

SURVEY NOTES:

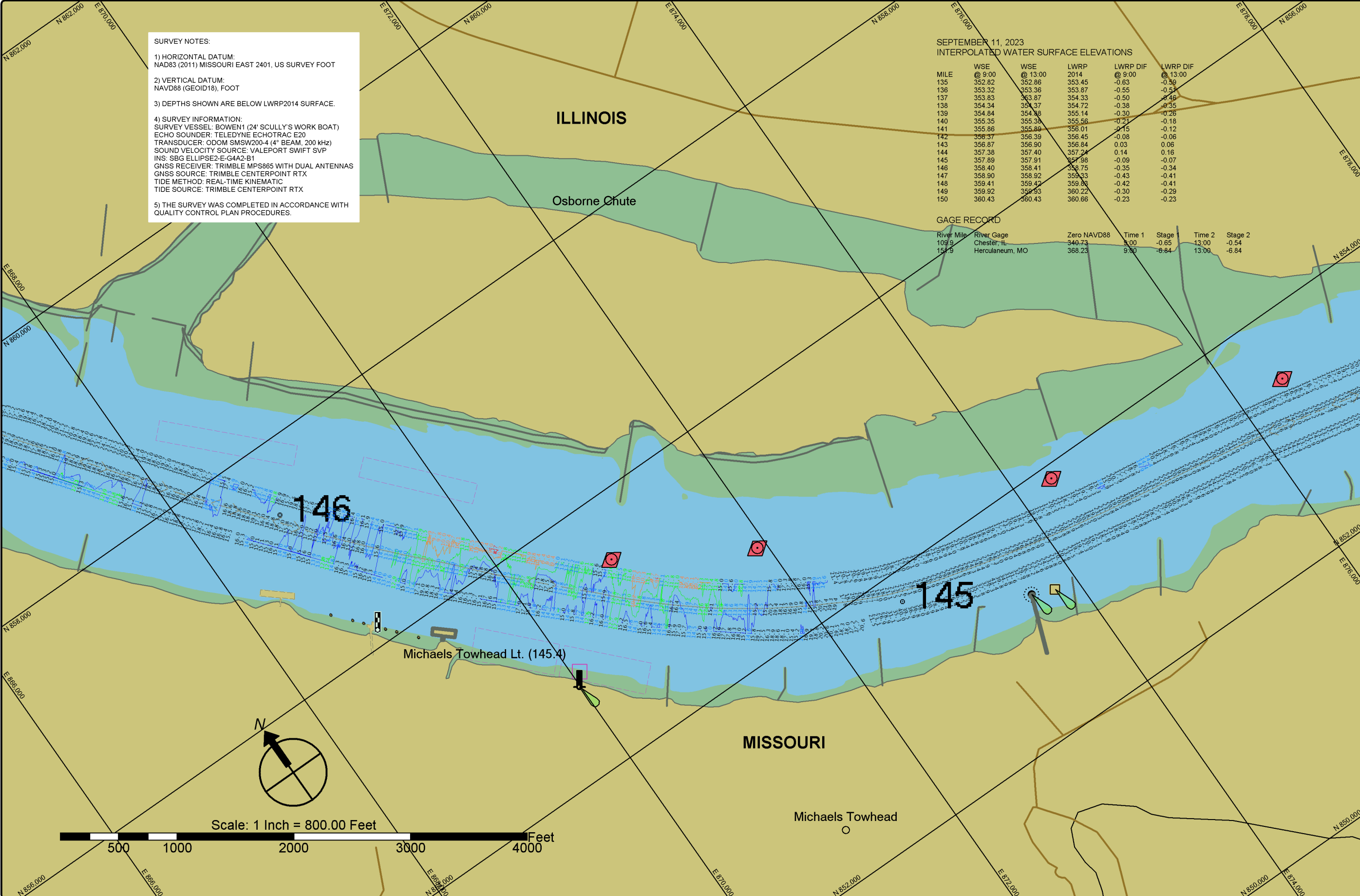
- 1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT
- 2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT
- 3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.
- 4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4" BEAM, 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.


