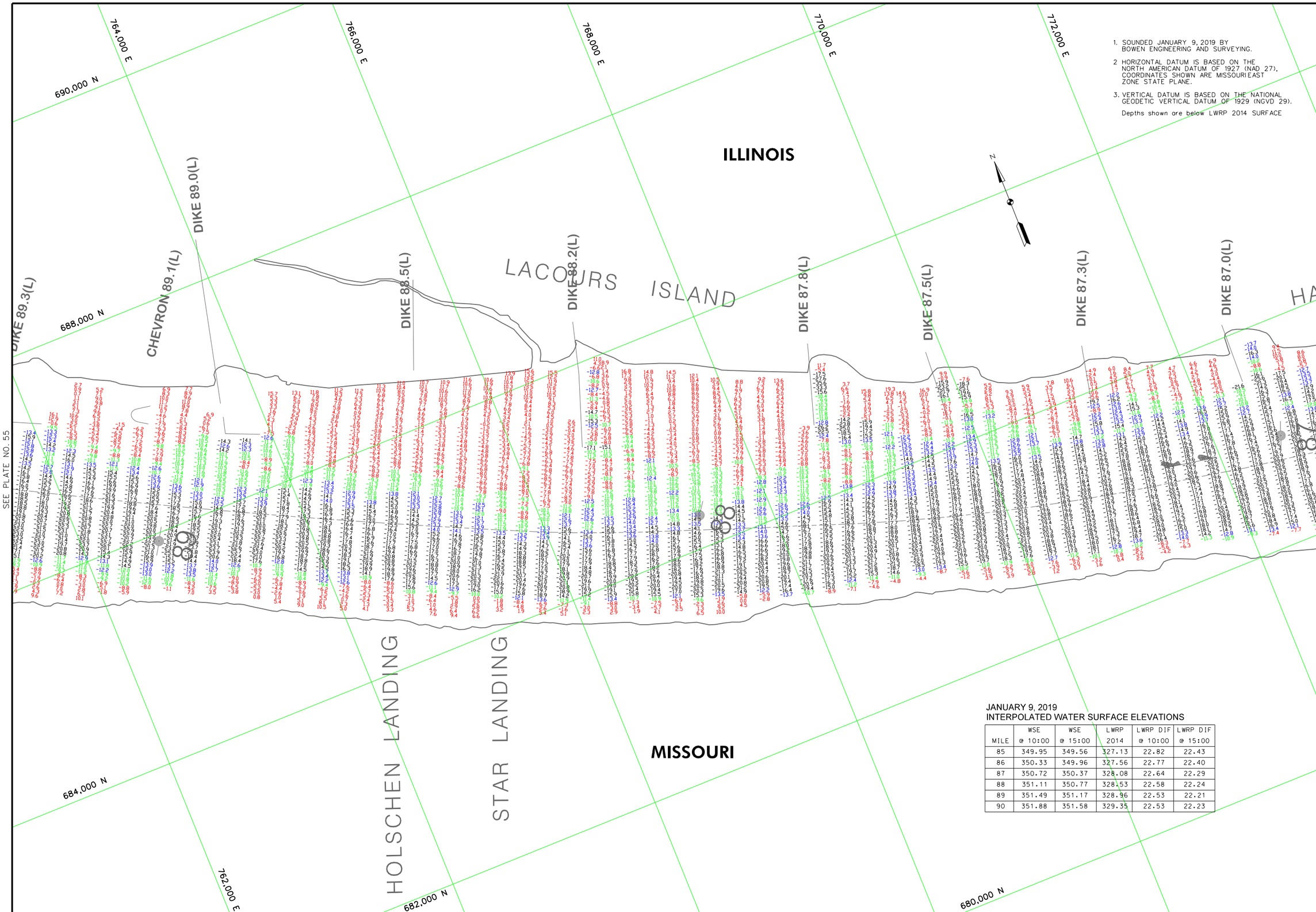
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 89.1 – 91.2

PLATE NUMBER
55



1. SOUNDED JANUARY 9, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 9, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
85	349.95	349.56	327.13	22.82	22.43
86	350.33	349.96	327.56	22.77	22.40
87	350.72	350.37	328.08	22.64	22.29
88	351.11	350.77	328.53	22.58	22.24
89	351.49	351.17	328.96	22.53	22.21
90	351.88	351.58	329.35	22.53	22.23

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CHESTER, IL	BISHOPS LANDING, MO	RED ROCK LANDING, MO	GRAND TOWER, IL
ZERO N.G.V.D.	341.05	334.11	328.92	321.93
MILE	109.9	100.8	94.1	81.9
LWRP 2014	340.65	335.56	331.05	325.69
09 JAN 2019	X	X	24.54(10:00) 24.31(15:00)	26.82(10:00) 26.38(15:00)

Survey Date: JANUARY 9, 2019
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#

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

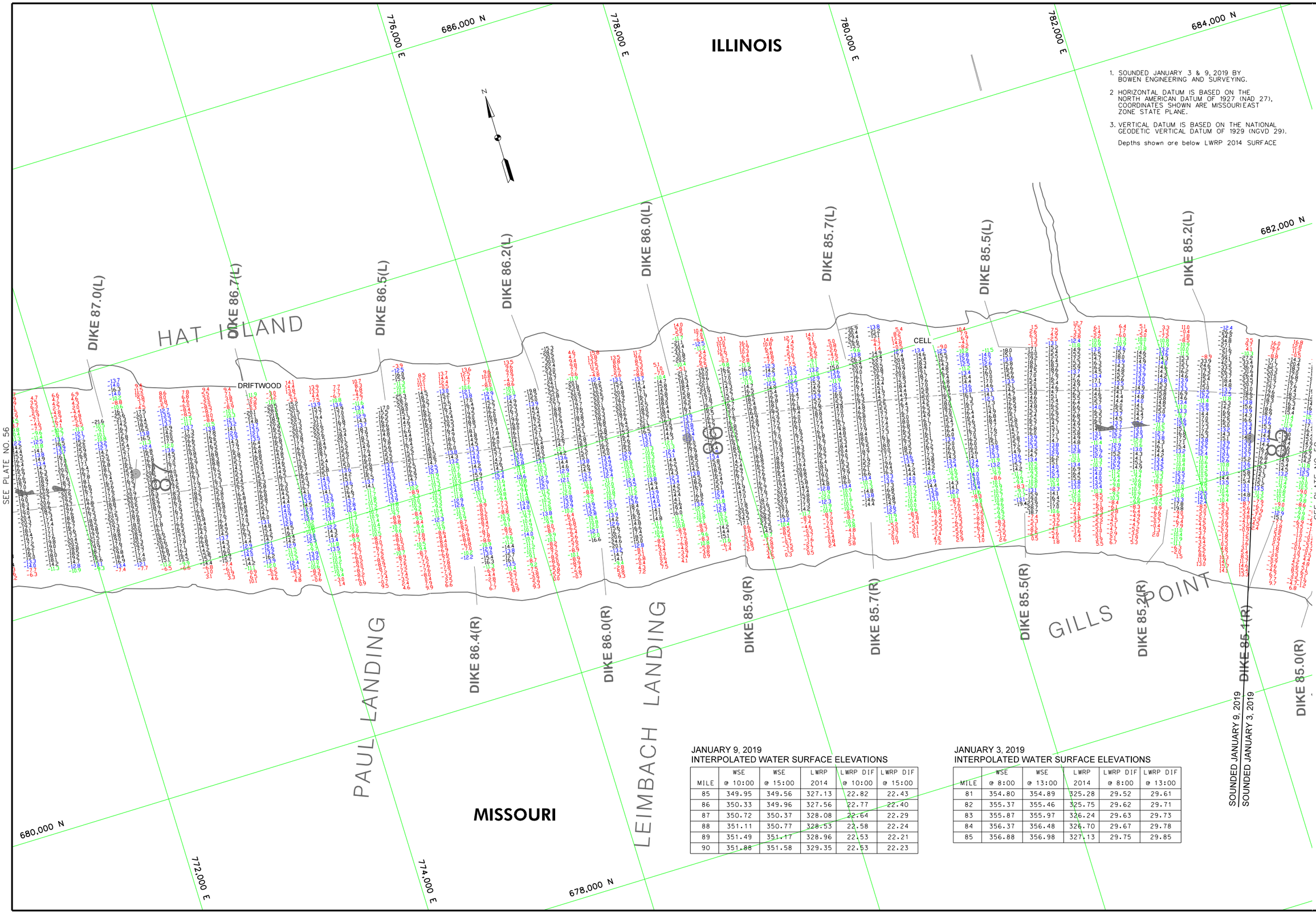
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 87.1 – 89.1

PLATE NUMBER
56



1. SOUNDED JANUARY 3 & 9, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

JANUARY 9, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
85	349.95	349.56	327.13	22.82	22.43
86	350.33	349.96	327.56	22.77	22.40
87	350.72	350.37	328.08	22.64	22.29
88	351.11	350.77	328.53	22.58	22.24
89	351.49	351.17	328.96	22.53	22.21
90	351.88	351.58	329.35	22.53	22.23

JANUARY 3, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
81	354.80	354.89	325.28	29.52	29.61
82	355.37	355.46	325.75	29.62	29.71
83	355.87	355.97	326.24	29.63	29.73
84	356.37	356.48	326.70	29.67	29.78
85	356.88	356.98	327.13	29.75	29.85

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
03 JAN 2019	32.52(8:00) 32.68(13:00)	33.39(8:00) 33.48(13:00)	MALFUNCTIONING	33.38(8:00) 33.61(13:00)
09 JAN 2019	24.54(10:00) 24.31(15:00)	26.82(10:00) 26.38(15:00)	MALFUNCTIONING	28.52(10:00) 28.15(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 3 & 9, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####SSIGNIFILE#SPECIFICATION###

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

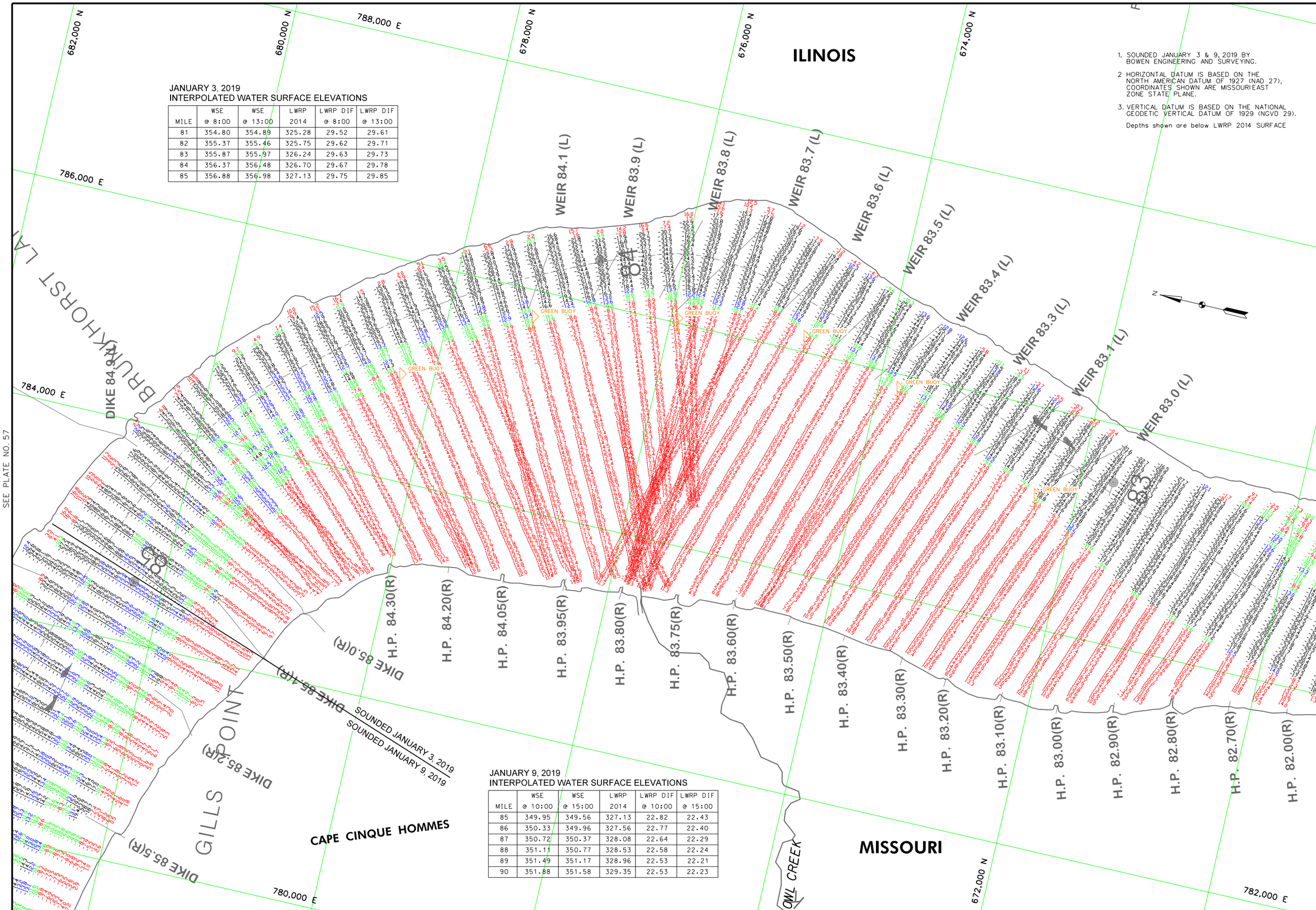
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 85.0 – 87.1

PLATE NUMBER
57



JANUARY 3, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
81	354.80	354.89	325.28	29.52	29.61
82	355.37	355.46	325.75	29.62	29.71
83	355.87	355.97	326.24	29.63	29.73
84	356.37	356.48	326.70	29.67	29.78
85	356.88	356.98	327.13	29.75	29.85

JANUARY 9, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
85	349.95	349.56	327.13	22.82	22.43
86	350.33	349.96	327.56	22.77	22.40
87	350.72	350.37	328.08	22.64	22.29
88	351.11	350.77	328.53	22.58	22.24
89	351.49	351.17	328.96	22.53	22.21
90	351.88	351.58	329.35	22.53	22.23

1. SOUNDED JANUARY 3 & 9, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
03 JAN 2019	32.52(8:00) 32.68(13:00)	33.39(8:00) 33.48(13:00)	MALFUNCTIONING	33.38(8:00) 33.61(13:00)
09 JAN 2019	24.54(10:00) 24.31(15:00)	26.82(10:00) 26.38(15:00)	MALFUNCTIONING	28.52(10:00) 28.15(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: JANUARY 3 & 9, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 82.7 – 85.0

PLATE NUMBER
58

JANUARY 3, 2019
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
81	354.80	354.89	325.28	29.52	29.61
82	355.37	355.46	325.75	29.62	29.71
83	355.87	355.97	326.24	29.63	29.73
84	356.37	356.48	326.70	29.67	29.78
85	356.88	356.98	327.13	29.75	29.85

DECEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
76	343.84	343.51	322.86	20.98	20.65
77	344.34	344.01	323.33	21.01	20.68
78	344.84	344.51	323.68	21.16	20.83
79	345.34	345.00	324.40	20.94	20.60
80	345.84	345.50	324.86	20.98	20.64
81	346.34	346.00	325.28	21.06	20.72

ILLINOIS

MISSOURI

788,000 E

786,000 E

784,000 E

782,000 E

670,000 N

668,000 N

666,000 N

664,000 N

662,000 N

660,000 N

CHEVRON 81.9(L)

DIKE 81.85(L)

DIKE 81.8 (L)

SOUNDED JANUARY 3, 2019

SOUNDED DECEMBER 12, 2018

BARGE

H.P. 82.80(R)

H.P. 82.70(R)

H.P. 82.00(R)

WEIR 82.5 (R)

WEIR 82.4 (R)

1384' ELECTRIC CABLES

1340' ELECTRIC CABLES

1200' CLEAR

1200' CLEAR

82

81

TUCKER POINT

NATURAL GAS PIPELINE

SEE PLATE NO. 60

Z-30" ON BRIDGE

1. SOUNDED DECEMBER 12, 2018 & JANUARY 3, 2019 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
12 DEC 2018	X	24.86'@00 24.52'@5:00	25.11'@00 24.78'@5:00	X
03 JAN 2019	32.52'@00 32.68'@13:00	31.39'@00 33.48'@13:00	MALFUNCTIONING	33.38'@00 33.61'@13:00

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

Surveyed by: BOWEN ENGINEERING
Survey Date: DEC. 12, 2018 & JAN. 3, 2019
Drawn by: X
Ckd by: X
Reviewed by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ########

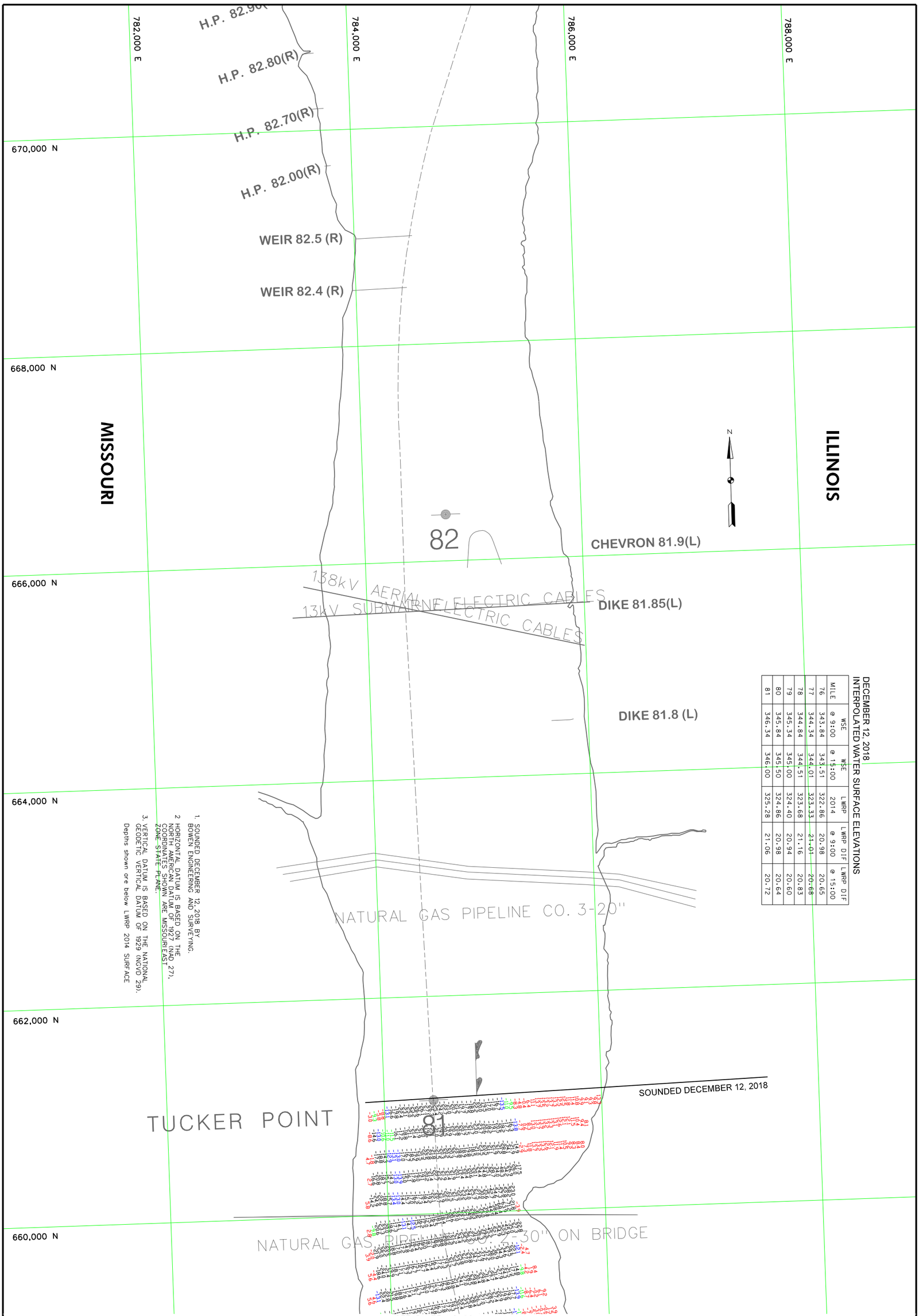
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
120
0
0
400
800 FEET

THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ENGINEER DISTRICT AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 80.7 – 82.7

PLATE NUMBER
59



DECEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
76	343.84	343.51	322.86	20.98	20.65
77	344.34	344.01	323.33	21.01	20.68
78	344.84	344.51	323.68	21.16	20.83
79	345.34	345.00	324.40	20.94	20.60
80	345.84	345.50	324.86	20.98	20.64
81	346.34	346.00	325.28	21.06	20.72

1. SOUNDED DECEMBER 12, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). Depths shown are below LWRP 2014 SURFACE

PLATE NUMBER 59

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 80.7 – 82.7

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

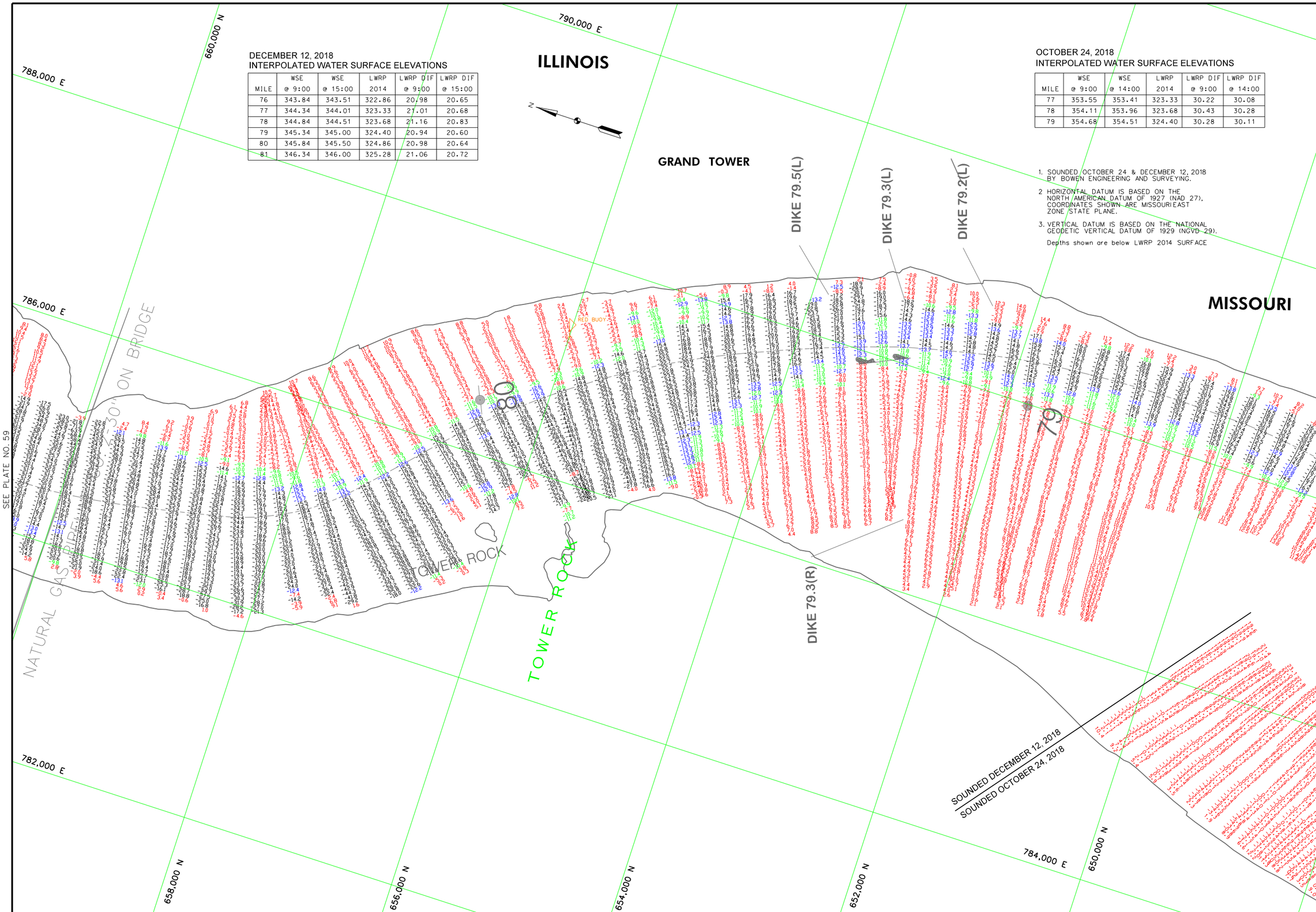
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by:	Survey Date:
BOWEN ENGINEERING	DECEMBER 12, 2018
Drawn by: X	Ckd by: X
Reviewed by: X	
SUBMITTED: X	APPROVED: X
Plot date: 99/99/DATE-TIME/9999	
File name: 9999\DESIGN\FILE\9\SPECIFICATION.999	

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
12 DEC 2018	x	24.86(9:00) 24.52(15:00)	25.11(9:00) 24.78(15:00)	x

US Army Corps of Engineers
St. Louis District



DECEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
76	343.84	343.51	322.86	20.98	20.65
77	344.34	344.01	323.33	21.01	20.68
78	344.84	344.51	323.68	21.16	20.83
79	345.34	345.00	324.40	20.94	20.60
80	345.84	345.50	324.86	20.98	20.64
81	346.34	346.00	325.28	21.06	20.72

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
77	353.55	353.41	323.33	30.22	30.08
78	354.11	353.96	323.68	30.43	30.28
79	354.68	354.51	324.40	30.28	30.11

1. SOUNDED OCTOBER 24 & DECEMBER 12, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
24 OCT 2018	X	34.39(9:00) 34.19(14:00)	33.60(9:00) 33.59(14:00)	33.68(9:00) 33.55(14:00)
12 DEC 2018	X	24.86(9:00) 24.52(15:00)	25.11(9:00) 24.78(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 24 & DEC. 12, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

