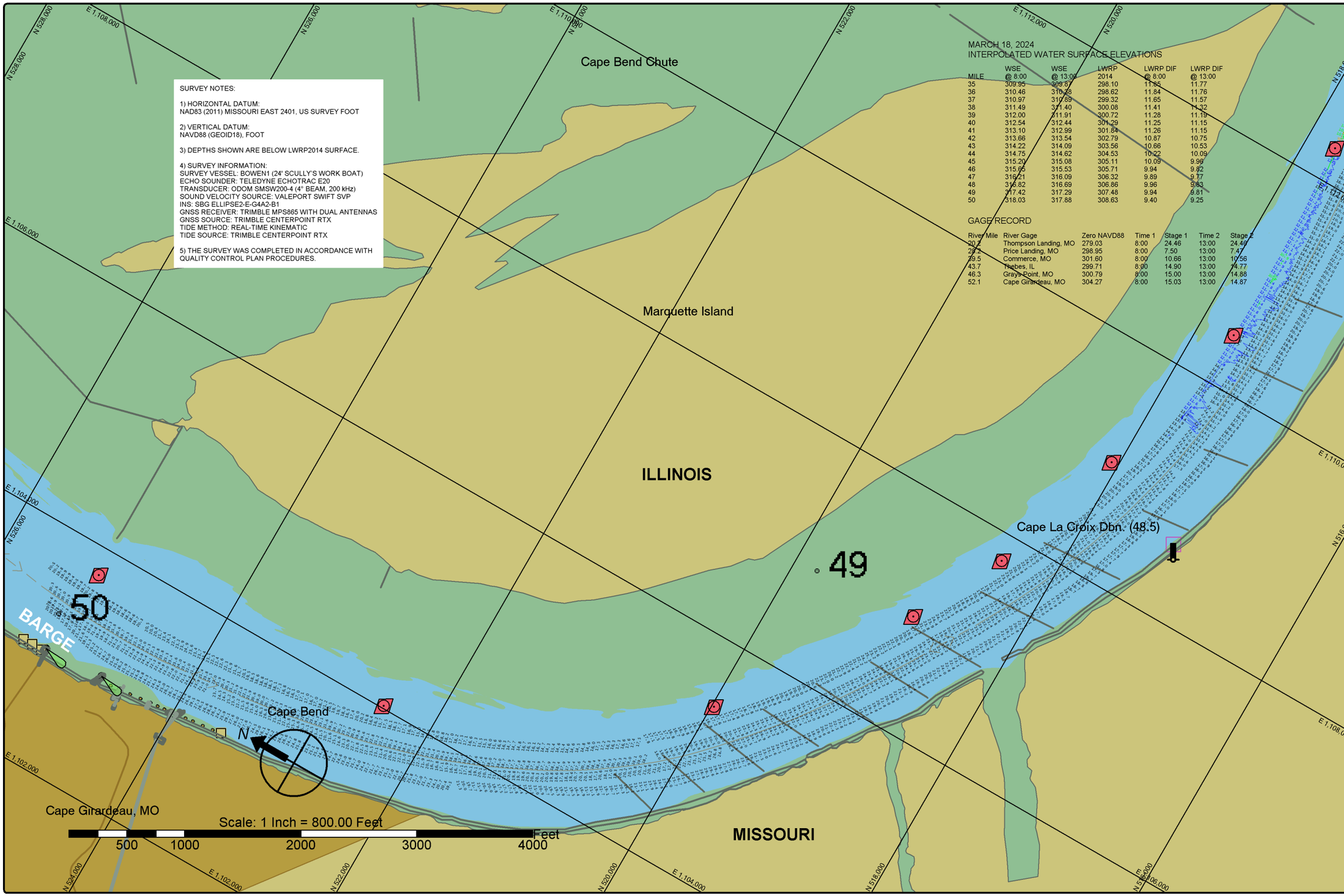


SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
35	309.95	309.87	298.10	11.85	11.77
36	310.46	310.28	298.62	11.84	11.76
37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
39	312.00	311.91	300.72	11.28	11.19
40	312.54	312.44	301.29	11.25	11.15
41	313.10	312.99	301.84	11.26	11.15
42	313.66	313.54	302.79	10.87	10.75
43	314.22	314.09	303.56	10.66	10.53
44	314.75	314.62	304.53	10.22	10.09
45	315.20	315.08	305.11	10.09	9.96
46	315.65	315.53	305.71	9.94	9.82
47	316.21	316.09	306.32	9.89	9.77
48	316.82	316.69	306.86	9.96	9.83
49	317.42	317.29	307.48	9.94	9.81
50	318.03	317.88	308.63	9.40	9.25

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
28.2	Price Landing, MO	298.95	8:00	7.50	13:00	7.47
39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
43.7	Thebes, IL	299.71	8:00	14.90	13:00	14.77
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

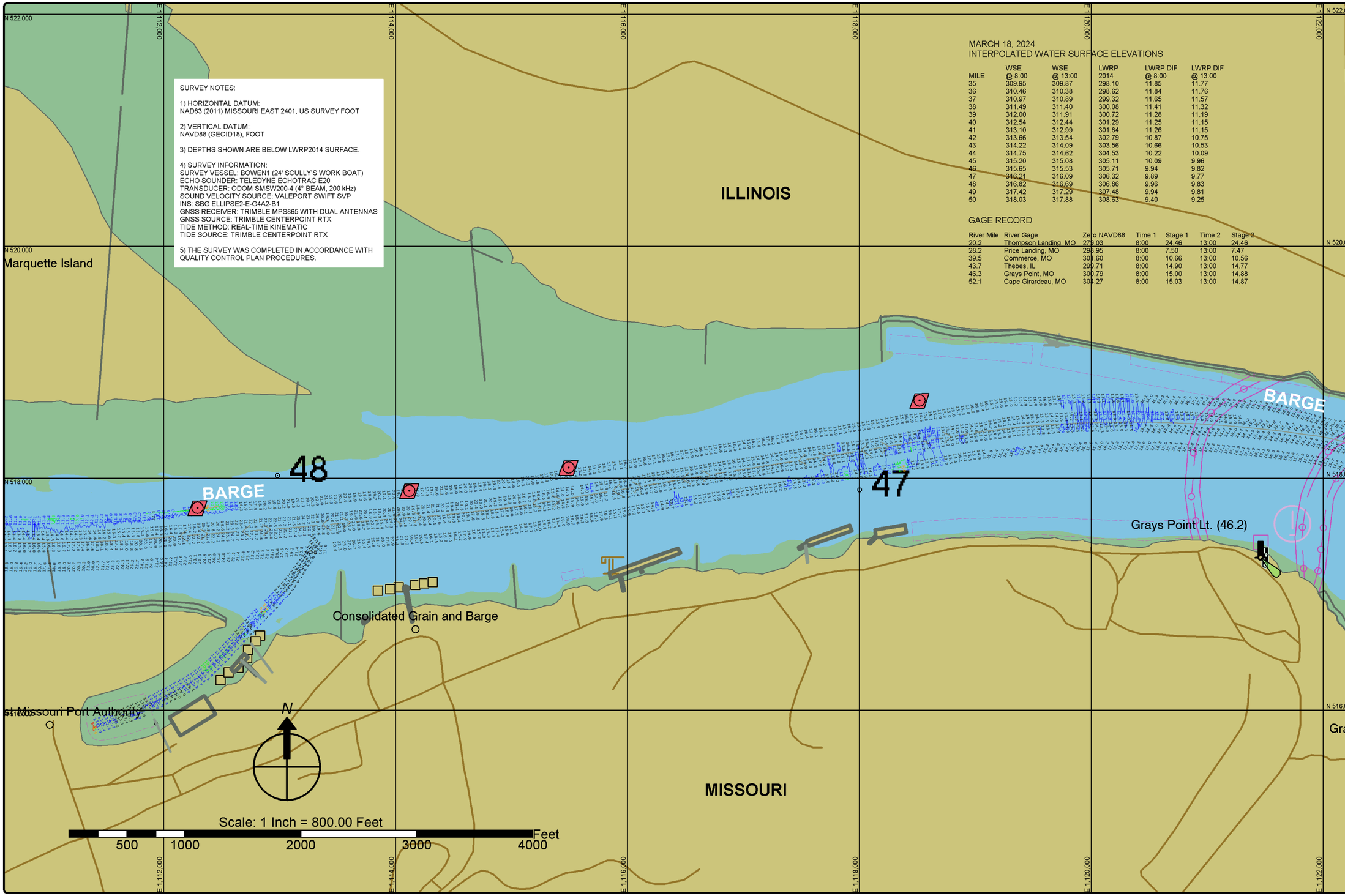
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 48.3 - 50.0