SEPTEMBER 11, 2023
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 13:00
135	352.82	352.86	353.45	-0.63	-0.59
136	353.32	353.36	353.87	-0.55	-0.51
137	353.83	353.87	354.33	-0.50	-0.46
138	354.34	354.37	354.72	-0.38	-0.35
139	354.84	354.88	355.14	-0.30	-0.26
140	355.35	355.38	355.56	-0.21	-0.18
141	355.86	355.89	356.01	-0.15	-0.12
142	356.37	356.39	356.45	-0.08	-0.06
143	356.87	356.90	356.84	0.03	0.06
144	357.38	357.40	357.24	0.14	0.16
145	357.89	357.91	357.98	-0.09	-0.07
146	358.40	358.41	358.75	-0.35	-0.34
147	358.90	358.92	359.33	-0.43	-0.41
148	359.41	359.42	359.88	-0.42	-0.41
149	359.92	359.93	360.22	-0.30	-0.29
150	360.43	360.43	360.66	-0.23	-0.23

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	-0.65	13:00	-0.54
151.9	Herculeanum, MO	368.23	9:00	-6.84	13:00	-6.84





St. Louis District

DATES OF SURVEY: SEPTEMBER 11, 2023	FILE NO.: 150_1281123 REQUEST NO.: W91P23F086
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



St. Louis District

DATES OF SURVEY:
SEPTEMBER 11, 2023

FILE NO.: 150.1281123
REQUEST NO.: W91P23F0086

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: _____
FIELD SUPERVISOR

Approved: _____
CIVIL ENGINEERING TECHNICIAN

Approved: _____
ASST. CHIEF OF SURVEY

Approved: _____
CHIEF OF SURVEY

Date: _____

U.S. ARMY CORPS OF ENGINEERS
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

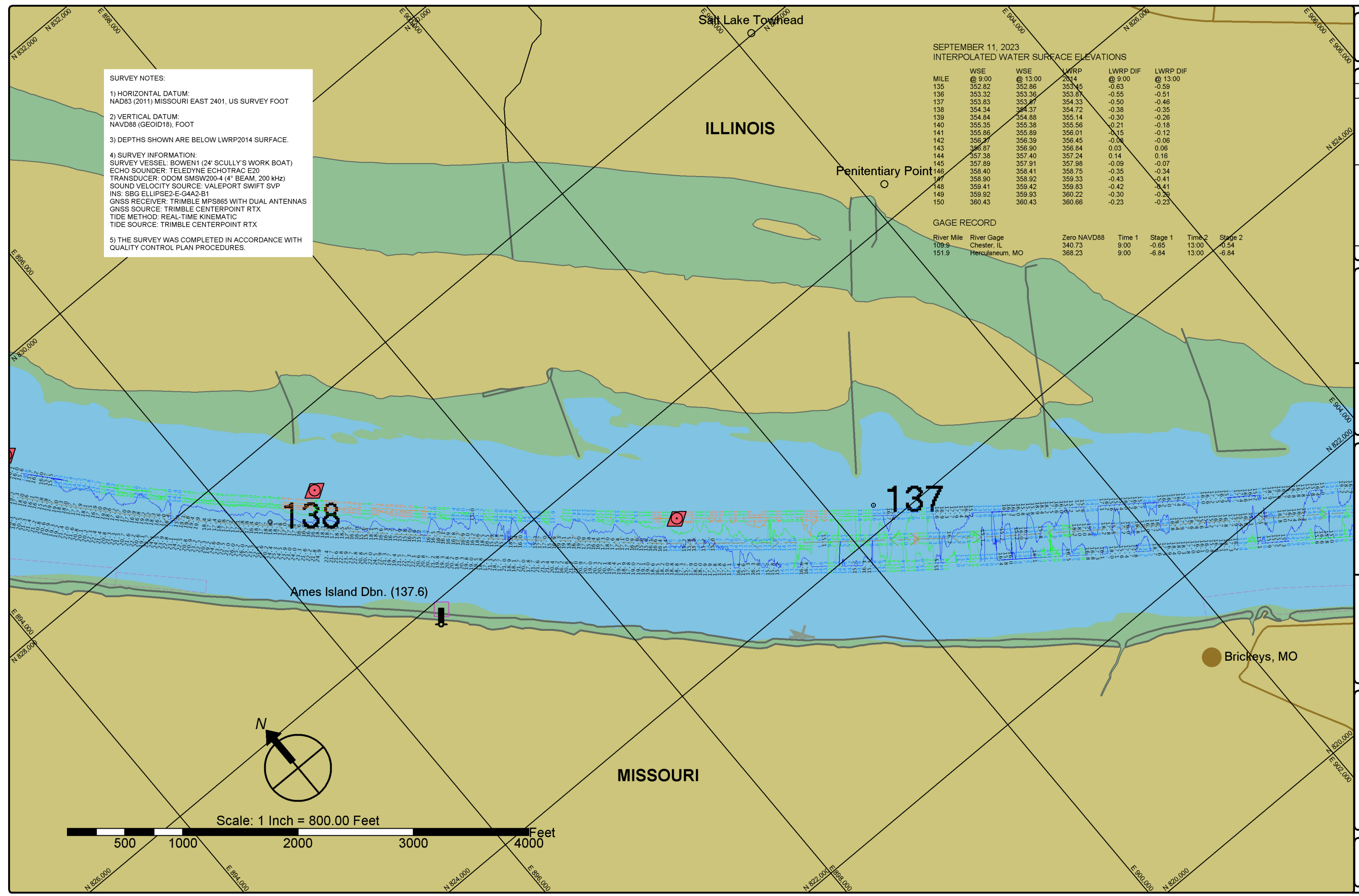
SHEET NO.