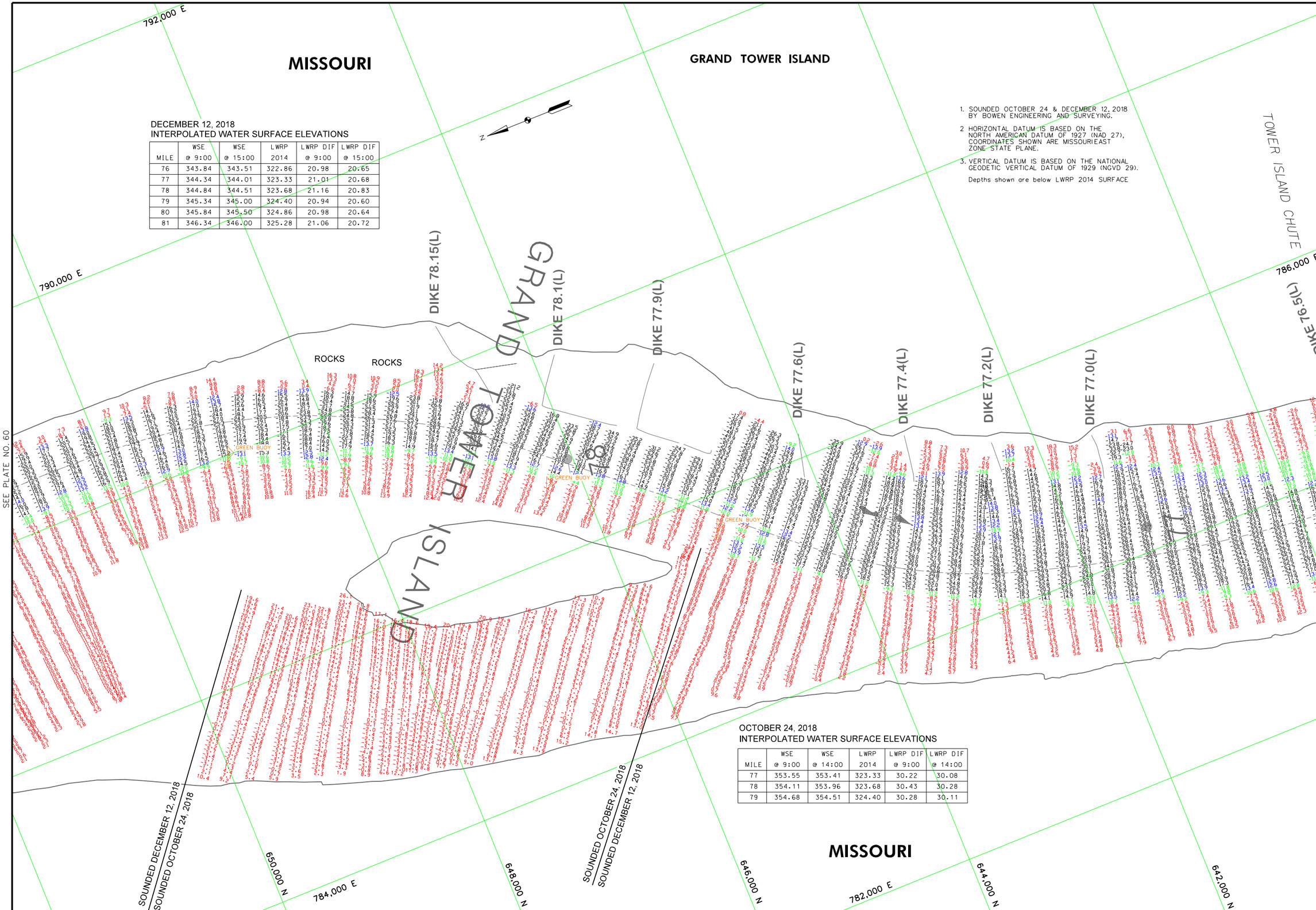
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 80.7 – 78.6

PLATE NUMBER
60



DECEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
76	343.84	343.51	322.86	20.98	20.65
77	344.34	344.01	323.33	21.01	20.68
78	344.84	344.51	323.68	21.16	20.83
79	345.34	345.00	324.40	20.94	20.60
80	345.84	345.50	324.86	20.98	20.64
81	346.34	346.00	325.28	21.06	20.72

1. SOUNDED OCTOBER 24 & DECEMBER 12, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
77	353.55	353.41	323.33	30.22	30.08
78	354.11	353.96	323.68	30.43	30.28
79	354.68	354.51	324.40	30.28	30.11

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
24 OCT 2018	x	34.39(9:00) 34.19(14:00)	33.60(9:00) 33.59(14:00)	33.68(9:00) 33.55(14:00)
12 DEC 2018	x	24.86(9:00) 24.52(15:00)	25.11(9:00) 24.78(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 24 & DEC. 12, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME0000
File name: 000PROJECTS\EBSPECIFICATION000

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

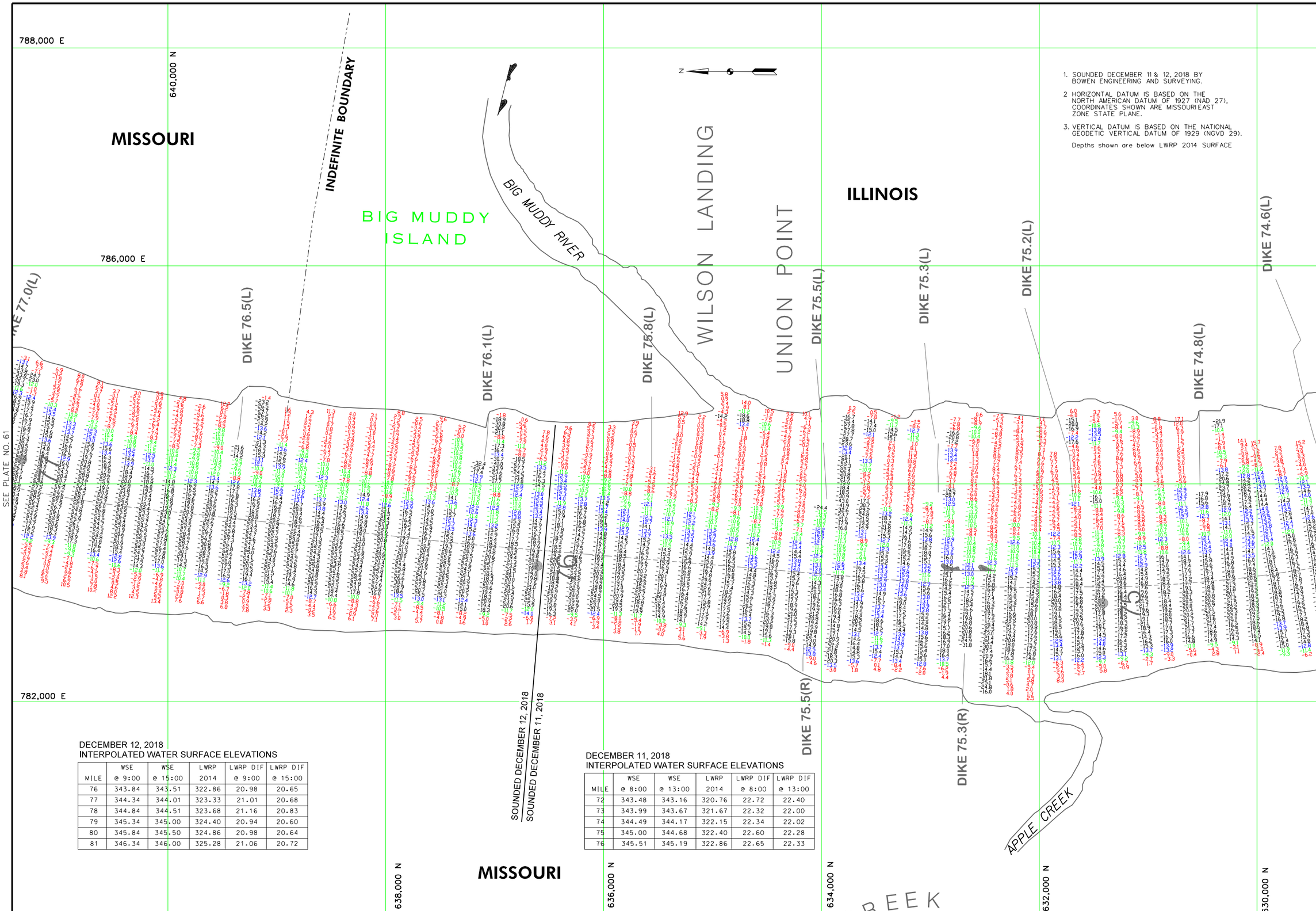
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
RIVER MILES 76.8 – 78.6

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 76.8 – 78.6

PLATE NUMBER
61



1. SOUNDED DECEMBER 11 & 12, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

DECEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
76	343.84	343.51	322.86	20.98	20.65
77	344.34	344.01	323.33	21.01	20.68
78	344.84	344.51	323.68	21.16	20.83
79	345.34	345.00	324.40	20.94	20.60
80	345.84	345.50	324.86	20.98	20.64
81	346.34	346.00	325.28	21.06	20.72

DECEMBER 11, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
72	343.48	343.16	320.76	22.72	22.40
73	343.99	343.67	321.67	22.32	22.00
74	344.49	344.17	322.15	22.34	22.02
75	345.00	344.68	322.40	22.60	22.28
76	345.51	345.19	322.86	22.65	22.33

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
11 DEC 2018	X	26.56(8:00) 26.26(13:00)	26.71(8:00) 26.37(13:00)	X
12 DEC 2018	X	24.86(9:00) 24.52(15:00)	25.11(9:00) 24.78(15:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: DECEMBER 11 & 12, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 74.7 – 76.8

PLATE NUMBER
62

ILLINOIS

DECEMBER 11, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
72	343.48	343.16	320.76	22.72	22.40
73	343.99	343.67	321.67	22.32	22.00
74	344.49	344.17	322.15	22.34	22.02
75	345.00	344.68	322.40	22.60	22.28
76	345.51	345.19	322.86	22.65	22.33

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
70	349.58	349.53	319.59	29.99	29.94
71	350.15	350.08	320.22	29.93	29.86
72	350.72	350.64	320.76	29.96	29.88
73	351.28	351.19	321.67	29.61	29.52
74	351.85	351.74	322.15	29.70	29.59

786,000 E
630,000 N
628,000 N
626,000 N
624,000 N
622,000 N
782,000 E
780,000 E

DIKE 74.8(L)
DIKE 74.6(L)
DIKE 74.4(L)
DIKE 74.2(L)
DIKE 74.1(L)
DIKE 73.9(L)
DIKE 73.65(L)
DIKE 73.4(L)
DIKE 72.9(L)
DIKE 72.7(L)
DIKE 73.1(R)

SOUNDED OCTOBER 24, 2018
SOUNDED DECEMBER 11, 2018

CRAWFORD TOWHEAD
CRAWFORD LANDING
CRAWFORD CREEK
HINES LANDING
CHEVRON

SEE PLATE NO. 62
SEE PLATE NO. 64

1. SOUNDED OCTOBER 24 & DECEMBER 11, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MISSOURI

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
24 OCT 2018	x	34.39@900 34.19@1400	33.60@900 33.59@1400	33.68@900 33.55@1400
11 DEC 2018	x	26.56@800 26.26@1300	26.71@800 26.37@1300	x

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 24 & DEC. 11, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

0 120 240 METERS
0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY BOWEN ENGINEERING AND SHOULD NOT BE INTERPRETED AS INDICATING THE GENERAL CONDITIONS EXISTING AT ANY TIME OTHER THAN THE DATES OF THE SURVEYS.

HYDROGRAPHIC SURVEYS
RIVER MILES 72.7 – 74.7

PLATE NUMBER
63

ILLINOIS

MISSOURI

1. SOUNDED OCTOBER 24 & DECEMBER 10 & 11, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

790,000 E
792,000 E
788,000 E
784,000 E
786,000 E
620,000 N
618,000 N
616,000 N
614,000 N

CRAWFORD CHUTE

TOWHEAD

DIKE 72.45(L)
DIKE 72.1(L)
DIKE 71.7(L)
DIKE 71.4(L)
DIKE 71.3(L)
DIKE 71.0(L)
DIKE 70.6(L)
DIKE 72.7(L)
DIKE 72.4(L)
DIKE 72.4(R)
DIKE 71.4(R)
DIKE 71.3(R)
DIKE 71.2(R)
DIKE 71.0(R)
DIKE 70.7(R)

SOUNDED OCTOBER 24, 2018
SOUNDED DECEMBER 10, 2018
SOUNDED DECEMBER 11, 2018
SOUNDED DECEMBER 10, 2018

RED BUOY

BARGE

DOG CREEK

NEELY'S CREEK

SEE PLATE NO. 63

SEE PLATE NO. 65

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
70	349.58	349.53	319.59	29.99	29.94
71	350.15	350.08	320.22	29.93	29.86
72	350.72	350.64	320.76	29.96	29.88
73	351.28	351.19	321.67	29.61	29.52
74	351.85	351.74	322.15	29.70	29.59

DECEMBER 11, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
72	343.48	343.16	320.76	22.72	22.40
73	343.99	343.67	321.67	22.32	22.00
74	344.49	344.17	322.15	22.34	22.02
75	345.00	344.68	322.40	22.60	22.28
76	345.51	345.19	322.86	22.65	22.33

DECEMBER 10, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
66	341.83	341.53	317.46	24.37	24.07
67	342.37	342.06	317.65	24.72	24.41
68	342.88	342.57	318.60	24.28	23.97
69	343.39	343.07	319.09	24.30	23.98
70	343.90	343.57	319.59	24.31	23.98
71	344.41	344.08	320.22	24.19	23.86
72	344.93	344.58	320.76	24.17	23.82

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
24 OCT 2018	X	34.399'000	33.609'000	33.584'000	33.668'000	33.551'000
10 DEC 2018	X	28.668'000	27.644'05'001	28.108'000	27.821'05'001	28.305'000	28.471'05'001
11 DEC 2018	X	26.566'000	26.261'05'001	26.718'000	26.371'05'001	X

US Army Corps of Engineers
St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 24; DEC. 10 & 11, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ######## ##:##:## AM
File name: ########\########.dgn

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 70.7 – 72.7

240 METERS
800 FEET
0 120 400
0 120 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AND IS INDICATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
64

ILLINOIS

DECEMBER 10, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
66	341.83	341.53	317.46	24.37	24.07
67	342.37	342.06	317.65	24.72	24.41
68	342.88	342.57	318.60	24.28	23.97
69	343.39	343.07	319.09	24.30	23.98
70	343.90	343.57	319.59	24.31	23.98
71	344.41	344.08	320.22	24.19	23.86
72	344.93	344.58	320.76	24.17	23.82

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
70	349.58	349.53	319.59	29.99	29.94
71	350.15	350.08	320.22	29.93	29.86
72	350.72	350.64	320.76	29.96	29.88
73	351.28	351.19	321.67	29.61	29.52
74	351.85	351.74	322.15	29.70	29.59

794,000 E
612,000 N
610,000 N
796,000 E
608,000 N
606,000 N
798,000 E
604,000 N
788,000 E
792,000 E
790,000 E
602,000 N

SOUNDED OCTOBER 24, 2018
SOUNDED DECEMBER 10, 2018

HANGING DOG ISLAND

DIKE 70.7
WEIR 70.45 (L)
DIKE 70.3(L)
WEIR 70.35 (L)
WEIR 70.25 (L)
DIKE 70.1(L)
WEIR 70.15 (L)
WEIR 70.0 (L)
DIKE 69.8(L)
DIKE 69.5(L)
DIKE 69.1(L)
DIKE 68.8(L)
DIKE 68.5(L)

DIKE 70.7(R)
DIKE 70.3(R)
DIKE 69.9(R)
DIKE 69.5(R)
DIKE 69.1(R)

NEELYS LANDING
CREEK

SEE PLATE NO. 64
SEE PLATE NO. 66

MISSOURI

1. SOUNDED OCTOBER 24 & DECEMBER 10, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
24 OCT 2018	x	34.39@9:00	33.69@9:00	33.55@14:00
10 DEC 2018	x	28.66@8:00	28.01@8:00	28.47@15:00
		27.64@5:00	27.82@15:00	28.30@5:00

Survey Date: OCT. 24 & DEC. 10, 2018
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
APPROVED: X
SUBMITTED: X
Plot date: ########
File name: ########

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

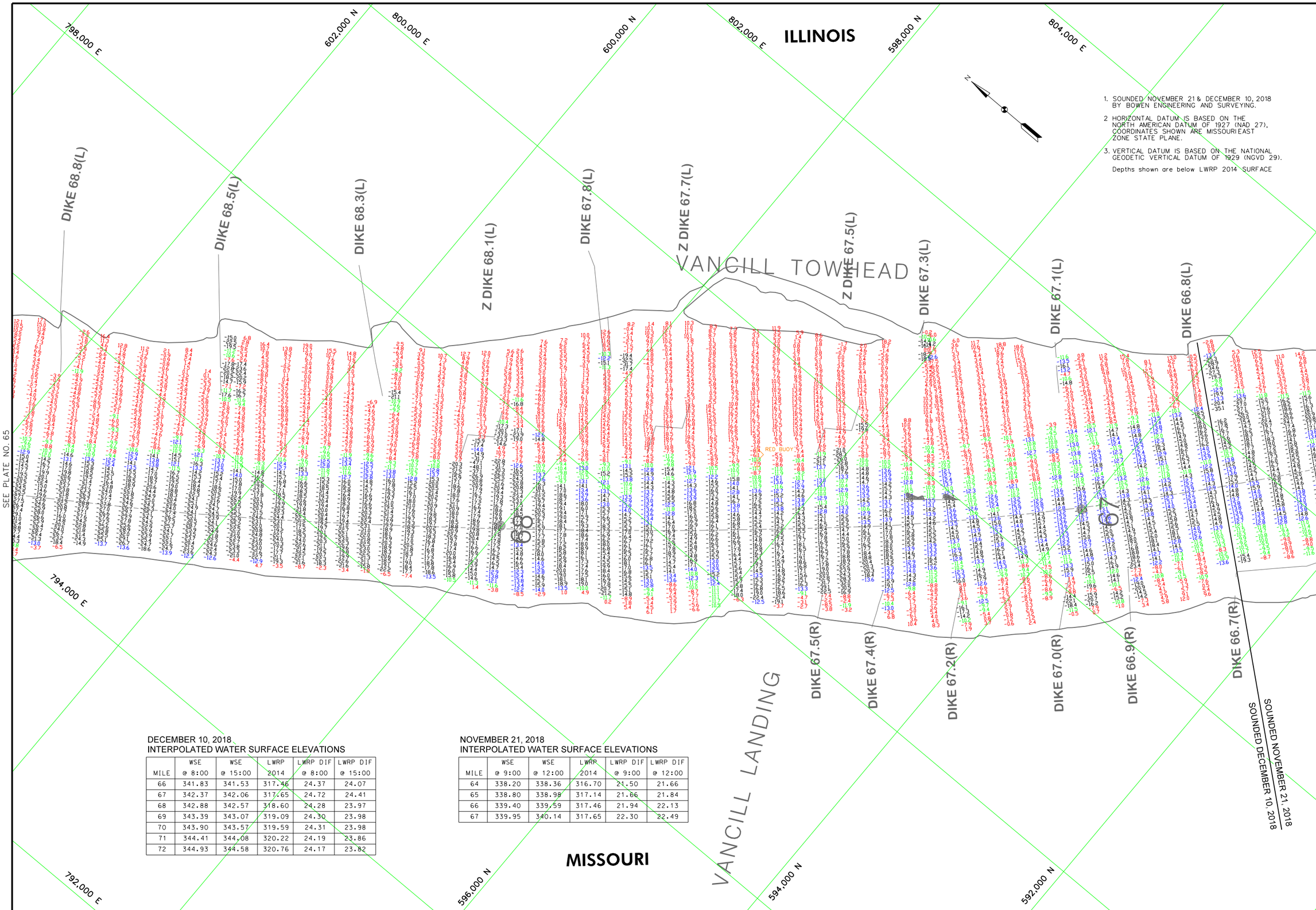
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
120
0
0
120
400
800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE CORPS OF ENGINEERS AND IS INTENDED TO BE USED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

HYDROGRAPHIC SURVEYS
RIVER MILES 68.7 – 70.7

PLATE NUMBER
65



1. SOUNDED NOVEMBER 21 & DECEMBER 10, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

DECEMBER 10, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
66	341.83	341.53	317.46	24.37	24.07
67	342.37	342.06	317.65	24.72	24.41
68	342.88	342.57	318.60	24.28	23.97
69	343.39	343.07	319.09	24.30	23.98
70	343.90	343.57	319.59	24.31	23.98
71	344.41	344.08	320.22	24.19	23.86
72	344.93	344.58	320.76	24.17	23.82

NOVEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 12:00
64	338.20	338.36	316.70	21.50	21.66
65	338.80	338.98	317.14	21.66	21.84
66	339.40	339.59	317.46	21.94	22.13
67	339.95	340.14	317.65	22.30	22.49

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
21 NOV 2018	X	25.98(9:00) 25.98(12:00)	25.69(9:00) 25.89(12:00)	26.43(9:00) 26.36(12:00)
10 DEC 2018	X	28.06(8:00) 27.64(15:00)	28.12(8:00) 27.82(15:00)	28.90(8:00) 28.47(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: NOV. 21 & DEC. 10, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME:9999
File name: 9999DESIGN\FILE\SPECIFICATION\999

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 66.7 – 68.7

PLATE NUMBER
66

ILLINOIS

MISSOURI

806,000 E
804,000 E
808,000 E
810,000 E
594,000 N
592,000 N
590,000 N
800,000 E
802,000 E
588,000 N
586,000 N
584,000 N

DIKE 66.8(L)
DIKE 66.5(L)
DIKE 66.3(L)
DIKE 66.0(L)
DIKE 65.9(L)
DIKE 65.8(L)
DIKE 65.6(L)
DIKE 65.3(L)
DIKE 65.1(L)
DIKE 64.7(L)
DIKE 66.7(R)
DIKE 66.6(R)
DIKE 66.0(R)
DIKE 65.7(R)
DIKE 65.3(R)
DIKE 64.8(R)

WILLARD LANDING

66
65

SEE PLATE NO. 66
SEE PLATE NO. 68

SOUNDED DECEMBER 10, 2018
SOUNDED NOVEMBER 21, 2018
SOUNDED NOVEMBER 20, 2018
SOUNDED NOVEMBER 21, 2018

1 GREEN BUOY

SHEPPARD

1. SOUNDED NOVEMBER 20 & 21 AND DECEMBER 10, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD				
	RED ROCK LANDING, MO	GRAND TOWER, IL	MODOCASN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
20 NOV 2018	X	X	25.979(00) 26.01(14.00)	26.57(9.00) 26.52(14.00)
21 NOV 2018	X	25.98(9.00) 25.98(12.00)	25.69(9.00) 25.89(12.00)	26.43(9.00) 26.36(12.00)
10 DEC 2018	X	28.06(8.00) 27.64(15.00)	28.12(8.00) 27.82(15.00)	28.90(8.00) 28.47(15.00)

DECEMBER 10, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
66	341.83	341.53	317.46	24.37	24.07
67	342.37	342.06	317.65	24.72	24.41
68	342.88	342.57	318.60	24.28	23.97
69	343.39	343.07	319.09	24.30	23.98
70	343.90	343.57	319.59	24.31	23.98
71	344.41	344.08	320.22	24.19	23.86
72	344.93	344.58	320.76	24.17	23.82

NOVEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 12:00
64	338.20	338.36	316.70	21.50	21.66
65	338.80	338.98	317.14	21.66	21.84
66	339.40	339.59	317.46	21.94	22.13
67	339.95	340.14	317.65	22.30	22.49

NOVEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	336.03	336.03	314.51	21.52	21.52
61	336.64	336.64	315.03	21.61	21.61
62	337.24	337.26	315.53	21.71	21.73
63	337.85	337.87	316.13	21.72	21.74
64	338.46	338.49	316.70	21.76	21.79
65	339.07	339.10	317.14	21.93	21.96

Surveyed by: BOWEN ENGINEERING
Survey Date: NOV. 20 & 21; DEC. 10, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ##########\###\###\###.dgn

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

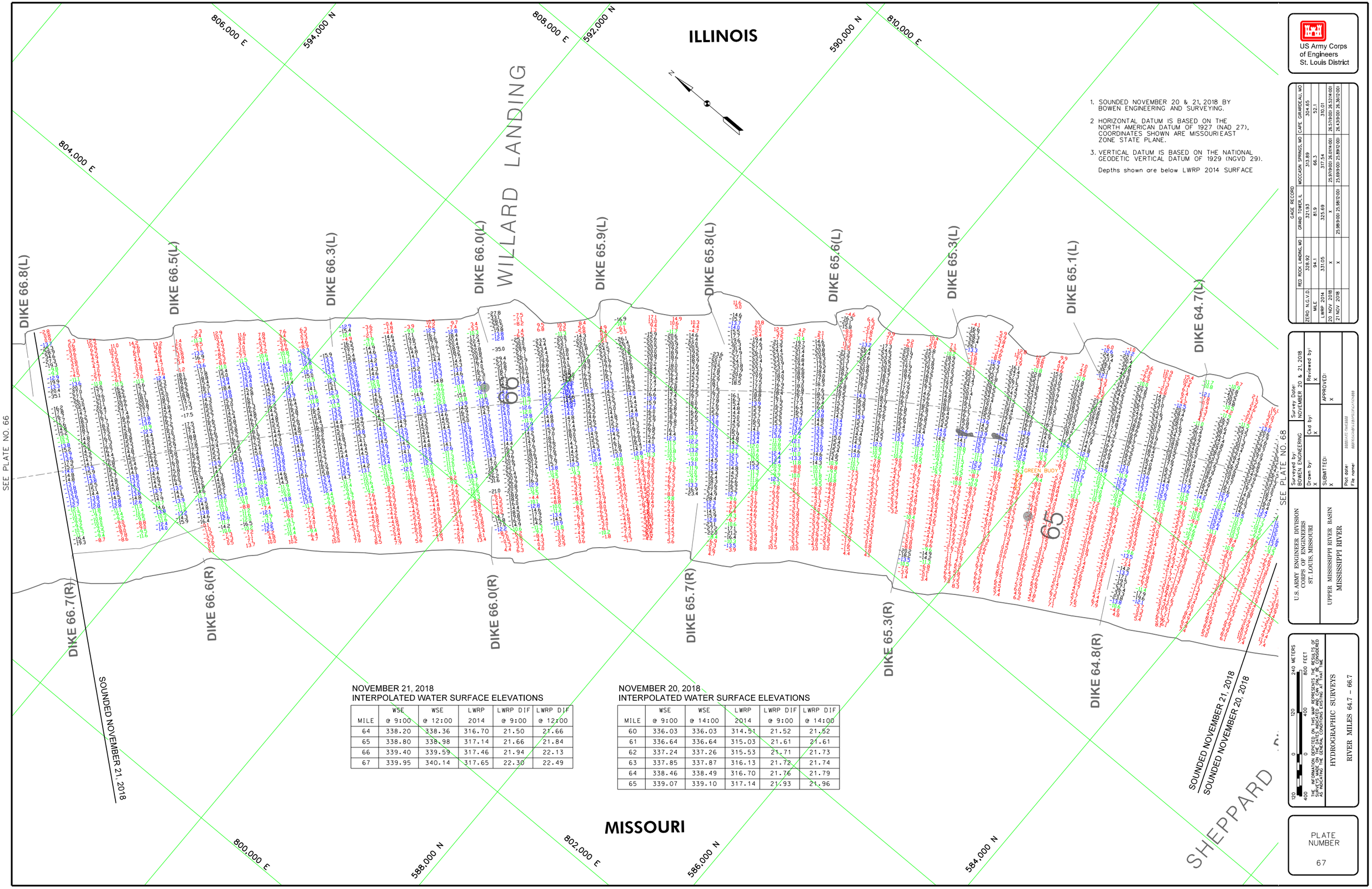
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS 120 0 400 800 FEET

