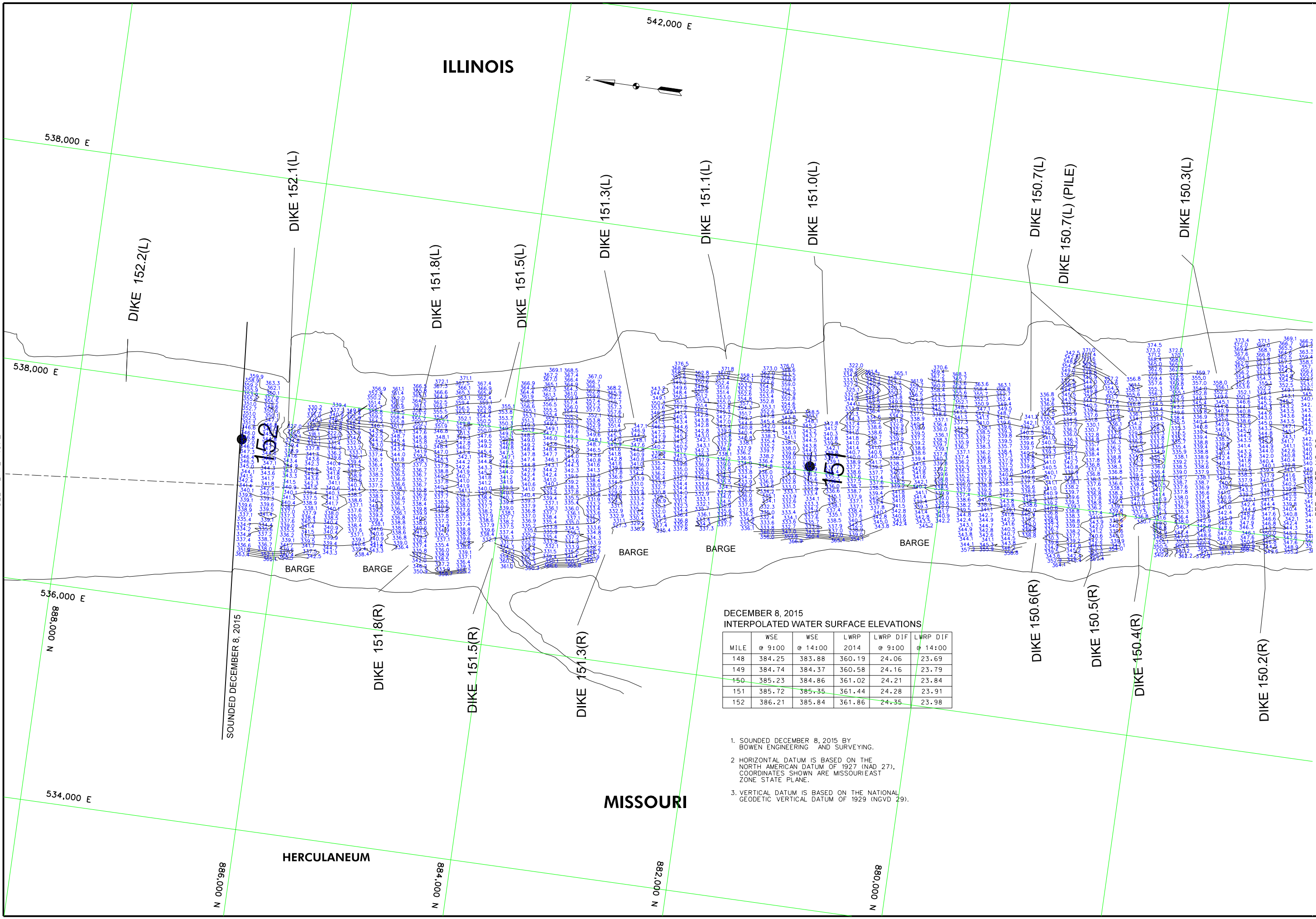


ST. LOUIS NO	ST. LOUIS NO
34105	35778
34109	35778
34085	35419
X	X
20.609(00) 20.214(00)	19.979(00) 18.514(00)

Survey Date:	DECEMBER 8, 2015
Reviewed by:	
Drawn by:	
Submitted:	X
Approved:	X
Plot date:	