SEPTEMBER 11, 2023
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 13:00	LWRP	LWRP DIF @ 9:00	LWRP DIF @ 13:00
135	352.82	352.86	353.45	-0.63	-0.59
136	353.32	353.36	353.87	-0.55	-0.51
137	353.83	353.87	354.33	-0.50	-0.46
138	354.34	354.37	354.72	-0.38	-0.35
139	354.84	354.88	355.14	-0.30	-0.26
140	355.35	355.38	355.56	-0.21	-0.18
141	355.86	355.89	356.01	-0.15	-0.12
142	356.37	356.39	356.45	-0.08	-0.06
143	356.87	356.90	356.84	0.03	0.06
144	357.38	357.40	357.24	0.14	0.16
145	357.89	357.91	357.98	-0.09	-0.07
146	358.40	358.41	358.75	-0.35	-0.34
147	358.90	358.92	359.33	-0.43	-0.41
148	359.41	359.42	359.83	-0.42	-0.41
149	359.92	359.93	360.22	-0.30	-0.29
150	360.43	360.43	360.66	-0.23	-0.23

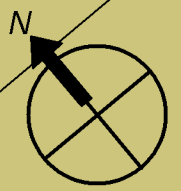
GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	-0.65	13:00	0.54
151.9	Herculaneum, MO	368.23	9:00	-6.84	13:00	-6.84

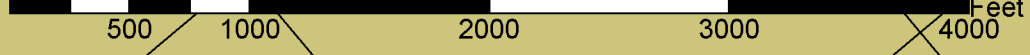


SURVEY NOTES:

- 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.



Scale: 1 Inch = 800.00 Feet



MISSOURI

ILLINOIS

Salt Lake Towerhead

Penitentiary Point

Brickeys, MO

Ames Island Dbn. (137.6)

137

138



St. Louis District

DATES OF SURVEY:
SEPTEMBER 11, 2023

FILE NO.: 150_1281123
REQUEST NO.: W91P23F086

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
MISSOURI 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.

SEPTEMBER 11, 2023
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 13:00
125	347.74	347.81	348.66	-0.92	-0.85
126	348.25	348.32	349.22	-0.97	-0.90
127	348.76	348.82	349.62	-0.86	-0.80
128	349.26	349.33	350.09	-0.83	-0.76
129	349.77	349.83	350.64	-0.87	-0.81
130	350.28	350.34	351.15	-0.87	-0.81
131	350.79	350.84	351.63	-0.84	-0.79
132	351.29	351.35	352.17	-0.88	-0.82
133	351.80	351.85	352.68	-0.88	-0.83
134	352.31	352.35	353.05	-0.74	-0.70
135	352.82	352.86	353.45	-0.63	-0.59
136	353.32	353.36	353.87	-0.55	-0.51
137	353.83	353.87	354.33	-0.50	-0.46
138	354.34	354.37	354.72	-0.38	-0.35
139	354.84	354.86	355.14	-0.30	-0.26
140	355.35	355.38	355.56	-0.21	-0.18

