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

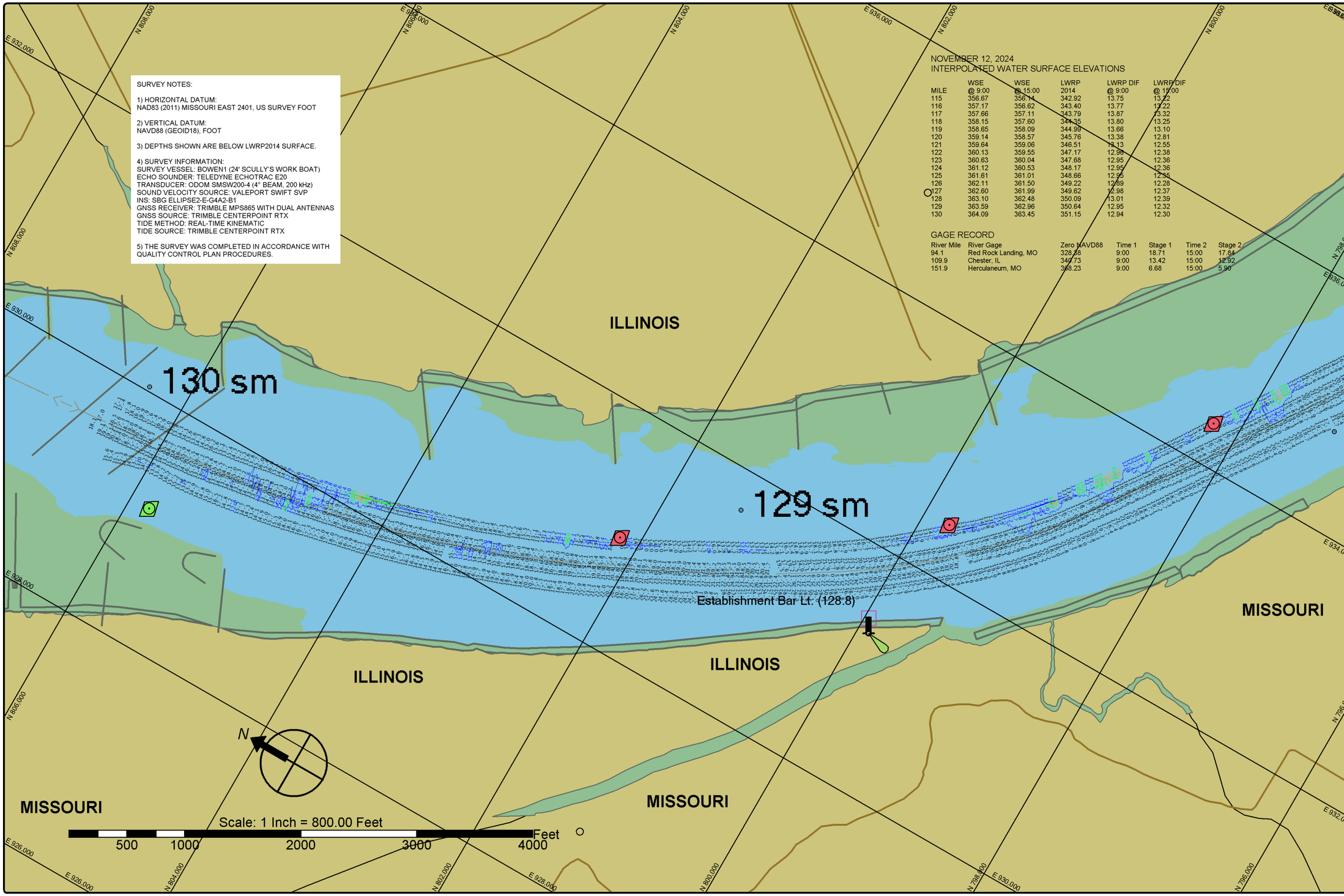
5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
115	356.67	356.14	342.92	13.75	13.22
116	357.17	356.62	343.40	13.77	13.22
117	357.66	357.11	343.79	13.87	13.32
118	358.15	357.60	344.35	13.80	13.25
119	358.65	358.09	344.99	13.66	13.10
120	359.14	358.57	345.76	13.38	12.81
121	359.64	359.06	346.51	13.13	12.55
122	360.13	359.55	347.17	12.96	12.38
123	360.63	360.04	347.68	12.95	12.36
124	361.12	360.53	348.17	12.95	12.36
125	361.61	361.01	348.66	12.95	12.35
126	362.11	361.50	349.22	12.89	12.28
127	362.60	361.99	349.62	12.98	12.37
128	363.10	362.48	350.09	13.01	12.39
129	363.59	362.96	350.64	12.95	12.32
130	364.09	363.45	351.15	12.94	12.30

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.28	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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 128.1 - 130.1

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.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
115	356.67	356.14	342.92	13.75	13.22
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117	357.66	357.11	343.79	13.87	13.32
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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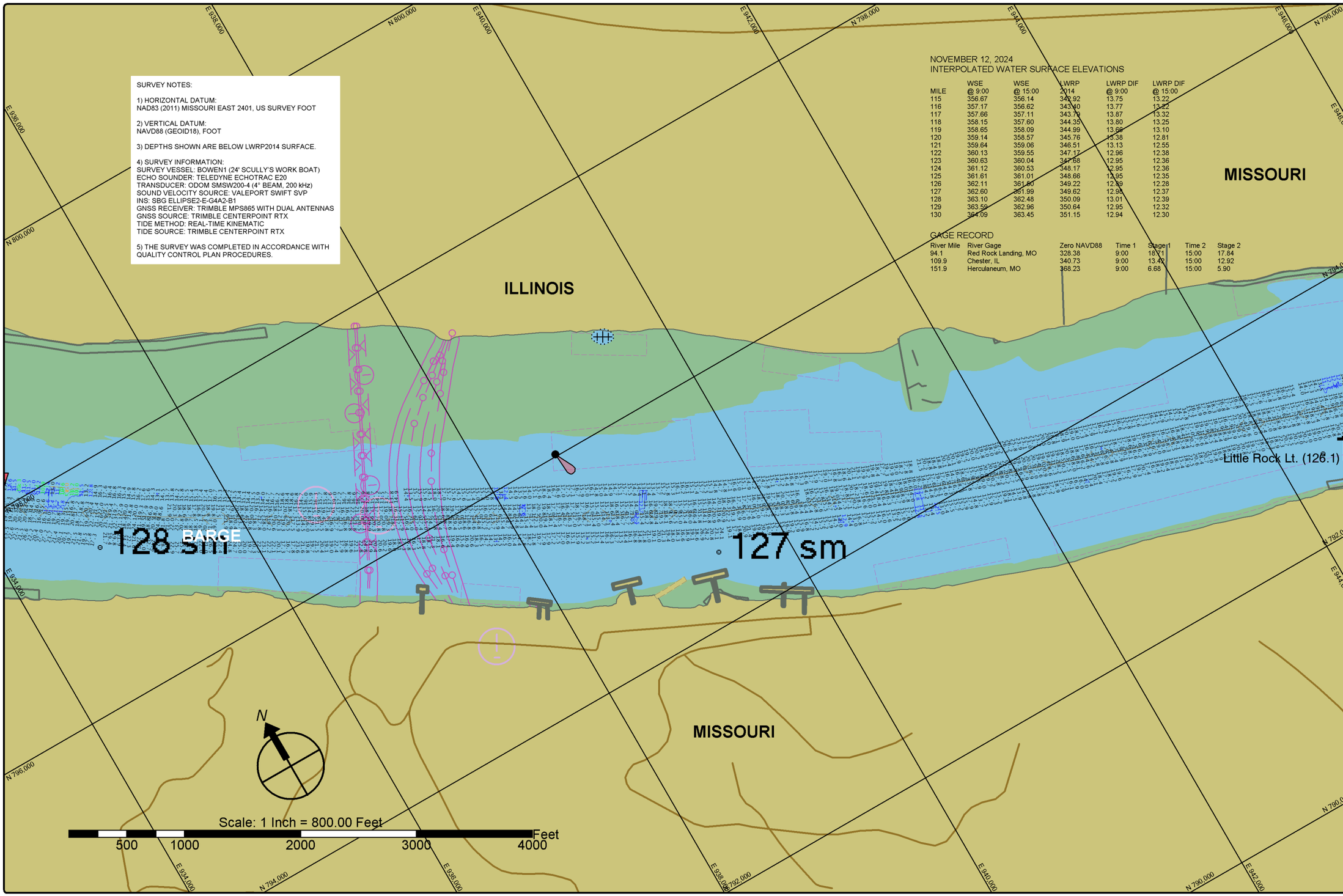
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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 126.1 - 128.1