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 150.2 - 152.2



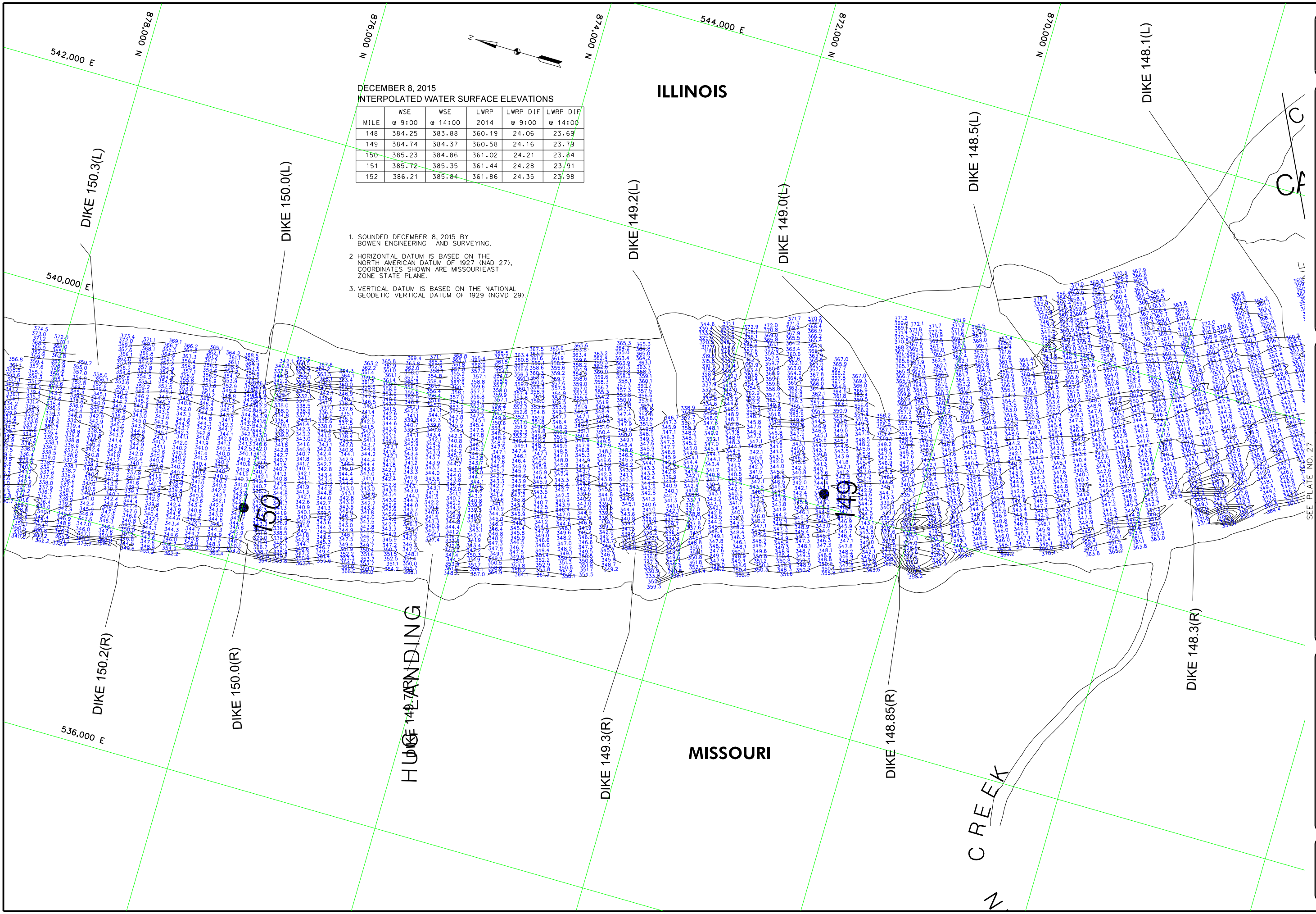
DECEMBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

	WSE @ 9:00	WSE @ 14:00	LWRP @ 9:00	LWRP DIF @ 9:00	LWRP DIF @ 14:00
148	384.25	383.88	360.19	24.06	23.69
149	384.74	384.37	360.58	24.16	23.79
150	385.23	384.86	361.02	24.21	23.84
151	385.72	385.35	361.44	24.28	23.91
152	386.21	385.84	361.86	24.35	23.98

- SOUNDED DECEMBER 8, 2015 BY BOWEN ENGINEERING AND SURVEYING.
- HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI/EAST ZONE STATE PLANE.
- VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

