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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
147	379.04	378.76	359.33	19.71	19.43
148	379.55	379.27	359.83	19.72	19.44
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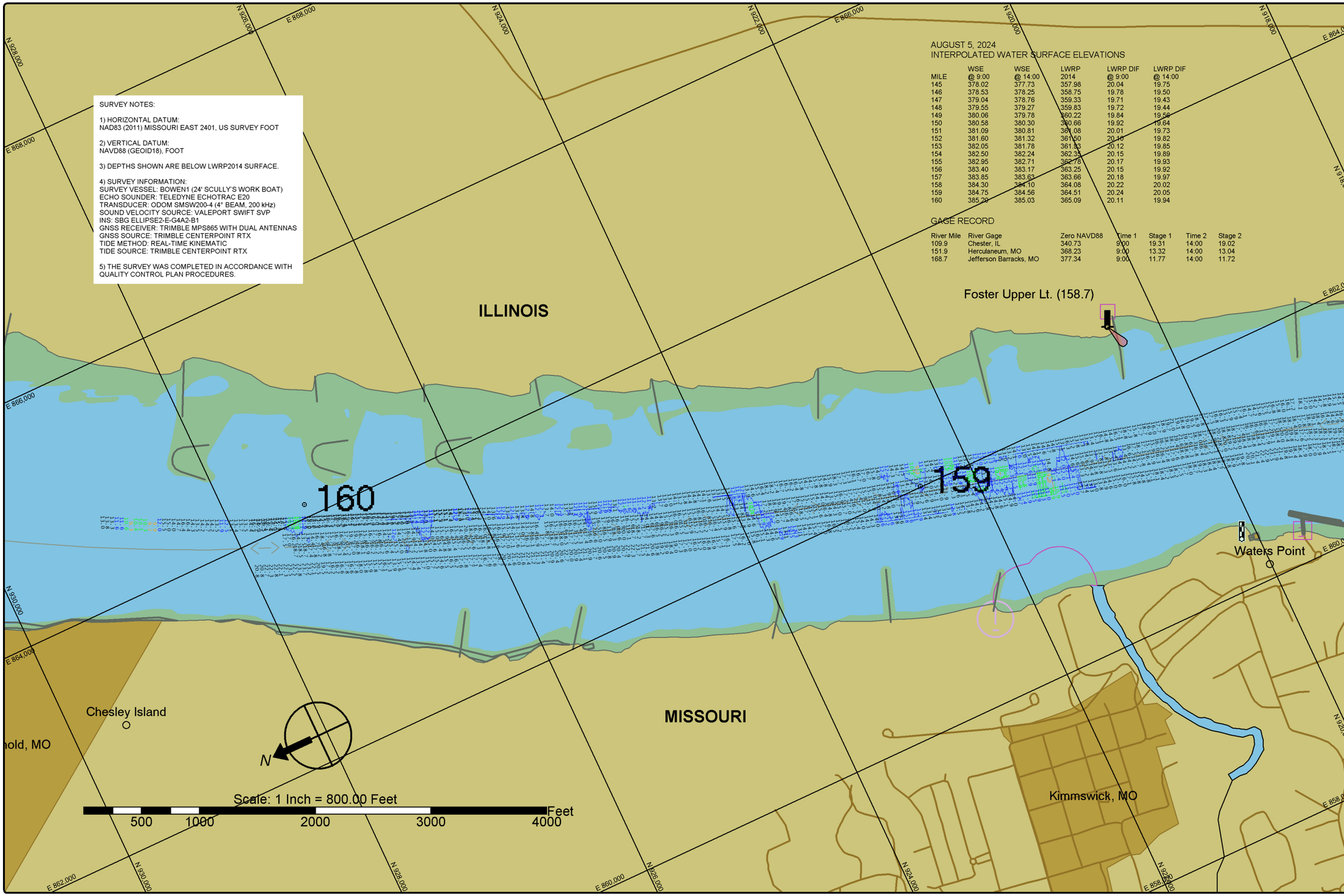
150	380.58	380.30	360.66	19.92	19.64
151	381.09	380.81	361.08	20.01	19.73
152	381.60	381.32	361.50	20.10	19.82
153	382.05	381.78	361.93	20.12	19.85
154	382.50	382.24	362.35	20.15	19.89
155	382.95	382.71	362.78	20.17	19.93
156	383.40	383.17	363.25	20.15	19.92
157	383.85	383.63	363.66	20.18	19.97
158	384.30	384.10	364.08	20.22	20.02
159	384.75	384.56	364.51	20.24	20.05
160	385.20	385.03	365.09	20.11	19.94

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72



St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HS524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

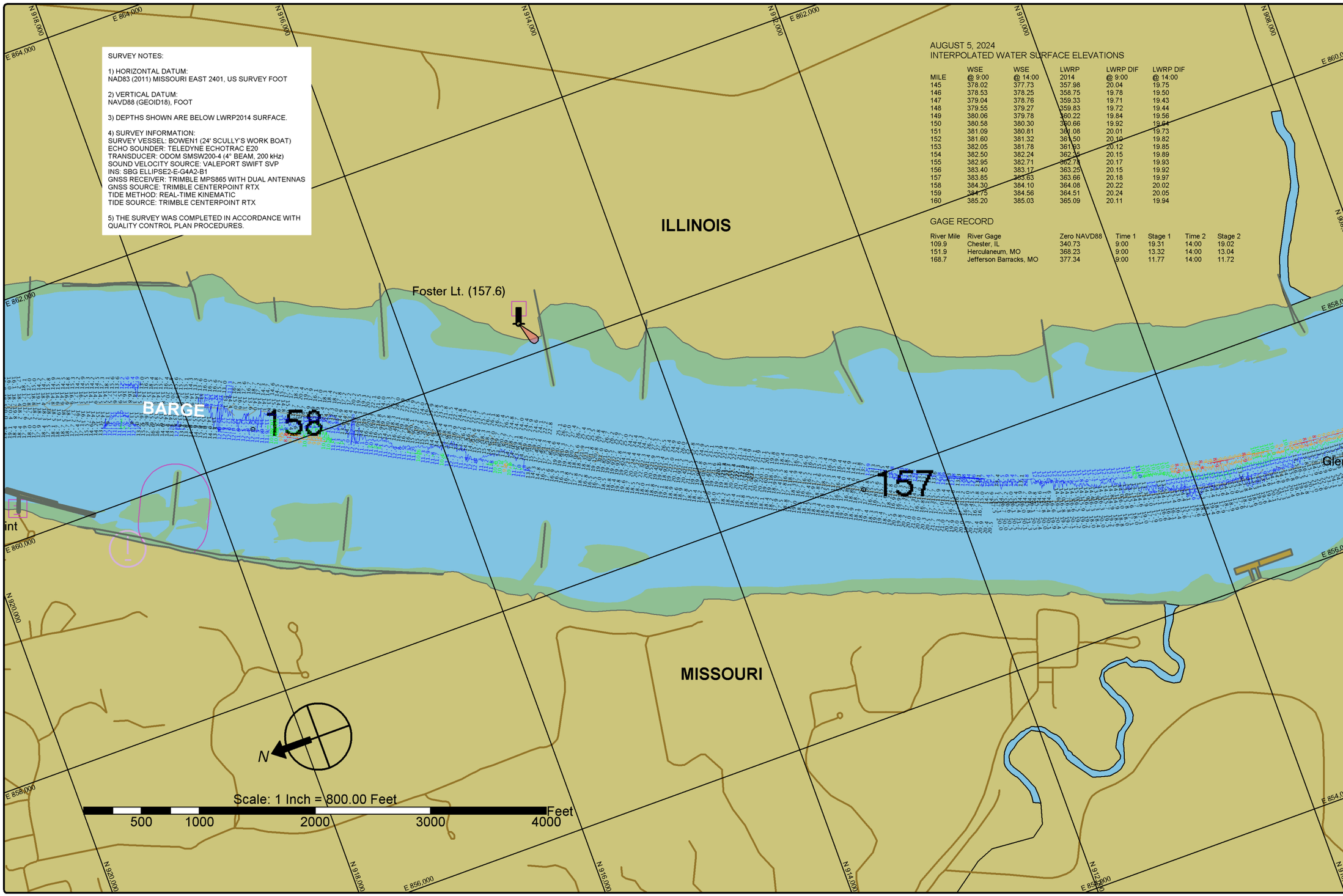
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 158.3 - 160.3