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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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

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NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
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127	362.60	361.99	349.62	12.98	12.37
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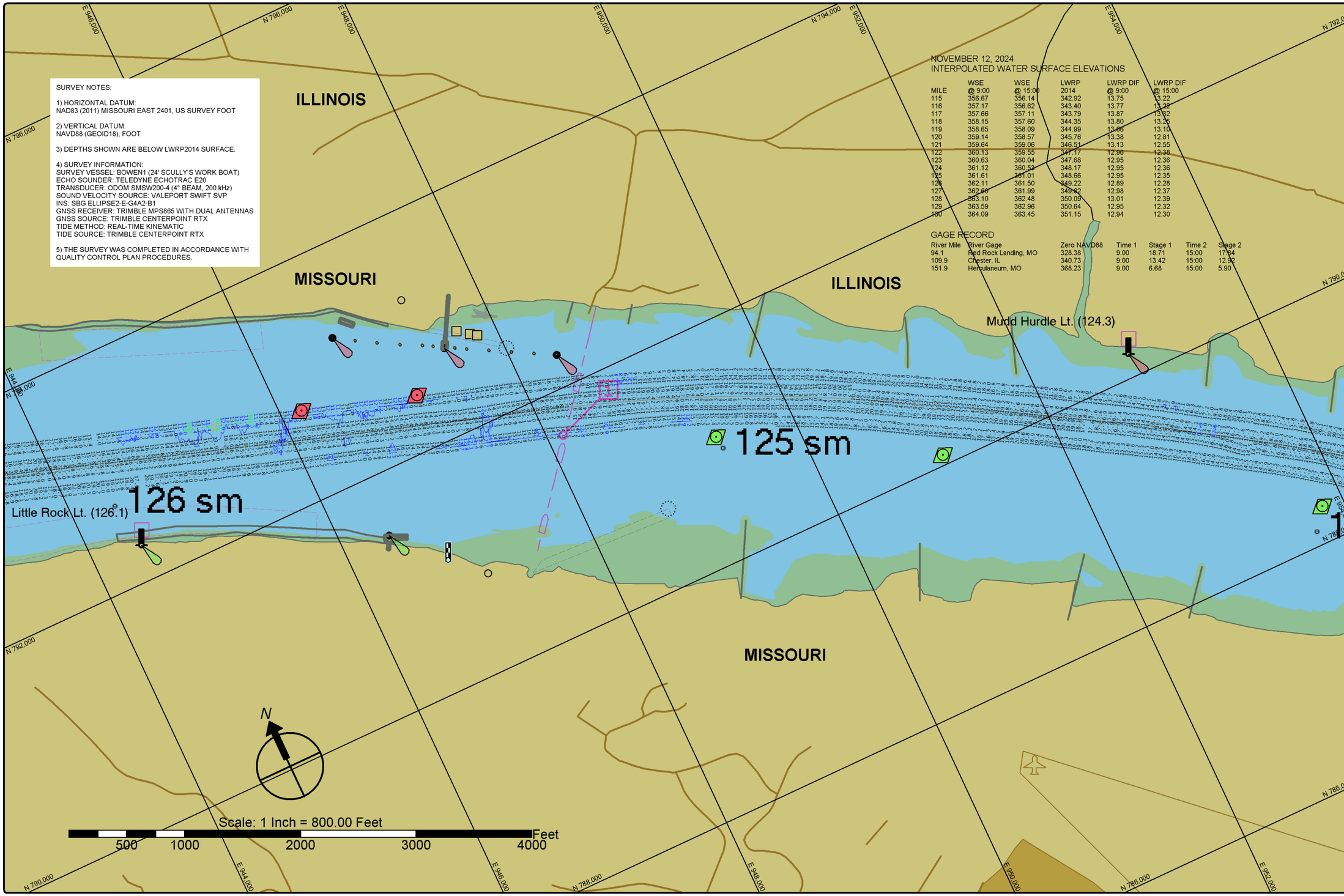
130	364.09	363.45	351.15	12.94	12.30

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.64
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_1006\1224
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

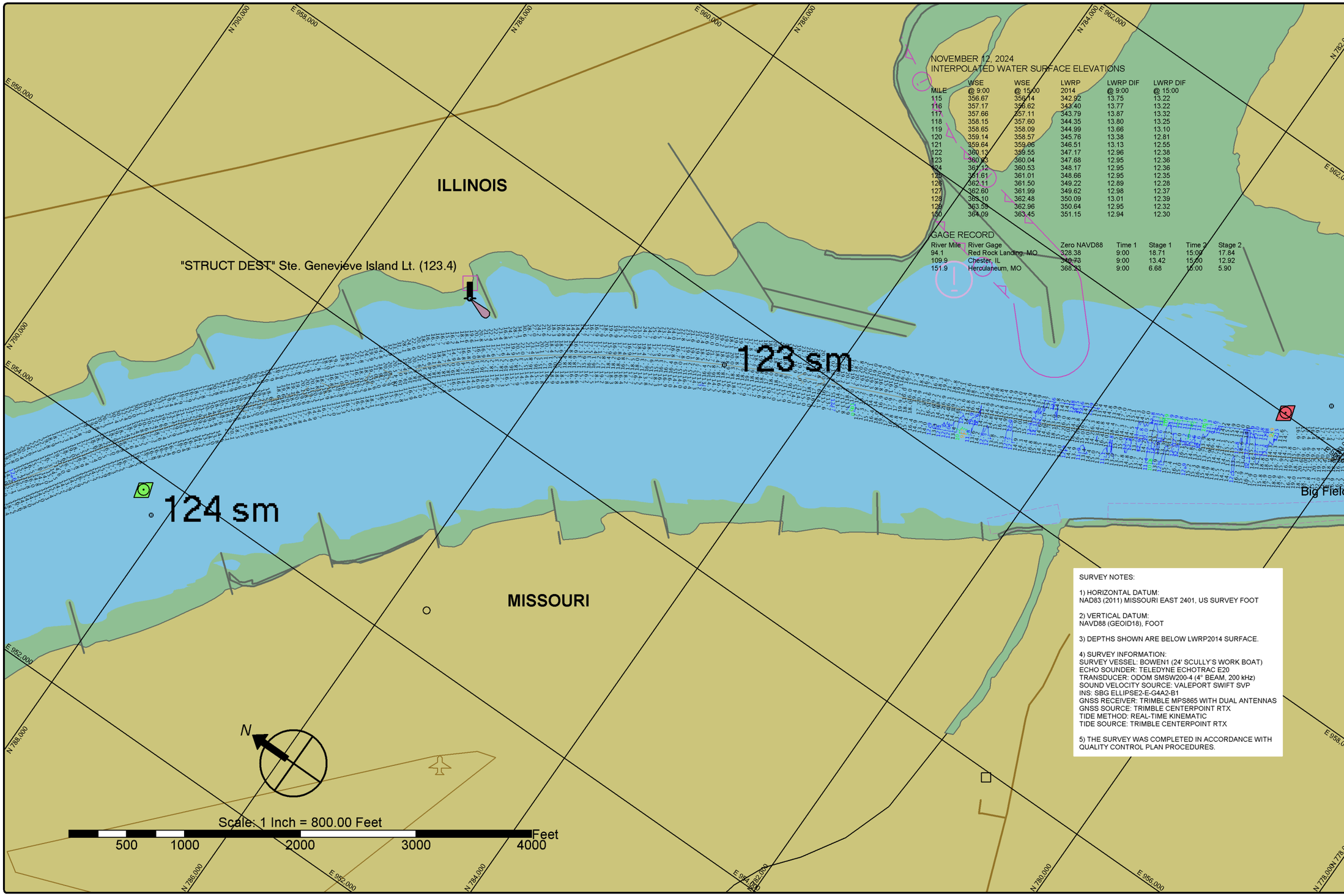
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 124.1 - 126.1