THE INFORMATION REFLECTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AND SHOULD NOT BE CONSTRUED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 64.7 - 66.7

PLATE NUMBER
67



1. SOUNDED NOVEMBER 20 & 21, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 12:00
64	338.20	338.36	316.70	21.50	21.66
65	338.80	338.98	317.14	21.66	21.84
66	339.40	339.59	317.46	21.94	22.13
67	339.95	340.14	317.65	22.30	22.49

NOVEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	336.03	336.03	314.51	21.52	21.52
61	336.64	336.64	315.03	21.61	21.61
62	337.24	337.26	315.53	21.71	21.73
63	337.85	337.87	316.13	21.72	21.74
64	338.46	338.49	316.70	21.76	21.79
65	339.07	339.10	317.14	21.93	21.96

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
20 NOV 2018	X	X	25.97(9:00) 26.01(14:00)	26.57(9:00) 26.52(14:00)
21 NOV 2018	X	25.98(9:00) 25.98(12:00)	25.69(9:00) 25.89(12:00)	26.43(9:00) 26.36(12:00)

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

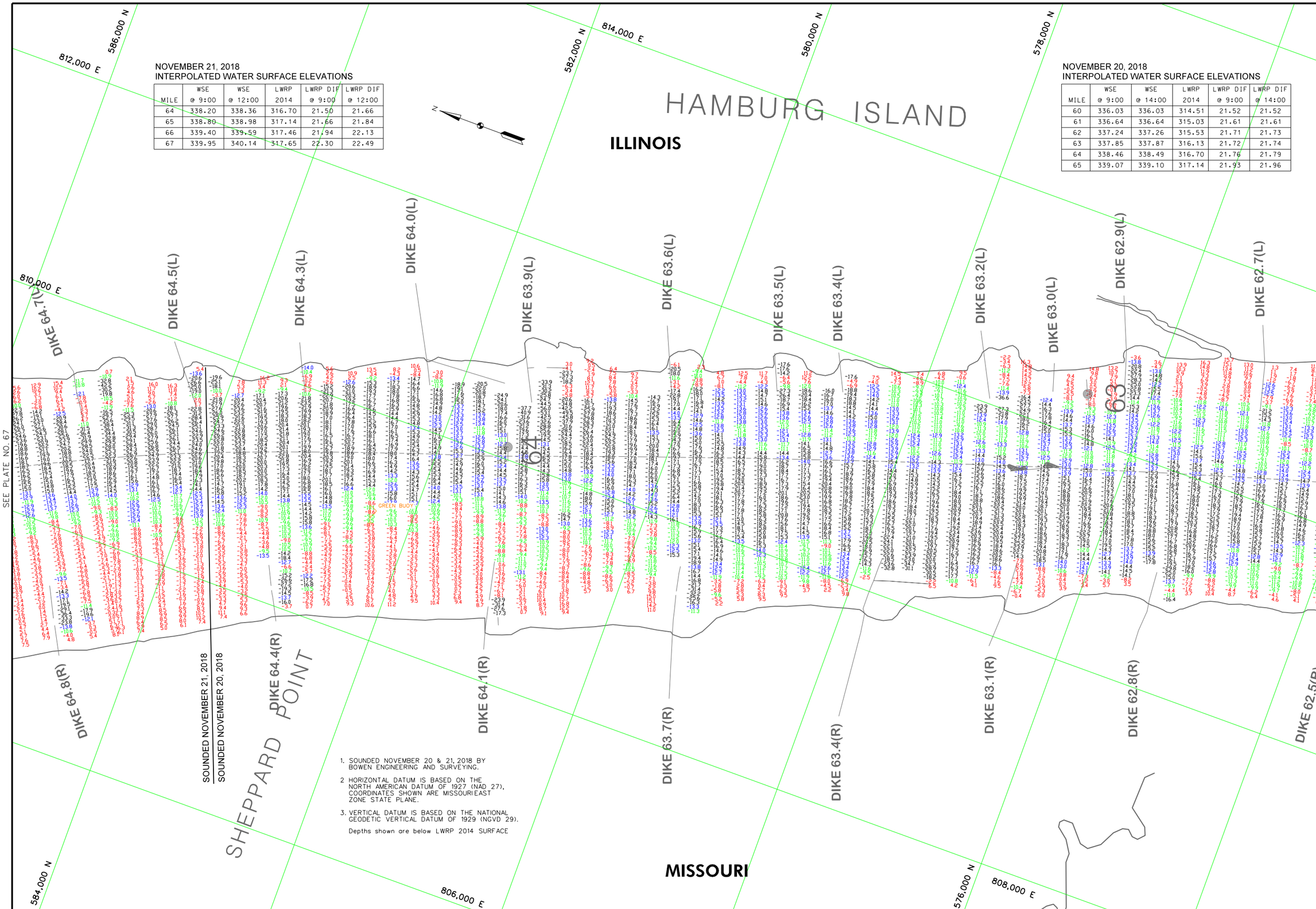
Surveyed by: BOWEN ENGINEERING
Survey Date: NOVEMBER 20 & 21, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME9999
File name: 9999DESIGNFILE9999PROPLOCATION999

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 64.7 – 66.7

PLATE NUMBER
67



NOVEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 12:00
64	338.20	338.36	316.70	21.50	21.66
65	338.80	338.98	317.14	21.66	21.84
66	339.40	339.59	317.46	21.94	22.13
67	339.95	340.14	317.65	22.30	22.49

NOVEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	336.03	336.03	314.51	21.52	21.52
61	336.64	336.64	315.03	21.61	21.61
62	337.24	337.26	315.53	21.71	21.73
63	337.85	337.87	316.13	21.72	21.74
64	338.46	338.49	316.70	21.76	21.79
65	339.07	339.10	317.14	21.93	21.96

1. SOUNDED NOVEMBER 20 & 21, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	RED ROCK LANDING, MO	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO
ZERO N.G.V.D.	328.92	321.93	313.89	304.65
MILE	94.1	81.9	66.3	52.1
LWRP 2014	331.05	325.69	317.54	310.01
20 NOV 2018	X	X	25.97(9:00) 26.01(14:00)	26.37(9:00) 26.52(14:00)
21 NOV 2018	X	25.98(9:00) 25.98(12:00)	25.69(9:00) 25.89(12:00)	26.43(9:00) 26.36(12:00)

Survey Date: NOVEMBER 20 & 21, 2018
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999/DATE/TIME/9999
File name: 9999/DESIGN/FILE/SPECIFICATION/999

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

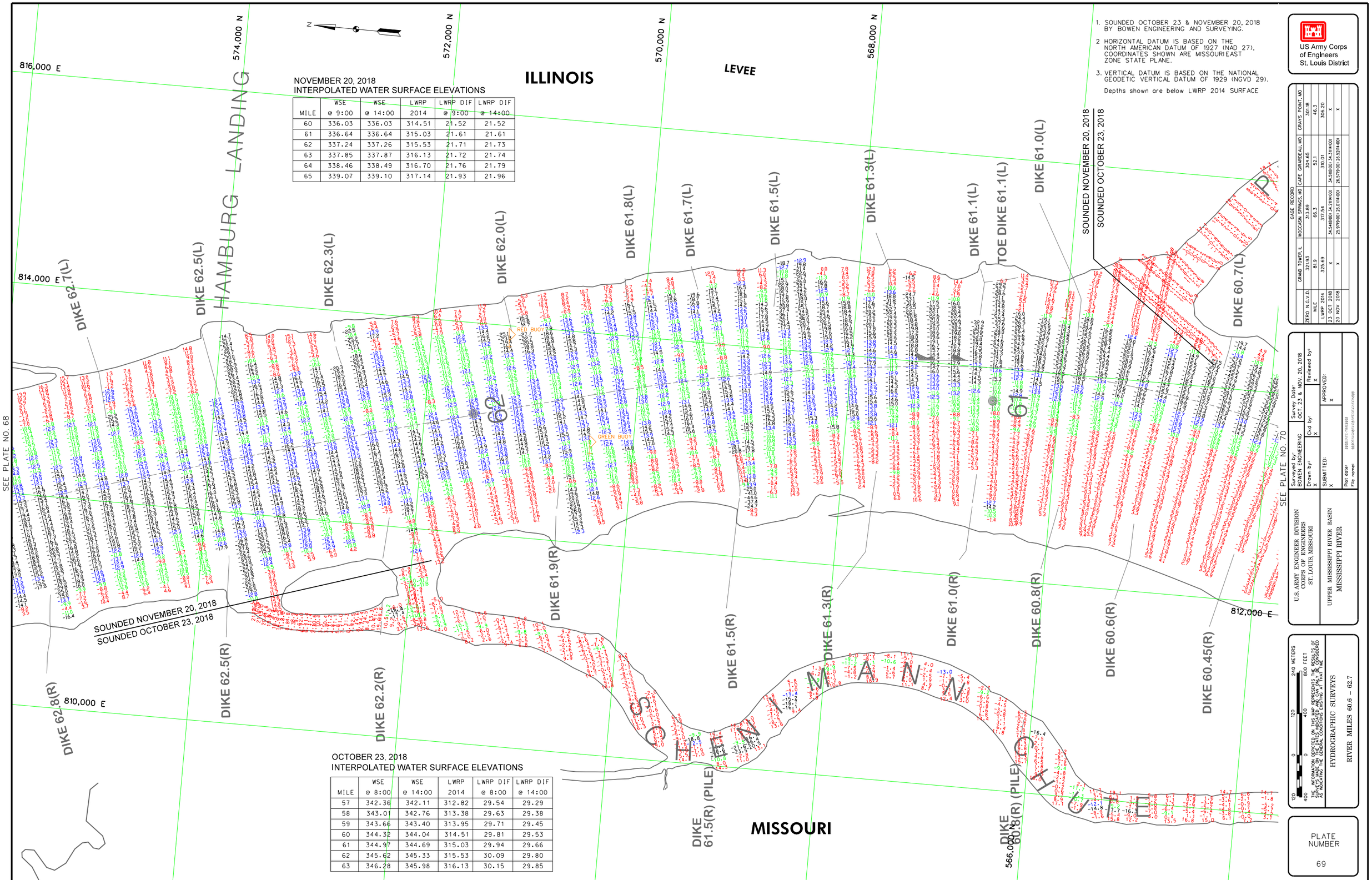
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 62.7 – 64.7

PLATE NUMBER
68



NOVEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	336.03	336.03	314.51	21.52	21.52
61	336.64	336.64	315.03	21.61	21.61
62	337.24	337.26	315.53	21.71	21.73
63	337.85	337.87	316.13	21.72	21.74
64	338.46	338.49	316.70	21.76	21.79
65	339.07	339.10	317.14	21.93	21.96

OCTOBER 23, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
57	342.36	342.11	312.82	29.54	29.29
58	343.01	342.76	313.38	29.63	29.38
59	343.66	343.40	313.95	29.71	29.45
60	344.32	344.04	314.51	29.81	29.53
61	344.97	344.69	315.03	29.94	29.66
62	345.62	345.33	315.53	30.09	29.80
63	346.28	345.98	316.13	30.15	29.85

1. SOUNDED OCTOBER 23 & NOVEMBER 20, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
23 OCT 2018	X	34.54(8:00) 34.21(14:00)	34.51(8:00) 34.31(14:00)	X
20 NOV 2018	X	25.97(9:00) 26.01(14:00)	26.57(9:00) 26.52(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 23 & NOV. 20, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE/TIME0000
File name: 0000DESIGN0FILE0SPECIFICATION000

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 60.6 – 62.7

PLATE NUMBER
69

1. SOUNDED OCTOBER 23 & NOVEMBER 13 & 20, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
23 OCT 2018	X	34.5468|00 34.2934|00	34.5398|00 34.3014|00	X
13 NOV 2018	X	27.2368|00 27.1614|00	27.2368|00 27.6214|00	X
20 NOV 2018	X	25.9379|00 26.0014|00	26.5379|00 26.5214|00	X

OCTOBER 23, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
57	342.36	342.11	312.82	29.54	29.29
58	343.01	342.76	313.38	29.63	29.38
59	343.66	343.40	313.95	29.71	29.45
60	344.32	344.04	314.51	29.81	29.53
61	344.97	344.69	315.03	29.94	29.66
62	345.62	345.33	315.53	30.09	29.80
63	346.28	345.98	316.13	30.15	29.85

NOVEMBER 13, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
56	334.78	334.68	312.38	22.40	22.30
57	335.40	335.30	312.82	22.58	22.48
58	336.01	335.92	313.38	22.63	22.54
59	336.63	336.54	313.95	22.68	22.59
60	337.24	337.15	314.51	22.73	22.64

NOVEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	336.03	336.03	314.51	21.52	21.52
61	336.64	336.64	315.03	21.61	21.61
62	337.24	337.26	315.53	21.71	21.73
63	337.85	337.87	316.13	21.72	21.74
64	338.46	338.49	316.70	21.76	21.79
65	339.07	339.10	317.14	21.93	21.96

Surveyed by:	BOWEN ENGINEERING
Survey Date:	OCT. 23; NOV. 13 & 20, 2018
Drawn by:	X
Ckd by:	X
Reviewed by:	X
SUBMITTED:	X
APPROVED:	X
Plot date:	########
File name:	##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS 120 0 800 FEET 400 0

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AND SHOULD NOT BE CONSTRUED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 58.5 – 60.6

PLATE NUMBER
70

SEE PLATE NO. 69

SEE PLATE NO. 71

564,000 N

816,000 E

814,000 E

812,000 E

810,000 E

562,000 N

560,000 N

558,000 N

556,000 N

LEVEE

PICAYUNE CHUTE

ILLINOIS

MISSOURI

SCHENIMANN CHUTE

SWIFT SURE TOWHEAD

SWIFT SURE TOWHEAD BAR

DIKE 60.7(L)

DIKE 58.8(L)

DIKE 58.7(L)

DIKE 58.5(L)

DIKE 60.6(R)

DIKE 60.0(R)

DIKE 59.8(R)

DIKE 59.6(RC)

DIKE 59.5(R)

DIKE 59.3(R)

DIKE 59.0(R)

DIKE 58.7(R)

SOUNDED OCTOBER 23, 2018

SOUNDED NOVEMBER 20, 2018

SOUNDED NOVEMBER 13, 2018

SOUNDED NOVEMBER 13, 2018
SOUNDED OCTOBER 23, 2018

1. SOUNDED OCTOBER 23 & NOVEMBER 13, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

OCTOBER 23, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
57	342.36	342.11	312.82	29.54	29.29
58	343.01	342.76	313.38	29.63	29.38
59	343.66	343.40	313.95	29.71	29.45
60	344.32	344.04	314.51	29.81	29.53
61	344.97	344.69	315.03	29.94	29.66
62	345.62	345.33	315.53	30.09	29.80
63	346.28	345.98	316.13	30.15	29.85

NOVEMBER 13, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
56	334.78	334.68	312.38	22.40	22.30
57	335.40	335.30	312.82	22.58	22.48
58	336.01	335.92	313.38	22.63	22.54
59	336.63	336.54	313.95	22.68	22.59
60	337.24	337.15	314.51	22.73	22.64

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
23 OCT 2018	x	34.5468|00 34.2934|00	34.5398|00 34.3014|00	x
13 NOV 2018	x	27.2368|00 27.1614|00	27.2368|00 27.6214|00	x

ILLINOIS

MISSOURI

PICAYUNE CHUTE

SCHENIMANN CHUTE

SWIFT SURE TOWHEAD

DUSKY BAR

LEVEE

564,000 N

816,000 E

814,000 E

812,000 E

810,000 E

562,000 N

560,000 N

558,000 N

556,000 N

SOUNDED OCTOBER 23, 2018

SOUNDED NOVEMBER 13, 2018

SOUNDED NOVEMBER 13, 2018
SOUNDED OCTOBER 23, 2018

DIKE 60.7(L)
DIKE 60.5(L)
DIKE 58.8(L)
DIKE 58.7(L)
DIKE 58.5(L)
DIKE 60.6(R)
DIKE 60.45(R)
DIKE 60.2(R)
DIKE 60.0(R)
DIKE 59.8(R)
DIKE 59.6(RC)
DIKE 59.5(R)
DIKE 59.3(R)
DIKE 59.0(R)
DIKE 58.7(R)

SEE PLATE NO. 69

SEE PLATE NO. 71

Surveyed by: BOWEN ENGINEERING	Survey Date: OCT. 23 & NOV. 13, 2018	Reviewed by: X
Drawn by: X	Ckd by: X	
SUBMITTED: X		APPROVED: X
Plot date: ######## File name: ########		

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

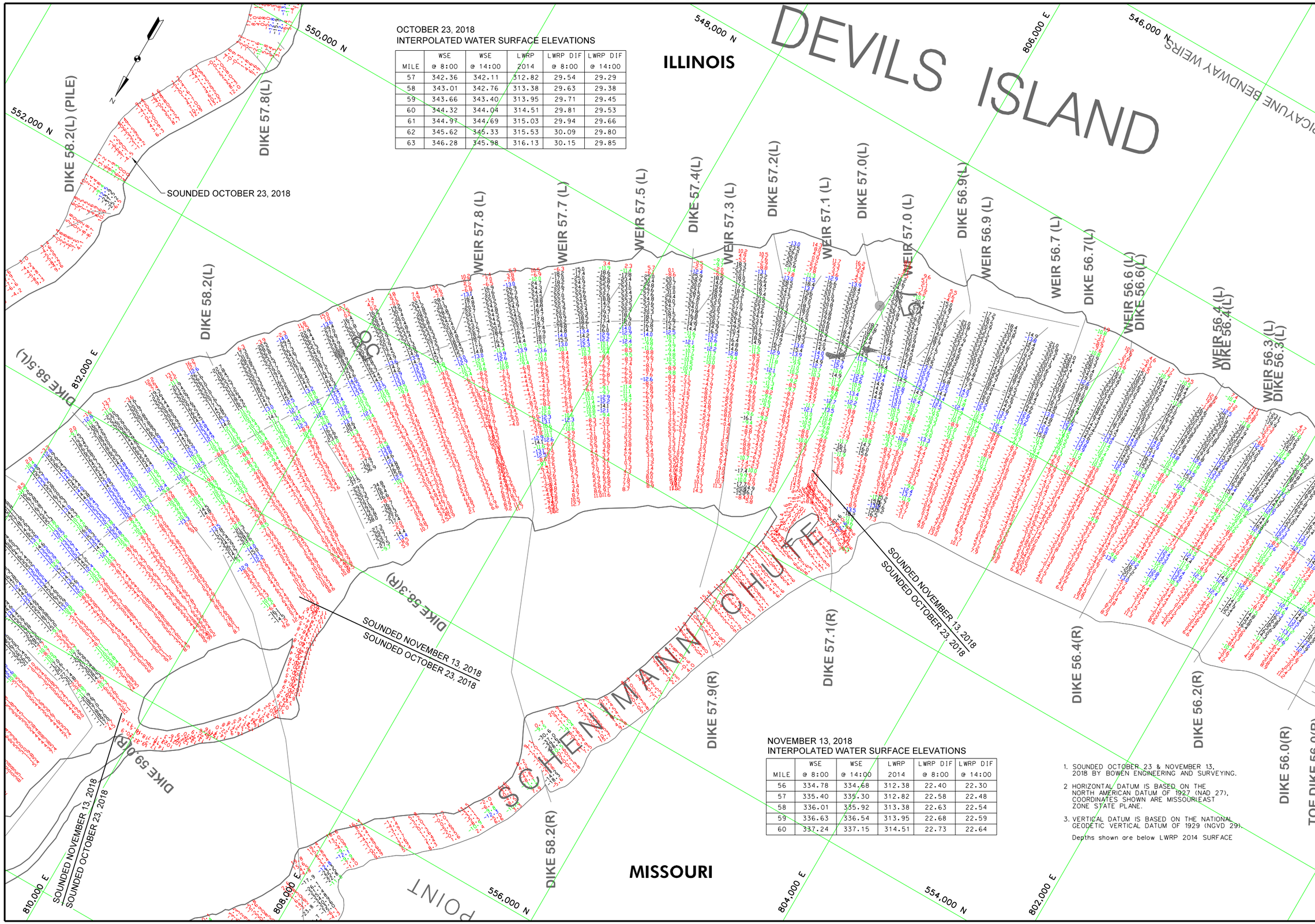
240 METERS 120 0 120 400 800 FEET

THE INFORMATION REPRESENTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ENGINEER DEPARTMENT AND SHOULD BE USED IN NAVIGATING ONLY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 58.5 – 60.6

PLATE NUMBER
70

SEE PLATE NO. 71A



OCTOBER 23, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
57	342.36	342.11	312.82	29.54	29.29
58	343.01	342.76	313.38	29.63	29.38
59	343.66	343.40	313.95	29.71	29.45
60	344.32	344.04	314.51	29.81	29.53
61	344.97	344.69	315.03	29.94	29.66
62	345.62	345.33	315.53	30.09	29.80
63	346.28	345.98	316.13	30.15	29.85

NOVEMBER 13, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
56	334.78	334.68	312.38	22.40	22.30
57	335.40	335.30	312.82	22.58	22.48
58	336.01	335.92	313.38	22.63	22.54
59	336.63	336.54	313.95	22.68	22.59
60	337.24	337.15	314.51	22.73	22.64

1. SOUNDED OCTOBER 23 & NOVEMBER 13, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAY'S POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
23 OCT 2018	X	34.54(8:00) 34.21(14:00)	34.31(8:00) 34.31(14:00)	X
13 NOV 2018	X	27.23(8:00) 27.16(14:00)	27.73(8:00) 27.62(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 23 & NOV. 13, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 56.1 – 58.5

PLATE NUMBER
71

816,000 E
546,000 N
814,000 E
812,000 E
544,000 N
810,000 E
808,000 E
542,000 N
806,000 E
548,000 N
550,000 N
552,000 N
804,000 E

OCTOBER 22, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 11:00
54	341.18	341.07	311.22	29.96	29.85
55	341.84	341.73	311.82	30.02	29.91
56	342.50	342.38	312.38	30.12	30.00
57	343.15	343.04	312.82	30.33	30.22
58	343.81	343.69	313.38	30.43	30.31

OCTOBER 23, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
57	342.36	342.11	312.82	29.54	29.29
58	343.01	342.76	313.38	29.63	29.38
59	343.66	343.40	313.95	29.71	29.45
60	344.32	344.04	314.51	29.81	29.53
61	344.97	344.69	315.03	29.94	29.66
62	345.62	345.33	315.53	30.09	29.80
63	346.28	345.98	316.13	30.15	29.85

NOVEMBER 13, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
56	334.78	334.68	312.38	22.40	22.30
57	335.40	335.30	312.82	22.58	22.48
58	336.01	335.92	313.38	22.63	22.54
59	336.63	336.54	313.95	22.68	22.59
60	337.24	337.15	314.51	22.73	22.64

1. SOUNDED OCTOBER 22 & 23 & NOVEMBER 13, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

SOUNDED OCTOBER 22, 2018
SOUNDED OCTOBER 23, 2018
SOUNDED NOVEMBER 13, 2018

DIKE 58.2(L) (PILE)
DIKE 57.8(L)
DIKE 58.2(L)
DIKE 57.0(L)
DIKE 56.9(L)
DIKE 56.7(L)
DIKE 56.6(L)
DIKE 56.4(L)
DIKE 56.3(L)
WEIR 57.8 (L)
WEIR 57.7 (L)
WEIR 57.5 (L)
DIKE 57.4(L)
WEIR 57.3 (L)
DIKE 57.2(L)
WEIR 57.1 (L)
WEIR 57.0 (L)
WEIR 56.9 (L)
WEIR 56.7 (L)
WEIR 56.6 (L)
WEIR 56.4(L)
WEIR 56.3(L)

ILLINOIS

DEVILS ISLAND

PICAYUNE BENDWAY WEIRS

SEE PLATE NO. 72A

SEE PLATE NO. 71

GAGE RECORD	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
22 OCT 2018	X	35.388|00 35.230|001	35.268|00 35.181|001	X
23 OCT 2018	X	34.548|00 34.219|4001	34.598|00 34.310|4001	X
13 NOV 2018	X	27.238|00 27.161|4001	27.738|00 27.621|4001	X

US Army Corps of Engineers
St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Drawn by: X
SUBMITTED: X
Chkd by: X
APPROVED: X
Survey Date: OCT. 22 & 23 & NOV. 13, 2018
Reviewed by: X
Plot date: ########
File name: ########

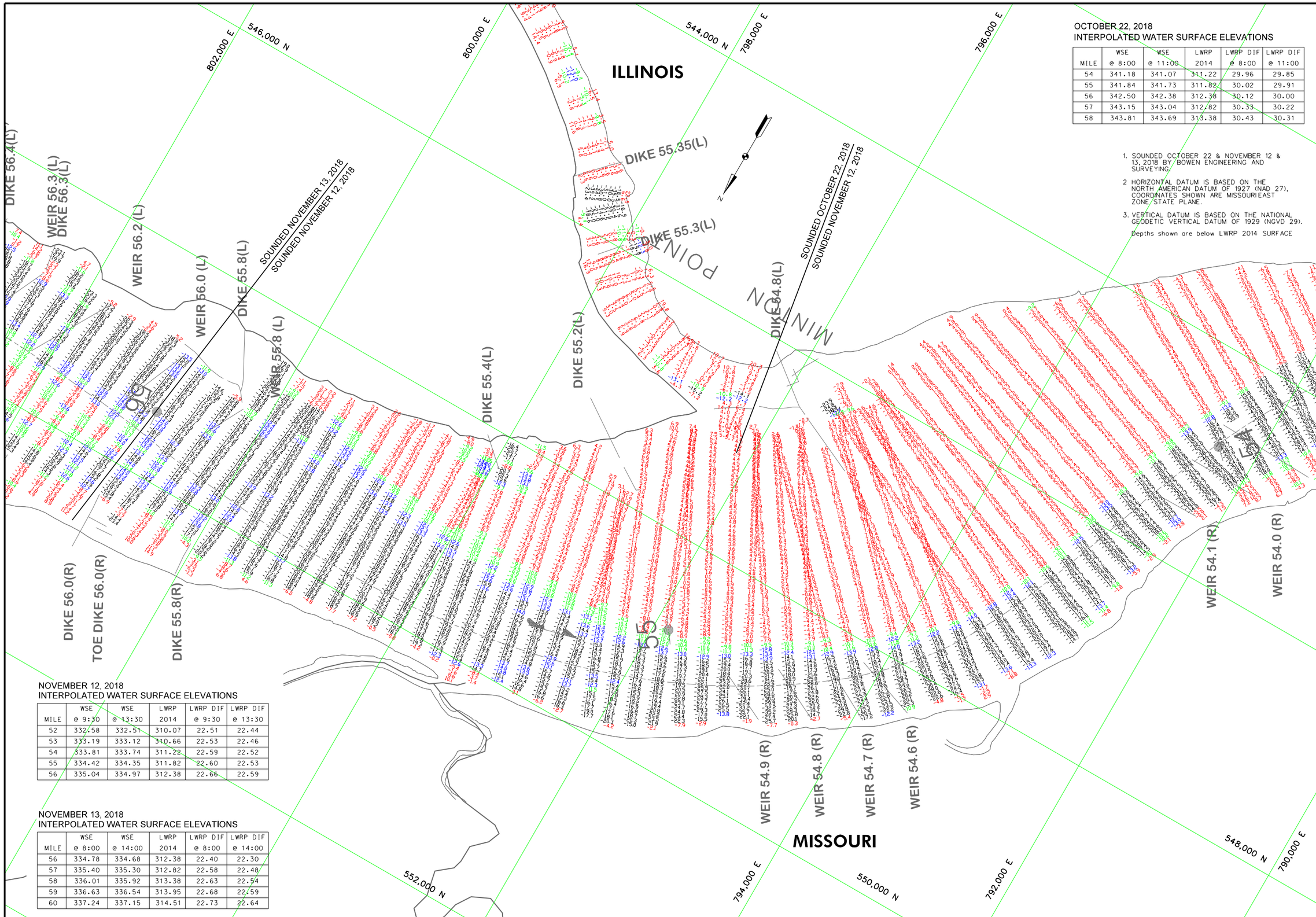
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 56.1 – 58.5