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

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SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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36	310.46	310.38	298.62	11.84	11.76
37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
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40	312.54	312.44	301.29	11.25	11.15
41	313.10	312.99	301.84	11.26	11.15
42	313.66	313.54	302.79	10.87	10.75
43	314.22	314.09	303.56	10.66	10.53
44	314.75	314.62	304.53	10.22	10.09
45	315.20	315.08	305.11	10.09	9.96
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47	316.21	316.09	306.32	9.89	9.77
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49	317.42	317.29	307.48	9.94	9.81
50	318.03	317.88	308.63	9.40	9.25

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
28.2	Price Landing, MO	293.95	8:00	7.50	13:00	7.47
39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
43.7	Thebes, IL	299.71	8:00	14.90	13:00	14.77
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 46.3 - 48.3

SHEET NO.
1 OF 1

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
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INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

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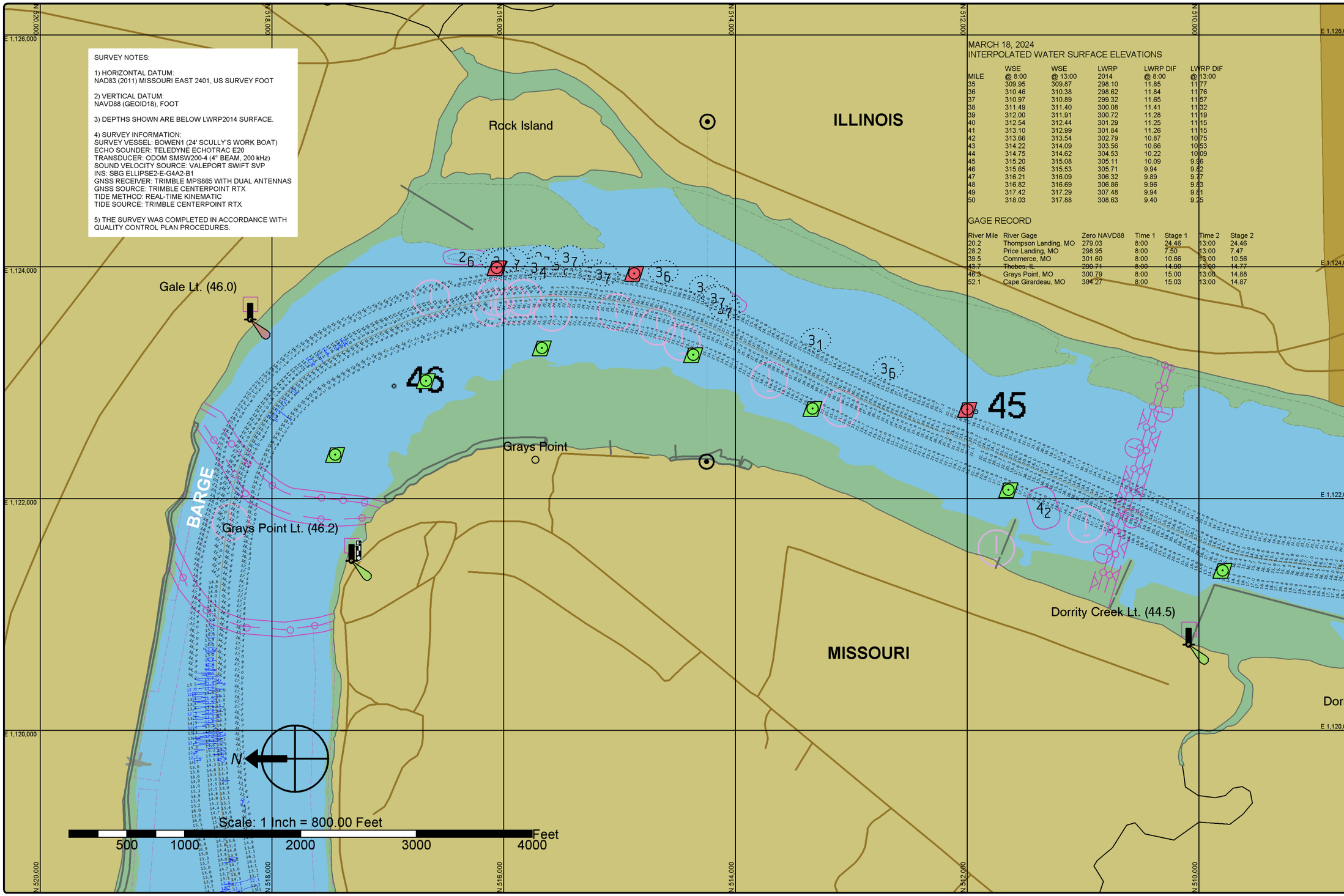

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
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46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