SHEET NO.
1 OF 1



NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

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:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

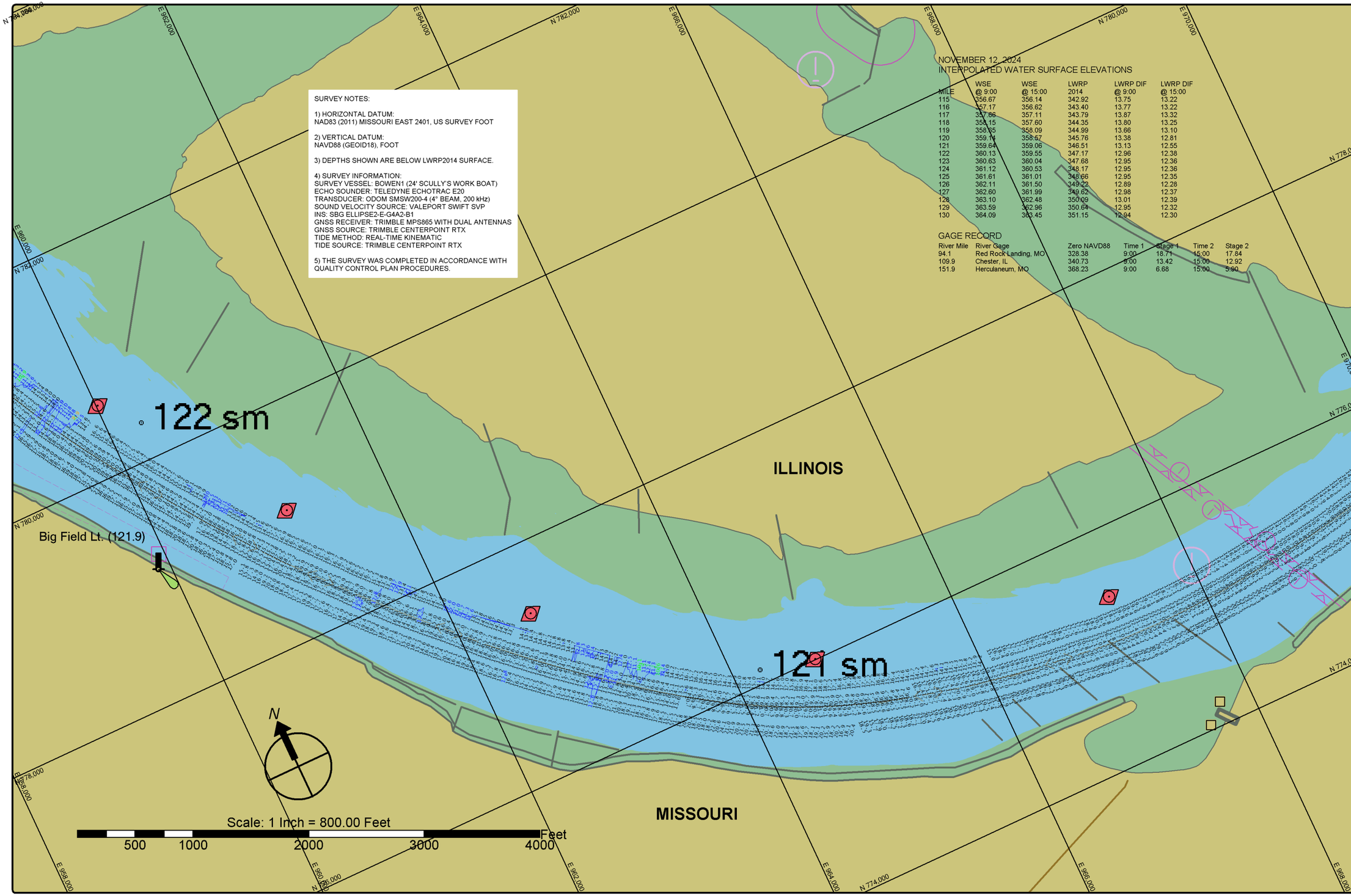
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 122.1 - 124.1

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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SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
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
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TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

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

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
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117	357.66	357.11	343.79	13.87	13.32
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122	360.13	359.55	347.17	12.96	12.38
123	360.63	360.04	347.68	12.95	12.36
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127	362.60	361.99	349.62	12.98	12.37
128	363.10	362.48	350.09	13.01	12.39
129	363.59	362.96	350.64	12.95	12.32
130	364.09	363.45	351.15	12.94	12.30

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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FIELD BOOKS:

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Approved: CIVIL ENGINEERING TECHNICIAN
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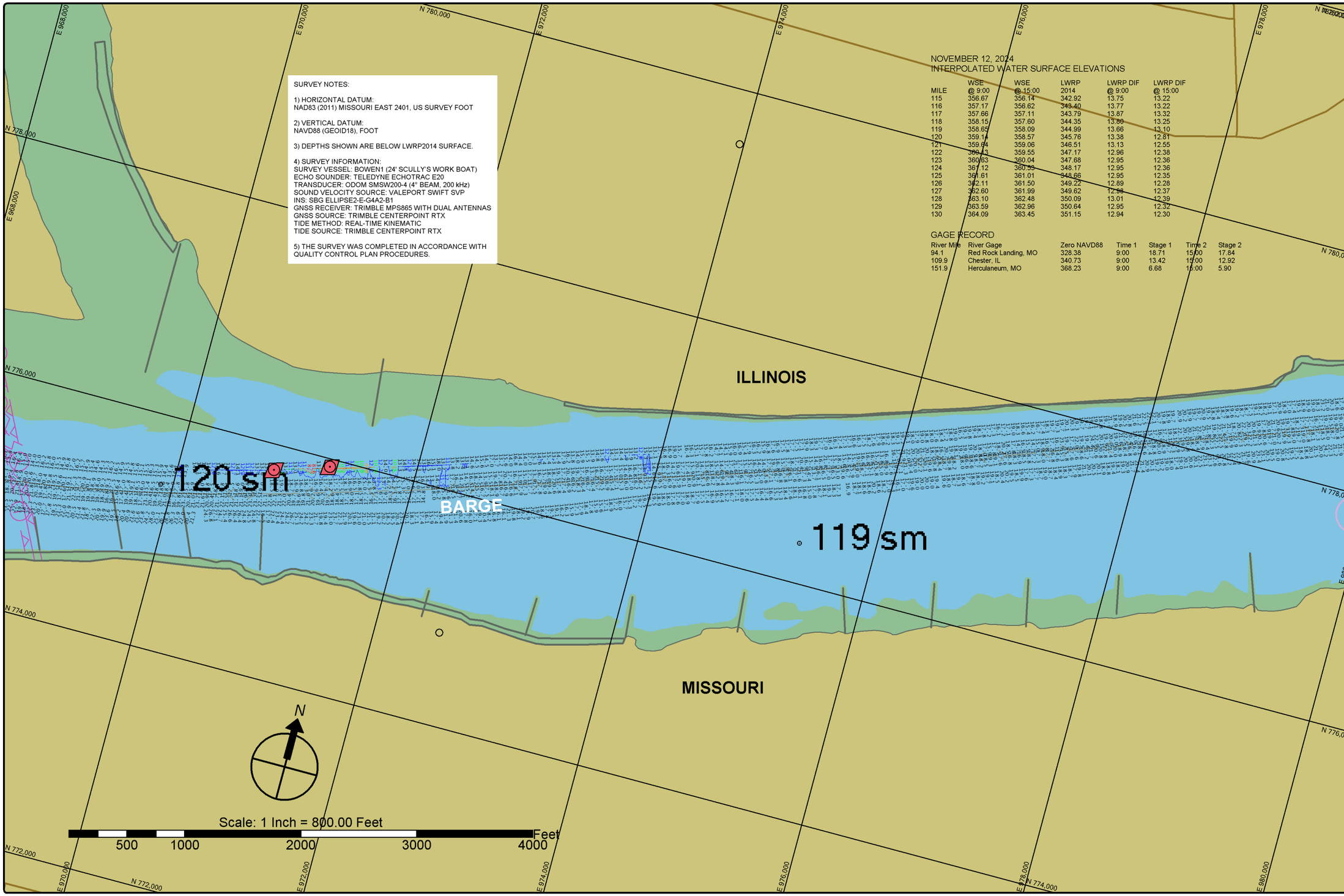
Date:

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

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 120.1 - 122.1

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

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NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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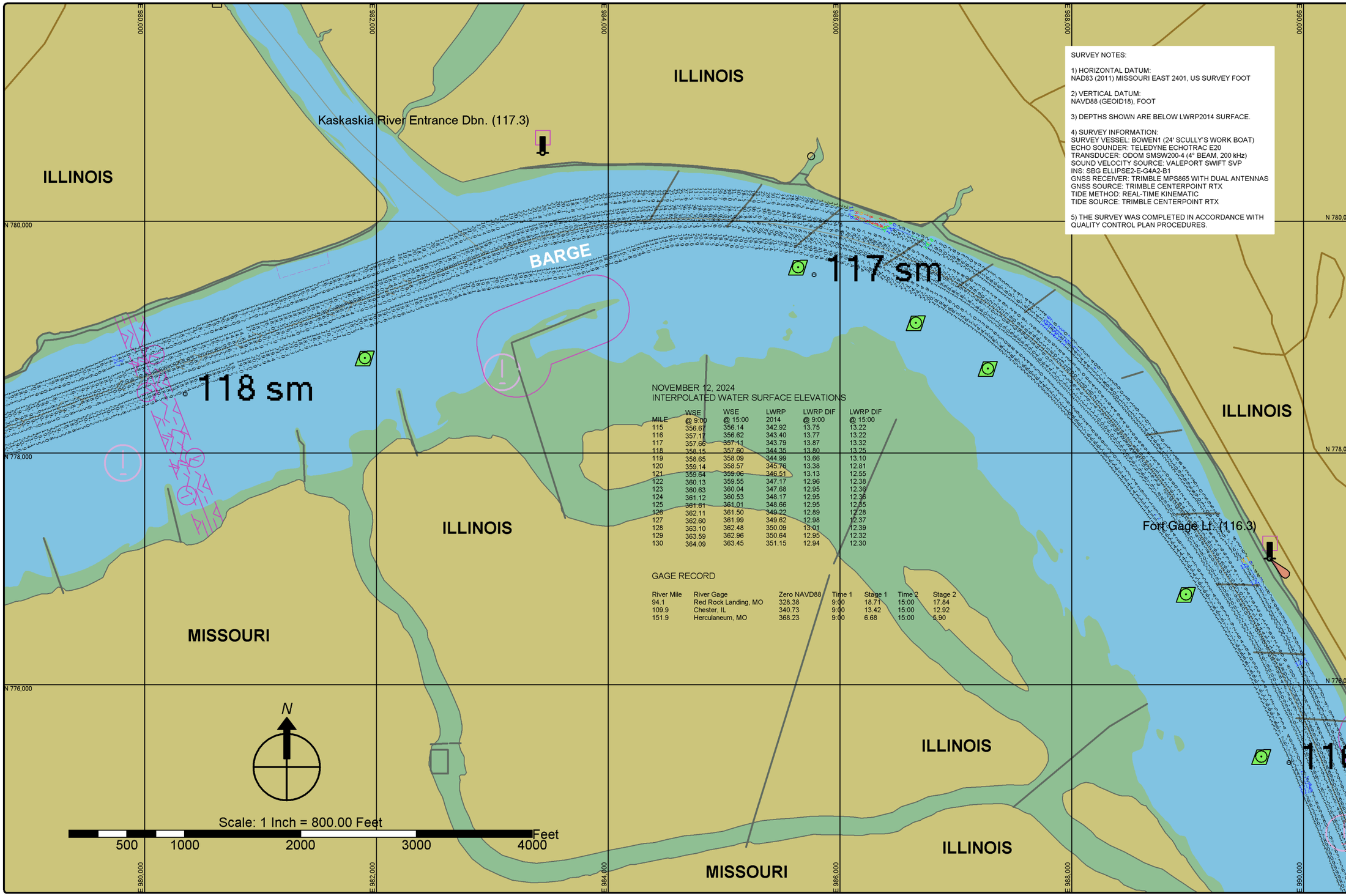
Approved: CHIEF OF SURVEY
Date:

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 118.2 - 120.1

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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SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
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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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NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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115	356.67	356.14	342.92	13.75	13.22
116	357.17	356.62	343.40	13.77	13.22
117	357.66	357.11	343.79	13.87	13.32
118	358.15	357.60	344.35	13.80	13.25
119	358.65	358.09	344.99	13.66	13.10
120	359.14	358.57	345.76	13.38	12.81
121	359.64	359.06	346.51	13.13	12.55
122	360.13	359.55	347.17	12.96	12.38
123	360.63	360.04	347.68	12.95	12.36
124	361.12	360.53	348.17	12.95	12.36
125	361.61	361.01	348.66	12.95	12.35
126	362.11	361.50	349.22	12.89	12.28
127	362.60	361.99	349.62	12.98	12.37
128	363.10	362.48	350.09	13.01	12.39
129	363.59	362.96	350.64	12.95	12.32
130	364.09	363.45	351.15	12.94	12.30

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	6.90

St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

Approved: FIELD CART/COMPUTER
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 116.1 - 118.2