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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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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
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148	379.55	379.27	359.83	19.72	19.44
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150	380.58	380.30	360.66	19.92	19.64
151	381.09	380.81	361.08	20.01	19.73
152	381.60	381.32	361.50	20.10	19.82
153	382.05	381.78	361.93	20.12	19.85
154	382.50	382.24	362.35	20.15	19.89
155	382.95	382.71	362.78	20.17	19.93
156	383.40	383.17	363.25	20.15	19.92
157	383.85	383.63	363.66	20.18	19.97
158	384.30	384.10	364.08	20.22	20.02
159	384.75	384.56	364.51	20.24	20.05
160	385.20	385.03	365.09	20.11	19.94

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HD524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

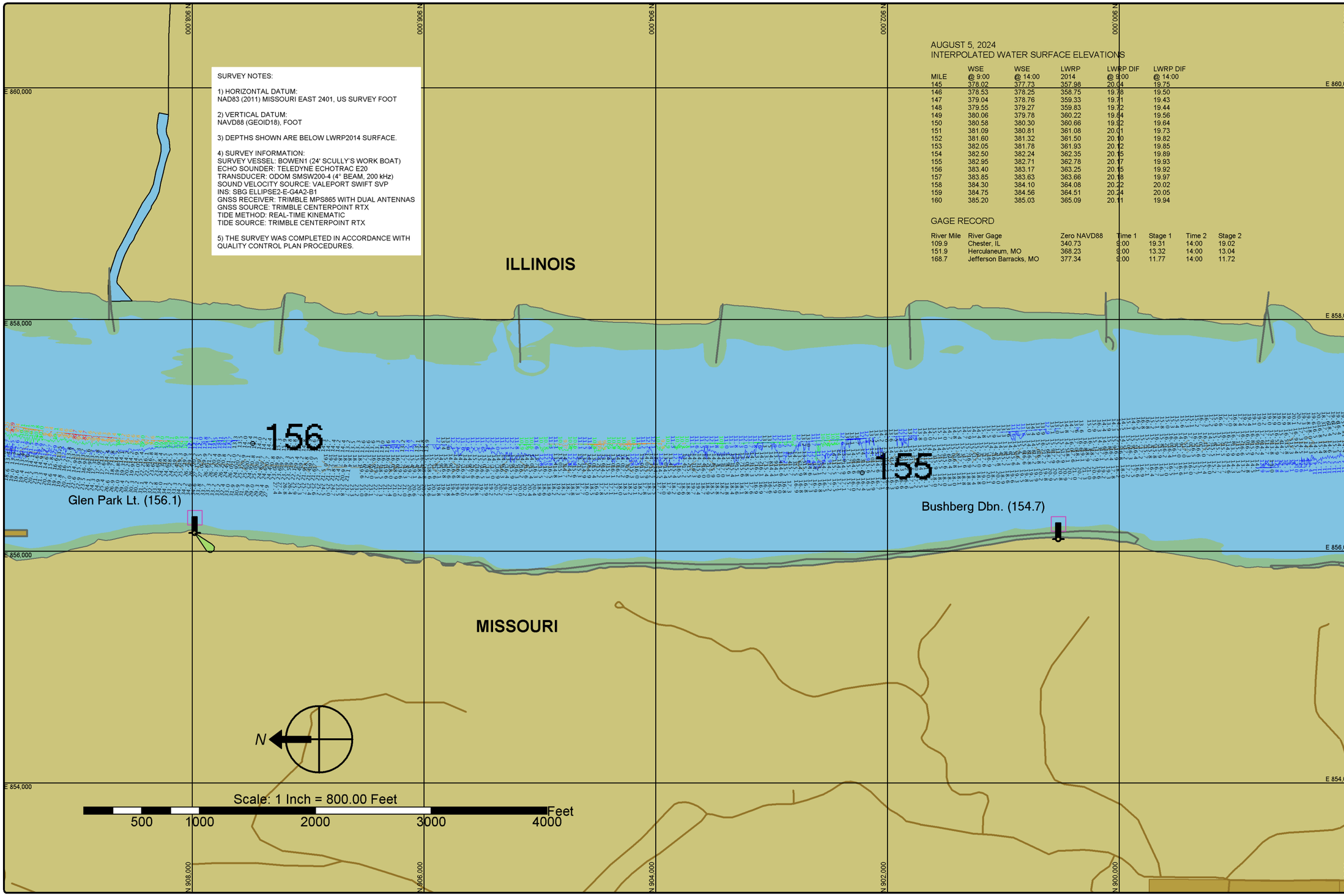
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 156.2 - 158.3

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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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

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AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135H0524
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 154.2 - 156.2

SHEET NO.
1 OF 1

SURVEY NOTES:

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

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AUGUST 5, 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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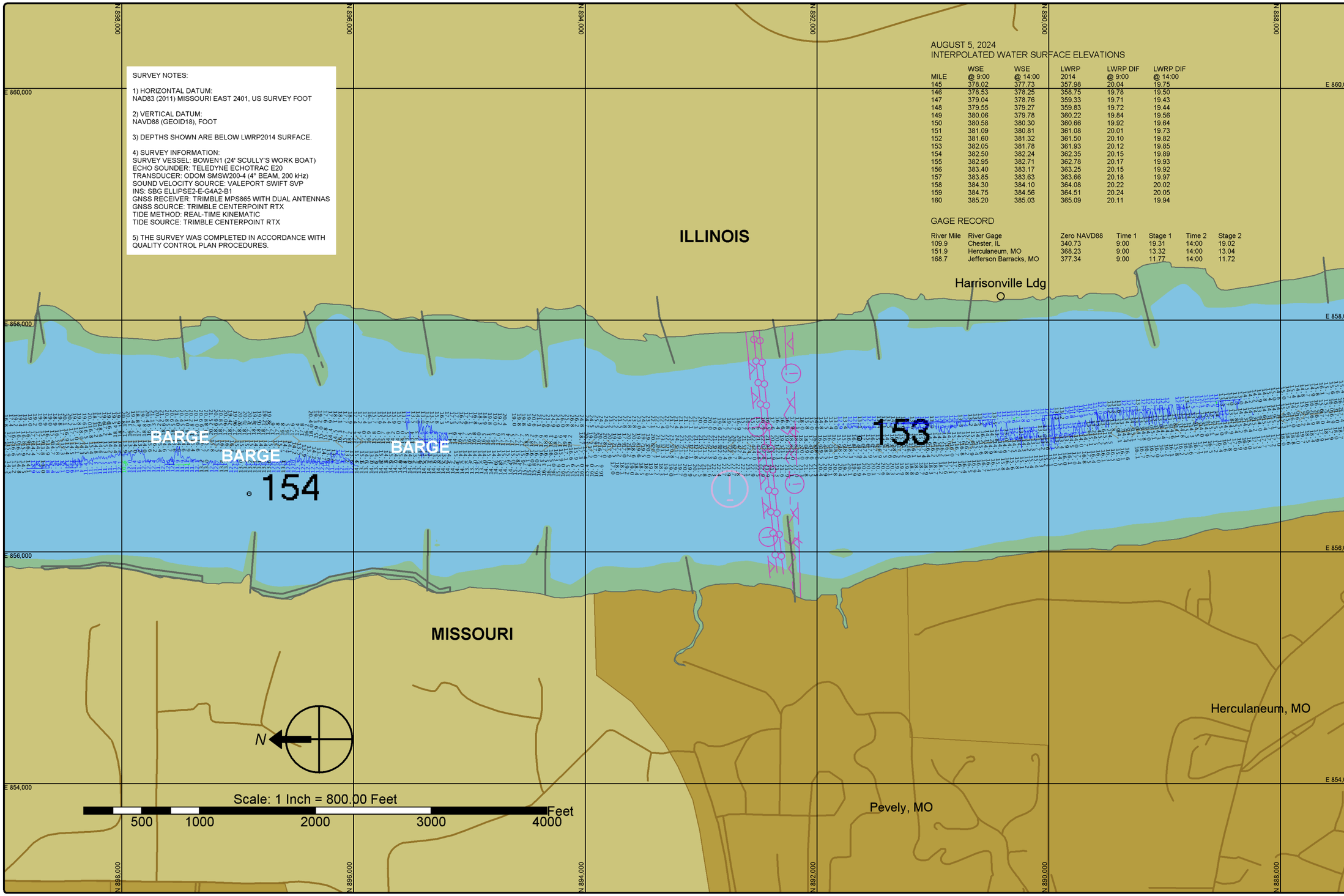

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135H0524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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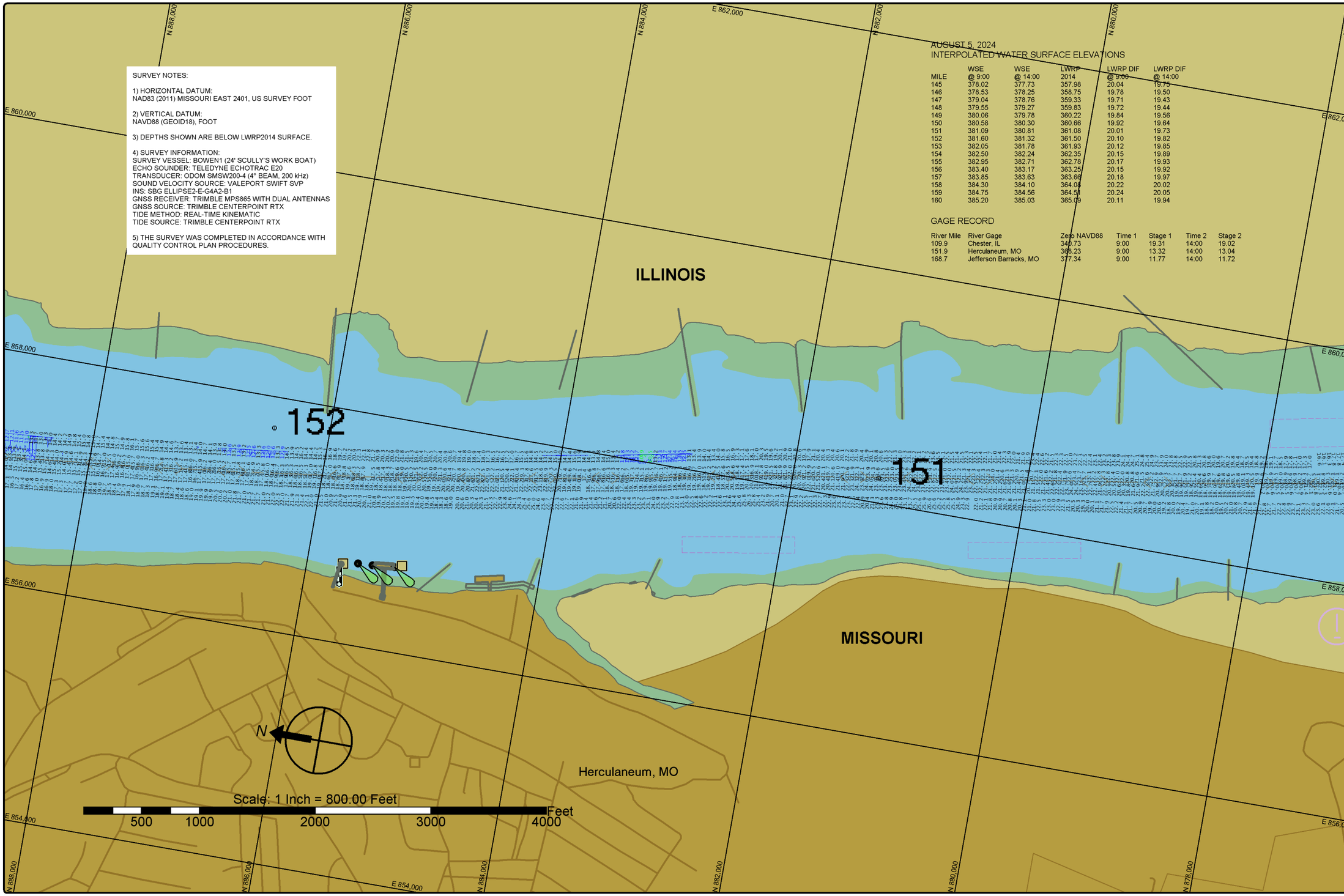
Date:

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 152.2 - 154.2

SHEET NO.
1 OF 1



SURVEY NOTES:

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NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

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TIDE SOURCE: TRIMBLE CENTERPOINT RTX

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AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135H0524
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SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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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 150.2 - 152.2