240 METERS 120 0
800 FEET 400 0
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND MAY NOT BE REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
71A

SEE PLATE NO. 72A



SEE PLATE NO. 71

SEE PLATE NO. 73

OCTOBER 22, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 11:00
54	341.18	341.07	311.22	29.96	29.85
55	341.84	341.73	311.82	30.02	29.91
56	342.50	342.38	312.38	30.12	30.00
57	343.15	343.04	312.82	30.33	30.22
58	343.81	343.69	313.38	30.43	30.31

1. SOUNDED OCTOBER 22 & NOVEMBER 12 & 13, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE/STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:30	WSE @ 13:30	LWRP 2014	LWRP DIF @ 9:30	LWRP DIF @ 13:30
52	332.58	332.51	310.07	22.51	22.44
53	333.19	333.12	310.66	22.53	22.46
54	333.81	333.74	311.22	22.59	22.52
55	334.42	334.35	311.82	22.60	22.53
56	335.04	334.97	312.38	22.66	22.59

NOVEMBER 13, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
56	334.78	334.68	312.38	22.40	22.30
57	335.40	335.30	312.82	22.58	22.48
58	336.01	335.92	313.38	22.63	22.54
59	336.63	336.54	313.95	22.68	22.59
60	337.24	337.15	314.51	22.73	22.64

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
22 OCT 2018	X	35.38(8:00) 35.23(11:00)	35.28(8:00) 35.18(11:00)	X
12 NOV 2018	X	27.49(9:30) 27.42(13:30)	27.99(9:30) 27.92(13:30)	28.01(9:30) 27.96(13:30)
13 NOV 2018	X	27.23(8:00) 27.16(14:00)	27.73(8:00) 27.62(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 22 & NOV. 12 & 13, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

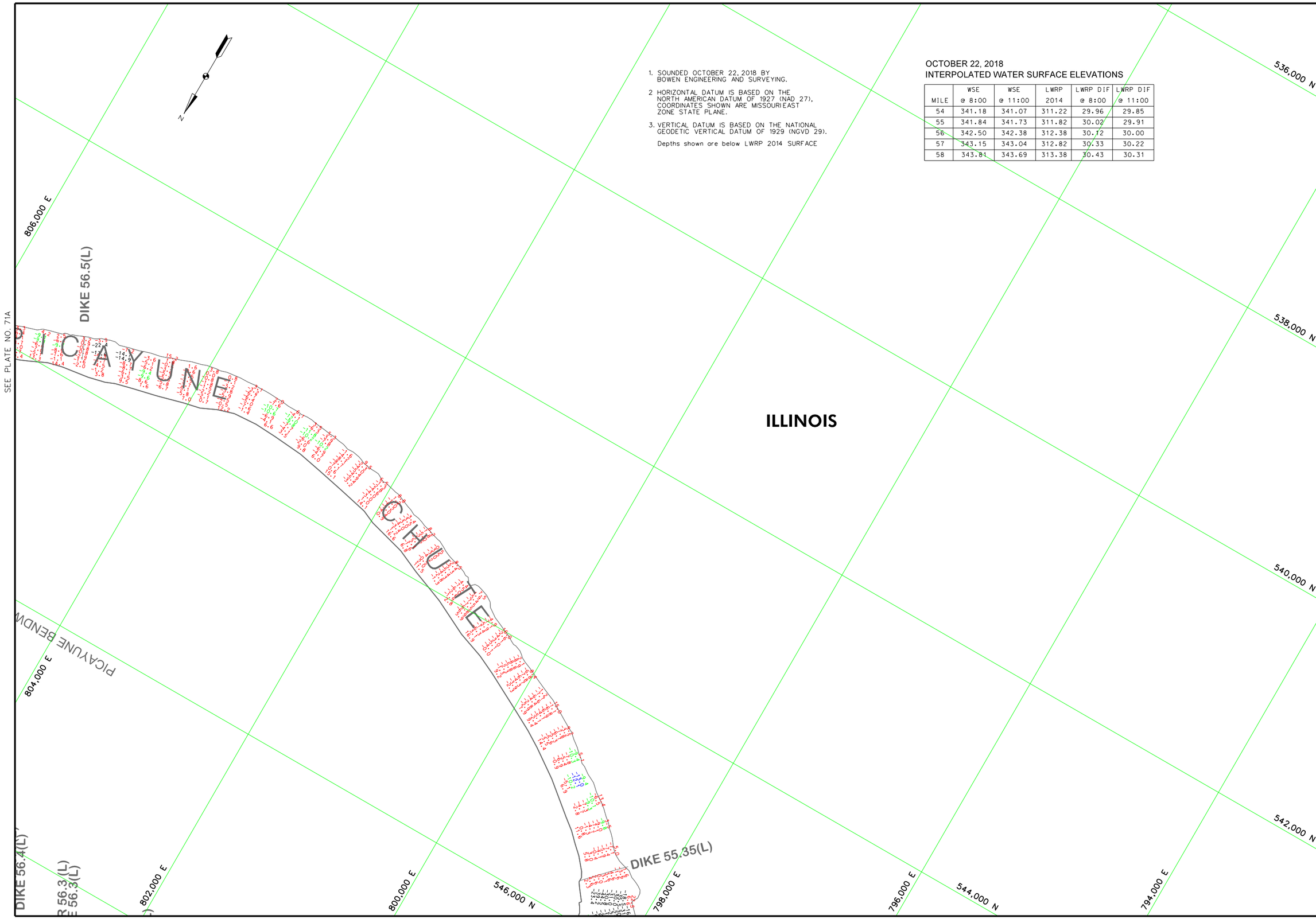
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 53.9 – 56.1

PLATE NUMBER
72



1. SOUNDED OCTOBER 22, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 22, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 11:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 11:00
54	341.18	341.07	311.22	29.96	29.85
55	341.84	341.73	311.82	30.02	29.91
56	342.50	342.38	312.38	30.12	30.00
57	343.15	343.04	312.82	30.33	30.22
58	343.81	343.69	313.38	30.43	30.31

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
22 OCT 2018	X	35.38(8:00) 35.23(11:00)	35.28(8:00) 35.18(11:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 22, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

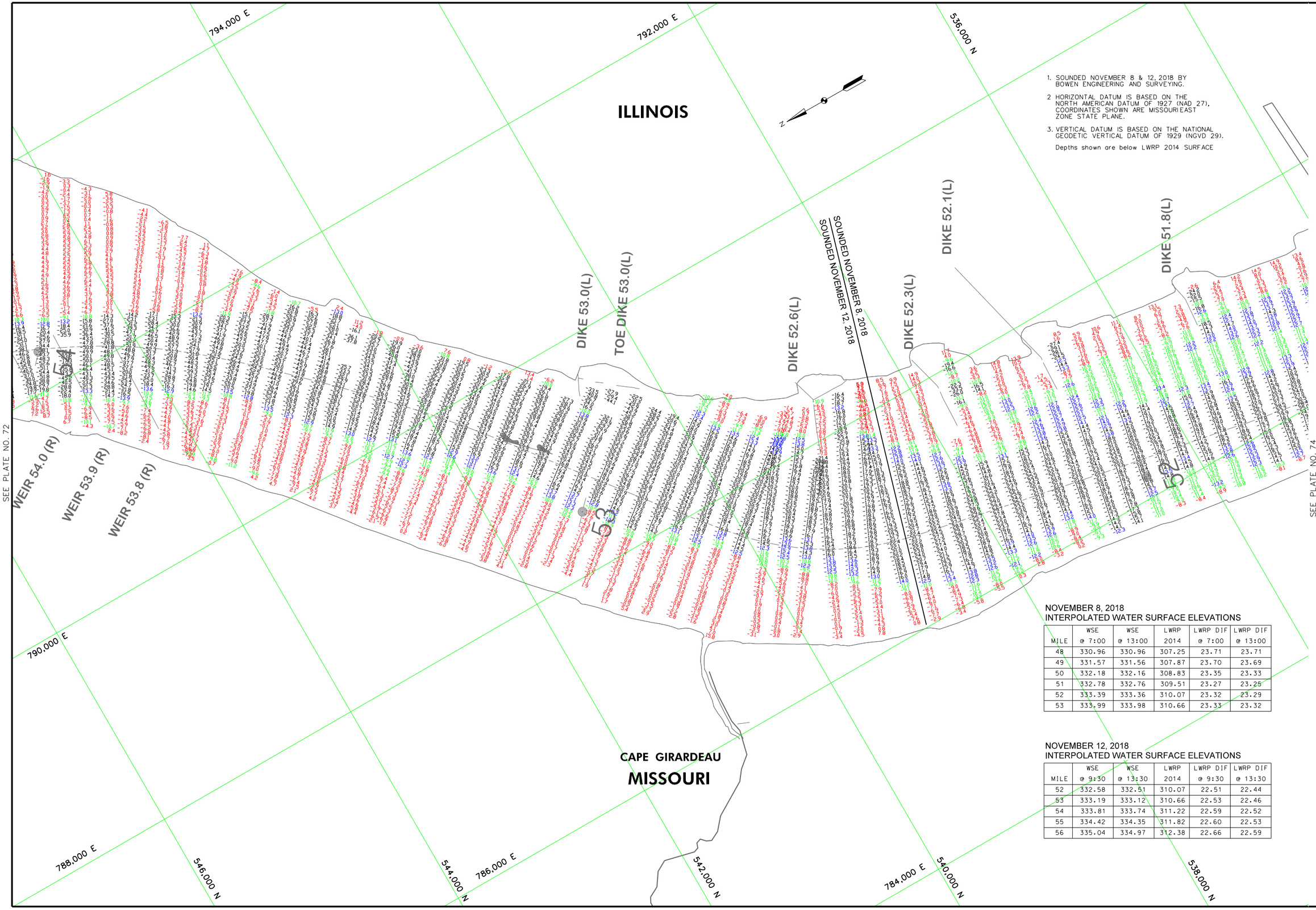
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 53.9 – 56.1

PLATE NUMBER

72A



1. SOUNDED NOVEMBER 8 & 12, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 8, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
48	330.96	330.96	307.25	23.71	23.71
49	331.57	331.56	307.87	23.70	23.69
50	332.18	332.16	308.83	23.35	23.33
51	332.78	332.76	309.51	23.27	23.25
52	333.39	333.36	310.07	23.32	23.29
53	333.99	333.98	310.66	23.33	23.32

NOVEMBER 12, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:30	WSE @ 13:30	LWRP 2014	LWRP DIF @ 9:30	LWRP DIF @ 13:30
52	332.58	332.51	310.07	22.51	22.44
53	333.19	333.12	310.66	22.53	22.46
54	333.81	333.74	311.22	22.59	22.52
55	334.42	334.35	311.82	22.60	22.53
56	335.04	334.97	312.38	22.66	22.59

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAND TOWER, IL	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO
ZERO N.G.V.D.	321.93	313.89	304.65	301.18
MILE	81.9	66.3	52.1	46.3
LWRP 2014	325.69	317.54	310.01	306.20
08 NOV 2018	X	28.15(7:00) 28.33(13:00)	28.80(7:00) 28.77(13:00)	28.75(7:00) 28.76(13:00)
12 NOV 2018	X	27.49(9:30) 27.42(13:30)	27.99(9:30) 27.92(13:30)	28.01(9:30) 27.96(13:30)

Surveyed by: BOWEN ENGINEERING
Survey Date: NOVEMBER 8 & 12, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 51.8 – 53.9

PLATE NUMBER
73

SEPTEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

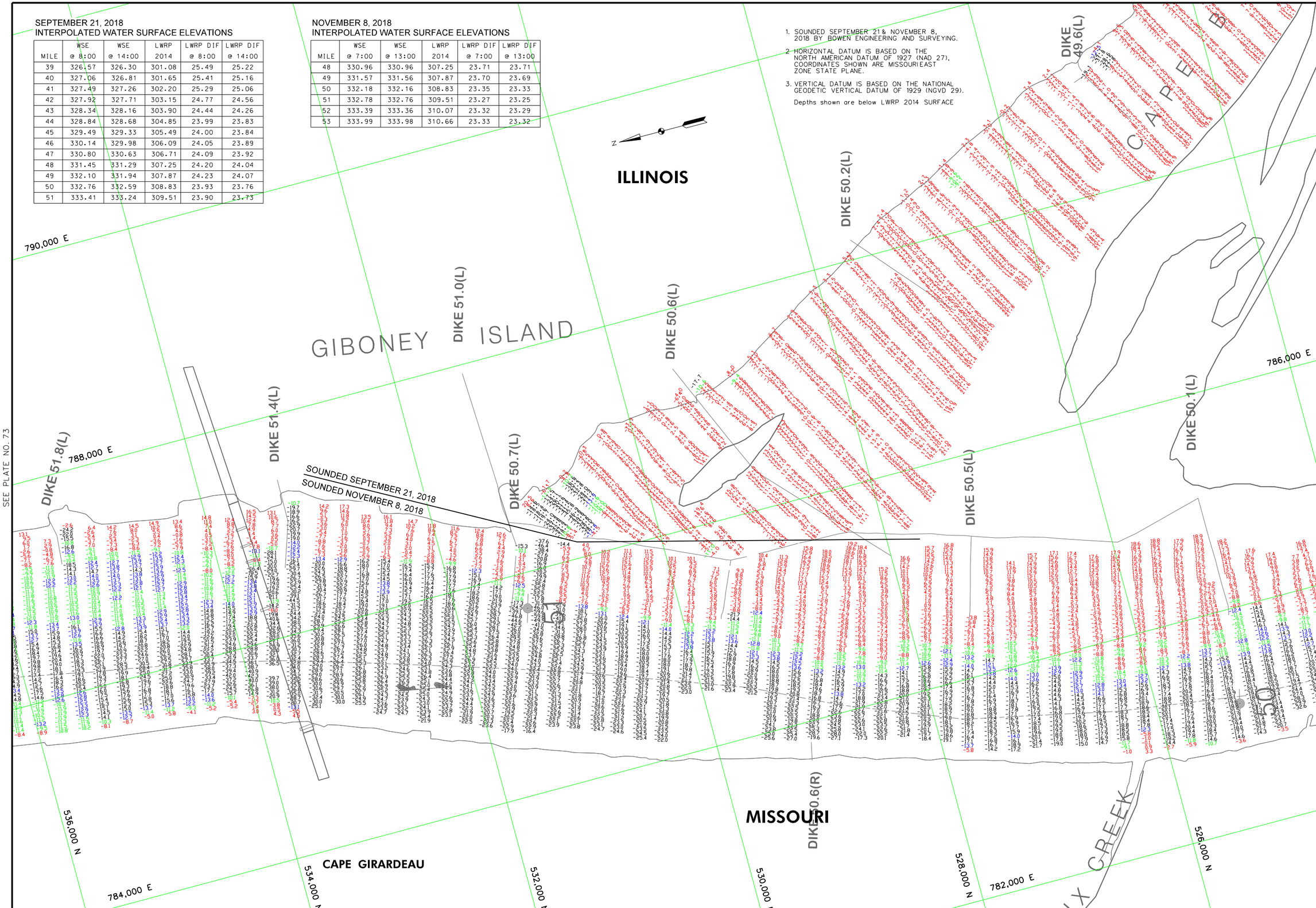
MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
39	326.57	326.30	301.08	25.49	25.22
40	327.06	326.81	301.65	25.41	25.16
41	327.49	327.26	302.20	25.29	25.06
42	327.92	327.71	303.15	24.77	24.56
43	328.34	328.16	303.90	24.44	24.26
44	328.84	328.68	304.85	23.99	23.83
45	329.49	329.33	305.49	24.00	23.84
46	330.14	329.98	306.09	24.05	23.89
47	330.80	330.63	306.71	24.09	23.92
48	331.45	331.29	307.25	24.20	24.04
49	332.10	331.94	307.87	24.23	24.07
50	332.76	332.59	308.83	23.93	23.76
51	333.41	333.24	309.51	23.90	23.73

NOVEMBER 8, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
48	330.96	330.96	307.25	23.71	23.71
49	331.57	331.56	307.87	23.70	23.69
50	332.18	332.16	308.83	23.35	23.33
51	332.78	332.76	309.51	23.27	23.25
52	333.39	333.36	310.07	23.32	23.29
53	333.99	333.98	310.66	23.33	23.32

1. SOUNDED SEPTEMBER 21 & NOVEMBER 8, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	MOCCASIN SPRINGS, MO	CAPE GIRARDEAU, MO	GRAYS POINT, MO	THEBES, IL
ZERO N.G.V.D.	313.89	304.65	301.18	300.00
MILE	66.3	52.1	46.3	43.7
LWRP 2014	317.54	310.01	306.20	304.90
21 SEP 2018	21.2(8:00) 21.5(15:00)	29.48(8:00) 29.3(14:00)	X	28.64(8:00) 28.48(14:00)
08 NOV 2018	28.15(7:00) 28.33(13:00)	28.80(7:00) 28.77(13:00)	28.75(7:00) 28.76(13:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 21 & NOV. 8, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGNFILE#SPECIFICATION###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 50.0 – 51.8

PLATE NUMBER
74

788,000 E
528,000 N
DIKE 50
526,000 N
790,000 E
524,000 N
522,000 N
520,000 N
DIKE 49.6(L)
CAPE BEND CHUTE
DIKE 48.6
NOVEMBER 6, 2018
NOVEMBER 8, 2018
OCTOBER 24, 2018
NOVEMBER 6, 2018
SOUNDED SEPTEMBER 21, 2018
SOUNDED OCTOBER 24, 2018
DIKE 50.5(L)
786,000 E
MARQUETTE ISLAND
ILLINOIS
MISSOURI
Cape Bend
DIKE 49.7(L)
WEIR 48.3 (R)
WEIR 48.4 (R)
WEIR 48.5 (R)
WEIR 48.6 (R)
WEIR 48.8 (R)
WEIR 48.9 (R)
WEIR 49.0 (R)
WEIR 49.1 (R)
WEIR 49.2 (R)
WEIR 49.3 (R)
WEIR 49.4 (R)
WEIR 49.5 (R)
516,000 N
518,000 N
782,000 E
SEE PLATE NO. 74
SEE PLATE NO. 76

NOVEMBER 6, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
43	328.13	328.18	303.90	24.23	24.28
44	328.69	328.74	304.85	23.84	23.89
45	329.40	329.40	305.49	23.91	23.91
46	330.11	330.06	306.09	24.02	23.97
47	330.74	330.68	306.71	24.03	23.97
48	331.33	331.28	307.25	24.08	24.03
49	331.93	331.88	307.87	24.06	24.01

NOVEMBER 8, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
48	330.96	330.96	307.25	23.71	23.71
49	331.57	331.56	307.87	23.70	23.69
50	332.18	332.16	308.83	23.35	23.33
51	332.78	332.76	309.51	23.27	23.25
52	333.39	333.36	310.07	23.32	23.29
53	333.99	333.98	310.66	23.33	23.32

1. SOUNDED SEPTEMBER 21, OCTOBER 24 & NOVEMBER 6 & 8, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

SEPTEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
39	326.57	326.30	301.08	25.49	25.22
40	327.06	326.81	301.65	25.41	25.16
41	327.49	327.26	302.20	25.29	25.06
42	327.92	327.71	303.15	24.77	24.56
43	328.34	328.16	303.90	24.44	24.26
44	328.84	328.68	304.85	23.99	23.83
45	329.49	329.33	305.49	24.00	23.84
46	330.14	329.98	306.09	24.05	23.89
47	330.80	330.63	306.71	24.09	23.92
48	331.45	331.29	307.25	24.20	24.04
49	332.10	331.94	307.87	24.23	24.07
50	332.76	332.59	308.83	23.93	23.76
51	333.41	333.24	309.51	23.90	23.73

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
47	334.97	334.84	306.71	28.26	28.13
48	335.63	335.50	307.25	28.38	28.25
49	336.29	336.16	307.87	28.42	28.29

GAGE RECORD

	CAPE GIRARDEAU, MO	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO
ZERO N.G.V.D.	304.65	301.18	300.00	301.83
MILE	52.1	46.3	43.7	39.5
LWRP 2014	310.01	306.20	304.90	301.48
21 SEP 2018	29.48/8:00 29.3/14:00	X	28.64/8:00 28.48/14:00	25.02/8:00 24.75/14:00
24 OCT 2018	33.68/9:00 33.50/14:00	31.33/9:00 31.20/14:00	X	X
06 NOV 2018	29.33/8:00 29.08/14:00	29.14/8:00 29.08/14:00	28.49/8:00 28.34/14:00	X
08 NOV 2018	28.80/7:00 28.77/13:00	28.75/7:00 28.76/13:00	28.49/8:00 28.34/14:00	X
				MALFUNCTIONING

US Army Corps of Engineers
St. Louis District

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

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 21, OCT. 24, NOV. 6 & 8, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

249 METERS
800 FEET
THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY OTHERS AND IS SHOWN AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 48.3 – 50.0

PLATE NUMBER
75

792,000 E

794,000 E

796,000 E

798,000 E

800,000 E

522,000 N

520,000 N

516,000 N

SOUNDED SEPTEMBER 21, 2018
SOUNDED OCTOBER 24, 2018

SOUNDED OCTOBER 24, 2018
SOUNDED NOVEMBER 6, 2018

SOUNDED NOVEMBER 8, 2018
SOUNDED NOVEMBER 6, 2018

DIKE 48.6(L)

DIKE 48.3 (R)

DIKE 47.6(L)

TOE DIKE 47.6(L)

DIKE 47.2(L)

DIKE 47.0(L)

DIKE 47.9(R)

DIKE 47.6(R)

DIKE 47.2(R)

SEE PLATE NO. 75

SEE PLATE NO. 77

TEXAS EASTERN TRANSMISSION CORP 1-20"

TEXAS EASTERN TRANSMISSION CORP 1-24"

GRAYS POINT

H.P. 45.8(R)

H.P. 45.6 (R)

H.P. 45.5(R)

ILLINOIS

1. SOUNDED SEPTEMBER 21, OCTOBER 24 & NOVEMBER 6 & 8, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 6, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
43	328.13	328.18	303.90	24.23	24.28
44	328.69	328.74	304.85	23.84	23.89
45	329.40	329.40	305.49	23.91	23.91
46	330.11	330.06	306.09	24.02	23.97
47	330.74	330.68	306.71	24.03	23.97
48	331.33	331.28	307.25	24.08	24.03
49	331.93	331.88	307.87	24.06	24.01

NOVEMBER 8, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
48	330.96	330.96	307.25	23.71	23.71
49	331.57	331.56	307.87	23.70	23.69
50	332.18	332.16	308.83	23.35	23.33
51	332.78	332.76	309.51	23.27	23.25
52	333.39	333.36	310.07	23.32	23.29
53	333.99	333.98	310.66	23.33	23.32

SEPTEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
39	326.57	326.30	301.08	25.49	25.22
40	327.06	326.81	301.65	25.41	25.16
41	327.49	327.26	302.20	25.29	25.06
42	327.92	327.71	303.15	24.77	24.56
43	328.34	328.16	303.90	24.44	24.26
44	328.84	328.68	304.85	23.99	23.83
45	329.49	329.33	305.49	24.00	23.84
46	330.14	329.98	306.09	24.05	23.89
47	330.80	330.63	306.71	24.09	23.92
48	331.45	331.29	307.25	24.20	24.04
49	332.10	331.94	307.87	24.23	24.07
50	332.76	332.59	308.83	23.93	23.76
51	333.41	333.24	309.51	23.90	23.73

OCTOBER 24, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
47	334.97	334.84	306.71	28.26	28.13
48	335.63	335.50	307.25	28.38	28.25
49	336.29	336.16	307.87	28.42	28.29

1. SOUNDED SEPTEMBER 21 & OCTOBER 24, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

MISSOURI

GAGE RECORD

	CAPE GIRARDEAU, MO	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO
ZERO N.G.V.D.	304.65	301.18	300.00	301.83
MILE	52.1	46.3	43.7	39.5
LWRP 2014	310.01	306.20	304.90	301.48
21 SEP 2018	29.48/8:00 29.39/14:00	X	28.64/8:00 28.48/14:00	25.02/8:00 24.75/14:00
24 OCT 2018	33.68/9:00 33.55/14:00	X	32.04/9:00 31.20/14:00	X
06 NOV 2018	29.13/8:00 29.08/14:00	X	28.41/8:00 28.14/14:00	MALFUNCTIONING
08 NOV 2018	28.80/7:00 28.77/13:00	28.75/7:00 28.76/13:00	28.48/8:00 28.54/14:00	X