SEE PLATE NO. 24

SEE PLATE NO. 26



DECEMBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
148	384.25	383.88	360.19	24.06	23.69
149	384.74	384.37	360.58	24.16	23.79
150	385.23	384.86	361.02	24.21	23.84
151	385.72	385.35	361.44	24.28	23.91
152	386.21	385.84	361.86	24.35	23.98

1. SOUNDED DECEMBER 8, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

SEE PLATE NO. 25

SEE PLATE NO. 27



US Army Corps of Engineers
St. Louis District

GAGE RECORD		ST. LOUIS MO	
BISHOPS LANDING MO	CHESTER L	BROCKEYS LANDING MO	ST. LOUIS MO
341.05	341.05	357.78	379.94
100.8	109.9	135.0	179.6
340.85	340.85	354.19	376.74
X	X	X	X
20.609(00) 22.714(00)		19.979(00) 18.514(00)	
OB DEC 2015		OB DEC 2015	

U.S. ARMY ENGINEER DIVISION		CORPS OF ENGINEERS		ST. LOUIS, MISSOURI	
UPPER MISSISSIPPI RIVER BASIN	MISSISSIPPI RIVER	UPPER MISSISSIPPI RIVER BASIN	MISSISSIPPI RIVER	UPPER MISSISSIPPI RIVER BASIN	MISSISSIPPI RIVER
Drawn by: X	Checked by: X	Reviewed by: X	Approved: X	Submitted: X	Plot date: X
File name: MISSOURI\MISSISSIPPI\148.3-150.3					

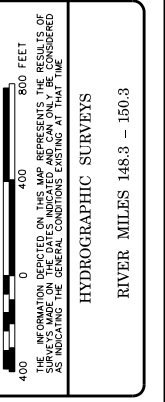
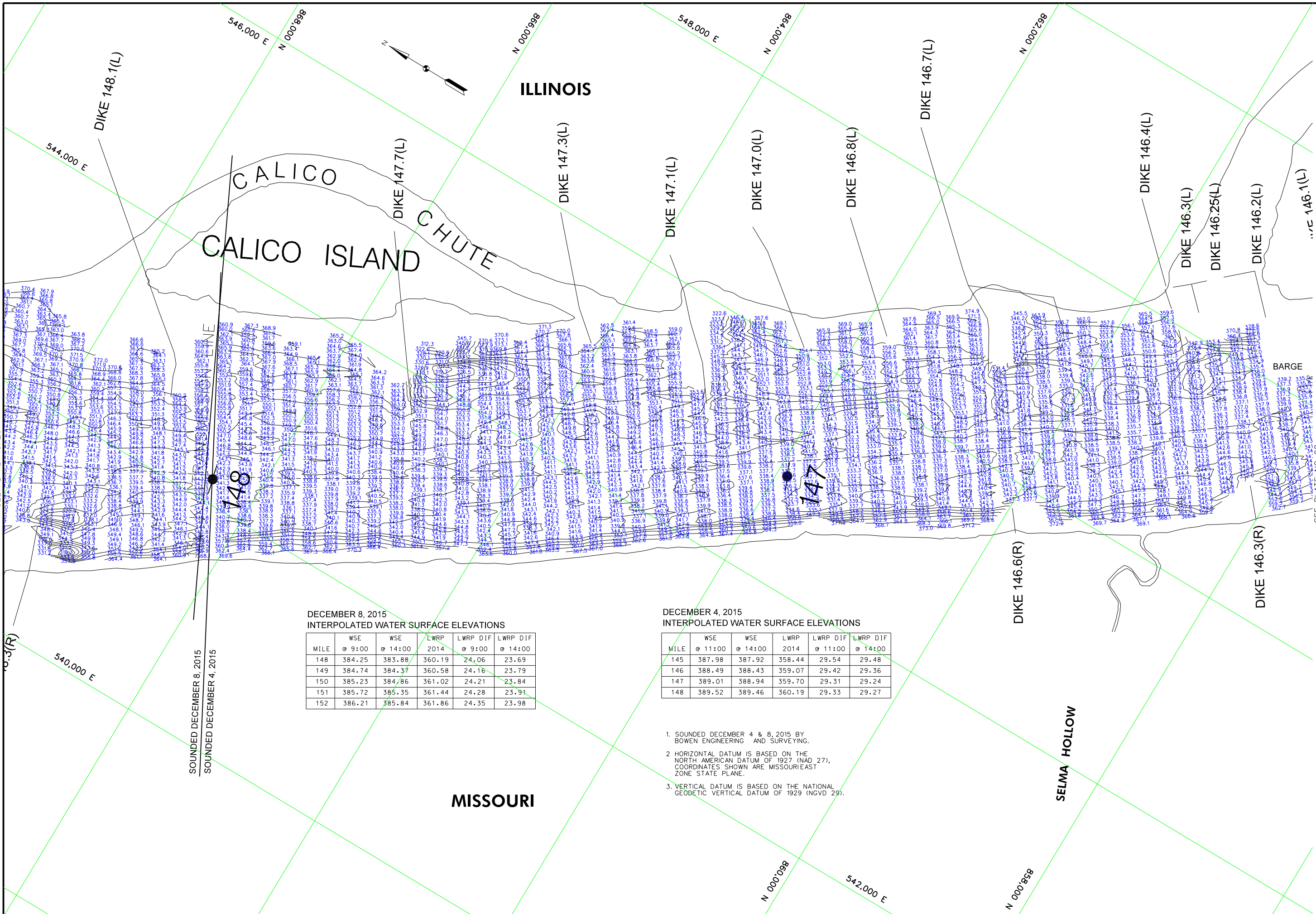