SHEET NO.
1 OF 1

SURVEY NOTES:

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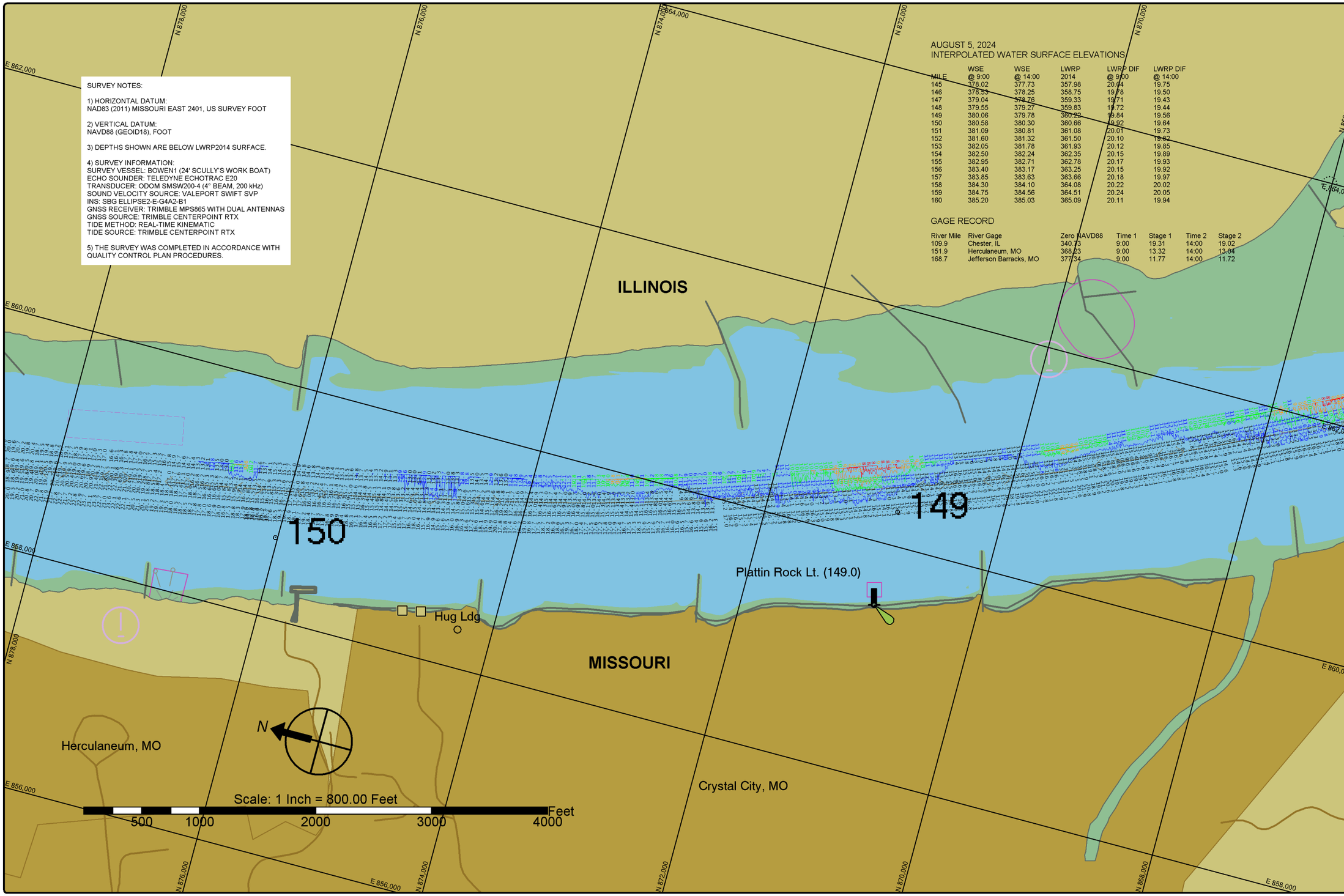

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HK524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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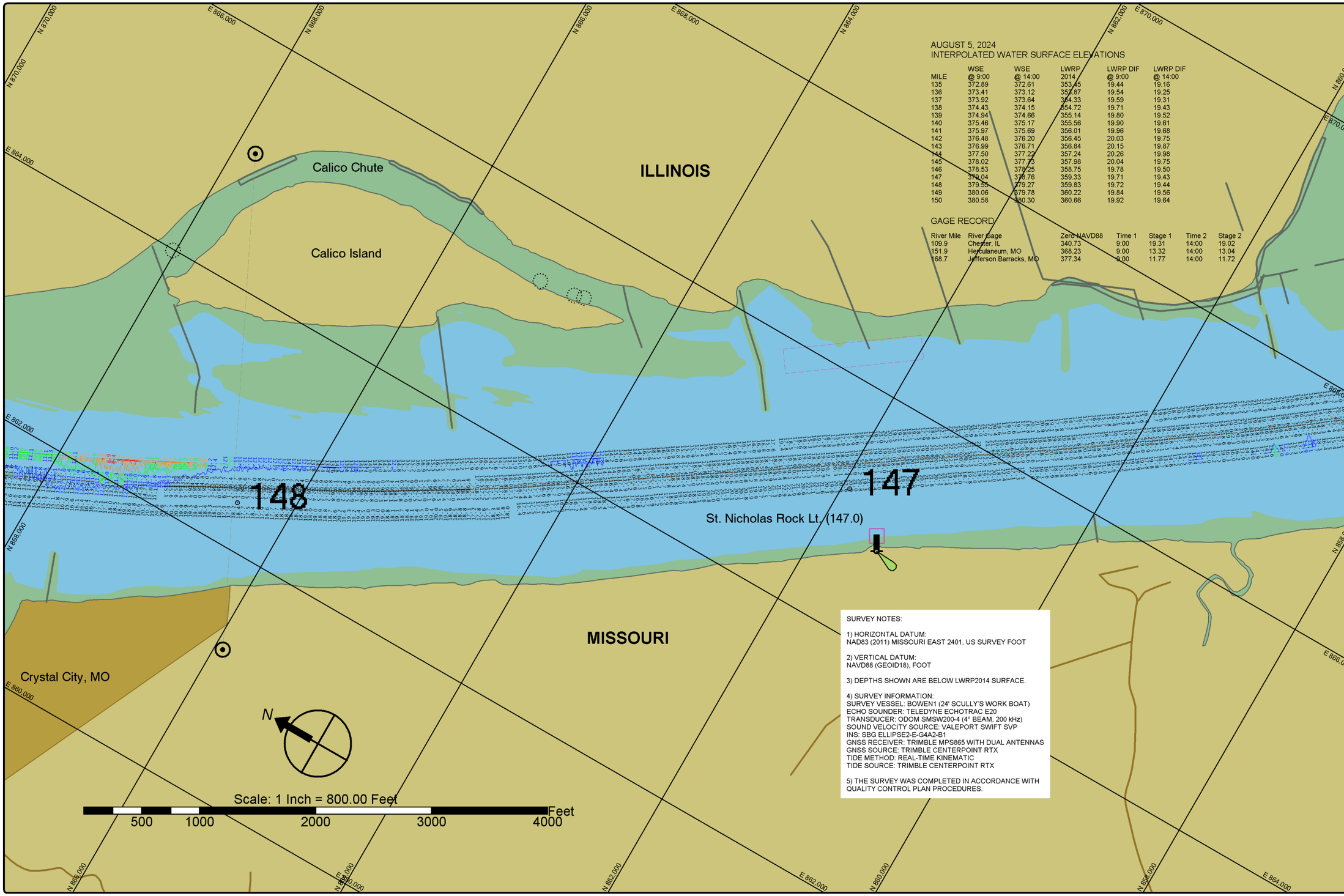
Date:

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 148.3 - 150.3

SHEET NO.
1 OF 1



AUGUST 5, 2024
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140	375.46	375.17	355.56	19.90	19.61
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150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72

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:
AUGUST 5, 2024

FILE NO.: 160_135HS524
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 146.2 - 148.3

SHEET NO.
1 OF 1

SURVEY NOTES:

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

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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

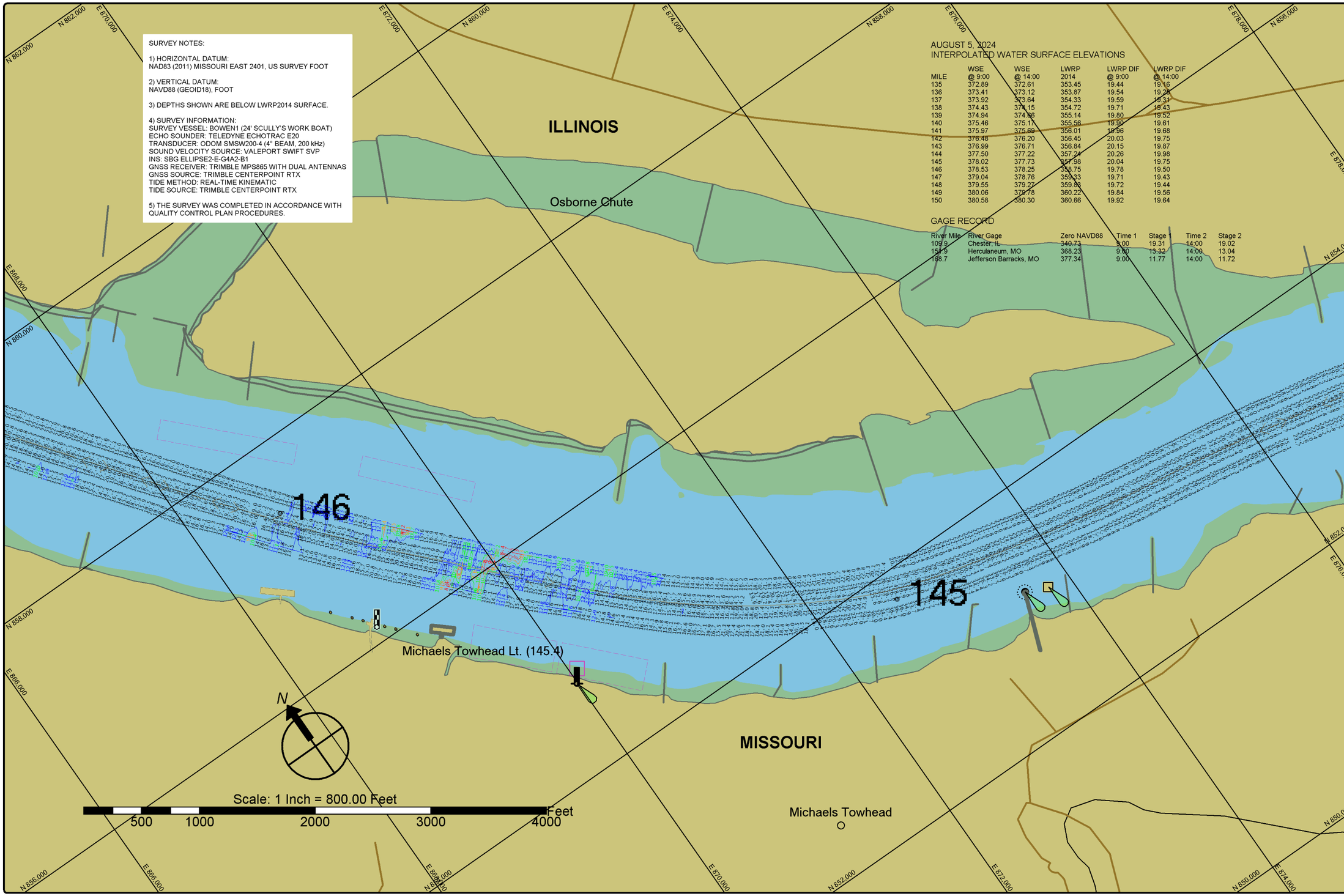
5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
135	372.89	372.61	353.45	19.44	19.16
136	373.41	373.12	353.87	19.54	19.25
137	373.92	373.64	354.33	19.59	19.31
138	374.43	374.15	354.72	19.71	19.43
139	374.94	374.66	355.14	19.80	19.52
140	375.46	375.17	355.56	19.90	19.61
141	375.97	375.69	356.01	19.96	19.68
142	376.48	376.20	356.45	20.03	19.75
143	376.99	376.71	356.84	20.15	19.87
144	377.50	377.22	357.24	20.26	19.98
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
147	379.04	378.76	359.33	19.71	19.43
148	379.55	379.27	359.83	19.72	19.44
149	380.06	379.78	360.22	19.84	19.56
150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
188.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72



St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HI0524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