US Army Corps of Engineers
St. Louis District

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

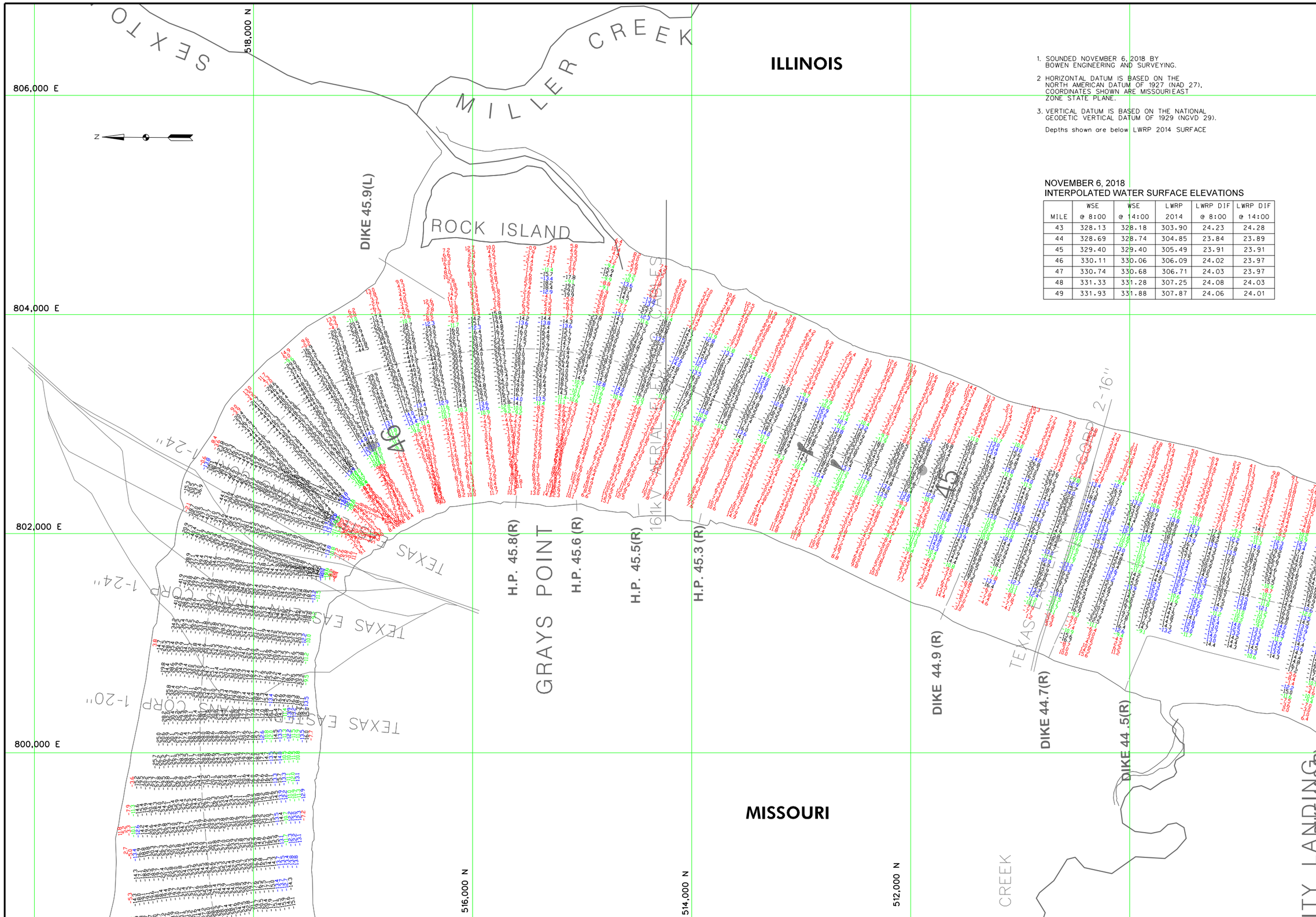
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Checked by: X
SUBMITTED: X
APPROVED: X
Survey Date: SEPT. 21, OCT. 24, NOV. 6 & 8, 2018
Reviewed by: X
Plot date: ########
File name: ########

240 METERS 120 0
800 FEET 400 0

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED AT THE TIME INDICATED AND MAY NOT BE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 46.3 – 48.3

PLATE NUMBER
76



1. SOUNDED NOVEMBER 6, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 6, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
43	328.13	328.18	303.90	24.23	24.28
44	328.69	328.74	304.85	23.84	23.89
45	329.40	329.40	305.49	23.91	23.91
46	330.11	330.06	306.09	24.02	23.97
47	330.74	330.68	306.71	24.03	23.97
48	331.33	331.28	307.25	24.08	24.03
49	331.93	331.88	307.87	24.06	24.01

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	CAPE GIRARDEAU, MO	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO
ZERO N.G.V.D.	304.65	301.18	300.00	301.83
MILE	52.1	46.3	43.7	39.5
LWRP 2014	310.01	306.20	304.90	301.48
06 NOV 2018	29.13(8:00) 29.08(14:00)	29.14(8:00) 29.08(14:00)	28.48(8:00) 28.54(14:00)	MALFUNCTIONING

Surveyed by: BOWEN ENGINEERING
Survey Date: NOVEMBER 6, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

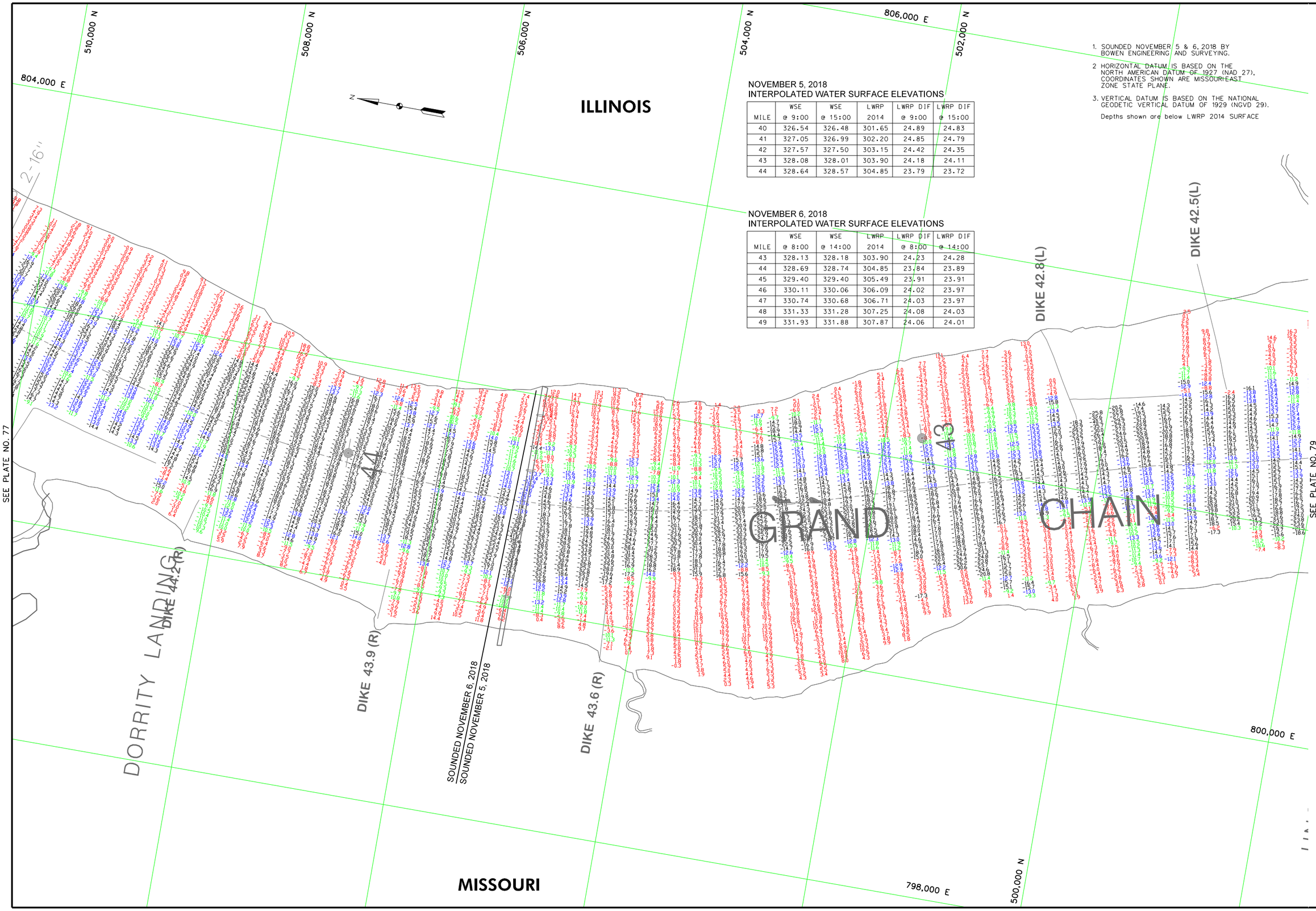
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 44.4 – 46.3

PLATE NUMBER
77



NOVEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
40	326.54	326.48	301.65	24.89	24.83
41	327.05	326.99	302.20	24.85	24.79
42	327.57	327.50	303.15	24.42	24.35
43	328.08	328.01	303.90	24.18	24.11
44	328.64	328.57	304.85	23.79	23.72

NOVEMBER 6, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
43	328.13	328.18	303.90	24.23	24.28
44	328.69	328.74	304.85	23.84	23.89
45	329.40	329.40	305.49	23.91	23.91
46	330.11	330.06	306.09	24.02	23.97
47	330.74	330.68	306.71	24.03	23.97
48	331.33	331.28	307.25	24.08	24.03
49	331.93	331.88	307.87	24.06	24.01

1. SOUNDED NOVEMBER 5 & 6, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO	PRICE'S LANDING
ZERO N.G.V.D.	301.18	300.00	301.83	299.75
MILE	46.3	43.7	39.5	28.2
LWRP 2014	306.20	304.90	301.48	294.74
05 NOV 2018	28.98@00 28.92@15:00	28.44@00 28.37@15:00	MALFUNCTIONING	20.73@00 20.70@15:00
06 NOV 2018	29.14@00 29.08@14:00	28.48@00 28.54@14:00	MALFUNCTIONING	20.88@00 20.90@14:00

Survey Date: NOVEMBER 5 & 6, 2018
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
APPROVED: X
SUBMITTED: JAMES L. KEIM
Chief, Engr. Data Mngt. Sect.
Plot date: 88888/JUL/7140/88888
File name: 88888SHEARS\88888PLATE78.DWG

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

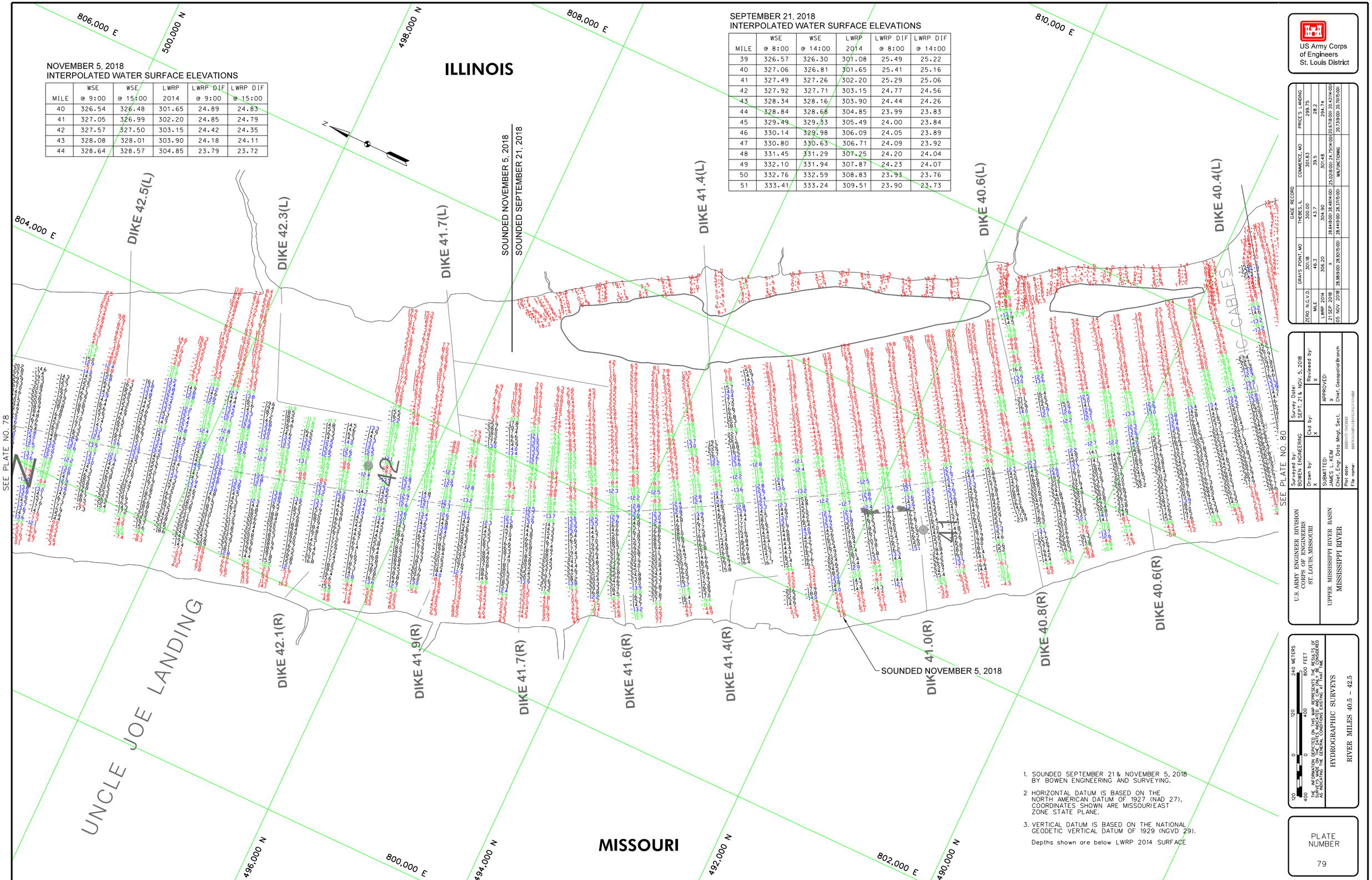
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 0 120 240 METERS
400 0 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE ST. LOUIS DISTRICT AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 42.5 – 44.4

PLATE NUMBER
78



NOVEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
40	326.54	326.48	301.65	24.89	24.83
41	327.05	326.99	302.20	24.85	24.79
42	327.57	327.50	303.15	24.42	24.35
43	328.08	328.01	303.90	24.18	24.11
44	328.64	328.57	304.85	23.79	23.72

SEPTEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
39	326.57	326.30	301.08	25.49	25.22
40	327.06	326.81	301.65	25.41	25.16
41	327.49	327.26	302.20	25.29	25.06
42	327.92	327.71	303.15	24.77	24.56
43	328.34	328.16	303.90	24.44	24.26
44	328.84	328.68	304.85	23.99	23.83
45	329.49	329.33	305.49	24.00	23.84
46	330.14	329.98	306.09	24.05	23.89
47	330.80	330.63	306.71	24.09	23.92
48	331.45	331.29	307.25	24.20	24.04
49	332.10	331.94	307.87	24.23	24.07
50	332.76	332.59	308.83	23.93	23.76
51	333.41	333.24	309.51	23.90	23.73

1. SOUNDED SEPTEMBER 21 & NOVEMBER 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO	PRICE'S LANDING
ZERO N.G.V.D.	301.18	300.00	301.83	299.75
MILE	46.3	43.7	39.5	28.2
LWRP 2014	306.20	304.90	301.48	294.74
21 SEP 2018	X	28.64(8:00) 28.48(14:00)	25.02(8:00) 24.75(14:00)	20.67(8:00) 20.42(14:00)
05 NOV 2018	28.98(9:00) 28.92(15:00)	28.44(9:00) 28.37(15:00)	MALFUNCTIONING	20.73(9:00) 20.70(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 21 & NOV. 5, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: JAMES L. KEIM Chief, Engr. Data Mngt. Sect.
APPROVED: X Chief, Geospatial Branch
Plot date: 0000/ATE/MMS0000
File name: 0000/ESIGN/FILE0/SPECIFICATION000

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 40.5 – 42.5

PLATE NUMBER
79

812,000 E

490,000 N

814,000 E

488,000 N

486,000 N

810,000 E

492,000 N

806,000 E

484,000 N

808,000 E

482,000 N

1. SOUNDED SEPTEMBER 20 & 21& NOVEMBER 2 & 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 2, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 14:00
34	323.91	323.96	298.00	25.91	25.96
35	324.47	324.51	298.46	26.01	26.05
36	325.02	325.06	298.98	26.04	26.08
37	325.58	325.61	299.68	25.90	25.93
38	326.13	326.17	300.44	25.69	25.73
39	326.69	326.72	301.08	25.61	25.64
40	327.24	327.27	301.65	25.59	25.62

NOVEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
40	326.54	326.48	301.65	24.89	24.83
41	327.05	326.99	302.20	24.85	24.79
42	327.57	327.50	303.15	24.42	24.35
43	328.08	328.01	303.90	24.18	24.11
44	328.64	328.57	304.85	23.79	23.72

SEPTEMBER 21, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
39	326.57	326.30	301.08	25.49	25.22
40	327.06	326.81	301.65	25.41	25.16
41	327.49	327.26	302.20	25.29	25.06
42	327.92	327.71	303.15	24.77	24.56
43	328.34	328.16	303.90	24.44	24.26
44	328.84	328.68	304.85	23.99	23.83
45	329.49	329.33	305.49	24.00	23.84
46	330.14	329.98	306.09	24.05	23.89
47	330.80	330.63	306.71	24.09	23.92
48	331.45	331.29	307.25	24.20	24.04
49	332.10	331.94	307.87	24.23	24.07
50	332.76	332.59	308.83	23.93	23.76
51	333.41	333.24	309.51	23.90	23.73

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

ILLINOIS

MISSOURI

N

SOUNDED SEPTEMBER 21, 2018
SOUNDED SEPTEMBER 20, 2018

SOUNDED SEPTEMBER 21, 2018
SOUNDED NOVEMBER 5, 2018

SOUNDED SEPTEMBER 20, 2018
SOUNDED NOVEMBER 2, 2018

SOUNDED NOVEMBER 5, 2018
SOUNDED NOVEMBER 2, 2018

DIKE 40.0(L)

DIKE 39.6(L)

WEIR 39.6 (L)

H.P. 38.7(L)

H.P. 38.4(L)

DIKE 40.4(L)

DIKE 40.6(R)

DIKE 40.2(R)

DIKE 40.0(R)

DIKE 39.7(R)

DIKE 39.4(R)

DIKE 39.1(R)

DIKE 38.9(R)

DIKE 38.6(R)

DIKE 38.4(R)

39

SEE PLATE NO. 79

SEE PLATE NO. 81

BUF

US Army Corps of Engineers
St. Louis District

GAGE RECORD

ZERO N.G.V.D.	GRAYS POINT, MO	THEBES, IL	COMMERCE, MO	PRICE'S LANDING
MILE	301.18	300.00	301.83	299.75
	46.3	43.7	39.5	28.2
LWRP 2014	306.20	304.90	301.48	294.74
20 SEP 2018	x	29.998/001 29.014/000	25.68(8/001 25.42(8/000)	21.59(8/001 21.26(8/001
21 SEP 2018	x	28.644/001 28.48(4/000)	25.02(8/001 24.75(14/000)	20.67(8/001 20.42(14/000
02 NOV 2018	x	29.29(7/001 29.31(4/001	MALFUNCTIONING	20.73(9/001 21.01(4/001
05 NOV 2018	28.98(9/001 28.92(15/001	28.44(9/001 28.37(5/001	MALFUNCTIONING	20.73(9/001 20.70(5/001

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
SUBMITTED: X
Survey Date: SEPT. 20 & 21, NOV. 2 & 5, 2018
Reviewed by: X
APPROVED: X
Plot date: ########
File name: ########

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

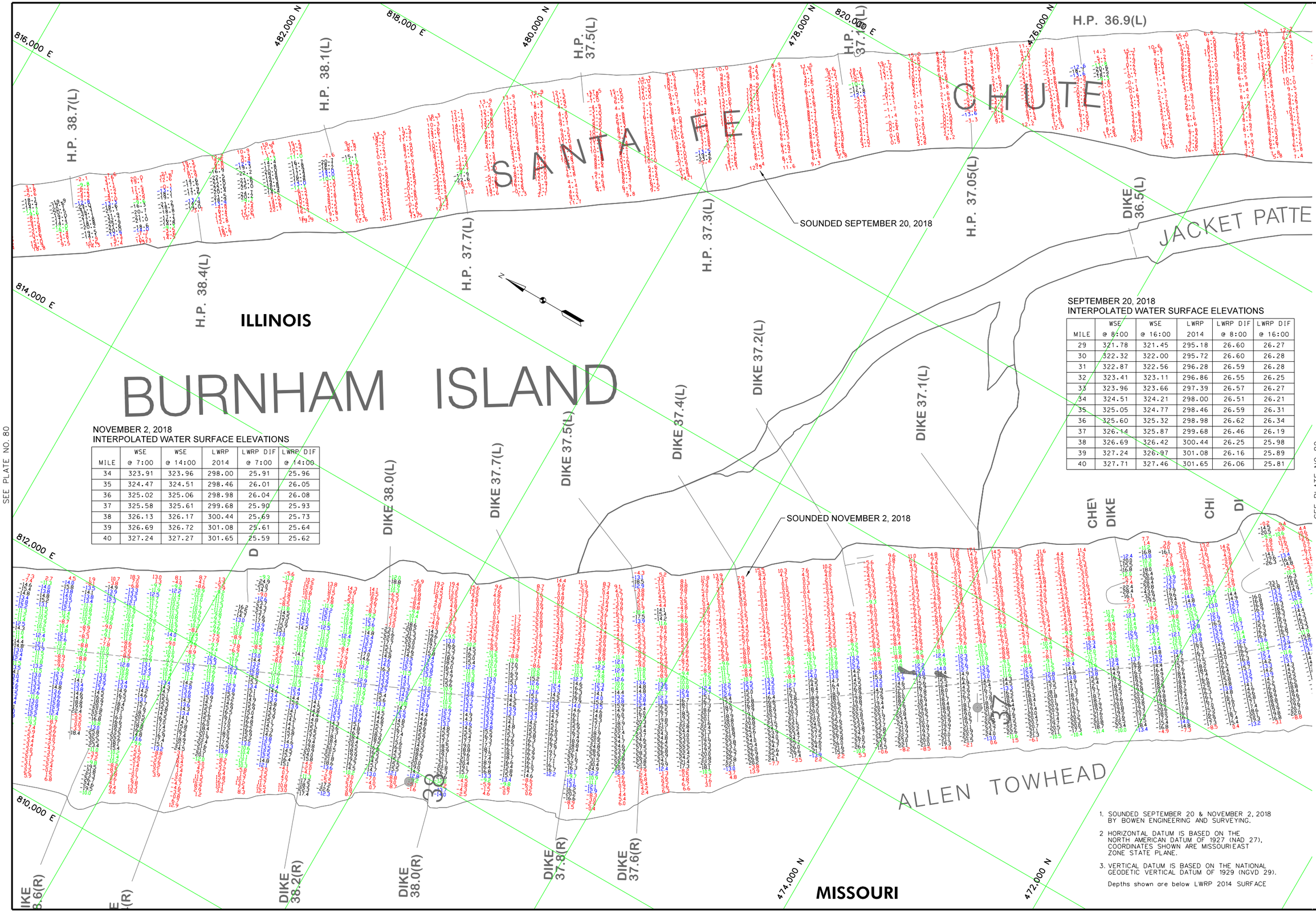
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 38.5 – 40.5

0 120 240 METERS
0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE CORPS OF ENGINEERS AND IS ACCURATE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

PLATE NUMBER
80



SEE PLATE NO. 80

SEE PLATE NO. 82

NOVEMBER 2, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 14:00
34	323.91	323.96	298.00	25.91	25.96
35	324.47	324.51	298.46	26.01	26.05
36	325.02	325.06	298.98	26.04	26.08
37	325.58	325.61	299.68	25.90	25.93
38	326.13	326.17	300.44	25.69	25.73
39	326.69	326.72	301.08	25.61	25.64
40	327.24	327.27	301.65	25.59	25.62

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

1. SOUNDED SEPTEMBER 20 & NOVEMBER 2, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
20 SEP 2018	29.39(8:00) 29.03(16:00)	25.68(8:00) 25.42(16:00)	21.59(8:00) 21.26(16:00)	x
02 NOV 2018	29.29(7:00) 29.33(14:00)	MALFUNCTIONING	20.95(7:00) 21.01(14:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 20 & NOV. 2, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

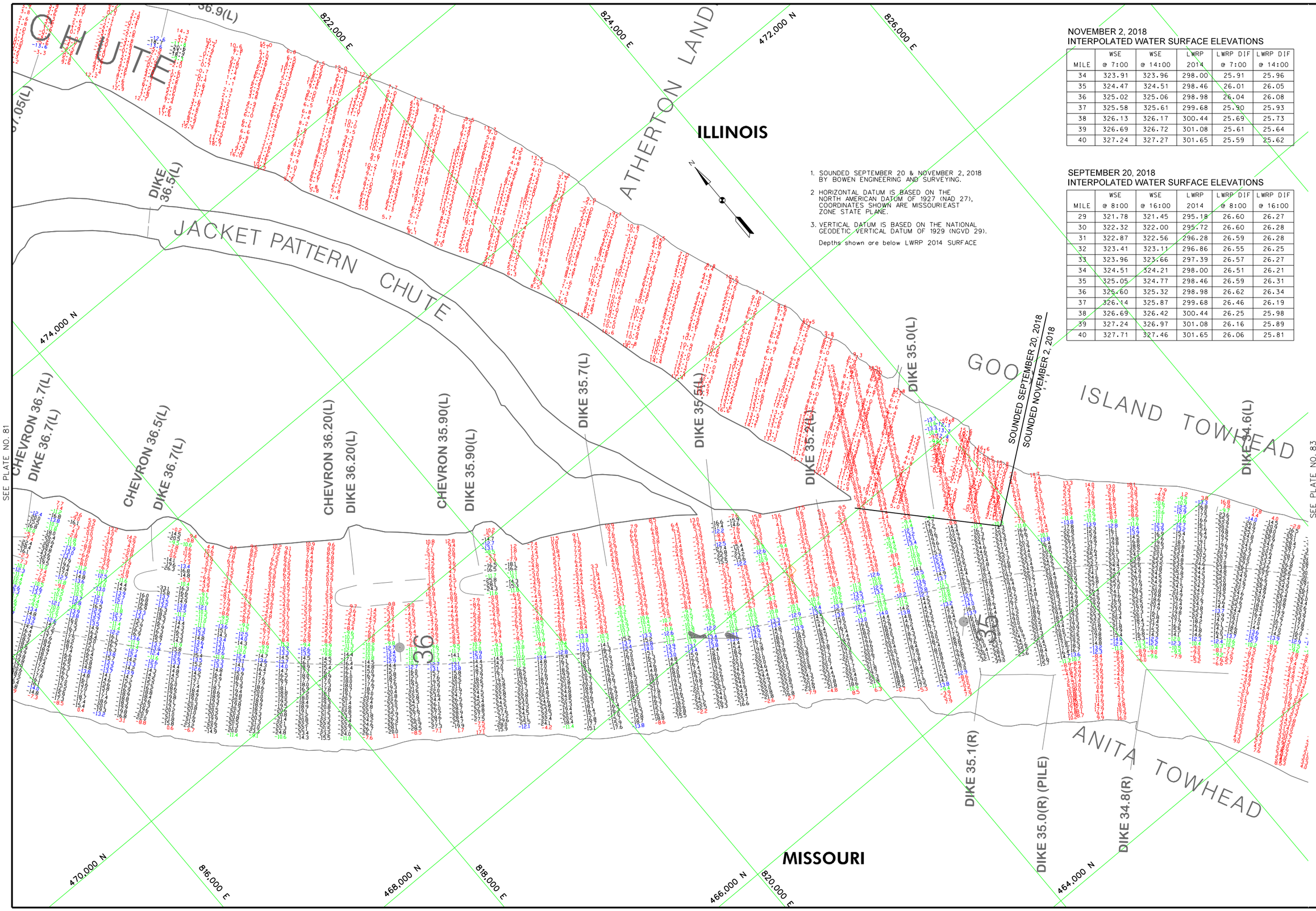
120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 36.5 – 38.5