PLATE NUMBER
26



DATE RECORD	CHESTER L	BRICKEY'S LANDING, MO	ST. LOUIS, MO
ZERO N.G.V.D.	341.05	357.78	379.94
MILE	100.8	109.9	116.0
LWRP 2014	335.55	340.55	354.19
04 DEC 2015	X	28.22(100) 28.51(100) 25.58(100) 25.51(100) 26.00(100) 25.31(100)	376.74
08 DEC 2015	X	20.60(90) 20.21(100) 19.97(90) 18.51(100)	

ELEVATIONS ARE REFERRED TO M.S.L. - CONDITIONS ARE BELOW 1985-31 LOW WATER REFERENCE PLANE (L.W.R.P.) (148.00 C.F.S.)



SEE PLATE NO. 26

SEE PLATE NO. 28

DECEMBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
148	384.25	383.88	360.19	24.06	23.69
149	384.74	384.37	360.58	24.16	23.79
150	385.23	384.86	361.02	24.21	23.84
151	385.72	385.35	361.44	24.28	23.91
152	386.21	385.84	361.86	24.35	23.98

DECEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 14:00
145	387.98	387.92	358.44	29.54	29.48
146	388.49	388.43	359.07	29.42	29.36
147	389.01	388.94	359.70	29.31	29.24
148	389.52	389.46	360.19	29.33	29.27

1. SOUNDED DECEMBER 4 & 8, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Survey Date: DECEMBER 4 & 8, 2015
Reviewed by: [Signature]
Drawn by: [Signature]
Submitted: [Signature]
Approved: [Signature]

Plot Code: [Blank]
File Name: [Blank]