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	-0.65	13:00	-0.54
151.9	Herculaneum, MO	368.23	9:00	-6.84	13:00	-6.84

SURVEY NOTES:

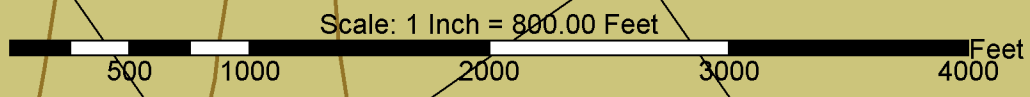
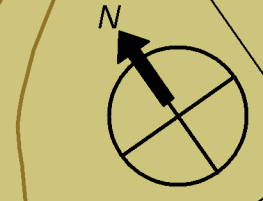
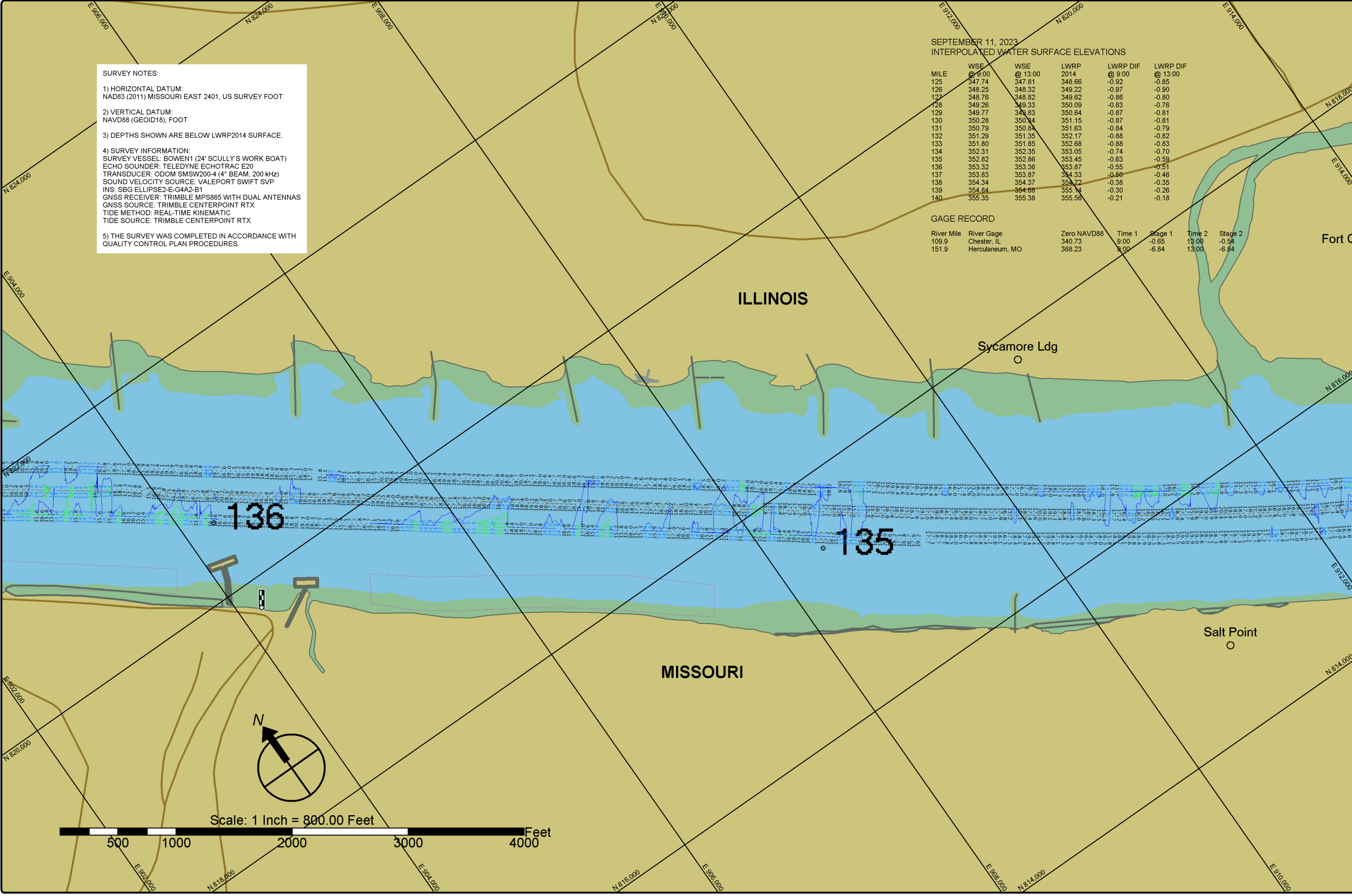
1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