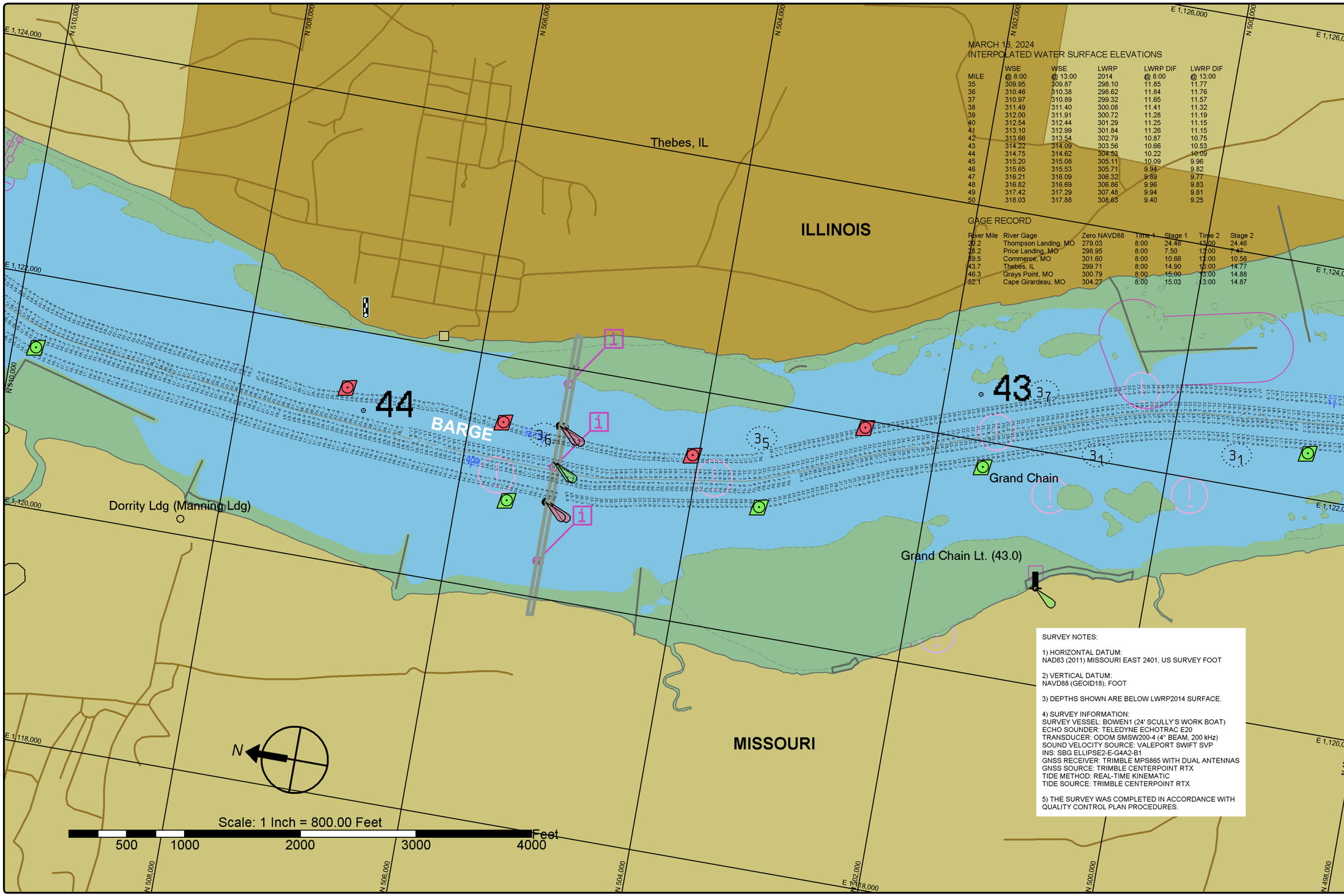
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 44.4 - 46.3

SHEET NO.
1 OF 1



MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

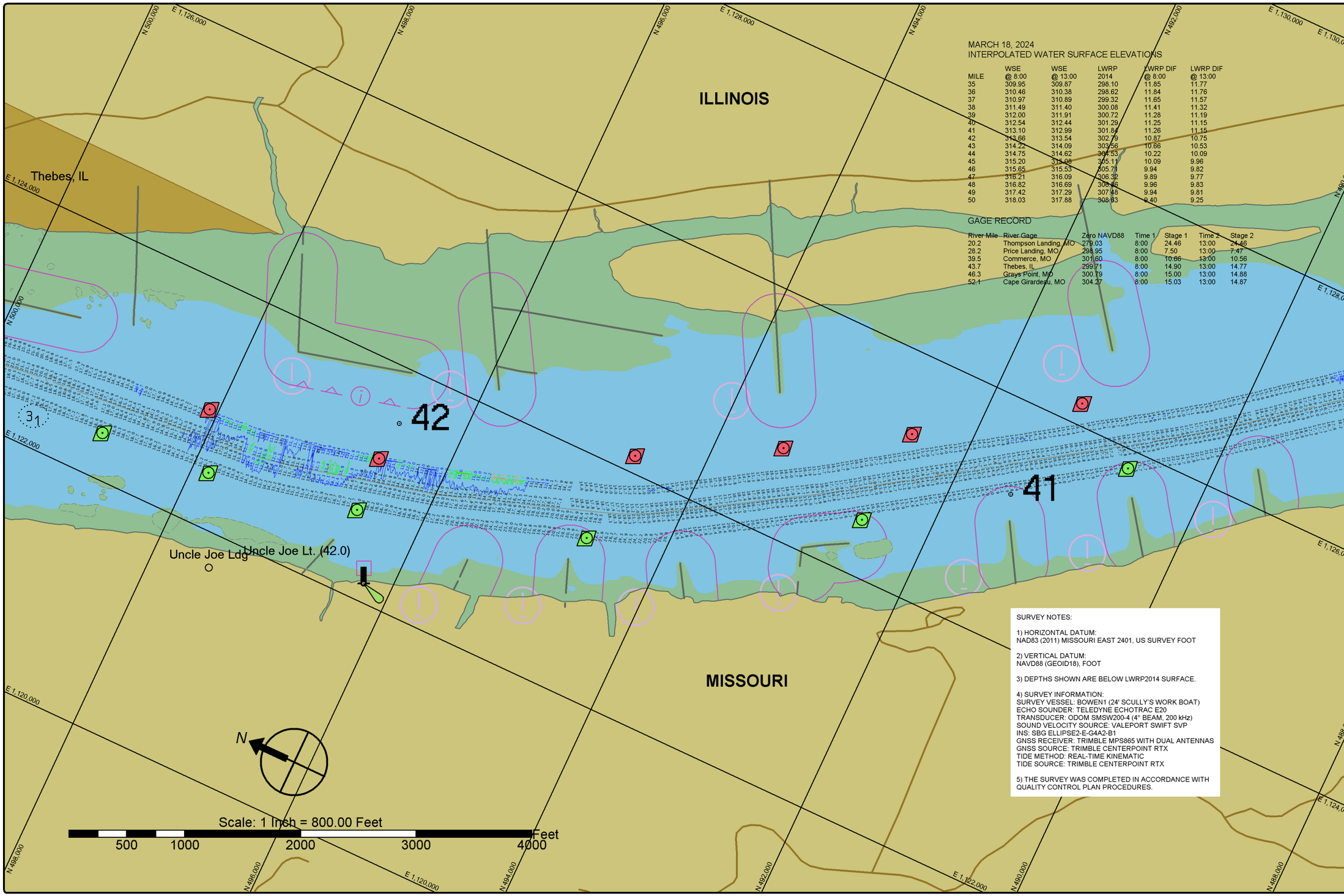
U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEDART DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 42.5 - 44.4

SHEET NO.
1 OF 1



MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
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SURVEY NOTES:

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TIDE METHOD: REAL-TIME KINEMATIC
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St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