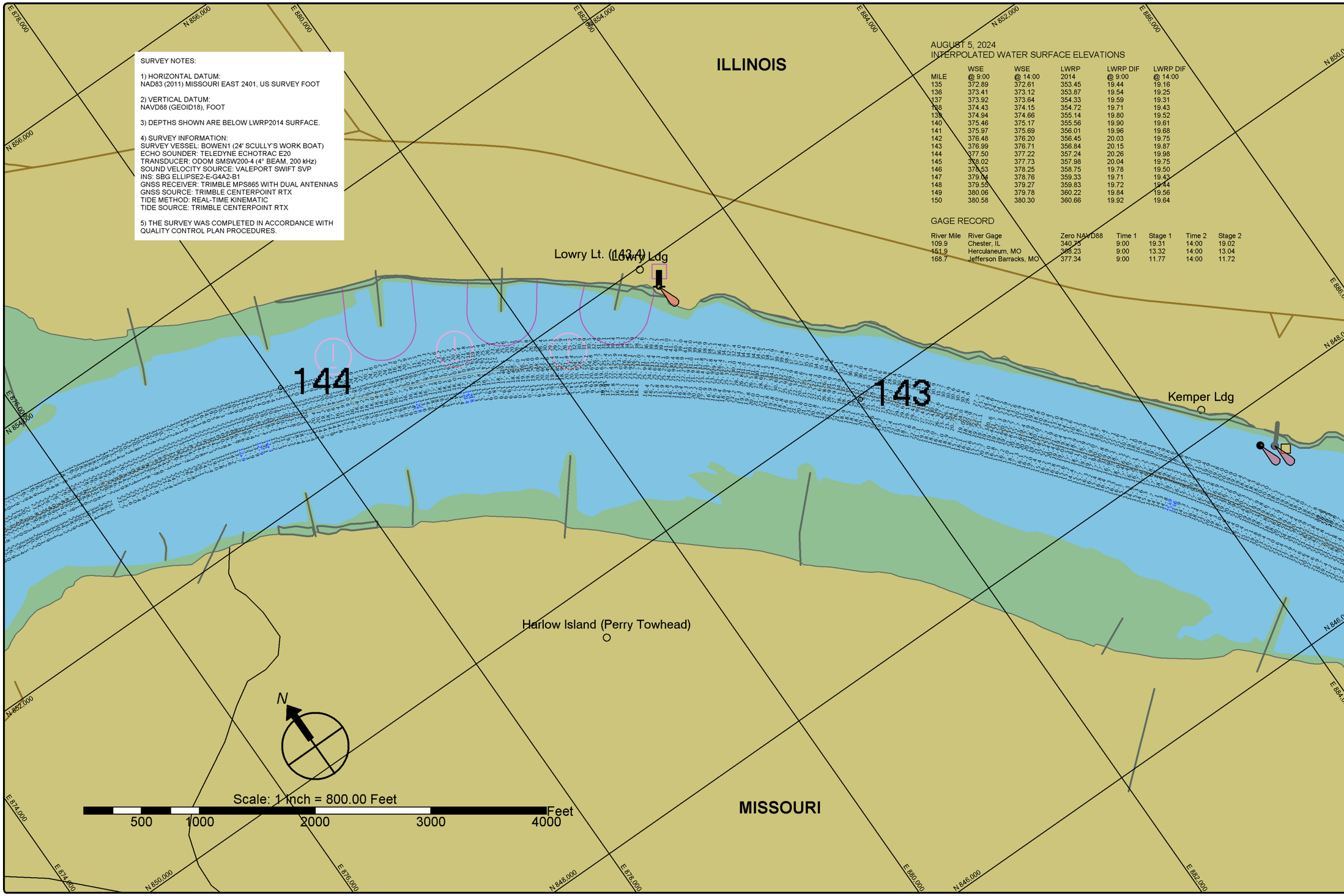
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 144.2 - 146.2

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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
135	372.89	372.61	353.45	19.44	19.16
136	373.41	373.12	353.87	19.54	19.25
137	373.92	373.64	354.33	19.59	19.31
138	374.43	374.15	354.72	19.71	19.43
139	374.94	374.66	355.14	19.80	19.52
140	375.46	375.17	355.56	19.90	19.61
141	375.97	375.69	356.01	19.96	19.68
142	376.48	376.20	356.45	20.03	19.75
143	376.99	376.71	356.84	20.15	19.87
144	377.50	377.22	357.24	20.26	19.98
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
147	379.04	378.76	359.33	19.71	19.43
148	379.55	379.27	359.83	19.72	19.44
149	380.06	379.78	360.22	19.84	19.56
150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.75	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	365.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HS524
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 142.2 - 144.2

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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
135	372.89	372.61	353.45	19.44	19.16
136	373.41	373.12	353.87	19.54	19.25
137	373.92	373.64	354.33	19.59	19.31
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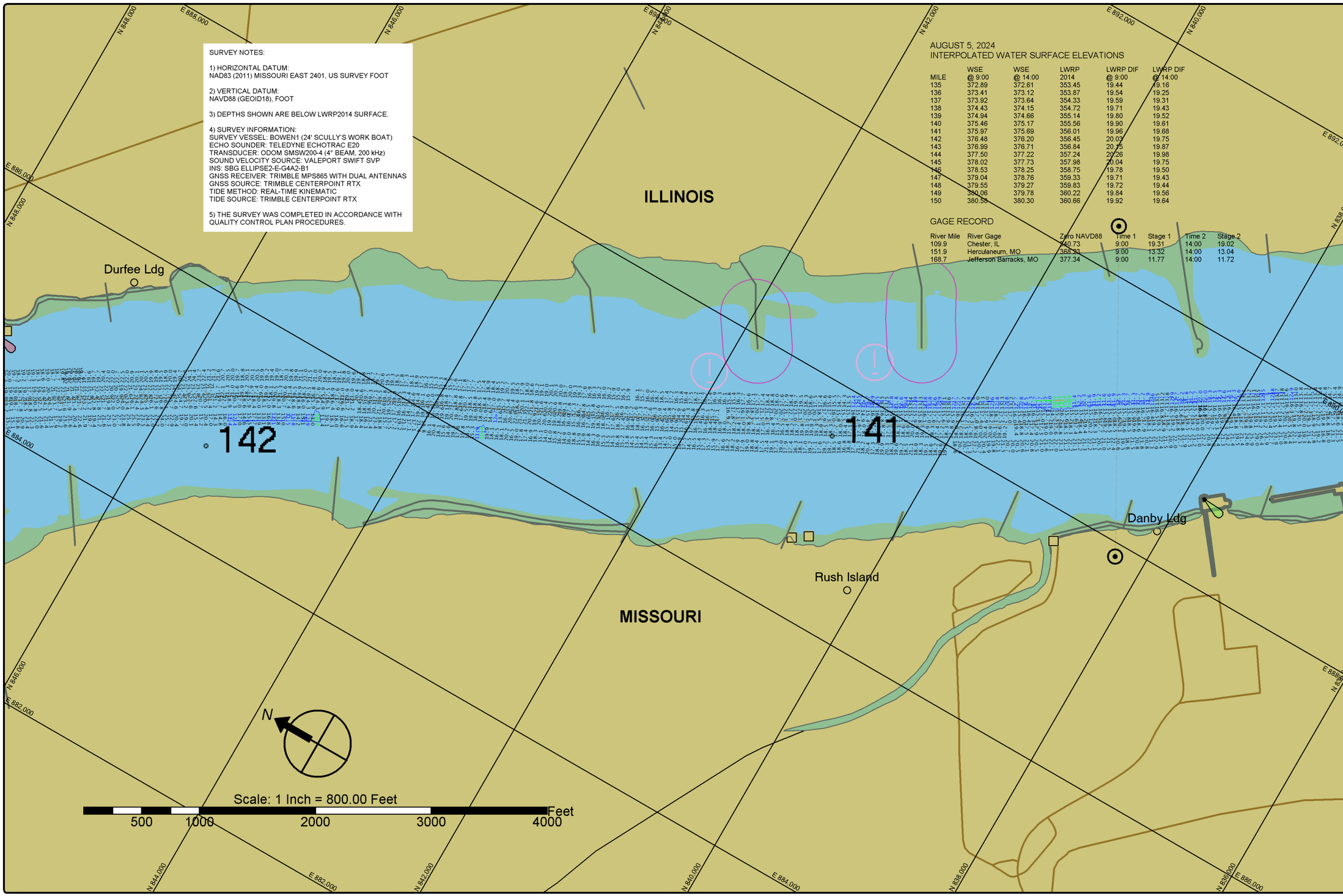
140	375.46	375.17	355.56	19.90	19.61
141	375.97	375.69	356.01	19.96	19.68
142	376.48	376.20	356.45	20.03	19.75
143	376.99	376.71	356.84	20.15	19.87
144	377.50	377.22	357.24	20.26	19.98
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
147	379.04	378.76	359.33	19.71	19.43
148	379.55	379.27	359.83	19.72	19.44
149	380.06	379.78	360.22	19.84	19.56
150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72