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 MP865 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

SURVEY NOTES:

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 GNSS SOURCE: TRIMBLE CENTERPOINT RTX
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 TIDE SOURCE: TRIMBLE CENTERPOINT RTX
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DATES OF SURVEY:
 SEPTEMBER 11, 2023
FILE NO.: 150_1281123
REQUEST NO.: W912P23086

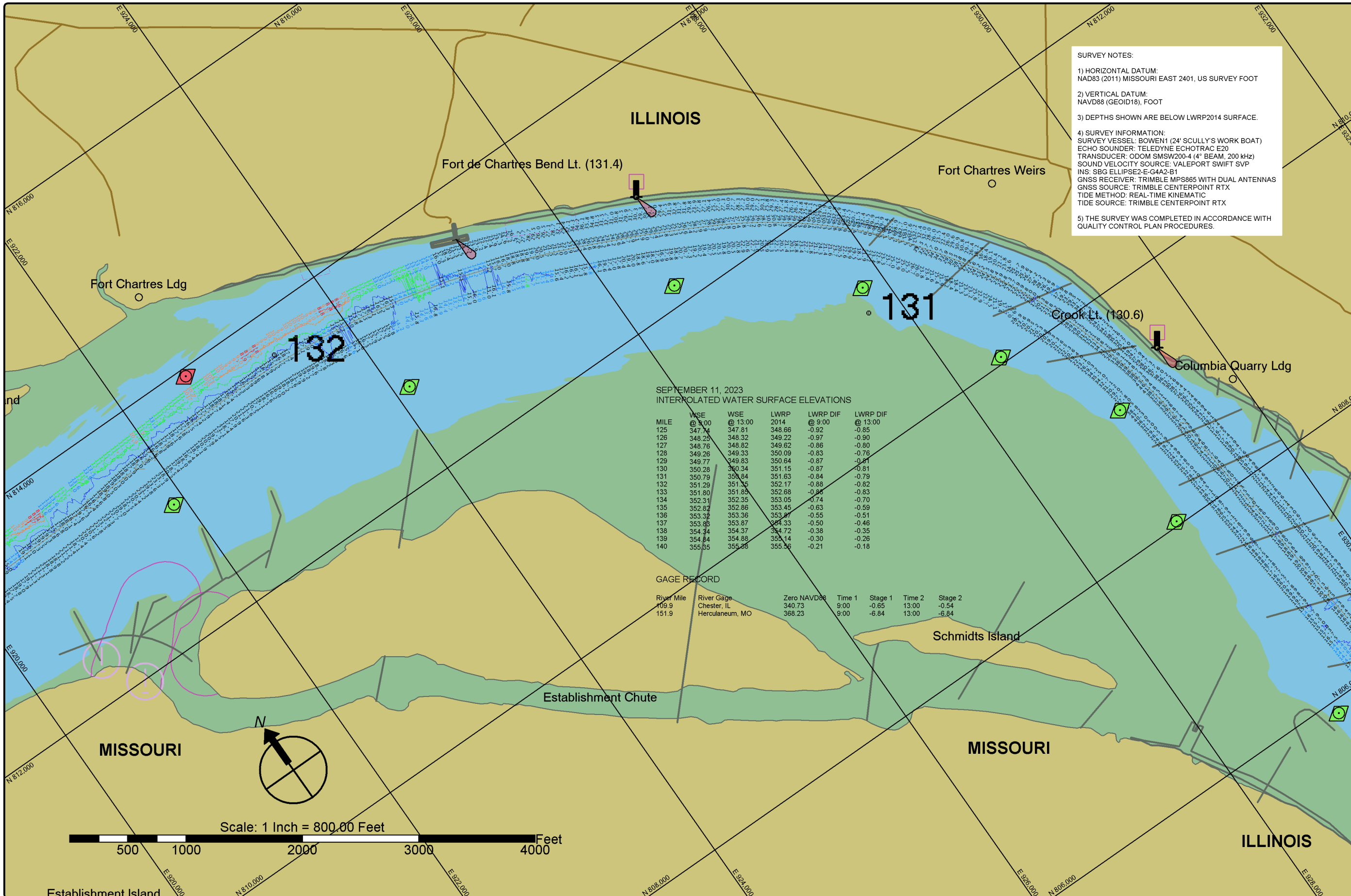
SCALE:
 1" = 800' (ANSI B)
FIELD BOOKS:

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
MISSISSIPPI BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 130.0 - 132.2

SHEET NO.
 1 OF 1





St. Louis District

SURVEY NOTES:

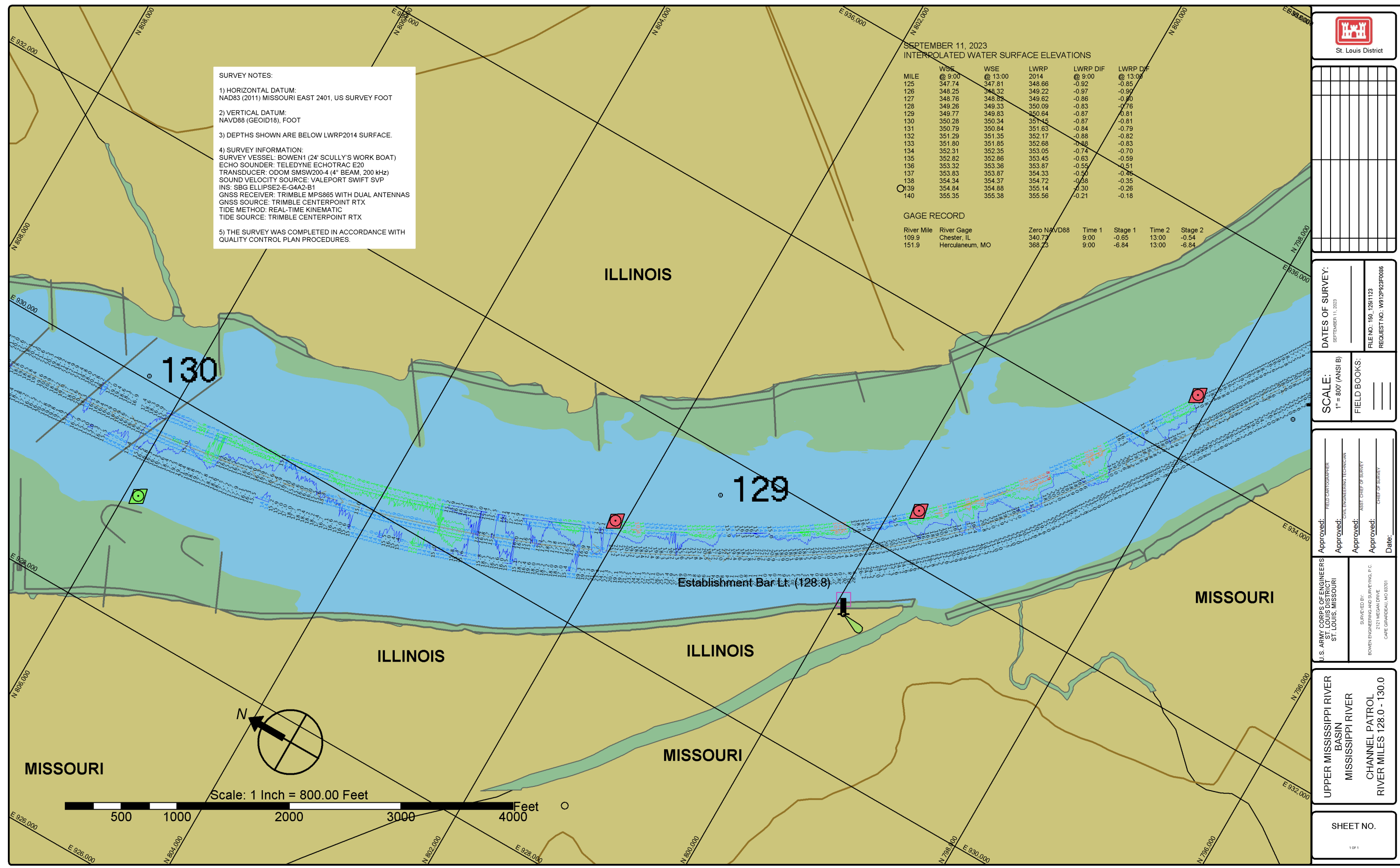
- 1) HORIZONTAL DATUM:
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TRANSDUCER: ODOM SMSW200-4 (4" BEAM, 200 KHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX
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**SEPTEMBER 11, 2023
INTERPOLATED WATER SURFACE ELEVATIONS**