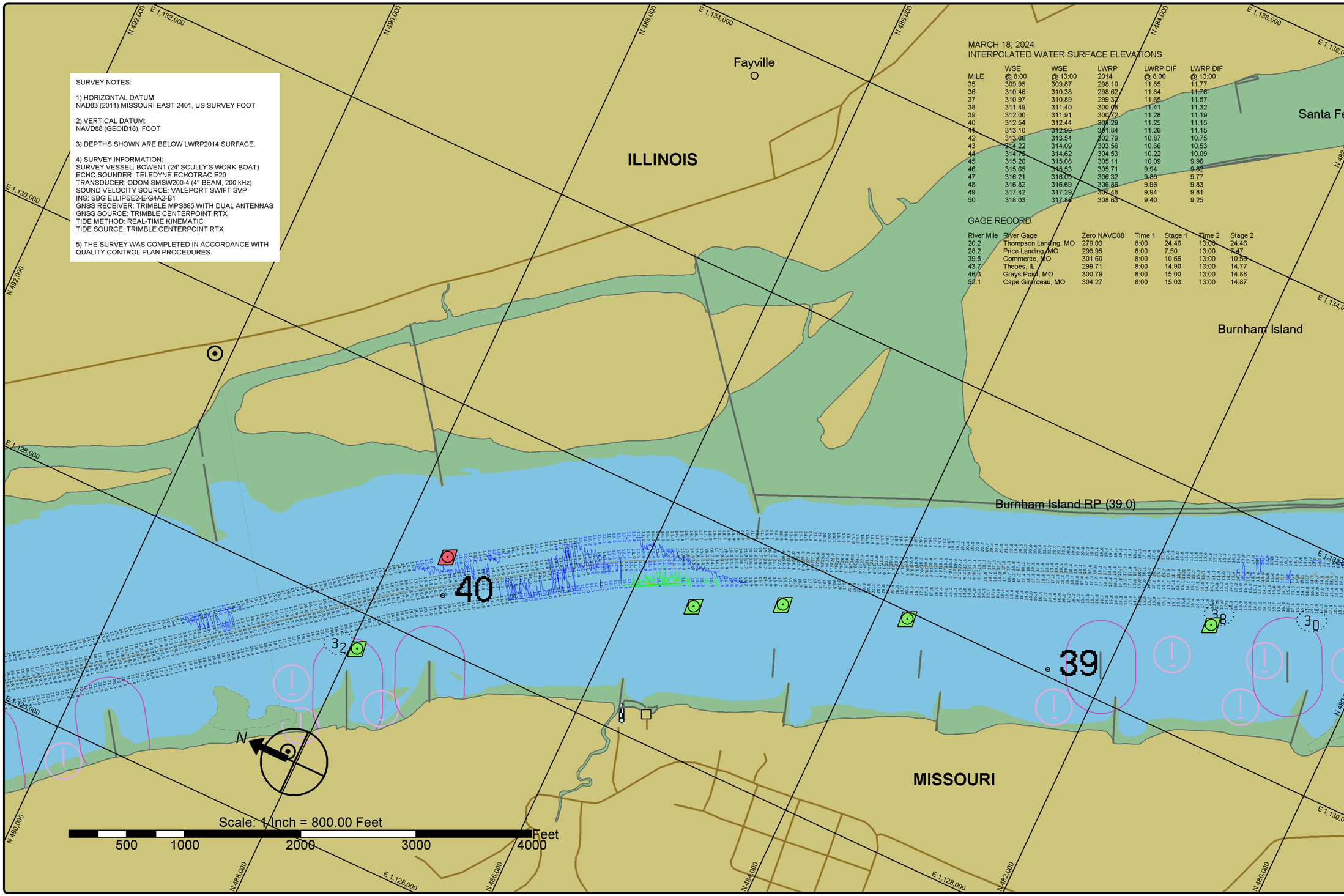
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 40.5 - 42.5

SHEET NO.
1 OF 1



SURVEY NOTES:

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MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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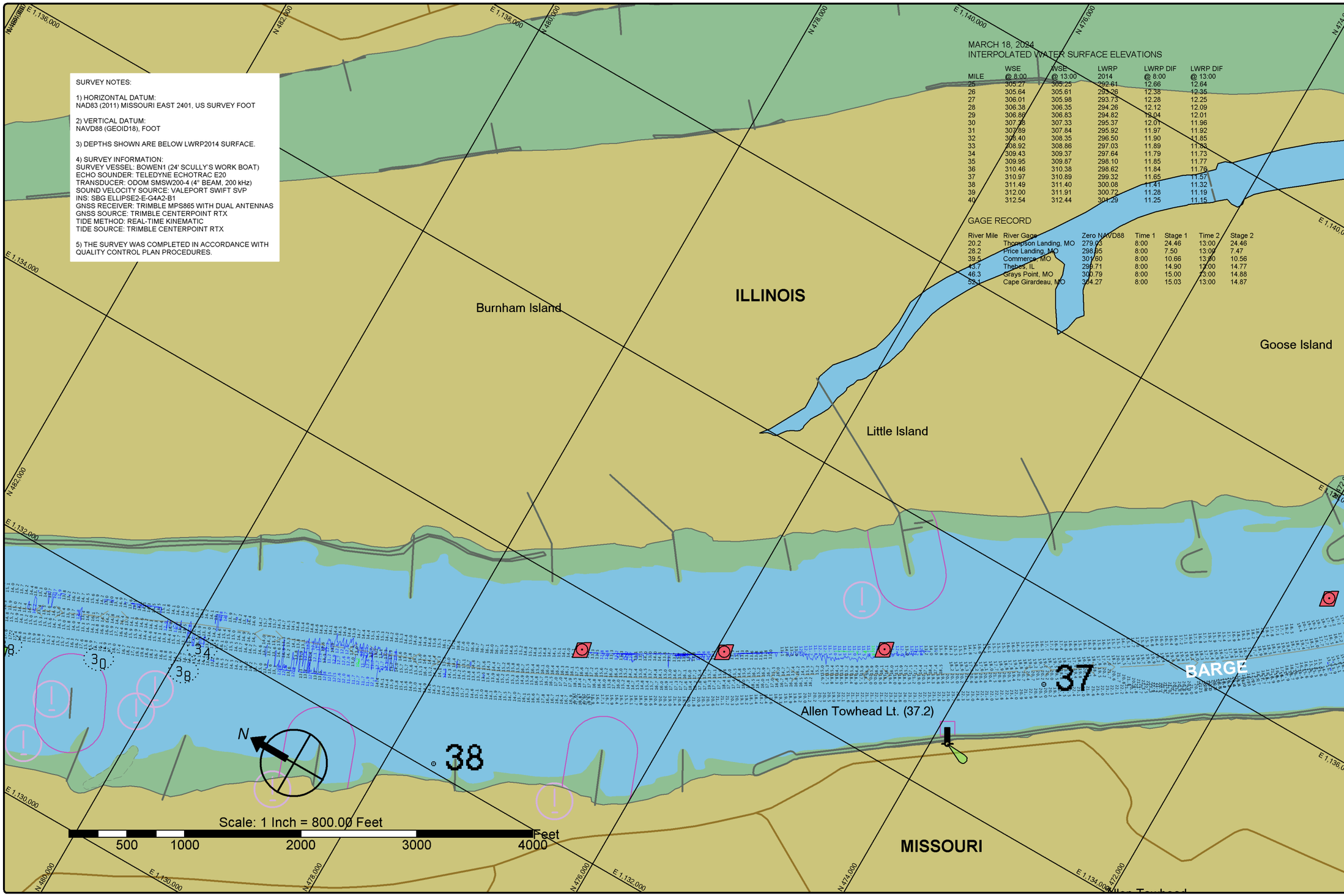
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 38.5 - 40.5