St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135K6524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

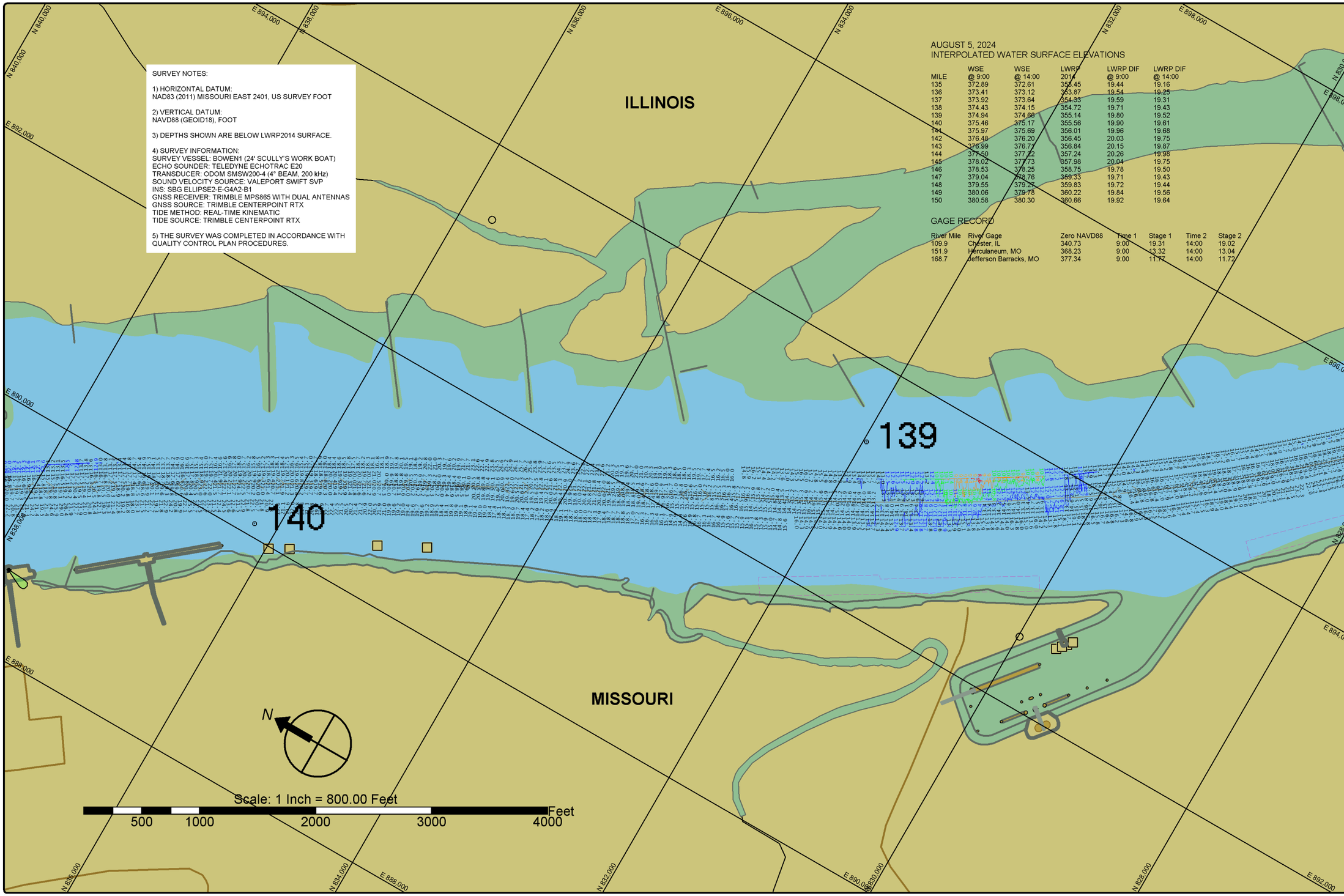
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 140.2 - 142.2

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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
135	372.89	372.61	353.45	19.44	19.16
136	373.41	373.12	353.87	19.54	19.25
137	373.92	373.64	354.33	19.59	19.31
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140	375.46	375.17	355.56	19.90	19.61
141	375.97	375.69	356.01	19.96	19.68
142	376.48	376.20	356.45	20.03	19.75
143	376.99	376.71	356.84	20.15	19.87
144	377.50	377.22	357.24	20.26	19.98
145	378.02	377.73	357.98	20.04	19.75
146	378.53	378.25	358.75	19.78	19.50
147	379.04	378.76	359.33	19.71	19.43
148	379.55	379.27	359.83	19.72	19.44
149	380.06	379.78	360.22	19.84	19.56
150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72

St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HD524
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