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

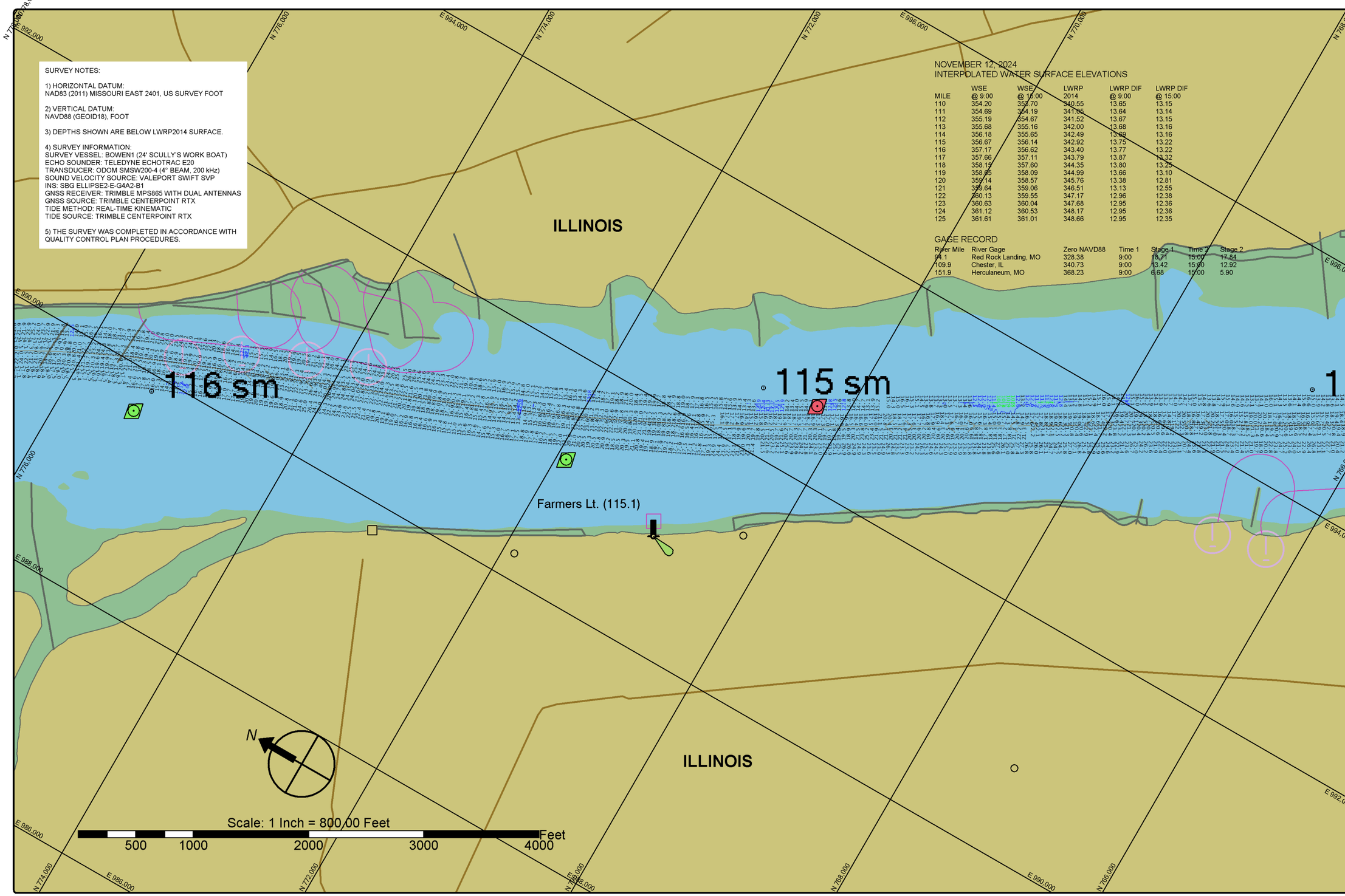
5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22
116	357.17	356.62	343.40	13.77	13.22
117	357.66	357.11	343.79	13.87	13.32
118	358.15	357.60	344.35	13.80	13.25
119	358.65	358.09	344.99	13.66	13.10
120	359.14	358.57	345.76	13.38	12.81
121	359.64	359.06	346.51	13.13	12.55
122	360.13	359.55	347.17	12.96	12.38
123	360.63	360.04	347.68	12.95	12.36
124	361.12	360.53	348.17	12.95	12.36
125	361.61	361.01	348.66	12.95	12.35

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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 114.1 - 116.1

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

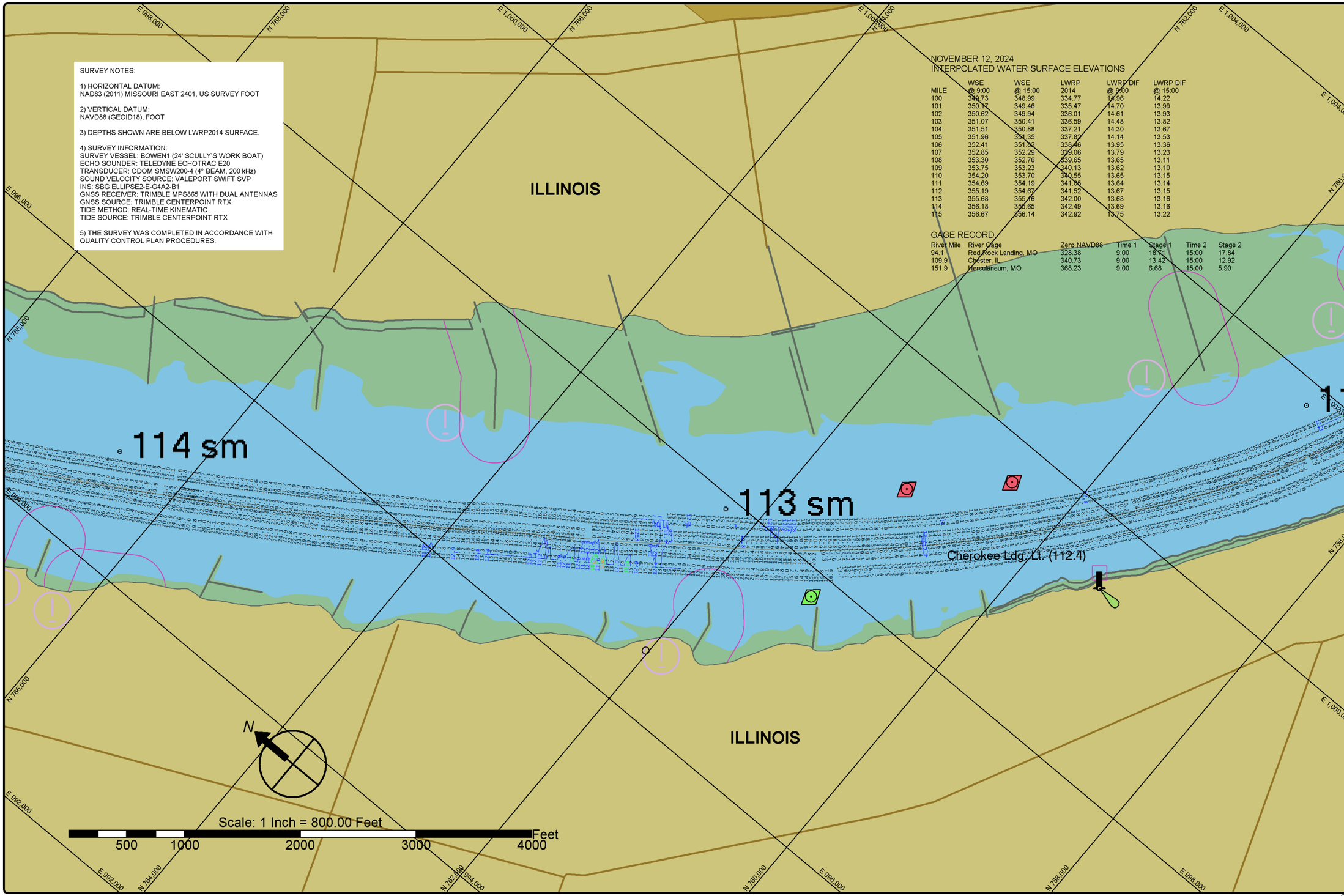
5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
101	350.17	349.46	335.47	14.70	13.99
102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_1006\1224
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 112.1 - 114.1