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	305.27	305.25	292.61	12.66	12.64
26	305.64	305.61	293.26	12.38	12.35
27	306.01	305.98	293.73	12.28	12.25
28	306.38	306.35	294.26	12.12	12.09
29	306.86	306.83	294.82	12.04	12.01
30	307.33	307.33	295.37	12.01	11.96
31	307.89	307.84	295.92	11.97	11.92
32	308.40	308.35	296.50	11.90	11.85
33	308.92	308.86	297.03	11.89	11.83
34	309.43	309.37	297.64	11.79	11.73
35	309.95	309.87	298.10	11.85	11.77
36	310.46	310.38	298.62	11.84	11.76
37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
39	312.00	311.91	300.72	11.28	11.19
40	312.54	312.44	301.29	11.25	11.15

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
28.2	Price Landing, MO	298.85	8:00	7.50	13:00	7.47
39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
43.7	Thebes, IL	299.71	8:00	14.90	13:00	14.77
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
53.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

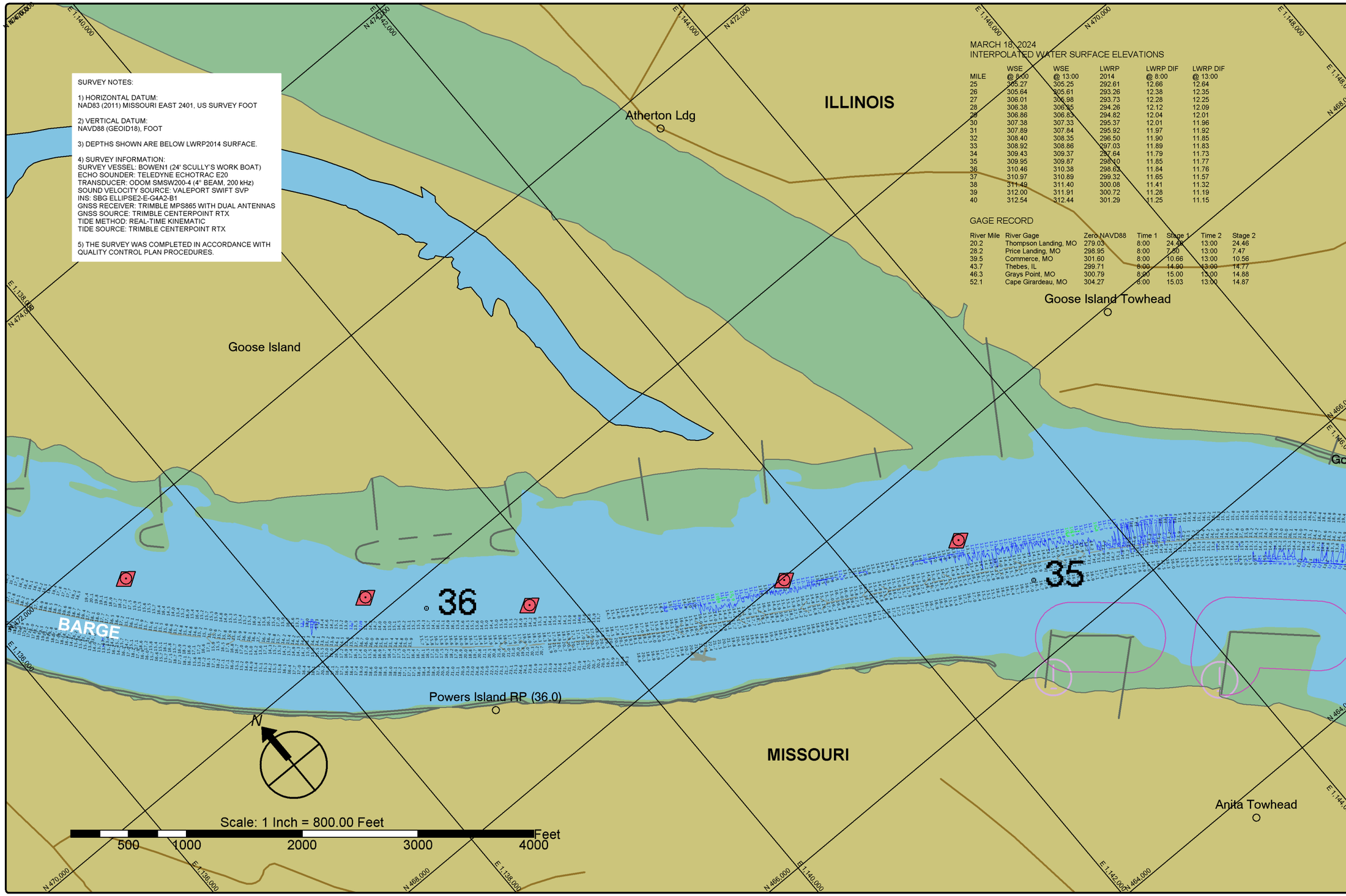
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 36.5 - 38.5

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	305.27	305.25	292.61	12.66	12.64
26	305.64	305.61	293.26	12.38	12.35
27	306.01	306.98	293.73	12.28	12.25
28	306.38	306.35	294.26	12.12	12.09
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30	307.38	307.33	295.37	12.01	11.96
31	307.89	307.84	295.92	11.97	11.92
32	308.40	308.35	296.50	11.90	11.85
33	308.92	308.86	297.03	11.89	11.83
34	309.43	309.37	297.64	11.79	11.73
35	309.95	309.87	298.10	11.85	11.77
36	310.46	310.38	298.62	11.84	11.76
37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
39	312.00	311.91	300.72	11.28	11.19
40	312.54	312.44	301.29	11.25	11.15

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
28.2	Price Landing, MO	298.95	8:00	7.50	13:00	7.47
39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
43.7	Thebes, IL	299.71	8:00	14.90	13:00	14.77
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 34.5 - 36.5