PLATE NUMBER
81



1. SOUNDED SEPTEMBER 20 & NOVEMBER 2, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 2, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 14:00
34	323.91	323.96	298.00	25.91	25.96
35	324.47	324.51	298.46	26.01	26.05
36	325.02	325.06	298.98	26.04	26.08
37	325.58	325.61	299.68	25.90	25.93
38	326.13	326.17	300.44	25.69	25.73
39	326.69	326.72	301.08	25.61	25.64
40	327.24	327.27	301.65	25.59	25.62

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
20 SEP 2018	29.39(8:00) 29.03(16:00)	25.68(8:00) 25.42(16:00)	21.59(8:00) 21.26(16:00)	x
02 NOV 2018	29.29(7:00) 29.33(14:00)	MALFUNCTIONING	20.95(7:00) 21.01(14:00)	x

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 20 & NOV. 2, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 34.5 – 36.5

PLATE NUMBER
82

NOVEMBER 1, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
30	321.11	321.35	295.72	25.39	25.63
31	321.69	321.93	296.28	25.41	25.65
32	322.27	322.50	296.86	25.41	25.64
33	322.85	323.07	297.39	25.46	25.68
34	323.43	323.65	298.00	25.43	25.65

NOVEMBER 2, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 14:00
34	323.91	323.96	298.00	25.91	25.96
35	324.47	324.51	298.46	26.01	26.05
36	325.02	325.06	298.98	26.04	26.08
37	325.58	325.61	299.68	25.90	25.93
38	326.13	326.17	300.44	25.69	25.73
39	326.69	326.72	301.08	25.61	25.64
40	327.24	327.27	301.65	25.59	25.62

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

1. SOUNDED SEPTEMBER 20 & NOVEMBER 1 & 2, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

GAGE RECORD	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
20 SEP 2018	28.98|00:00|29.03|16:00	25.68|16:00|25.42|16:00	21.59|8:00|21.26|16:00	x
01 NOV 2018	29.07|8:00|29.21|14:00	MALFUNCTIONING	20.31|8:00|20.57|14:00	x
02 NOV 2018	29.29|7:00|29.31|14:00	MALFUNCTIONING	20.95|7:00|21.01|14:00	x

US Army Corps of Engineers
St. Louis District

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 20 & NOV. 1 & 2, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

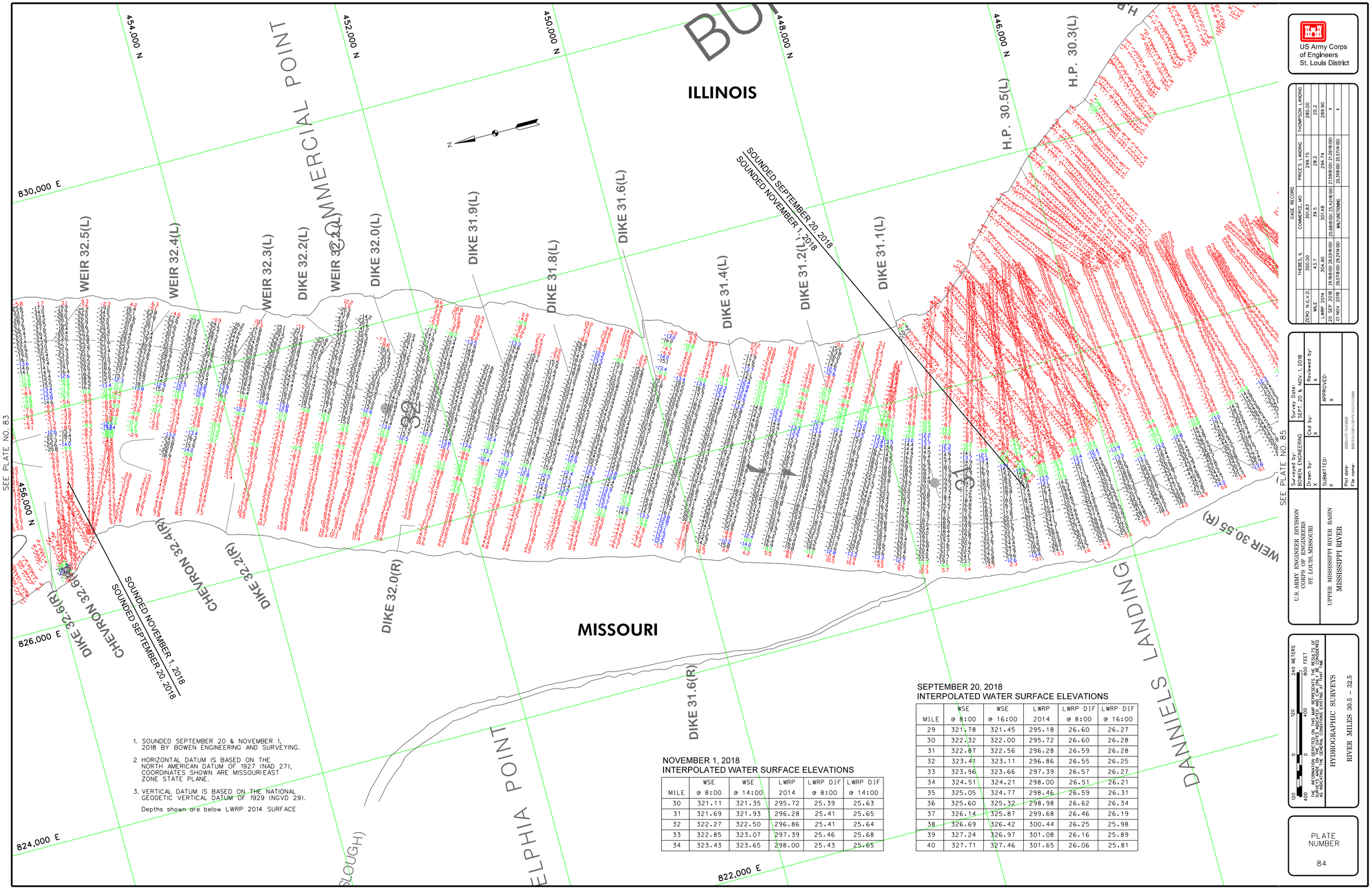
0 120 240 METERS
0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE BESTEST OF SURVEYS MADE BY BOWEN ENGINEERING AT THE TIME AND DATE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 32.5 – 34.5

PLATE NUMBER
83

830,000 E
466,000 N
828,000 E
832,000 E
824,000 E
464,000 N
462,000 N
460,000 N
458,000 N
456,000 N
SEE PLATE NO. 82
SEE PLATE NO. 84
ILLINOIS
MISSOURI
COMMERCIAL LANDING
BILLINGS ISLAND
ANITA TOWHEAD
BILLINGS CHUTE
LOG JAM
LOG JAM
DIKE 34.1(R)
DIKE 33.3(R)
DIKE 32.6(R)
DIKE 32.2(R)
DIKE 34.8(R)
DIKE 35.0(R) (PILE)
DIKE 34.2(L)
DIKE 34.1(L)
DIKE 33.3(L)
WEIR 32.5(L)
WEIR 32.5(L)
CHEVRON 32.8(R)
CHEVRON 32.6(R)
CHEVRON 32.4(R)
SOUNDED NOVEMBER 2, 2018
SOUNDED NOVEMBER 1, 2018
NOVEMBER 2, 2018
SEPTEMBER 20, 2018
SEPTEMBER 20, 2018
NOVEMBER 1, 2018
SEPTEMBER 20, 2018
NOVEMBER 1, 2018
SEPTEMBER 20, 2018
NOVEMBER 1, 2018



1. SOUNDED SEPTEMBER 20 & NOVEMBER 1, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 1, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
30	321.11	321.35	295.72	25.39	25.63
31	321.69	321.93	296.28	25.41	25.65
32	322.27	322.50	296.86	25.41	25.64
33	322.85	323.07	297.39	25.46	25.68
34	323.43	323.65	298.00	25.43	25.65

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
20 SEP 2018	29.19(8:00) 29.03(16:00)	25.68(8:00) 25.42(16:00)	21.59(8:00) 21.26(16:00)	X
01 NOV 2018	29.07(8:00) 29.21(14:00)	MALFUNCTIONING	20.31(8:00) 20.57(14:00)	X

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPT. 20 & NOV. 1, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME:9999
File name: 9999DESIGN\FILE\SPECIFICATION\99

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 30.5 – 32.5

PLATE NUMBER
84

DIKE 31.

446,000 N

444,000 N

442,000 N

830,000 E

832,000 E

828,000 E

826,000 E

824,000 E

822,000 E

H.P. 30.5(L)

H.P. 30.3(L)

H.P. 30.1(L)

H.P. 29.9(L)

H.P. 29.5(L)

ILLINOIS

MISSOURI

BUMGARD CHUTE

SOUNDED SEPTEMBER 20, 2018
SOUNDED NOVEMBER 1, 2018

SOUNDED SEPTEMBER 20, 2018
SOUNDED OCTOBER 25, 2018

SOUNDED NOVEMBER 1, 2018
SOUNDED OCTOBER 25, 2018

WEIR 30.55 (R)

WEIR 30.5 (R)

WEIR 30.3 (R)

WEIR 30.2 (R)

WEIR 30.1 (R)

WEIR 30.0 (R)

WEIR 29.9 (R)

WEIR 29.8 (R)

WEIR 29.6 (R)

WEIR 29.55 (R)

WEIR 29.30 (R)

WEIR 29.15 (R)

MOORE LANDING

PRICE LANDING

ELKINS LANDING

SEE PLATE NO. 84

SEE PLATE NO. 86

1. SOUNDED SEPTEMBER 20, OCTOBER 25 & NOVEMBER 1, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
20 SEP 2018	29.908'000	29.036'000	25.686'000	25.429'000	21.598'000	21.261'000	17.506'000	17.381'000
25 OCT 2018	32.908'000	32.070'000	MALFUNCTIONING	23.968'000	23.031'000	20.318'000	20.571'000
01 NOV 2018	29.078'000	29.291'000	MALFUNCTIONING	23.968'000	23.031'000	20.318'000	20.571'000

Survey Date: SEPT. 20, OCT. 25 & NOV. 1, 2018

Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

OCTOBER 25, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	320.75	320.62	293.03	27.72	27.59
26	321.42	321.30	293.62	27.80	27.68
27	322.10	321.97	294.09	28.01	27.88
28	322.77	322.65	294.62	28.15	28.03
29	323.39	323.26	295.18	28.21	28.08
30	323.99	323.86	295.72	28.27	28.14

NOVEMBER 1, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 14:00
30	321.11	321.35	295.72	25.39	25.63
31	321.69	321.93	296.28	25.41	25.65
32	322.27	322.50	296.86	25.41	25.64
33	322.85	323.07	297.39	25.46	25.68
34	323.43	323.65	298.00	25.43	25.65

SEPTEMBER 20, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 16:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 16:00
29	321.78	321.45	295.18	26.60	26.27
30	322.32	322.00	295.72	26.60	26.28
31	322.87	322.56	296.28	26.59	26.28
32	323.41	323.11	296.86	26.55	26.25
33	323.96	323.66	297.39	26.57	26.27
34	324.51	324.21	298.00	26.51	26.21
35	325.05	324.77	298.46	26.59	26.31
36	325.60	325.32	298.98	26.62	26.34
37	326.14	325.87	299.68	26.46	26.19
38	326.69	326.42	300.44	26.25	25.98
39	327.24	326.97	301.08	26.16	25.89
40	327.71	327.46	301.65	26.06	25.81

240 METERS
120
0
800 FEET
400
0
120
400

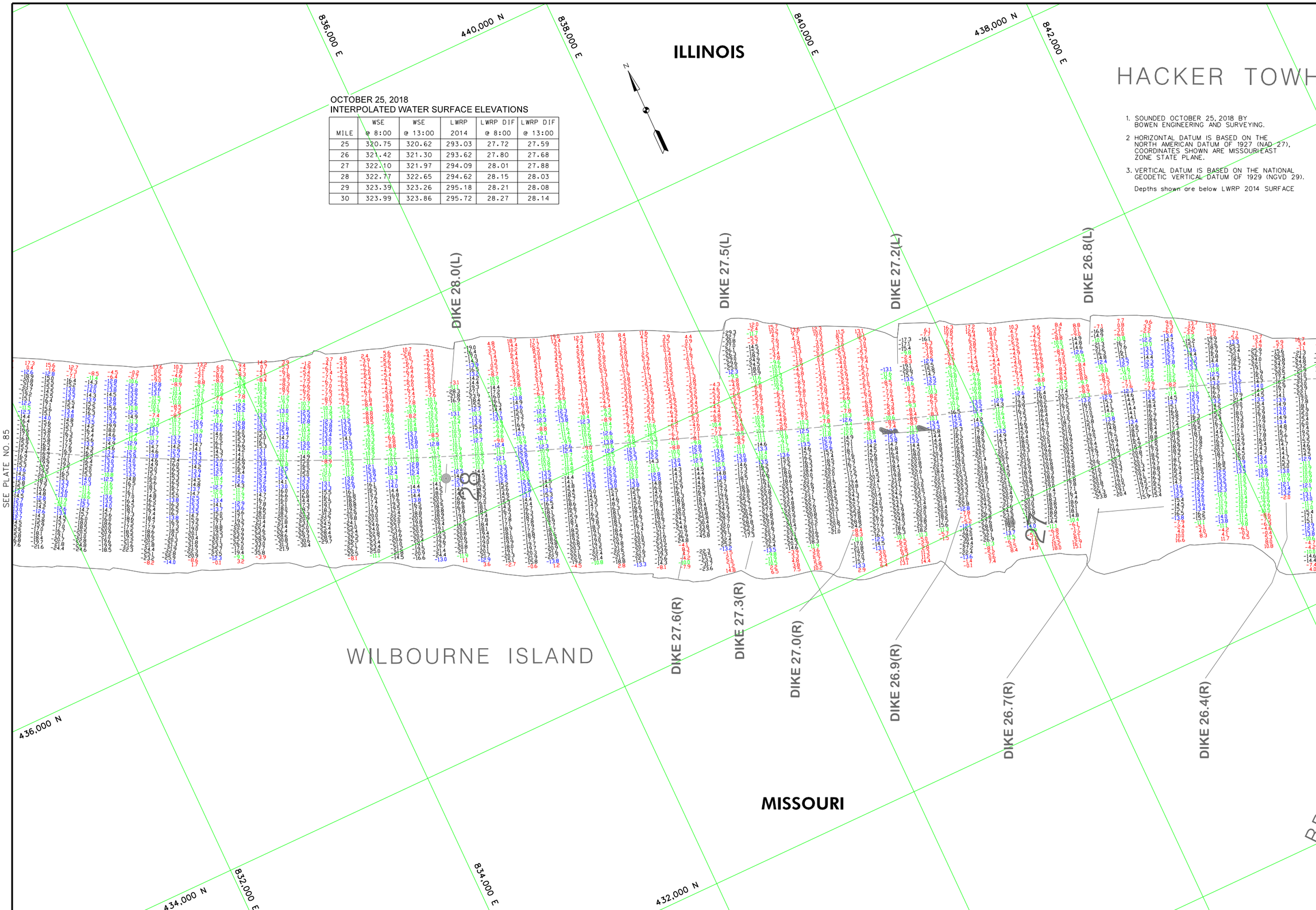
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE POSITIONS OF SUBMERGED OBJECTS AS SOUNDED AND MAY NOT BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 28.6 – 30.5

PLATE NUMBER

85



OCTOBER 25, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	320.75	320.62	293.03	27.72	27.59
26	321.42	321.30	293.62	27.80	27.68
27	322.10	321.97	294.09	28.01	27.88
28	322.77	322.65	294.62	28.15	28.03
29	323.39	323.26	295.18	28.21	28.08
30	323.99	323.86	295.72	28.27	28.14

1. SOUNDED OCTOBER 25, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI-EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
25 OCT 2018	32.19(8:00) 32.07(13:00)	MALFUNCTIONING	23.16(8:00) 23.03(13:00)	37.50(8:00) 37.38(13:00)

Survey Date: OCTOBER 25, 2018
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

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

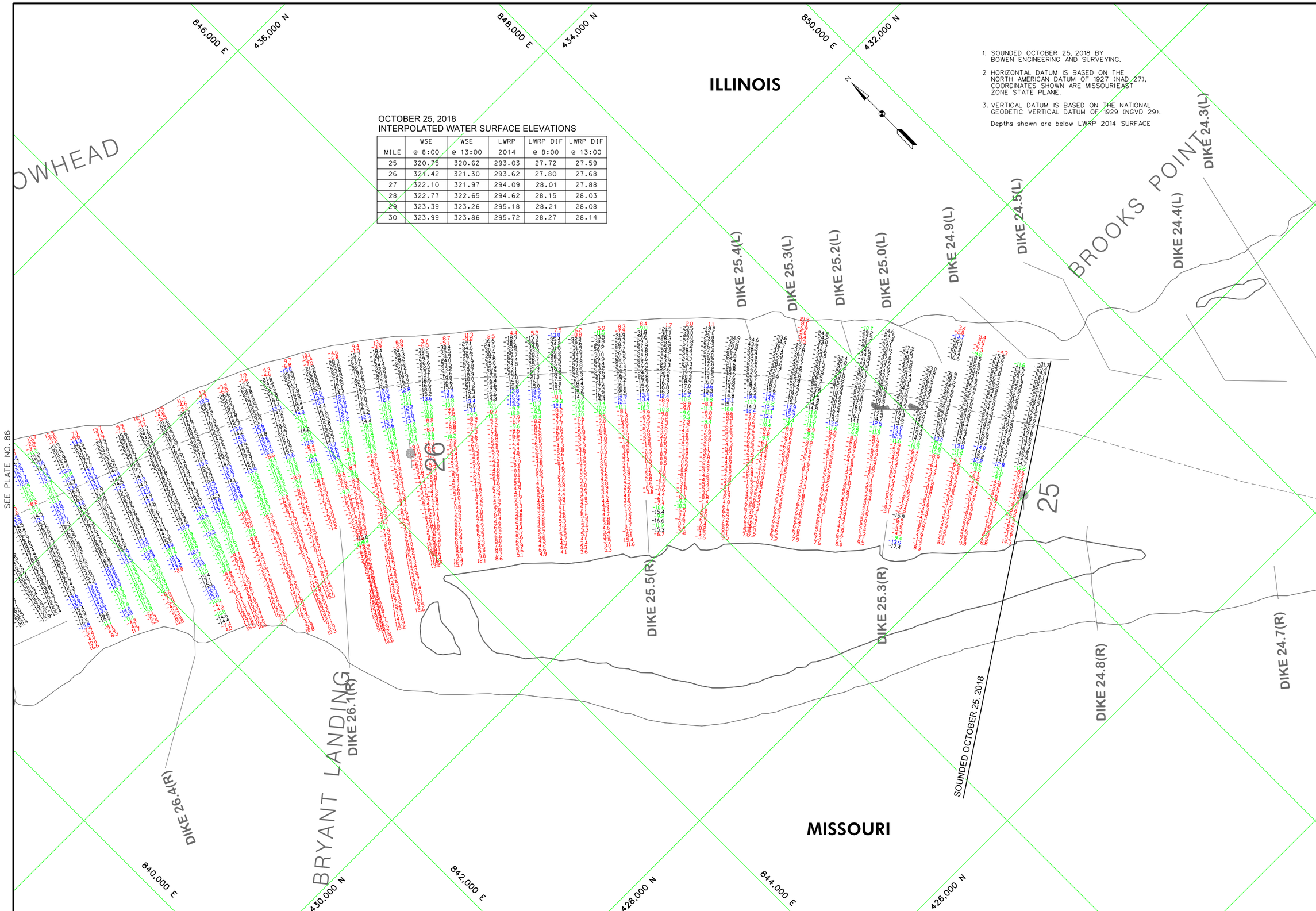
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 26.6 – 28.6

PLATE NUMBER
86



OCTOBER 25, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	320.75	320.62	293.03	27.72	27.59
26	321.42	321.30	293.62	27.80	27.68
27	322.10	321.97	294.09	28.01	27.88
28	322.77	322.65	294.62	28.15	28.03
29	323.39	323.26	295.18	28.21	28.08
30	323.99	323.86	295.72	28.27	28.14

1. SOUNDED OCTOBER 25, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
25 OCT 2018	32.19(8:00) 32.07(13:00)	MALFUNCTIONING	23.16(8:00) 23.03(13:00)	37.50(8:00) 37.38(13:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 25, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####PRESIGN#FILE#SPECIFICATION#####

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

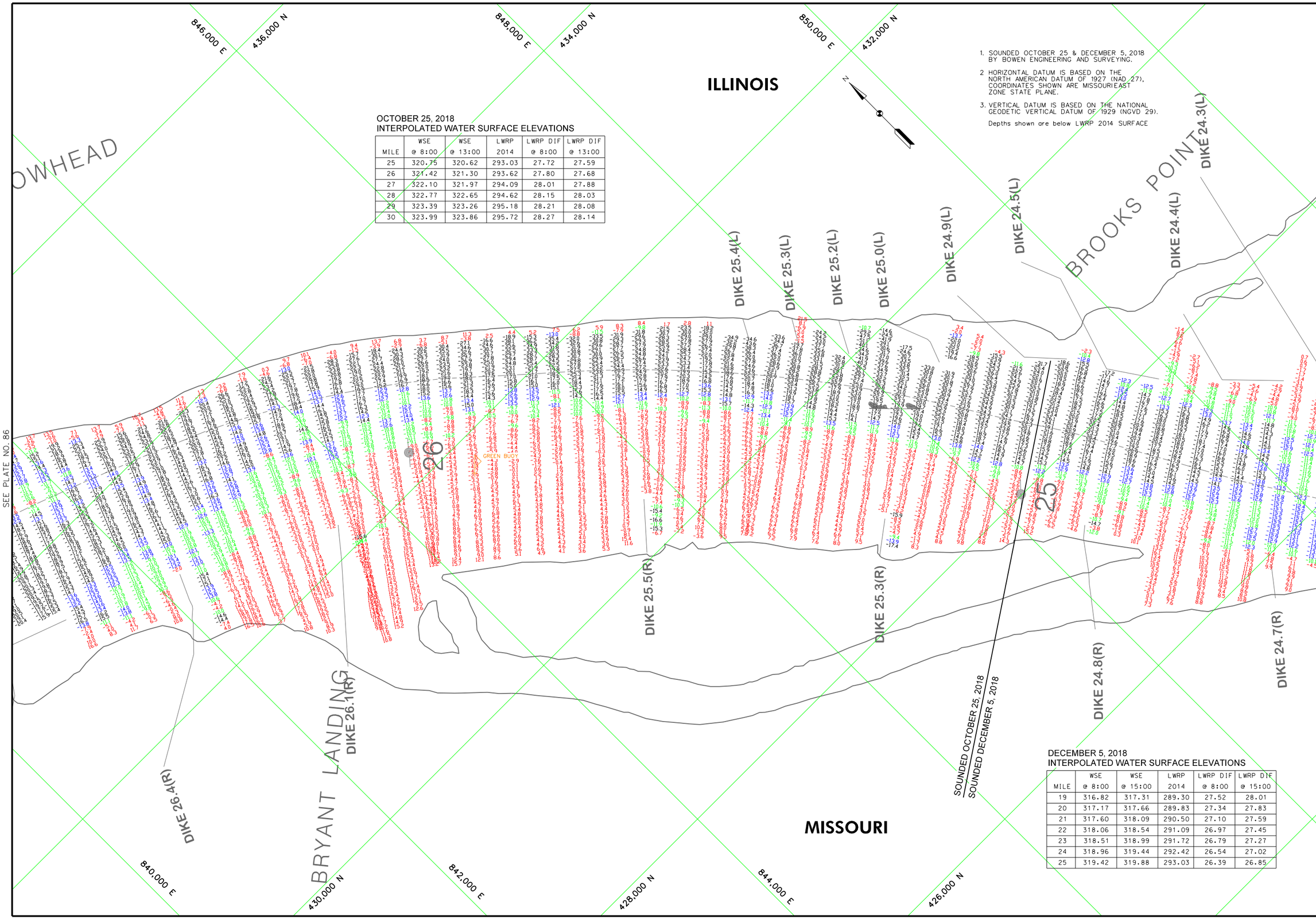
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 24.6 – 26.6

PLATE NUMBER
87



1. SOUNDED OCTOBER 25 & DECEMBER 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 25, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	320.75	320.62	293.03	27.72	27.59
26	321.42	321.30	293.62	27.80	27.68
27	322.10	321.97	294.09	28.01	27.88
28	322.77	322.65	294.62	28.15	28.03
29	323.39	323.26	295.18	28.21	28.08
30	323.99	323.86	295.72	28.27	28.14

DECEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
19	316.82	317.31	289.30	27.52	28.01
20	317.17	317.66	289.83	27.34	27.83
21	317.60	318.09	290.50	27.10	27.59
22	318.06	318.54	291.09	26.97	27.45
23	318.51	318.99	291.72	26.79	27.27
24	318.96	319.44	292.42	26.54	27.02
25	319.42	319.88	293.03	26.39	26.85

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	THEBES, IL	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING
ZERO N.G.V.D.	300.00	301.83	299.75	280.00
MILE	43.7	39.5	28.2	20.2
LWRP 2014	304.90	301.48	294.74	289.90
25 OCT 2018	32.19(8:00) 32.07(13:00)	MALFUNCTIONING	23.96(8:00) 23.03(13:00)	37.50(8:00) 37.38(13:00)
05 DEC 2018	X	X	21.12(8:00) 21.57(15:00)	37.24(8:00) 37.73(15:00)

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 25 & DEC. 5, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#####

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 24.6 – 26.6

PLATE NUMBER
87

ILLINOIS

MISSOURI

BROOKS POINT

BROWNS CHUTE

BROWNS BAR

SLIDING TOWHEAD

DOGTOOTH BEND

DOGTOOTH BENDWAY

DIKE 24.7(R)