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

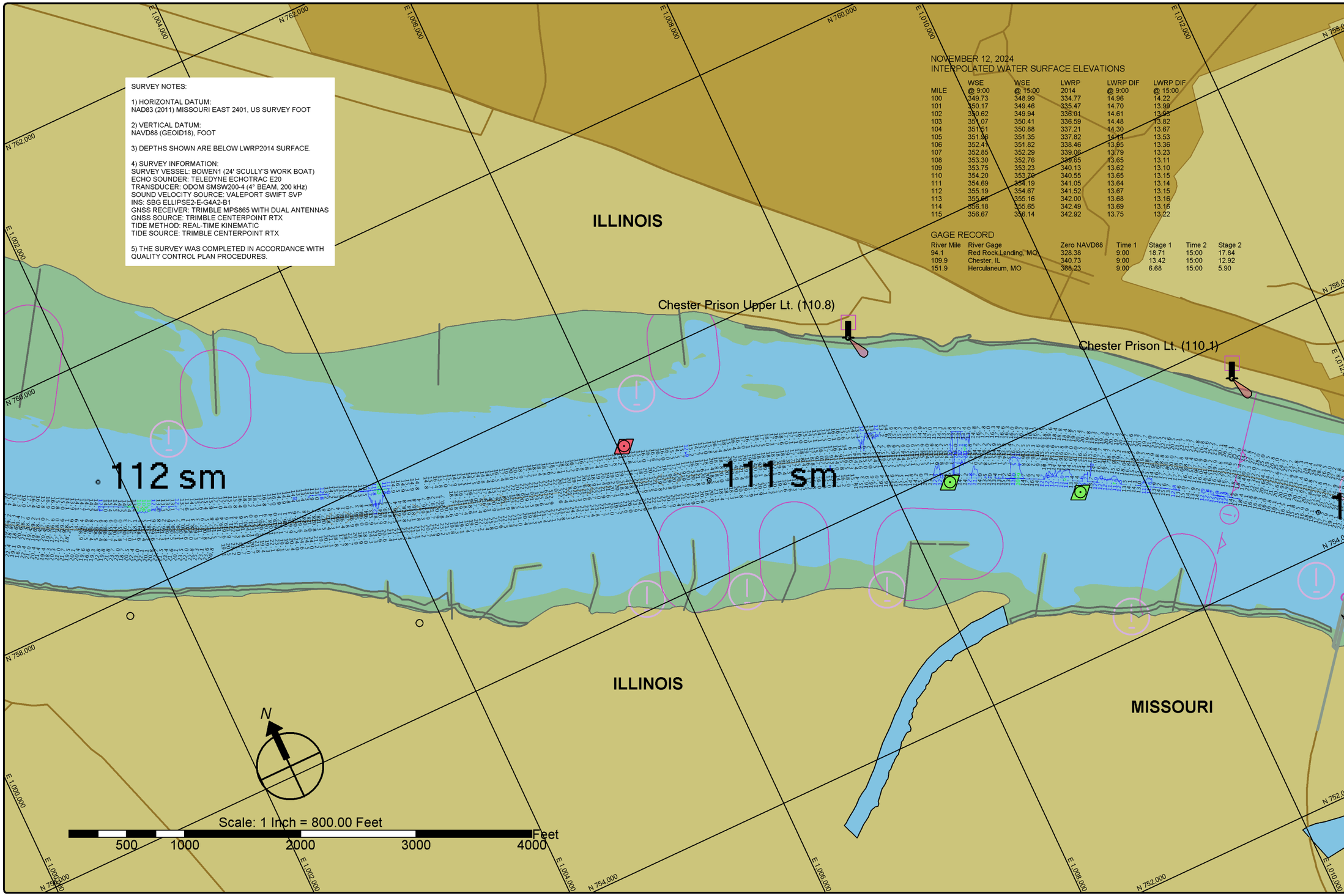
5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
101	350.17	349.46	335.47	14.70	13.99
102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.66	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90



St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_1006\1224
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 110.1 - 112.1

SHEET NO.
1 OF 1

SURVEY NOTES:

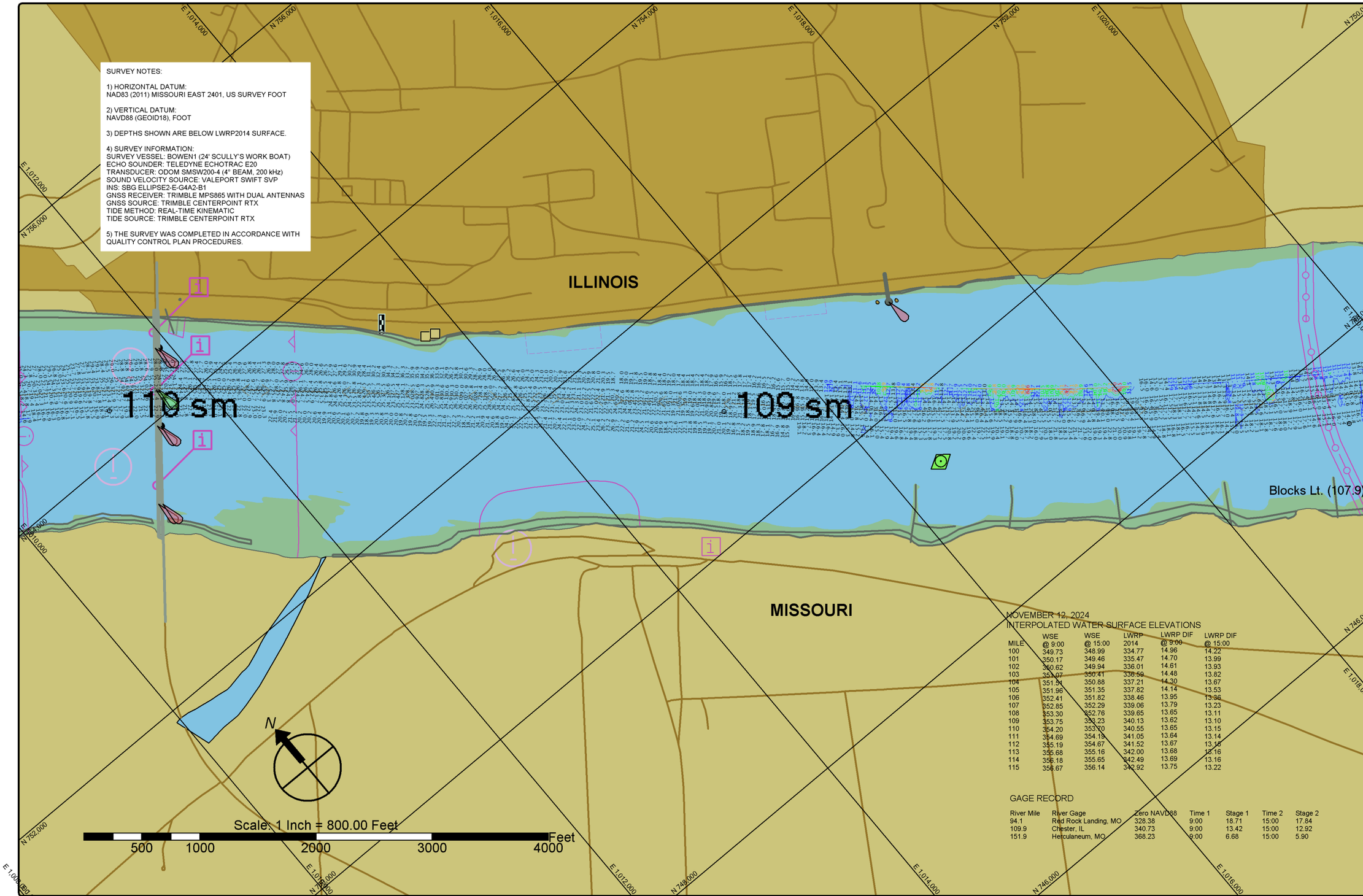
1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