SHEET NO.
1 OF 1

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	305.27	305.25	292.61	12.66	12.64
26	305.64	305.61	293.26	12.38	12.35
27	306.01	305.98	293.73	12.28	12.25
28	306.38	306.35	294.26	12.12	12.09
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30	307.38	307.33	295.37	12.01	11.96
31	307.89	307.84	295.92	11.97	11.92
32	308.40	308.35	296.50	11.90	11.85
33	308.92	308.86	297.03	11.89	11.83
34	309.43	309.37	297.64	11.79	11.73
35	309.95	309.87	298.10	11.85	11.77
36	310.46	310.38	298.62	11.84	11.76
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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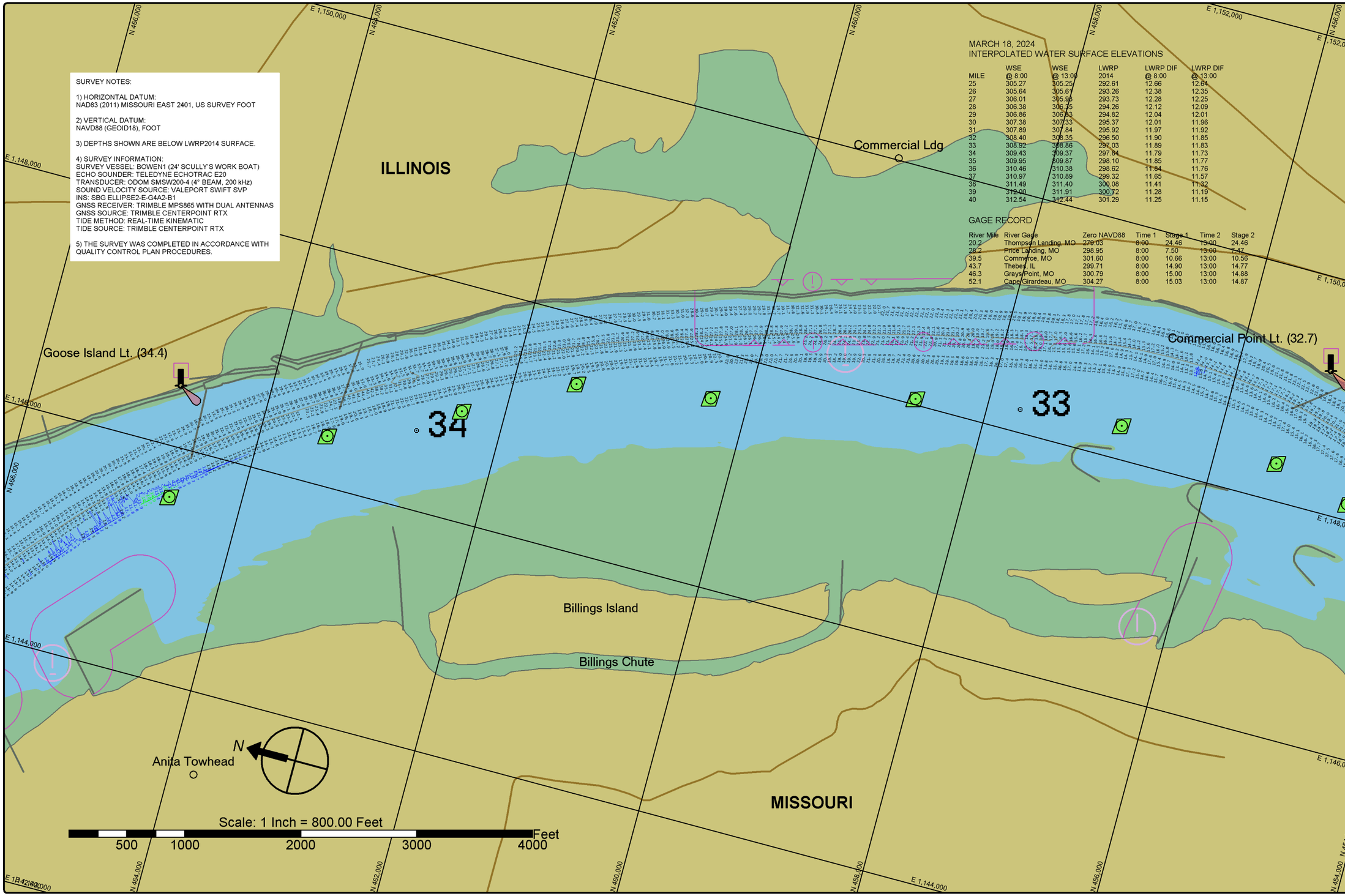
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87



St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

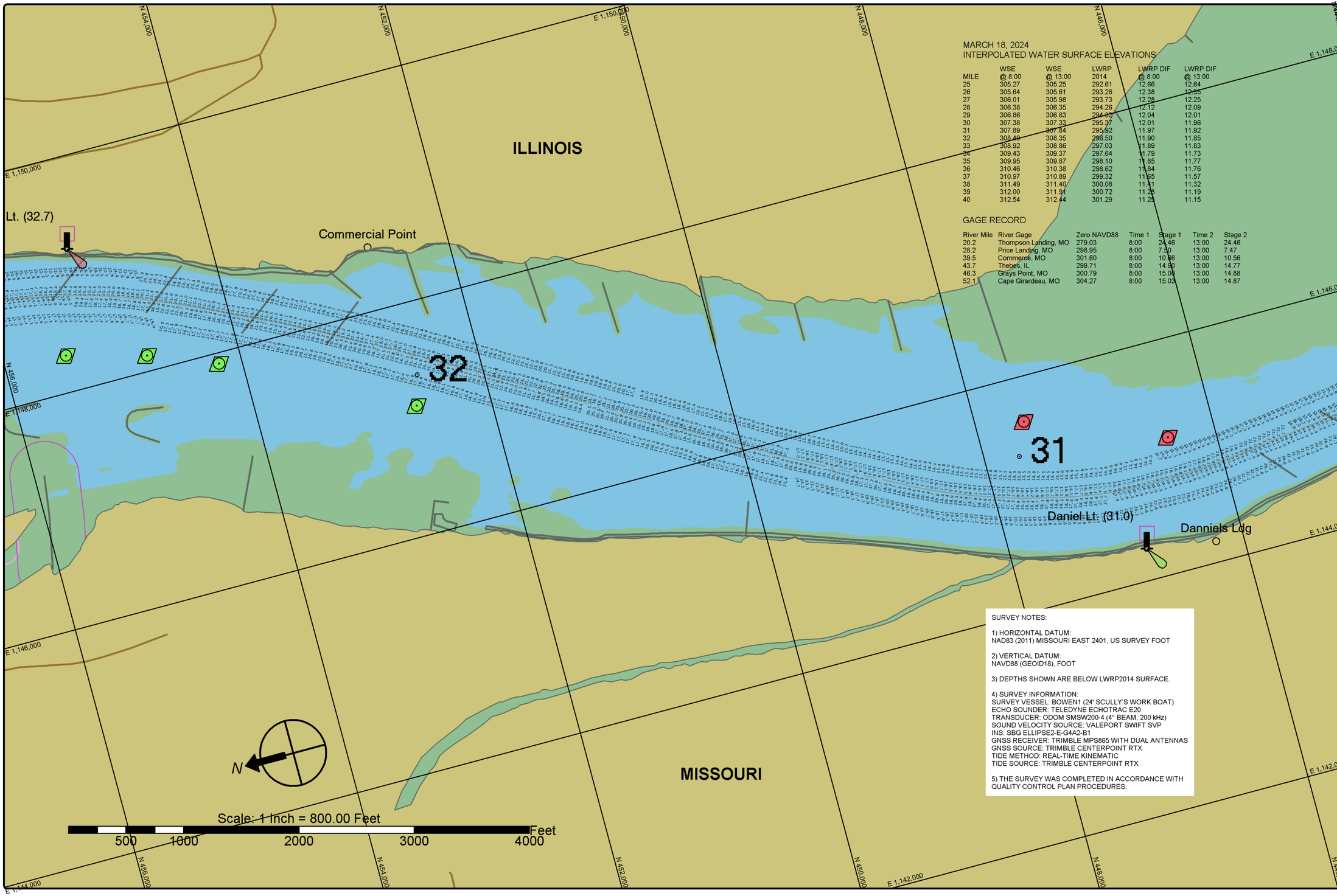
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 32.5 - 34.5