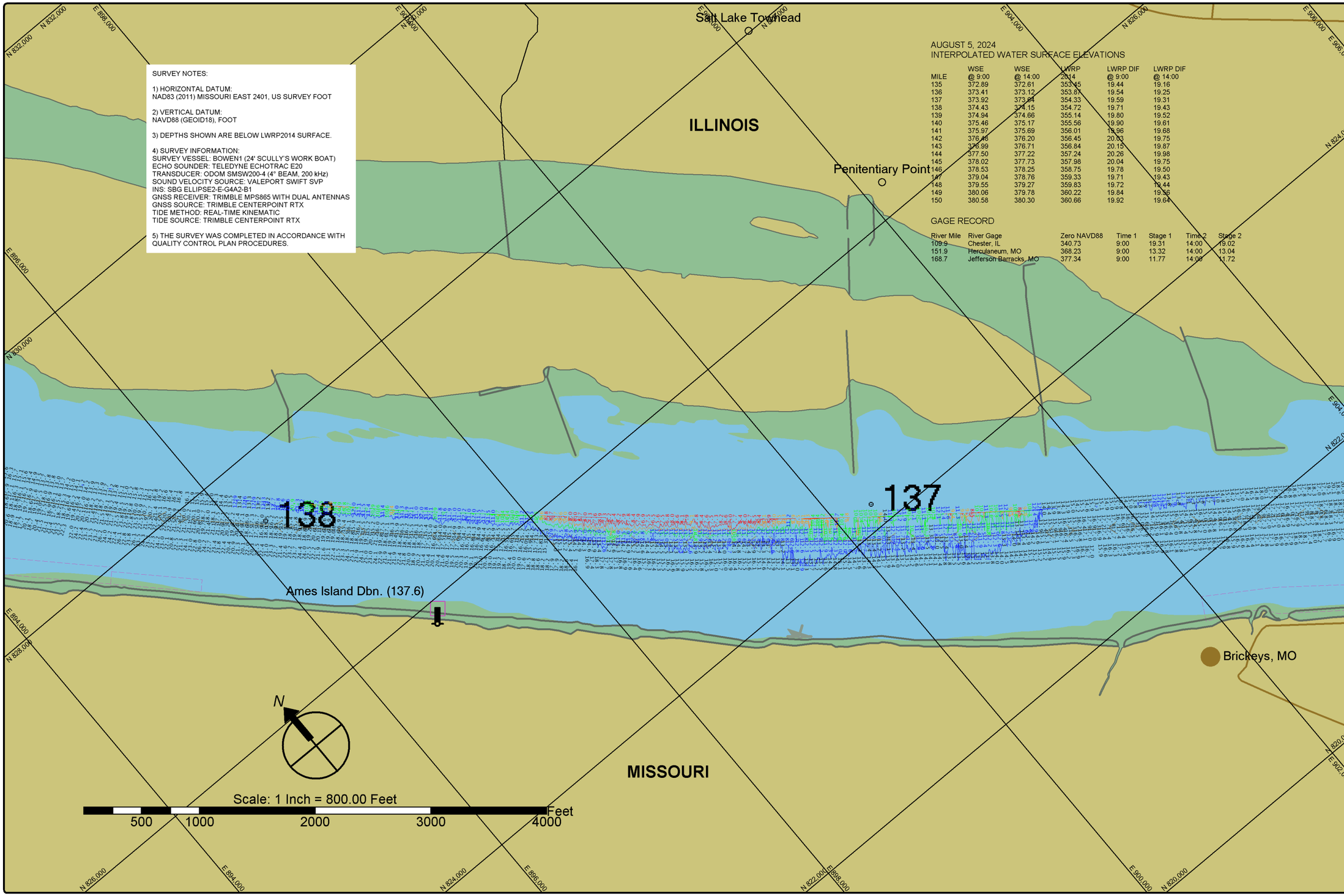
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 138.2 - 140.2

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

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

AUGUST 5, 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:
AUGUST 5, 2024

FILE NO.: 160_135HS524
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 136.2 - 138.2

SHEET NO.
1 OF 1

SURVEY NOTES:

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

2) VERTICAL DATUM:
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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.

AUGUST 5, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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140	375.46	375.17	355.56	19.90	19.61
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143	376.99	376.71	356.84	20.15	19.87
144	377.50	377.22	357.24	20.26	19.98
145	378.02	377.73	357.98	20.04	19.75
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147	379.04	378.76	359.33	19.71	19.43
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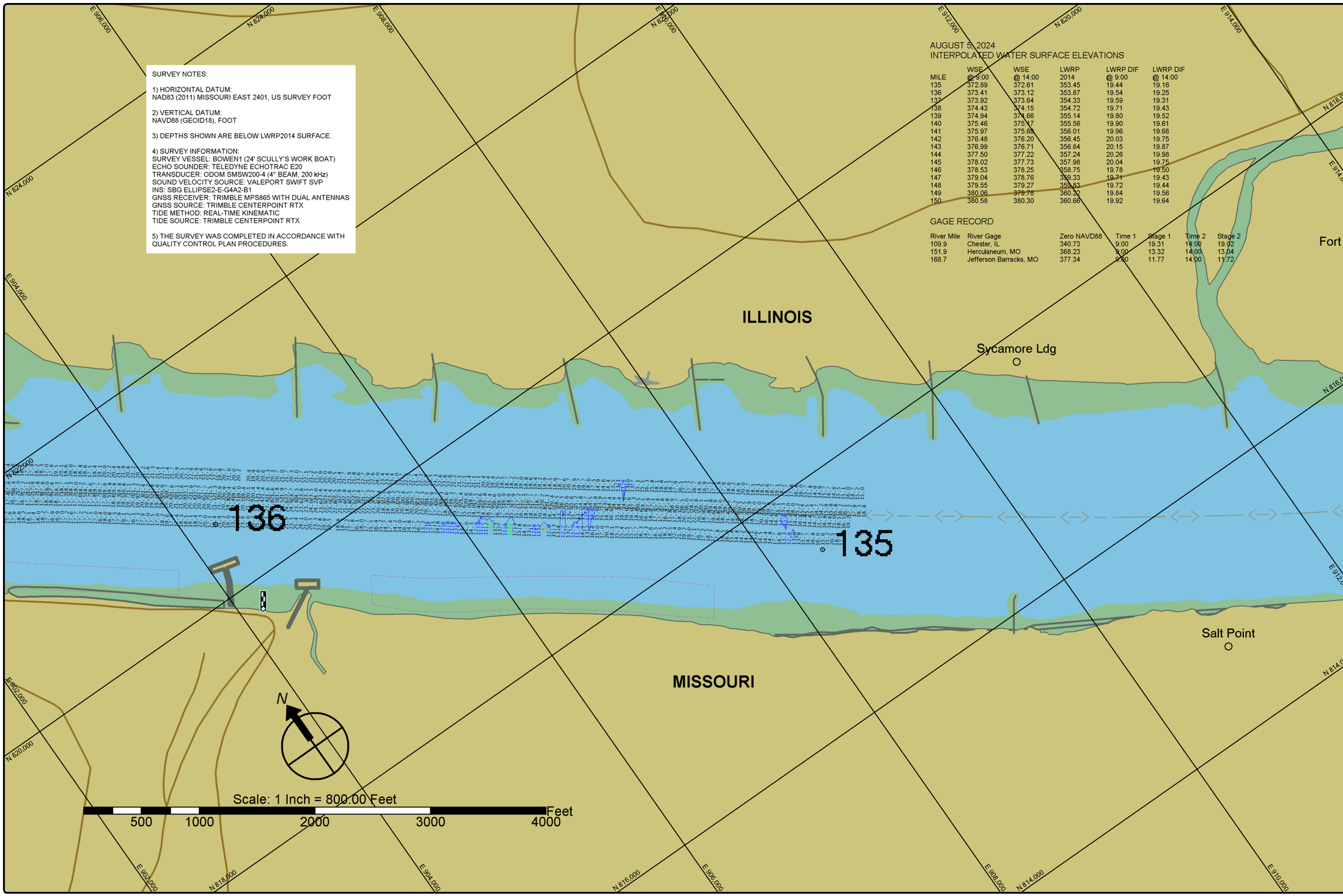
149	380.06	379.78	360.22	19.84	19.56
150	380.58	380.30	360.66	19.92	19.64

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	19.31	14:00	19.02
151.9	Herculaneum, MO	368.23	9:00	13.32	14:00	13.04
168.7	Jefferson Barracks, MO	377.34	9:00	11.77	14:00	11.72



St. Louis District

DATES OF SURVEY:
AUGUST 5, 2024

FILE NO.: 160_135HK524
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 134.2 - 136.2

SHEET NO.
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