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.



NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
101	350.17	349.46	335.47	14.70	13.99
102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

SCALE:
1" = 800' (ANSI B)

FILE NO.: 130_100K1224
REQUEST NO.: W912P924F0029

FIELD BOOKS:

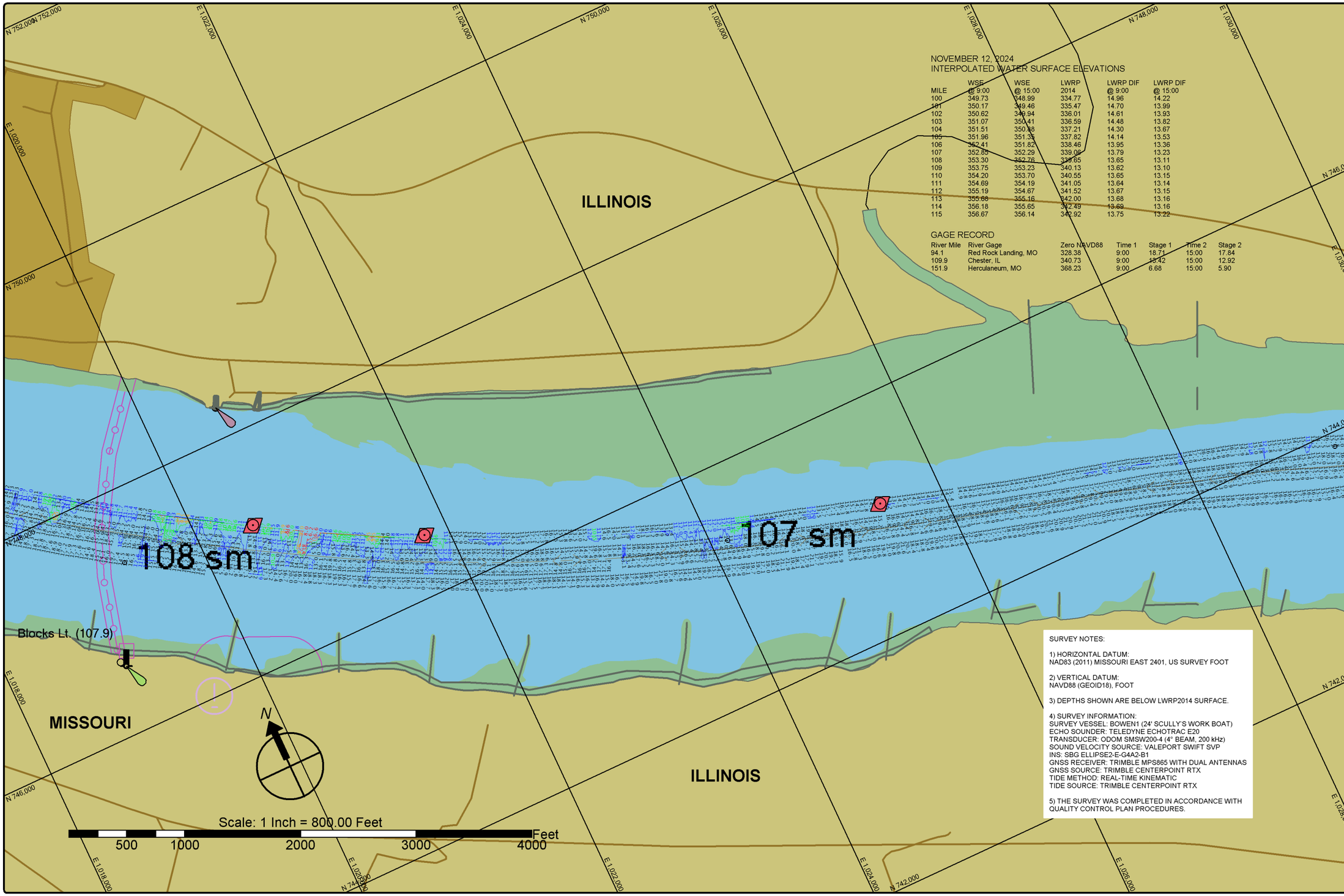
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 108.1 - 110.1

SHEET NO.
1 OF 1



NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
101	350.17	349.46	335.47	14.70	13.99
102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

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:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
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 106.1 - 108.1

SHEET NO.
1 OF 1

SURVEY NOTES:

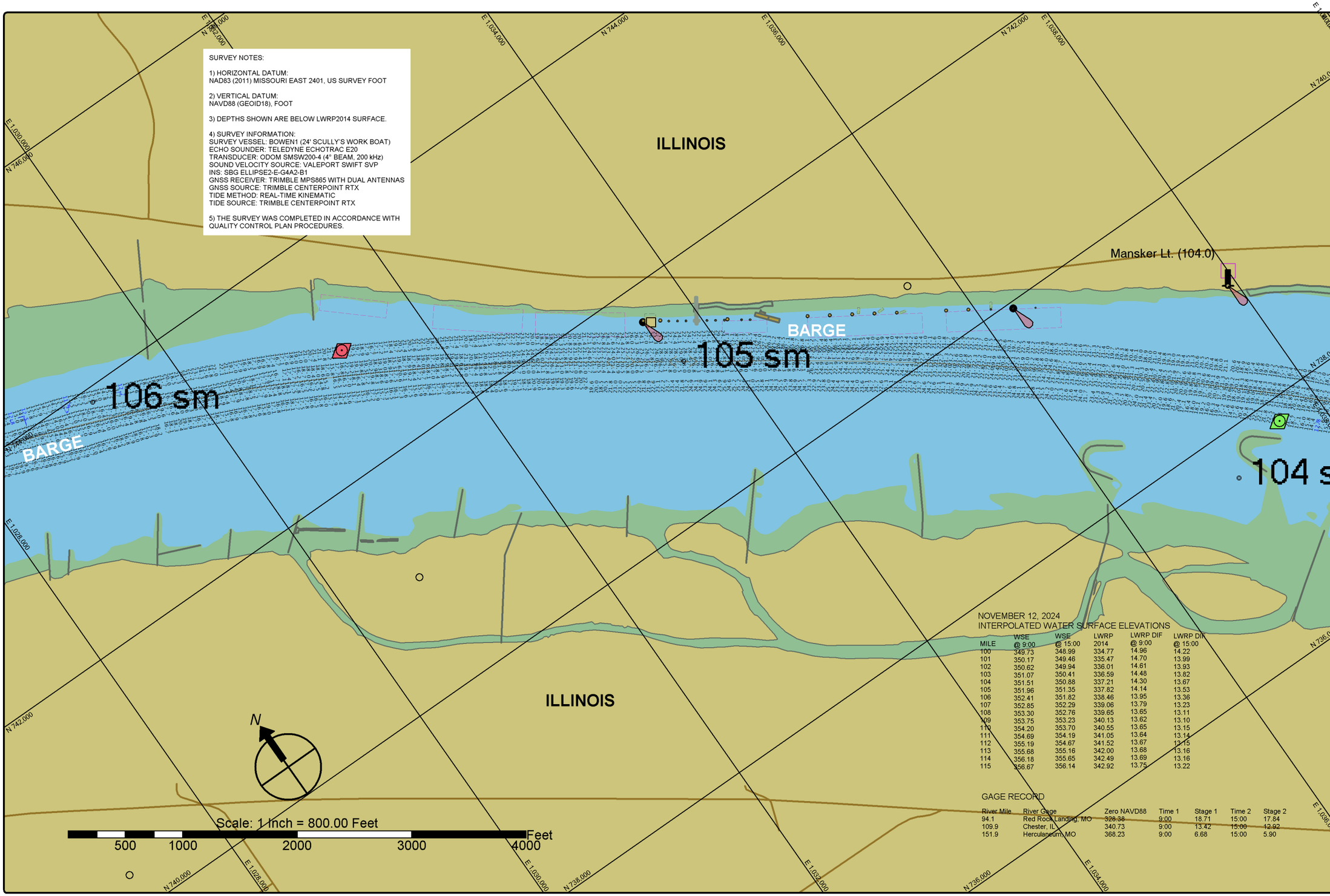
1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