DIKE 24.6(R)

DIKE 24.4(L)

DIKE 24.3(L)

DIKE 24.8(L)

DIKE 23.8(L)

DIKE 22.3(L)

DIKE 22.2(L)

DIKE 22.1(L)

WEIR 24.2 (R)

WEIR 23.9 (R)

WEIR 23.7 (R)

WEIR 23.5 (R)

WEIR 23.4 (R)

WEIR 23.3 (R)

DIKE 23.3(R)

WEIR 23.2 (R)

WEIR 23.1 (R)

WEIR 23.0 (R)

WEIR 22.9 (R)

WEIR 22.8 (R)

WEIR 22.7 (R)

RED BUOY

426,000 N

424,000 N

422,000 N

428,000 N

850,000 E

852,000 E

854,000 E

856,000 E

858,000 E

860,000 E

SEE PLATE NO. 87

SEE PLATE NO. 89

DECEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
19	316.82	317.31	289.30	27.52	28.01
20	317.17	317.66	289.83	27.34	27.83
21	317.60	318.09	290.50	27.10	27.59
22	318.06	318.54	291.09	26.97	27.45
23	318.51	318.99	291.72	26.79	27.27
24	318.96	319.44	292.42	26.54	27.02
25	319.42	319.88	293.03	26.39	26.85

1. SOUNDED DECEMBER 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
05 DEC 2018	x	21.1(R)301.21.5(R)295.001	37.2(R)300.37.7(R)295.001	36.4(R)300.36.8(R)295.001

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
RIVER MILES 22.5 – 24.6

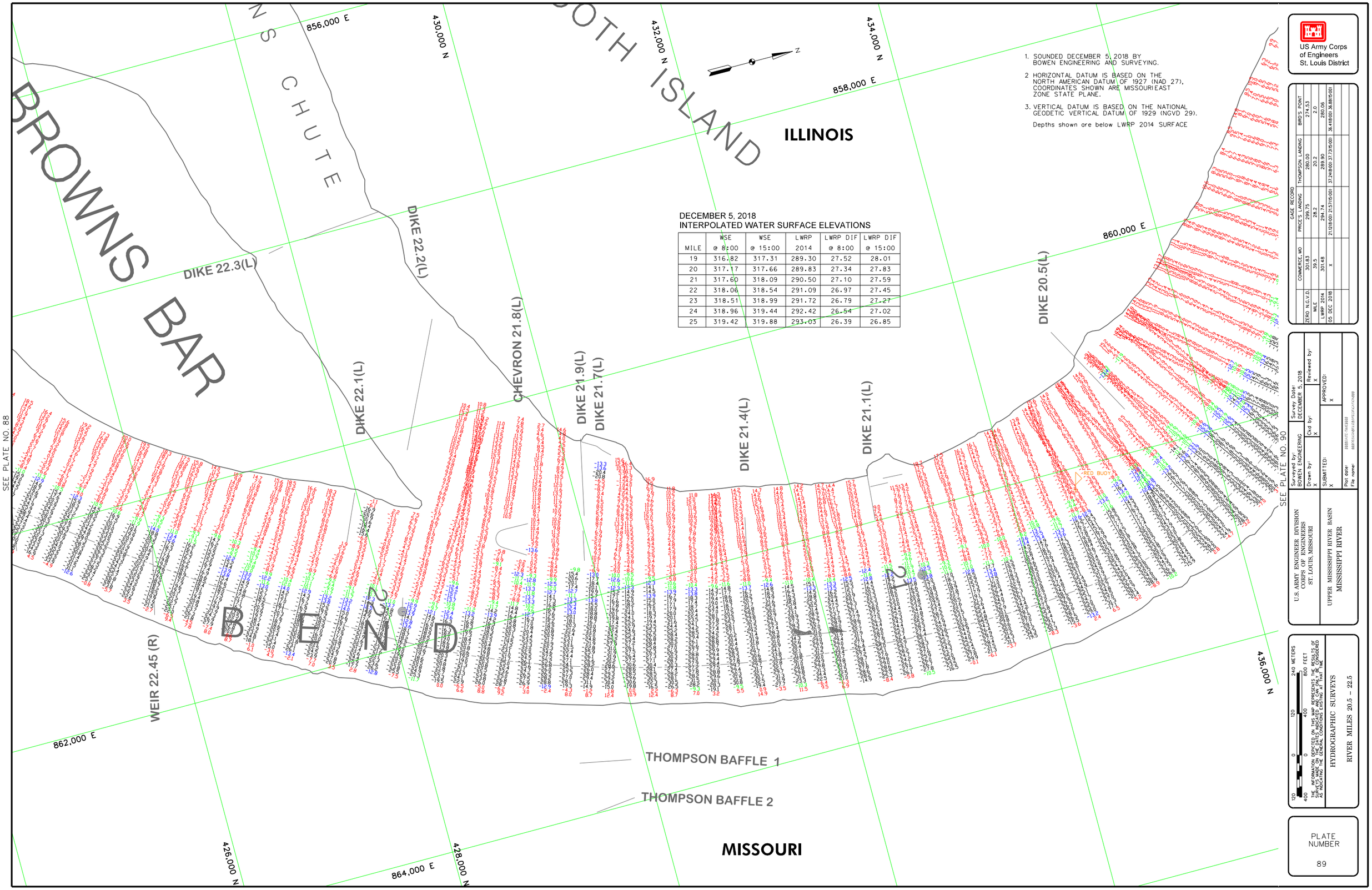
Surveyed by: BOWEN ENGINEERING
Survey Date: DECEMBER 5, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

240 METERS 120 0 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY THE ENGINEER AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 22.5 – 24.6

PLATE NUMBER
88



1. SOUNDED DECEMBER 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

DECEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
19	316.82	317.31	289.30	27.52	28.01
20	317.17	317.66	289.83	27.34	27.83
21	317.60	318.09	290.50	27.10	27.59
22	318.06	318.54	291.09	26.97	27.45
23	318.51	318.99	291.72	26.79	27.27
24	318.96	319.44	292.42	26.54	27.02
25	319.42	319.88	293.03	26.39	26.85

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
05 DEC 2018	X	21.12(8:00) 21.57(15:00)	37.24(8:00) 37.73(15:00)	36.41(8:00) 36.88(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: DECEMBER 5, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####DESIGN#FILE#SPECIFICATION#

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

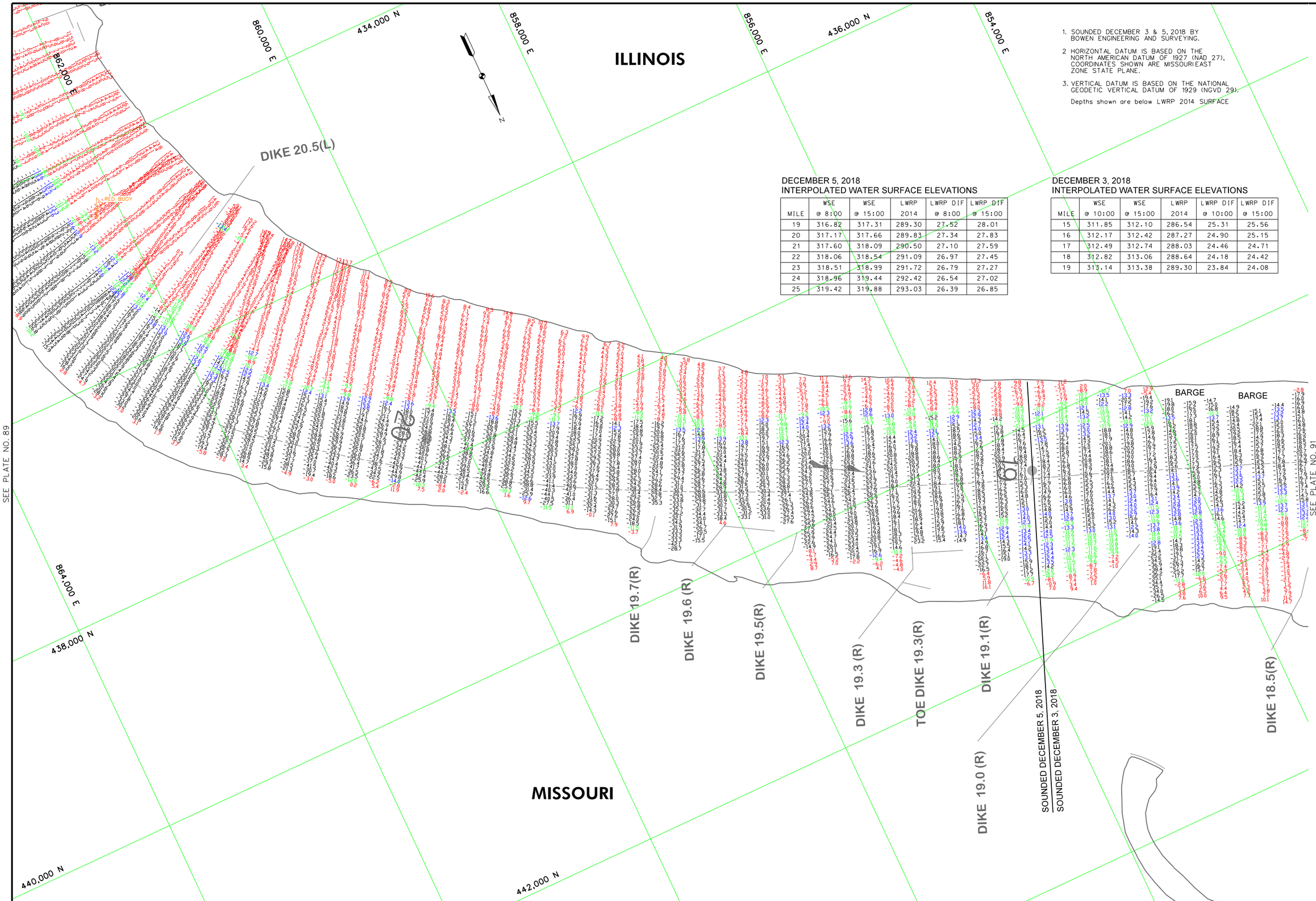
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 20.5 – 22.5

PLATE NUMBER
89



1. SOUNDED DECEMBER 3 & 5, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

DECEMBER 5, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
19	316.82	317.31	289.30	27.52	28.01
20	317.17	317.66	289.83	27.34	27.83
21	317.60	318.09	290.50	27.10	27.59
22	318.06	318.54	291.09	26.97	27.45
23	318.51	318.99	291.72	26.79	27.27
24	318.96	319.44	292.42	26.54	27.02
25	319.42	319.88	293.03	26.39	26.85

DECEMBER 3, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
15	311.85	312.10	286.54	25.31	25.56
16	312.17	312.42	287.27	24.90	25.15
17	312.49	312.74	288.03	24.46	24.71
18	312.82	313.06	288.64	24.18	24.42
19	313.14	313.38	289.30	23.84	24.08

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
03 DEC 2018	X	X	33.53(10:00) 33.76(15:00)	33.11(10:00) 33.42(15:00)
05 DEC 2018	X	21.12(8:00) 21.57(15:00)	37.24(8:00) 37.73(15:00)	36.41(8:00) 36.88(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: DECEMBER 3 & 5, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE/TIME9999
File name: 9999DESIGN\FILE\PROPLOCATION\99

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

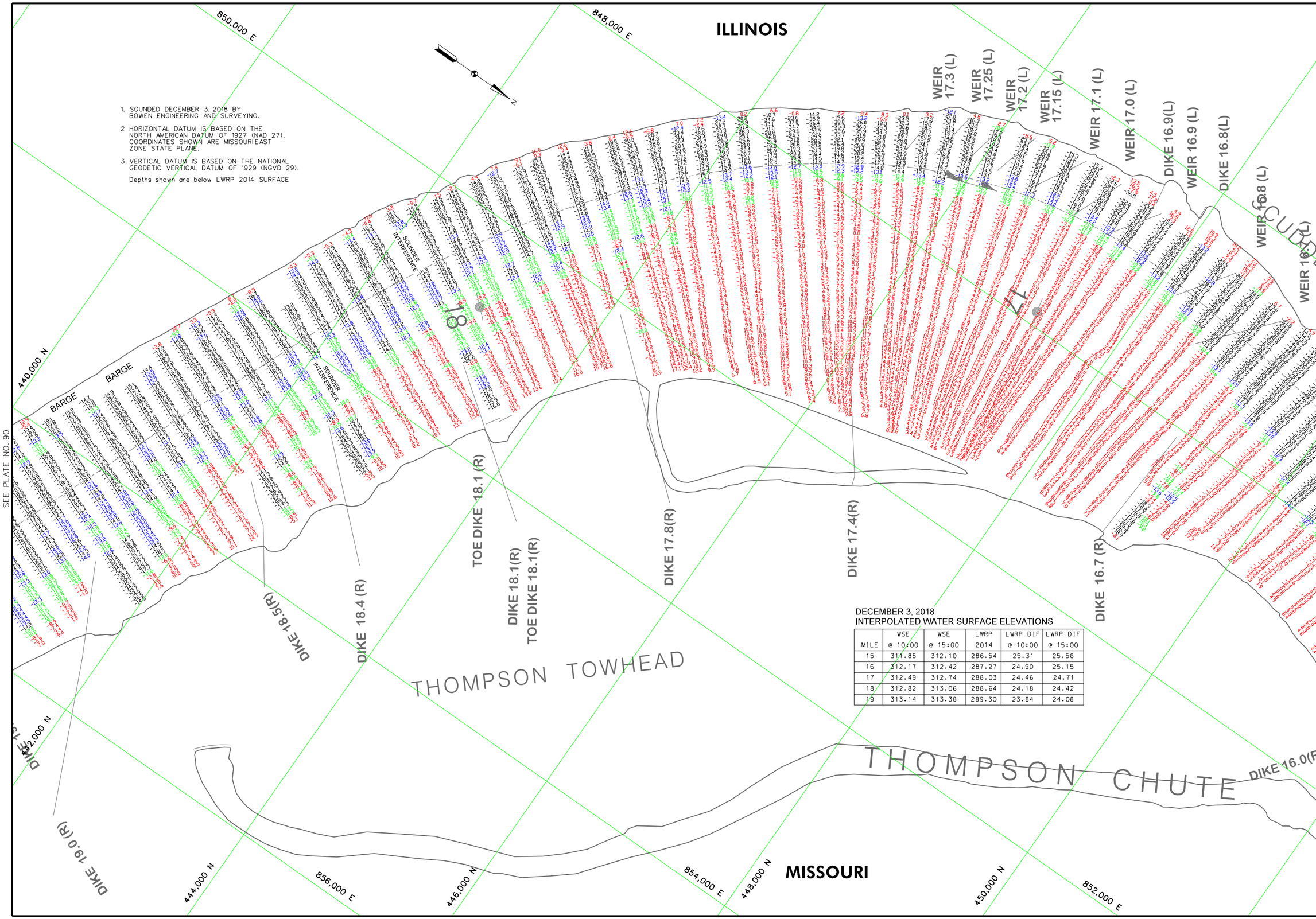
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 18.7 – 20.5

PLATE NUMBER

90



1. SOUNDED DECEMBER 3, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

DECEMBER 3, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
15	311.85	312.10	286.54	25.31	25.56
16	312.17	312.42	287.27	24.90	25.15
17	312.49	312.74	288.03	24.46	24.71
18	312.82	313.06	288.64	24.18	24.42
19	313.14	313.38	289.30	23.84	24.08

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
03 DEC 2018	X	X	33.53(10:00) 33.76(15:00)	33.11(10:00) 33.42(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: DECEMBER 3, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE:TIME####
File name: ####PRESSIONFILE#SPECIFICATION#####

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 16.4 – 18.7

PLATE NUMBER
91

ILLINOIS

DECEMBER 3, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
15	311.85	312.10	286.54	25.31	25.56
16	312.17	312.42	287.27	24.90	25.15
17	312.49	312.74	288.03	24.46	24.71
18	312.82	313.06	288.64	24.18	24.42
19	313.14	313.38	289.30	23.84	24.08

NOVEMBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
10	308.70	308.62	284.21	24.49	24.41
11	309.03	308.95	284.65	24.38	24.30
12	309.37	309.28	284.97	24.40	24.31
13	309.70	309.62	285.23	24.47	24.39
14	310.04	309.95	285.93	24.11	24.02
15	310.37	310.28	286.54	23.83	23.74

844,000 E
452,000 N
454,000 N
846,000 E
456,000 N
848,000 E
458,000 N
850,000 E
448,000 N
450,000 N
852,000 E
854,000 E

SEE PLATE NO. 91
SEE PLATE NO. 93

DIKE 16.0(R)
DIKE 16.7 (R)
DIKE 17.4(R)
DIKE 15.5(R)
DIKE 15.1 (R)
DIKE 14.9 (R)
DIKE 14.7 (R)
DIKE 14.5 (R)
DIKE 14
DIKE

THOMPSON CHUTE
INDEFINITE BOUNDARY
MISSOURI SISTER
SOUNDED DECEMBER 3, 2018
SOUNDED NOVEMBER 29, 2018
GREEN BUOY

ILLINOIS
MISSOURI

1. SOUNDED NOVEMBER 29 & DECEMBER 3, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
29 NOV 2018	x	x	32.1090'00" 32.0814'00"	31.4893'00" 31.4314'00"
03 DEC 2018	x	x	33.5306'00" 33.7676'00"	33.1676'00" 33.4215'00"

Surveyed by: BOWEN ENGINEERING
Survey Date: NOV. 29 & DEC. 3, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS 800 FEET
120 0 0 120 400 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AND SURVEYING AT THE TIME AND UNDER THE CONDITIONS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 14.7 – 16.4

PLATE NUMBER
92

DECEMBER 3, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 10:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 10:00	LWRP DIF @ 15:00
15	311.85	312.10	286.54	25.31	25.56
16	312.17	312.42	287.27	24.90	25.15
17	312.49	312.74	288.03	24.46	24.71
18	312.82	313.06	288.64	24.18	24.42
19	313.14	313.38	289.30	23.84	24.08

NOVEMBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
10	308.70	308.62	284.21	24.49	24.41
11	309.03	308.95	284.65	24.38	24.30
12	309.37	309.28	284.97	24.40	24.31
13	309.70	309.62	285.23	24.47	24.39
14	310.04	309.95	285.93	24.11	24.02
15	310.37	310.28	286.54	23.83	23.74

ILLINOIS

462,000 N

460,000 N

458,000 N

456,000 N

454,000 N

862,000 E

860,000 E

858,000 E

856,000 E

854,000 E

852,000 E

GRAND LAKE TOWHEAD

GREEN LEAF

CACHE RIVER

ISLAND NO. 29

ISLAND NO. 30

SISTER CHUTE

MISSOURI SISTER ISLAND

DIKE 13.7(L)

DIKE 13.6(L)

DIKE 13.4(L)

DIKE 13.2(L)

DIKE 13.1(L)

DIKE 13.7(R)

DIKE 14.0(R)

DIKE 14.2(R)

DIKE 14.3(R)

DIKE 14.7 (R)

DIKE 14.5 (R)

DIKE 14.9 (R)

DIKE 15.1 (R)

DIKE 14.10(R)

DIKE 13.4(R)

DIKE 13.4(R) (PILE)

DIKE 12.4(R)

GREEN BUOY

SOUNDED NOVEMBER 29, 2018

SOUNDED DECEMBER 3, 2018

SEE PLATE NO. 92

SEE PLATE NO. 94

1. SOUNDED NOVEMBER 29 & DECEMBER 3, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
29 NOV 2018	x	x	32.129/00	32.8114/00	31.489/00	31.4314/00
03 DEC 2018	x	x	33.530/00	33.776/15:00	33.180/00	33.421/15:00

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

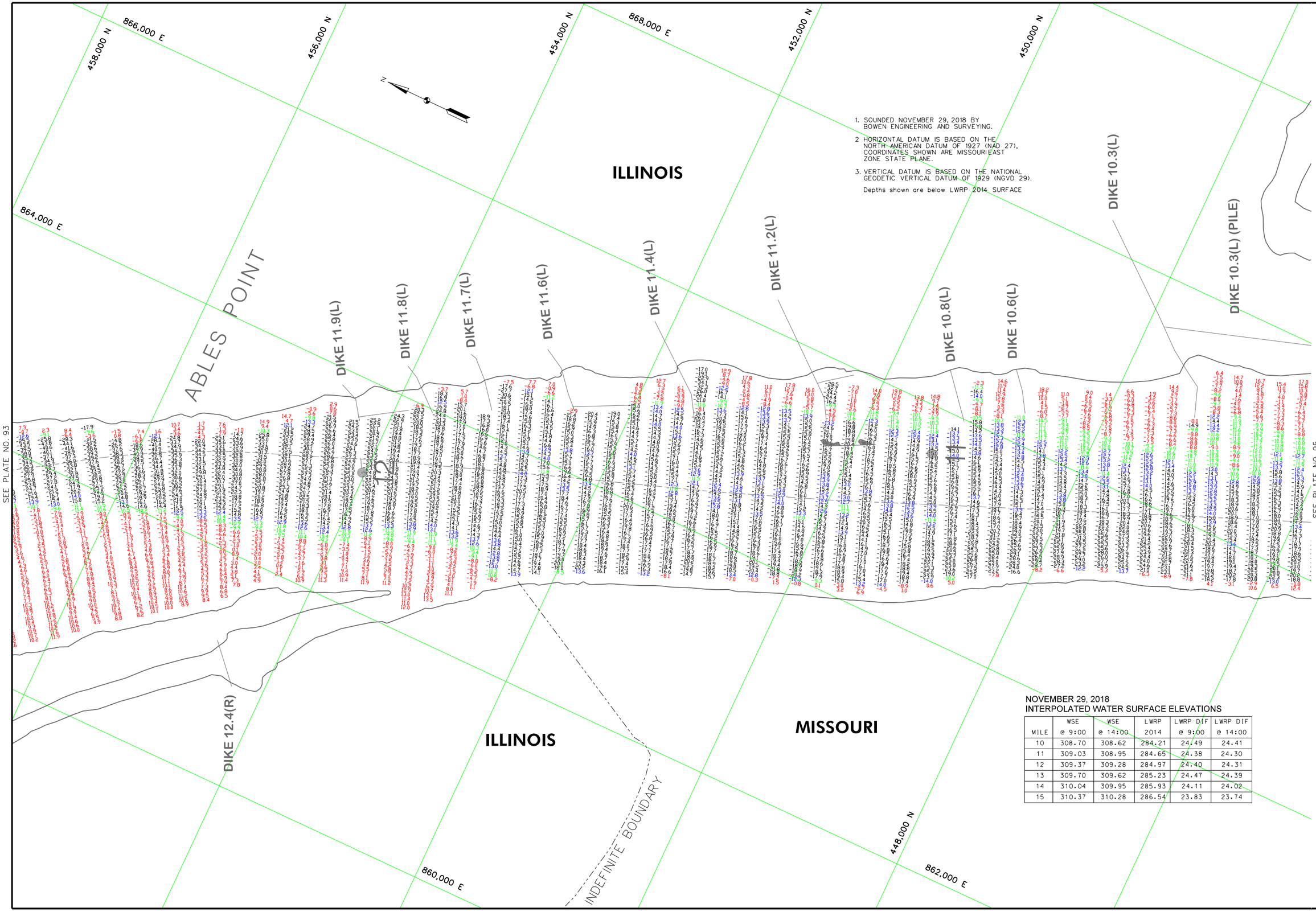
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: NOV. 29 & DEC. 3, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ########
File name: ########

249 METERS
800 FEET
THE INFORMATION REPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ENGINEER DEPARTMENT AND IS INTENDED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 12.5 – 14.7

PLATE NUMBER
93



1. SOUNDED NOVEMBER 29, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

NOVEMBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
10	308.70	308.62	284.21	24.49	24.41
11	309.03	308.95	284.65	24.38	24.30
12	309.37	309.28	284.97	24.40	24.31
13	309.70	309.62	285.23	24.47	24.39
14	310.04	309.95	285.93	24.11	24.02
15	310.37	310.28	286.54	23.83	23.74

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
29 NOV 2018	X	X	32.12(9:00) 32.01(14:00)	31.48(9:00) 31.43(14:00)

Survey Date: NOVEMBER 29, 2018
Surveyed by: BOWEN ENGINEERING
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME9999
File name: 9999DESIGN$FILE$SPECIFICATION$$$

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

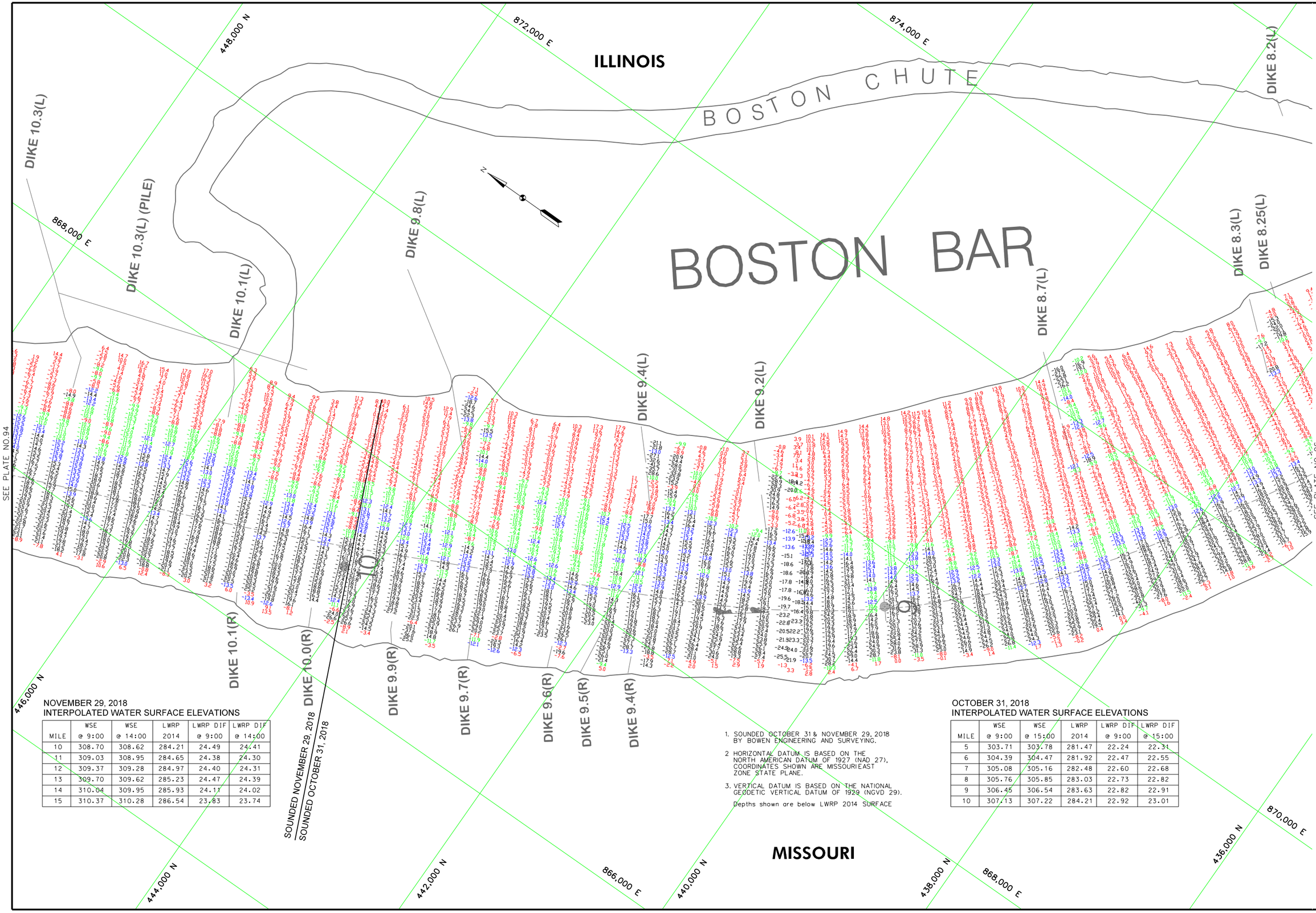
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 10.5 – 12.5