MILE	WSE @ 9:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 13:00
125	347.74	347.81	348.66	-0.92	-0.85
126	348.25	348.32	349.22	-0.97	-0.90
127	348.76	348.83	349.62	-0.86	-0.80
128	349.26	349.33	350.09	-0.83	-0.76
129	349.77	349.83	350.64	-0.87	-0.81
130	350.28	350.34	351.15	-0.87	-0.81
131	350.79	350.84	351.63	-0.84	-0.79
132	351.29	351.35	352.17	-0.88	-0.82
133	351.80	351.85	352.68	-0.88	-0.83
134	352.31	352.35	353.05	-0.74	-0.70
135	352.82	352.86	353.45	-0.63	-0.59
136	353.32	353.36	353.87	-0.55	-0.51
137	353.83	353.87	354.33	-0.50	-0.46
138	354.34	354.37	354.72	-0.38	-0.35
139	354.84	354.88	355.14	-0.30	-0.26
140	355.35	355.38	355.56	-0.21	-0.18

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	-0.65	13:00	-0.54
151.9	Herculeanum, MO	368.73	9:00	-6.84	13:00	-6.84



DATES OF SURVEY:
SEPTEMBER 11, 2023

FILE NO.: 150_1281123
REQUEST NO.: W91P23F0086

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 128.0 - 130.0**

SHEET NO.

1 of 1

MISSOURI

ILLINOIS

MISSOURI

ILLINOIS

MISSOURI

ILLINOIS



St. Louis District

SURVEY NOTES:

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NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT
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MISSOURI

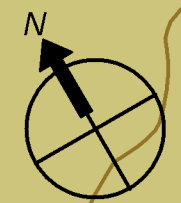
ILLINOIS

MISSOURI

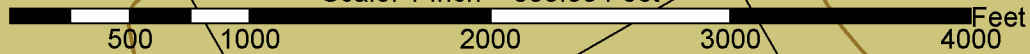
Little Rock Lt. (126.1)

128

127



Scale: 1 Inch = 800.00 Feet



DATES OF SURVEY:
SEPTEMBER 11, 2023

FILE NO.: 150_1281123
REQUEST NO.: W91P2305086

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

APPROVED:

FIELD CARTOGRAPHER	_____
CIVIL ENGINEERING TECHNICIAN	_____
ASST. CHIEF OF SURVEY	_____
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 126.0 - 128.0**

SHEET NO.

SURVEY NOTES:

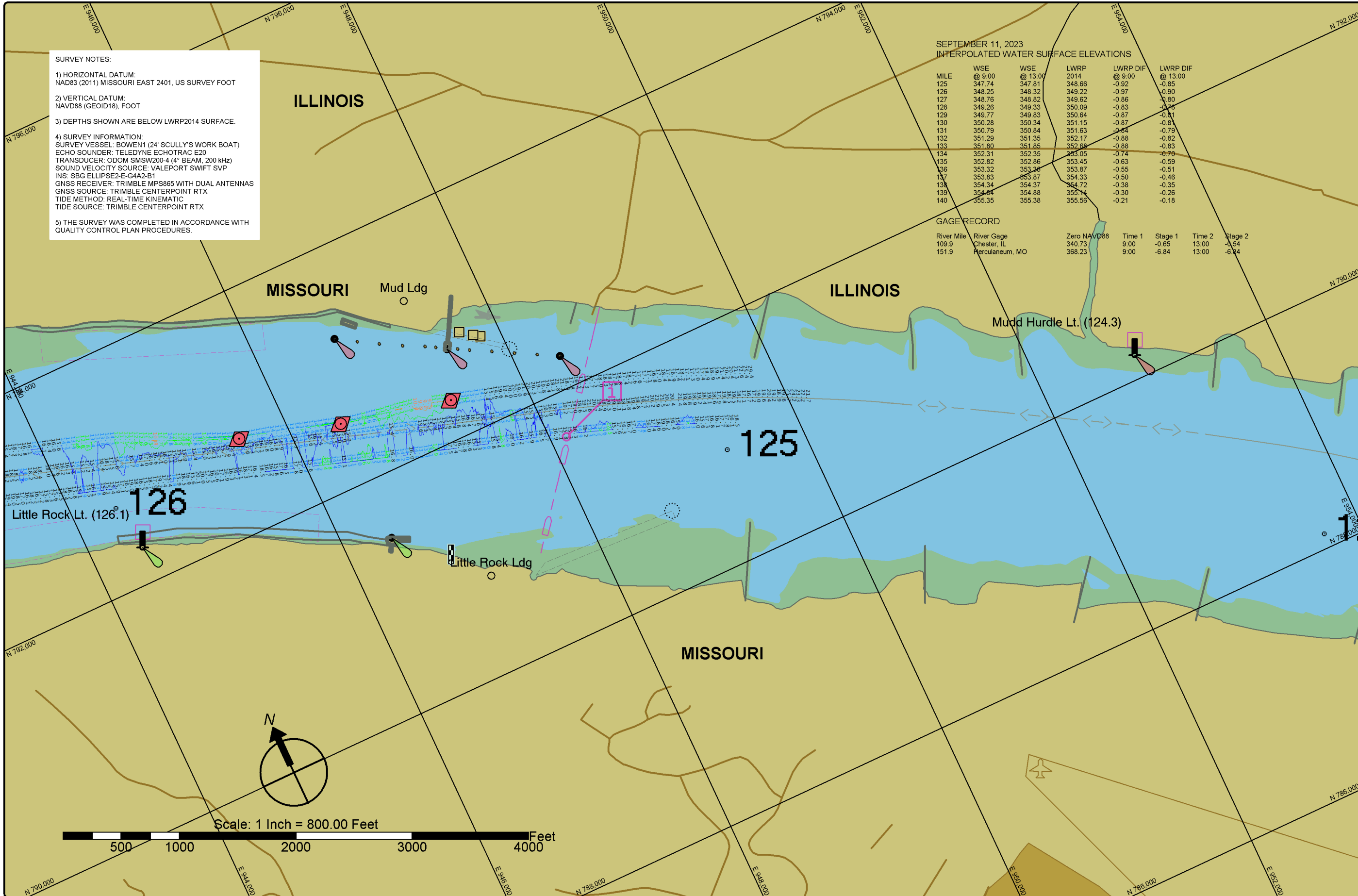
- 1) HORIZONTAL DATUM:
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128	349.26	349.33	350.09	-0.83	-0.76
129	349.77	349.83	350.64	-0.87	-0.81
130	350.28	350.34	351.15	-0.87	-0.81
131	350.79	350.84	351.63	-0.84	-0.79
132	351.29	351.35	352.17	-0.88	-0.82
133	351.80	351.85	352.68	-0.88	-0.83
134	352.31	352.35	353.05	-0.74	-0.70
135	352.82	352.86	353.45	-0.63	-0.59
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138	354.34	354.37	354.72	-0.38	-0.35
139	354.84	354.88	355.14	-0.30	-0.26
140	355.35	355.38	355.56	-0.21	-0.18

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	-0.65	13:00	-0.54
151.9	Herculaneum, MO	368.23	9:00	-6.84	13:00	-6.84



St. Louis District

DATES OF SURVEY:
SEPTEMBER 11, 2023

FILE NO.: 150_1251123
REQUEST NO.: W91P23086

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 124.0 - 126.0

SHEET NO.
1 OF 1