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.



NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
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102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_106K1224
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 MEDAR DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 104.1 - 106.1

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.

NOVEMBER 12, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
100	349.73	348.99	334.77	14.96	14.22
101	350.17	349.46	335.47	14.70	13.99
102	350.62	349.94	336.01	14.61	13.93
103	351.07	350.41	336.59	14.48	13.82
104	351.51	350.88	337.21	14.30	13.67
105	351.96	351.35	337.82	14.14	13.53
106	352.41	351.82	338.46	13.95	13.36
107	352.85	352.29	339.06	13.79	13.23
108	353.30	352.76	339.65	13.65	13.11
109	353.75	353.23	340.13	13.62	13.10
110	354.20	353.70	340.55	13.65	13.15
111	354.69	354.19	341.05	13.64	13.14
112	355.19	354.67	341.52	13.67	13.15
113	355.68	355.16	342.00	13.68	13.16
114	356.18	355.65	342.49	13.69	13.16
115	356.67	356.14	342.92	13.75	13.22

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
94.1	Red Rock Landing, MO	328.38	9:00	18.71	15:00	17.84
109.9	Chester, IL	340.73	9:00	13.42	15:00	12.92
151.9	Herculaneum, MO	368.23	9:00	6.68	15:00	5.90

ILLINOIS

104 sm

103 sm

102

ILLINOIS

MISSOURI

N

Scale: 1 Inch = 800.00 Feet

500 1000 2000 3000 4000 Feet

St. Louis District

DATES OF SURVEY:
NOVEMBER 12, 2024

FILE NO.: 130_100K1224
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
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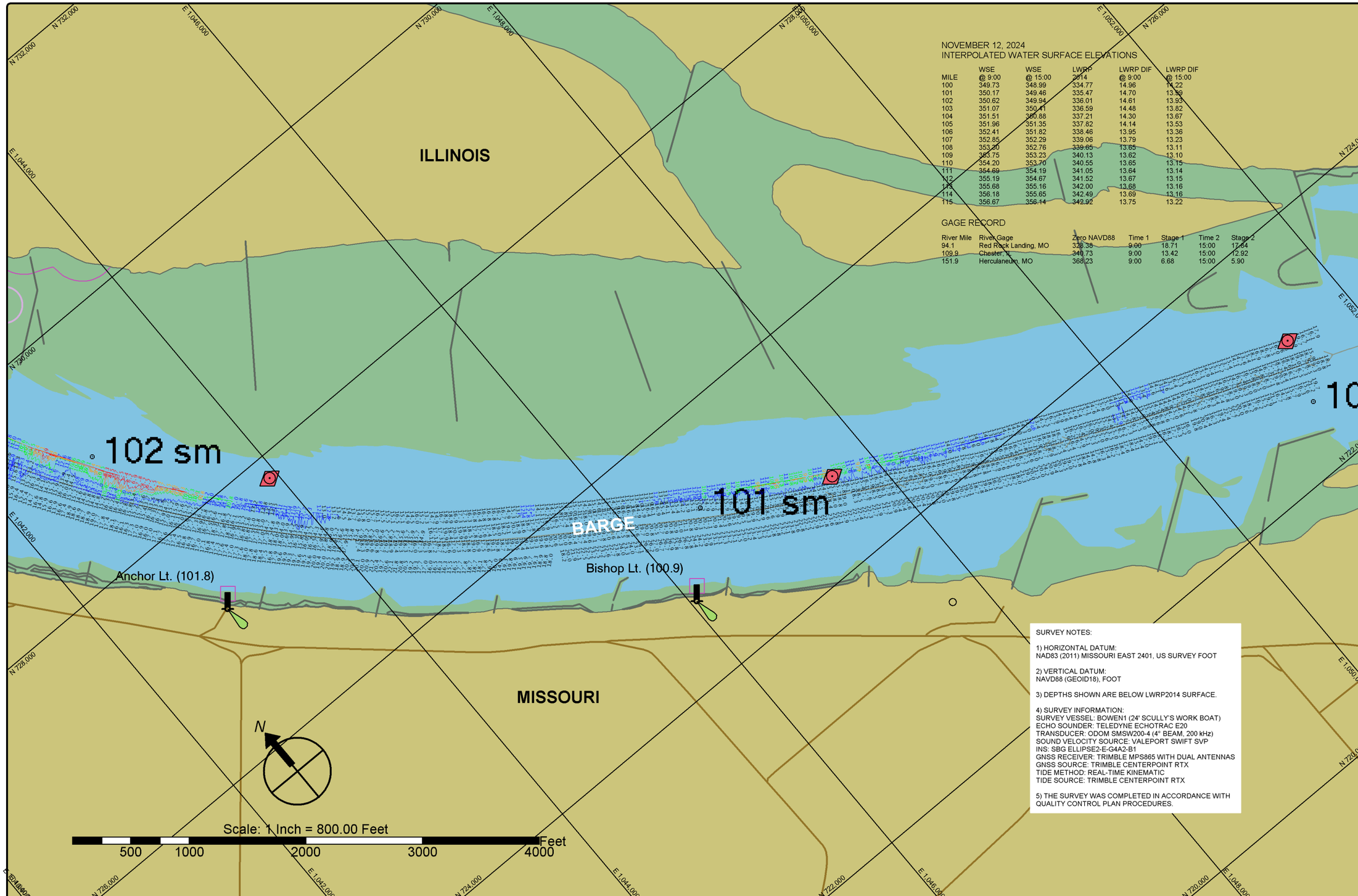
U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

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 102.1 - 104.1

SHEET NO.
1 OF 1



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St. Louis District

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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 100.0 - 102.1

SHEET NO.
1 OF 1