PLATE NUMBER
94



NOVEMBER 29, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
10	308.70	308.62	284.21	24.49	24.41
11	309.03	308.95	284.65	24.38	24.30
12	309.37	309.28	284.97	24.40	24.31
13	309.70	309.62	285.23	24.47	24.39
14	310.04	309.95	285.93	24.11	24.02
15	310.37	310.28	286.54	23.83	23.74

1. SOUNDED OCTOBER 31 & NOVEMBER 29, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 31, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
5	303.71	303.78	281.47	22.24	22.31
6	304.39	304.47	281.92	22.47	22.55
7	305.08	305.16	282.48	22.60	22.68
8	305.76	305.85	283.03	22.73	22.82
9	306.45	306.54	283.63	22.82	22.91
10	307.13	307.22	284.21	22.92	23.01

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
31 OCT 2018	x	x	34.12(9:00) 34.24(15:00)	27.12(9:00) 27.78(15:00)
29 NOV 2018	x	x	32.12(9:00) 32.0(14:00)	31.48(9:00) 31.43(14:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCT. 31 & NOV. 29, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:MM/DD/YYYY
File name: 0000FILENAME:SPECIFICATION.DWG

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

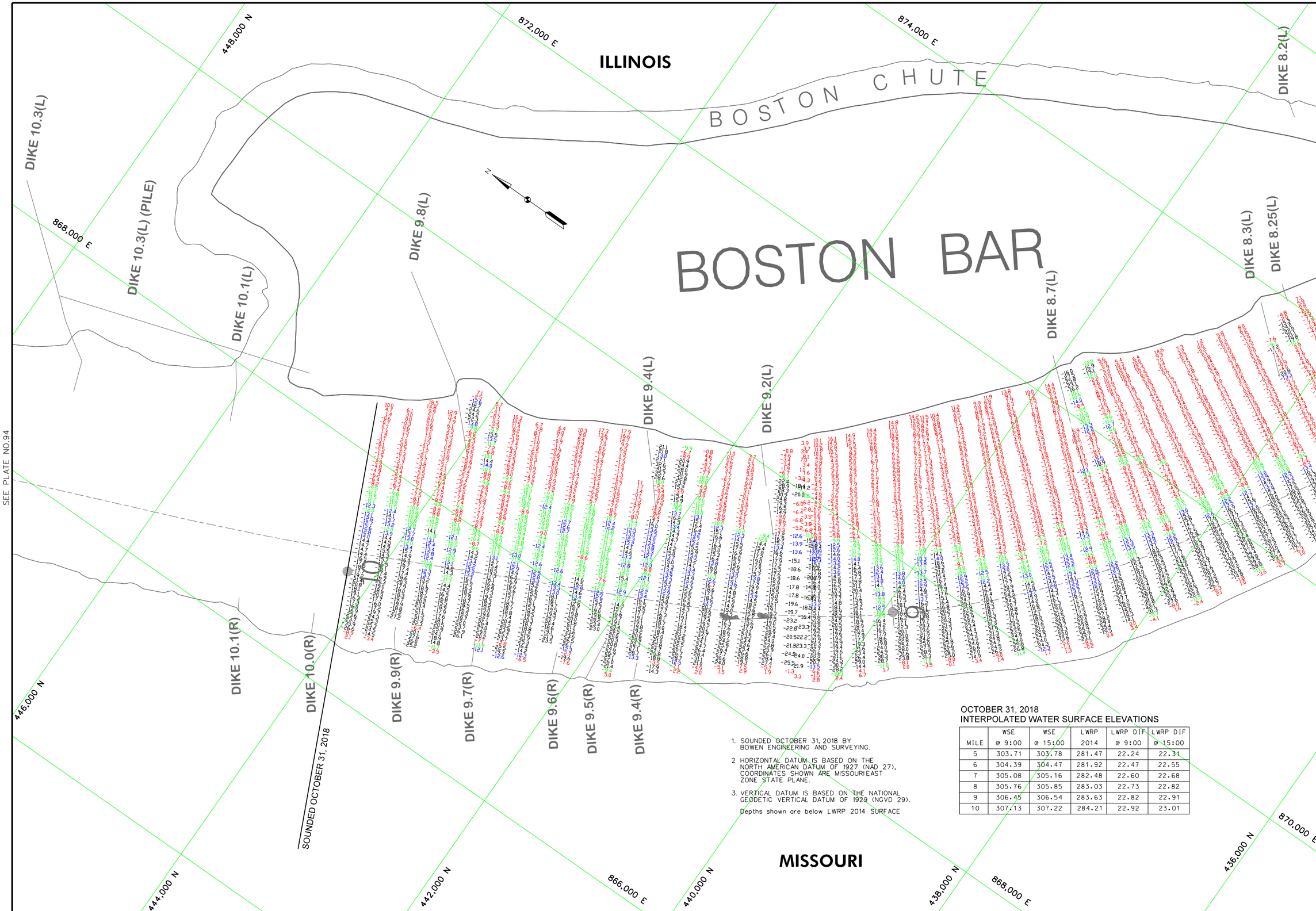
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 8.3 – 10.5

PLATE NUMBER
95



1. SOUNDED OCTOBER 31, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 31, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
5	303.71	303.78	281.47	22.24	22.31
6	304.39	304.47	281.92	22.47	22.55
7	305.08	305.16	282.48	22.60	22.68
8	305.76	305.85	283.03	22.73	22.82
9	306.45	306.54	283.63	22.82	22.91
10	307.13	307.22	284.21	22.92	23.01

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
31 OCT 2018	X	X	34.12(9:00) 34.24(15:00)	27.12(9:00) 27.19(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 31, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME0000
File name: 000PROJECTION0FILE0SPECIFICATION000

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

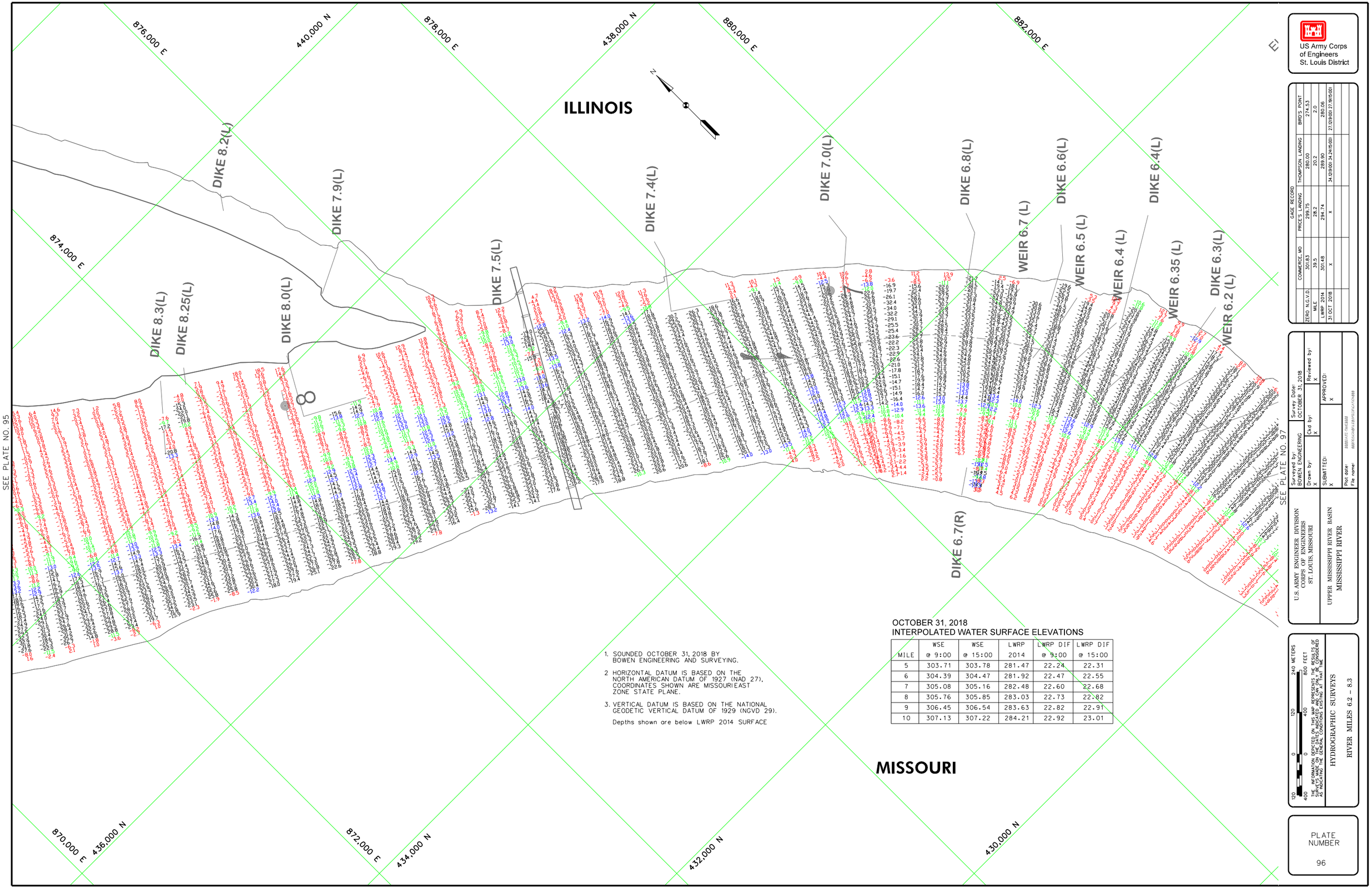
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 8.3 – 10.5

PLATE NUMBER
95



US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
31 OCT 2018	X	X	34.019/00	34.241/500	27.019/00	27.780/500

1. SOUNDED OCTOBER 31, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 31, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
5	303.71	303.78	281.47	22.24	22.31
6	304.39	304.47	281.92	22.47	22.55
7	305.08	305.16	282.48	22.60	22.68
8	305.76	305.85	283.03	22.73	22.82
9	306.45	306.54	283.63	22.82	22.91
10	307.13	307.22	284.21	22.92	23.01

Surveyed by: BOWEN ENGINEERING | Survey Date: OCTOBER 31, 2018 | Reviewed by: X
Drawn by: X | Ckd by: X | APPROVED: X
SUBMITTED: X
Plot date: ########## ##:## ##
File name: ##########\##########\##########.dgn

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

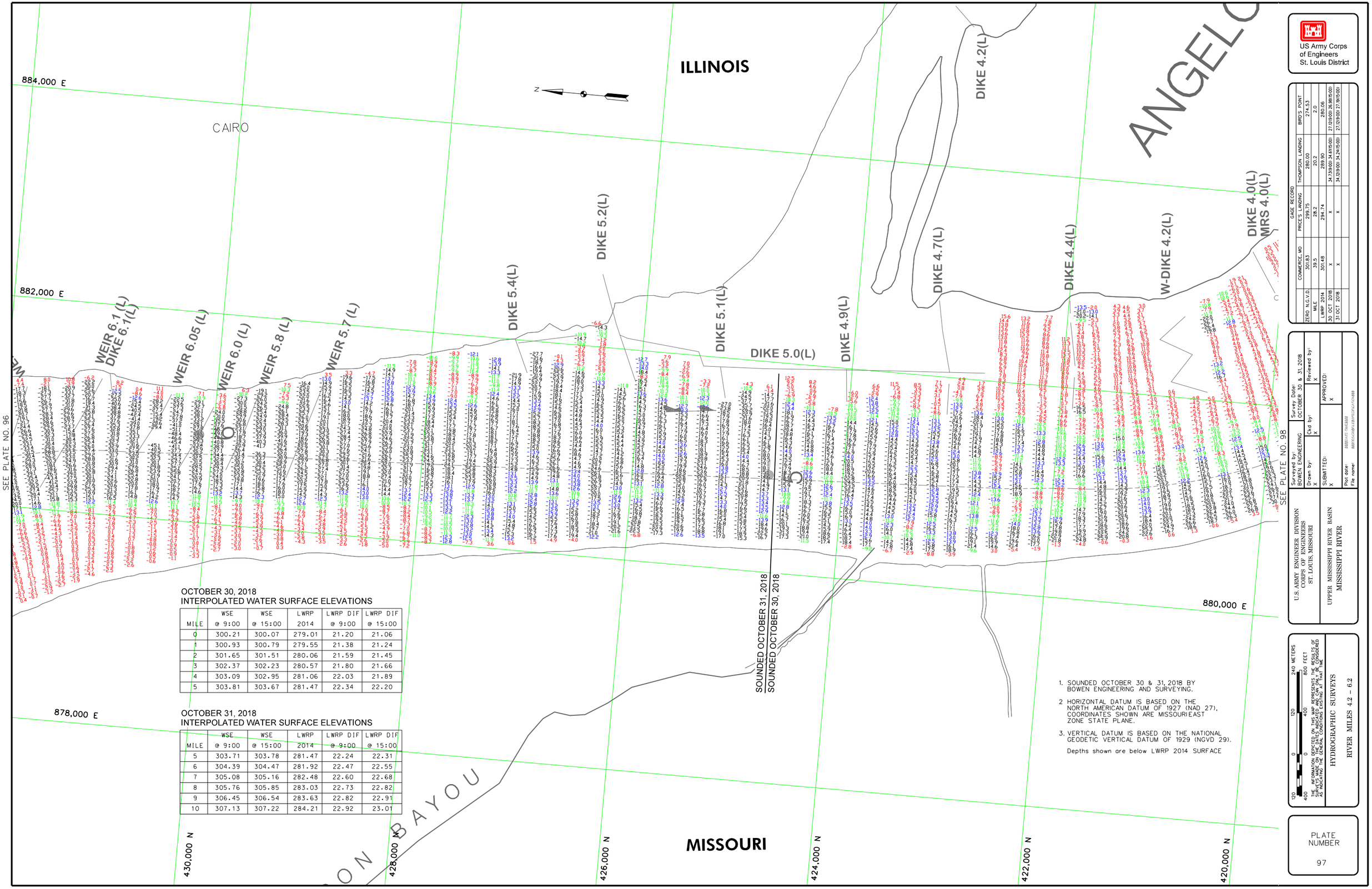
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

249 METERS
120
0
0
800 FEET
400
120
400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE CORPS OF ENGINEERS AND IS BELIEVED TO BE AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 6.2 - 8.3

PLATE NUMBER
96



OCTOBER 30, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
0	300.21	300.07	279.01	21.20	21.06
1	300.93	300.79	279.55	21.38	21.24
2	301.65	301.51	280.06	21.59	21.45
3	302.37	302.23	280.57	21.80	21.66
4	303.09	302.95	281.06	22.03	21.89
5	303.81	303.67	281.47	22.34	22.20

OCTOBER 31, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
5	303.71	303.78	281.47	22.24	22.31
6	304.39	304.47	281.92	22.47	22.55
7	305.08	305.16	282.48	22.60	22.68
8	305.76	305.85	283.03	22.73	22.82
9	306.45	306.54	283.63	22.82	22.91
10	307.13	307.22	284.21	22.92	23.01

1. SOUNDED OCTOBER 30 & 31, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	COMMERCE, MO	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT
ZERO N.G.V.D.	301.83	299.75	280.00	274.53
MILE	39.5	28.2	20.2	2.0
LWRP 2014	301.48	294.74	289.90	280.06
30 OCT 2018	X	X	34.73(9:00) 34.61(15:00)	27.12(9:00) 26.98(15:00)
31 OCT 2018	X	X	34.12(9:00) 34.24(15:00)	27.12(9:00) 27.19(15:00)

Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 30 & 31, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 9999DATE:TIME:9999
File name: 9999DESIGN\FILE\SPECIFICATION\999

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

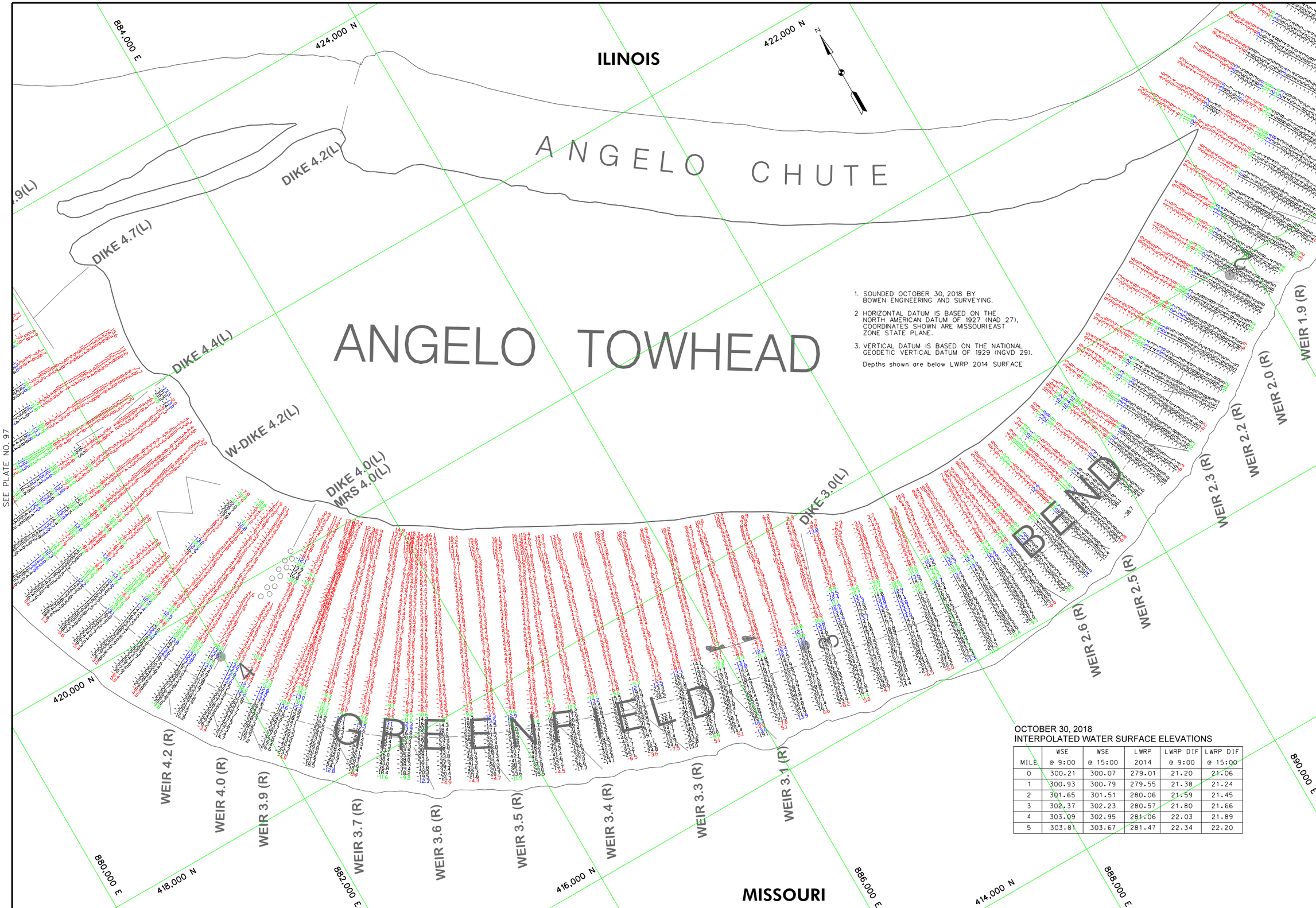
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 4.2 – 6.2

PLATE NUMBER
97



1. SOUNDED OCTOBER 30, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

OCTOBER 30, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
0	300.21	300.07	279.01	21.20	21.06
1	300.93	300.79	279.55	21.38	21.24
2	301.65	301.51	280.06	21.59	21.45
3	302.37	302.23	280.57	21.80	21.66
4	303.09	302.95	281.06	22.03	21.89
5	303.81	303.67	281.47	22.34	22.20

US Army Corps of Engineers
St. Louis District

WSE @ MILE 0 ESTIMATED USING THE SLOPE FROM THOMPSON LANDING TO BIRDS POINT (APPROX. -0.72 FEET/MILE).

GAGE RECORD

	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT	OHIO RIVER (EST)
ZERO N.G.V.D.	299.75	280.00	274.53	0
MILE	28.2	20.2	2.0	0.0
LWRP 2014	294.74	289.90	280.06	279.01
30 OCT 2018	X	34.73(9:00) 34.61(15:00)	27.12(9:00) 26.98(15:00)	300.21(9:00) 300.07(15:00)

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

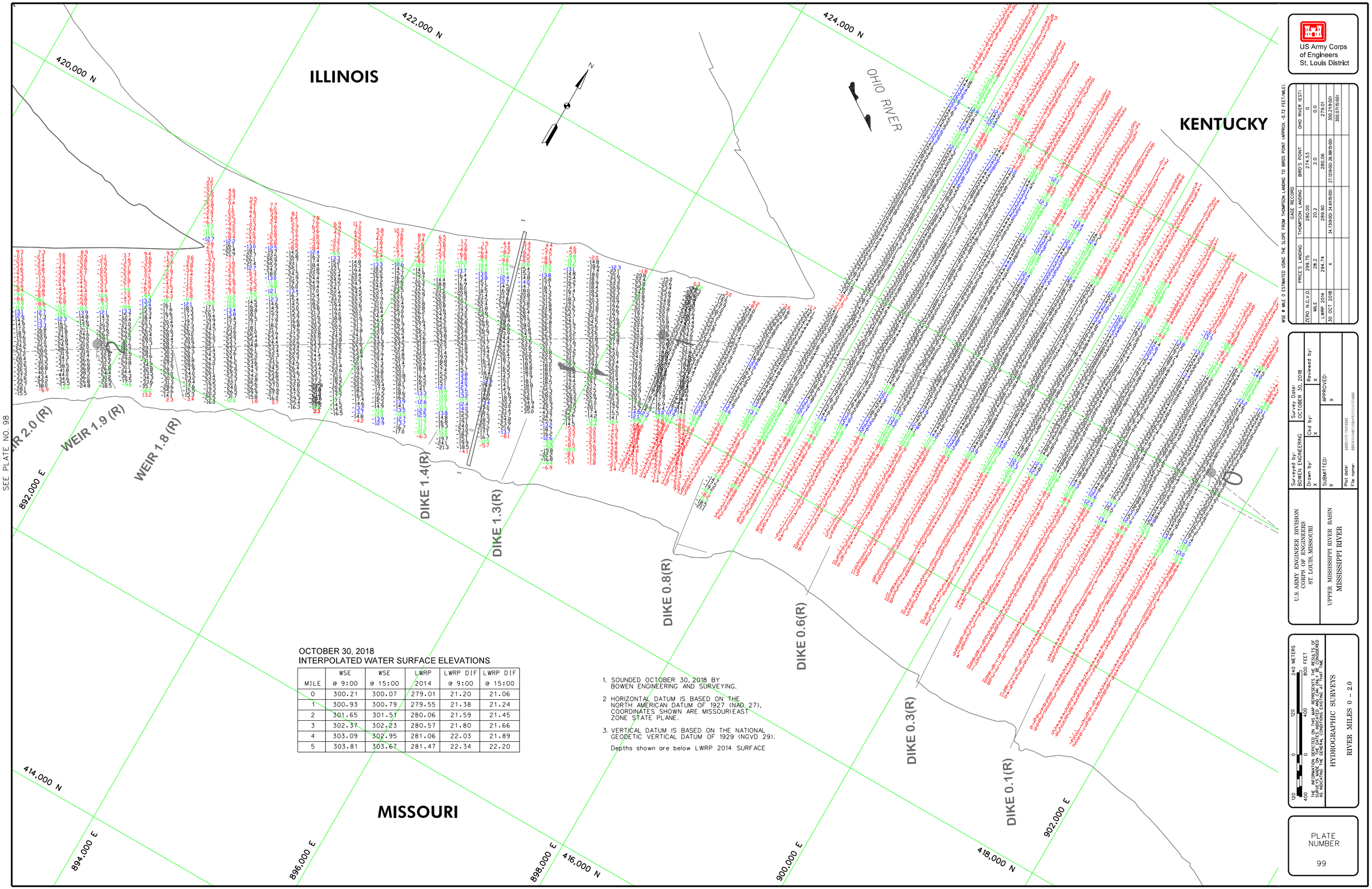
Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 30, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: 0000DATE:TIME0000
File name: 000PRESSURE0FILE0SPECIFICATION000

120 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 2.0 – 4.2

PLATE NUMBER
98



OCTOBER 30, 2018
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
0	300.21	300.07	279.01	21.20	21.06
1	300.93	300.79	279.55	21.38	21.24
2	301.65	301.51	280.06	21.59	21.45
3	302.37	302.23	280.57	21.80	21.66
4	303.09	302.95	281.06	22.03	21.89
5	303.81	303.67	281.47	22.34	22.20

1. SOUNDED OCTOBER 30, 2018 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

Depths shown are below LWRP 2014 SURFACE

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	PRICE'S LANDING	THOMPSON LANDING	BIRD'S POINT	OHIO RIVER (EST)
ZERO N.G.V.D.	299.75	280.00	274.53	0
MILE	28.2	20.2	2.0	0.0
LWRP 2014	294.74	289.90	280.06	279.01
30 OCT 2018	x	34.739/00 34.615/00	27.029/00 26.981/500	300.219/00
				300.071/500

WSE @ MILE 0 ESTIMATED USING THE SLOPE FROM THOMPSON LANDING TO BIRDS POINT (APPROX. -0.72 FEET/MILE).

Surveyed by: BOWEN ENGINEERING
Survey Date: OCTOBER 30, 2018
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ######## AT ##:##:#####
File name: ##########\###\###\###\###.###

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
120
0
0
120
400
800 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AND SURVEYING AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 0 – 2.0

PLATE NUMBER
99