SHEET NO.
1 OF 1



MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	305.27	305.25	292.61	12.66	12.64
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27	306.01	305.98	293.73	12.28	12.25
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29	306.86	306.83	294.82	12.04	12.01
30	307.38	307.33	295.37	12.01	11.96
31	307.89	307.84	295.92	11.97	11.92
32	308.49	308.35	296.50	11.90	11.85
33	308.92	308.86	297.03	11.89	11.83
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
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39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
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46.3	Grays Point, MO	300.79	8:00	15.06	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

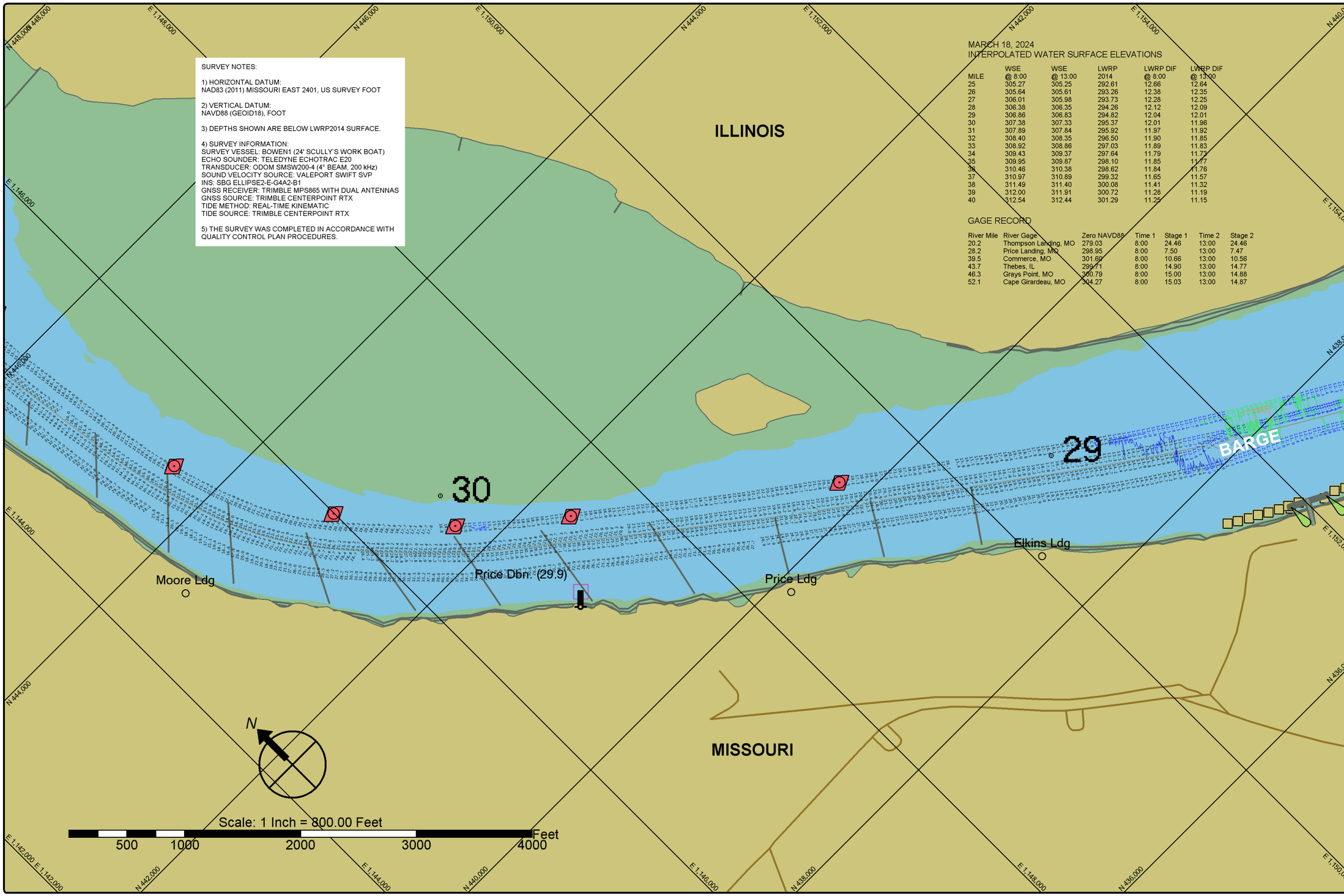
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 30.5 - 32.5

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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31	307.89	307.84	295.92	11.97	11.92
32	308.40	308.35	296.50	11.90	11.85
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
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46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0039

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 28.6 - 30.5

SHEET NO.
1 OF 1

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

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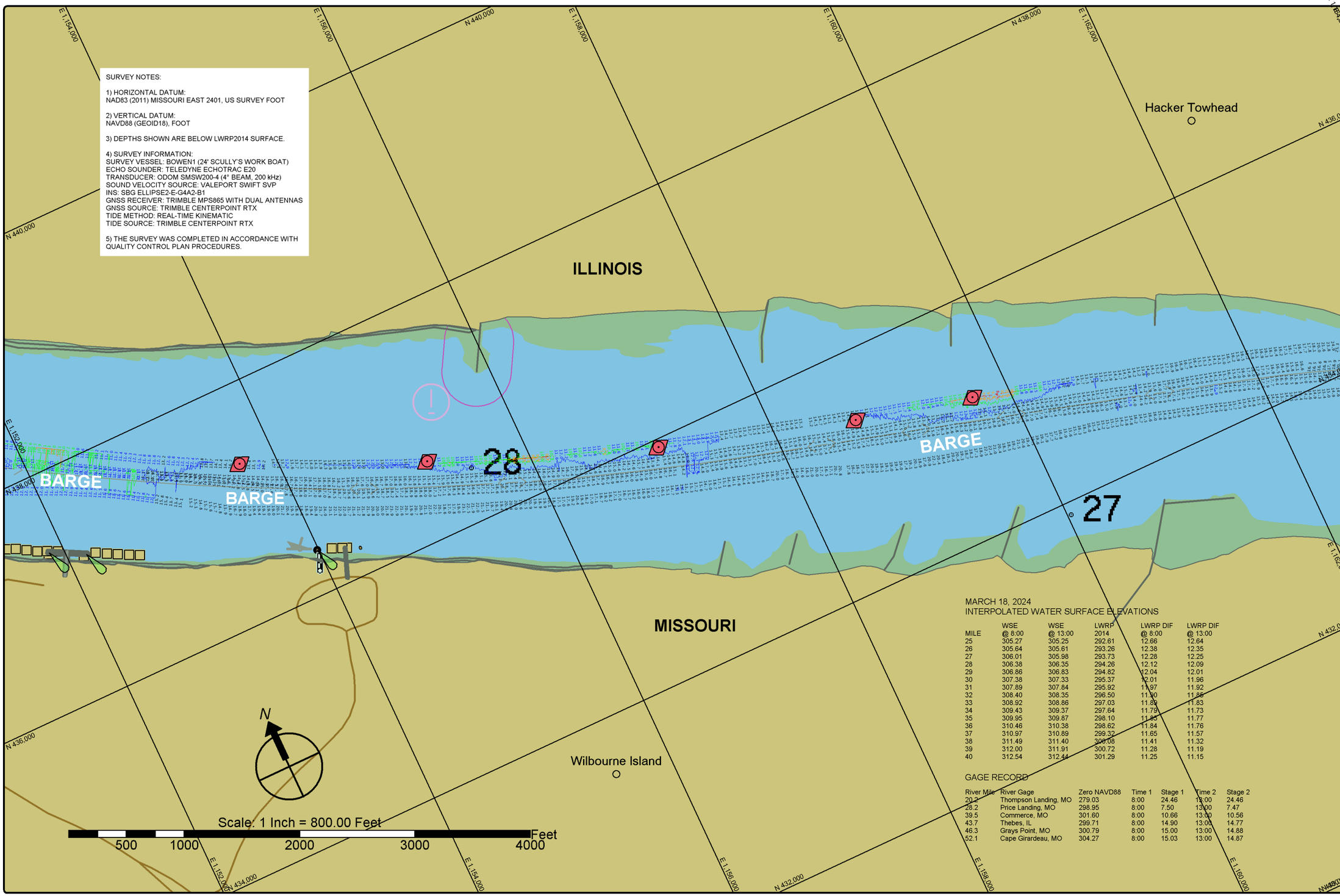
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.



MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
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37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
39	312.00	311.91	300.72	11.28	11.19
40	312.54	312.44	301.29	11.25	11.15

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
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52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 26.6 - 28.6

SHEET NO.
1 OF 1

SURVEY NOTES:

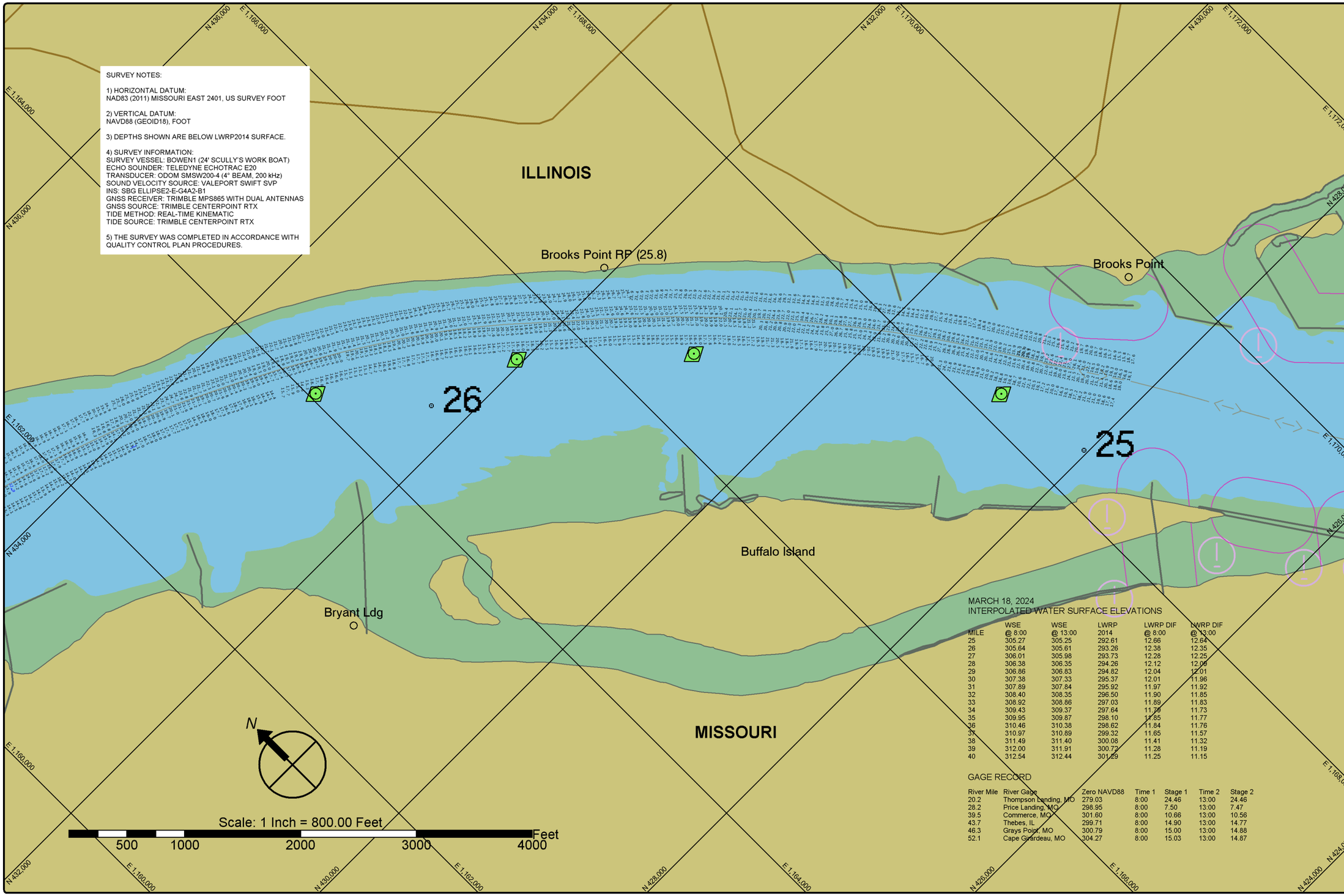
1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.



MARCH 18, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
25	305.27	305.25	292.61	12.66	12.64
26	305.64	305.61	293.26	12.38	12.35
27	306.01	305.98	293.73	12.28	12.25
28	306.38	306.35	294.26	12.12	12.09
29	306.86	306.83	294.82	12.04	12.01
30	307.38	307.33	295.37	12.01	11.96
31	307.89	307.84	295.92	11.97	11.92
32	308.40	308.35	296.50	11.90	11.85
33	308.92	308.86	297.03	11.89	11.83
34	309.43	309.37	297.64	11.79	11.73
35	309.95	309.87	298.10	11.85	11.77
36	310.46	310.38	298.62	11.84	11.76
37	310.97	310.89	299.32	11.65	11.57
38	311.49	311.40	300.08	11.41	11.32
39	312.00	311.91	300.72	11.28	11.19
40	312.54	312.44	301.29	11.25	11.15

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
20.2	Thompson Landing, MO	279.03	8:00	24.46	13:00	24.46
28.2	Price Landing, MO	298.95	8:00	7.50	13:00	7.47
39.5	Commerce, MO	301.60	8:00	10.66	13:00	10.56
43.7	Thebes, IL	299.71	8:00	14.90	13:00	14.77
46.3	Grays Point, MO	300.79	8:00	15.00	13:00	14.88
52.1	Cape Girardeau, MO	304.27	8:00	15.03	13:00	14.87

St. Louis District

DATES OF SURVEY:
MARCH 18, 2024

FILE NO.: 050_025C1824
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEDIAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 24.6 - 26.6

SHEET NO.
1 OF 1