HYDROGRAPHIC SURVEYS
RIVER MILES 146.2 - 148.3

240 METERS
800 FEET

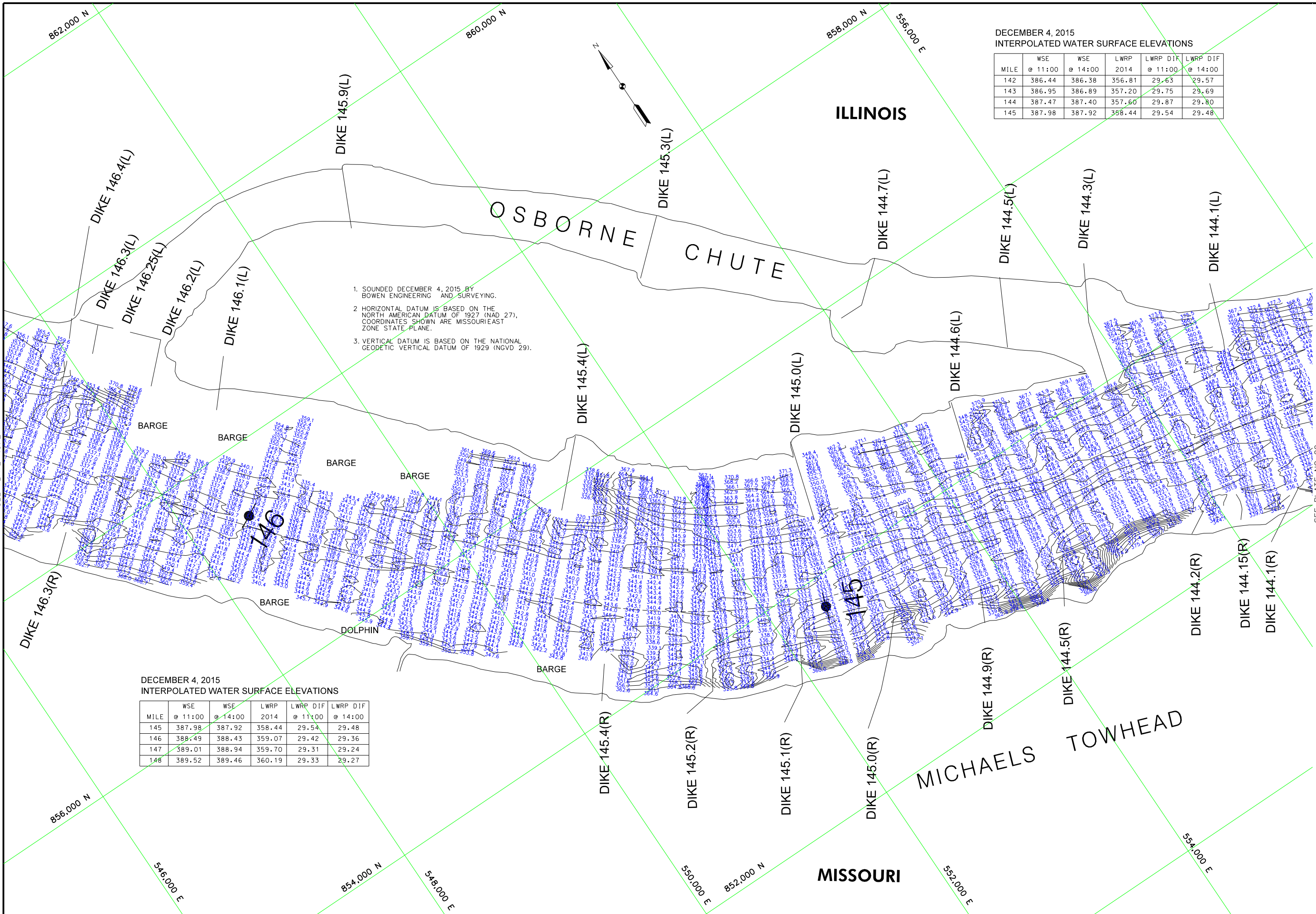
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED BY THE MISSOURI DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS AS INDICATED BY THE GENERAL CONDITIONS APPLICABLE TO THESE SURVEYS.



US Army Corps of Engineers
St. Louis District

DECEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE		LWRP 2014	LWRP DIF	
	@ 11:00	@ 14:00		@ 11:00	@ 14:00
142	386.44	386.38	356.81	29.63	29.57
143	386.95	386.89	357.20	29.75	29.69
144	387.47	387.40	357.60	29.87	29.80
145	387.98	387.92	358.44	29.54	29.48



1. SOUNDED DECEMBER 4, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

DECEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE		LWRP 2014	LWRP DIF	
	@ 11:00	@ 14:00		@ 11:00	@ 14:00
145	387.98	387.92	358.44	29.54	29.48
146	388.49	388.43	359.07	29.42	29.36
147	389.01	388.94	359.70	29.31	29.24
148	389.52	389.46	360.19	29.33	29.27

SEE PLATE NO. 27

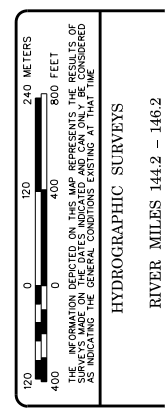
GAGE RECORD		ST. LOUIS MO	
BISHOPS LANDING MO	CHESTER L	BROCKEYS LANDING MO	
334.11	341.05	357.78	379.94
100.8	109.9	116.0	179.6
335.56	340.85	354.19	376.74
X	X	25.58(100) 25.51(100) 25.58(100) 25.51(100)	26.00(100) 25.91(100)

SEE PLATE NO. 29

SURVEY DATA		SURVEY DATE	
SURVEYED BY BOWEN ENGINEERING		DECEMBER 4, 2015	
Drawn by: X	Checked by: X	Reviewed by: X	
SUBMITTED: X	APPROVED: X		

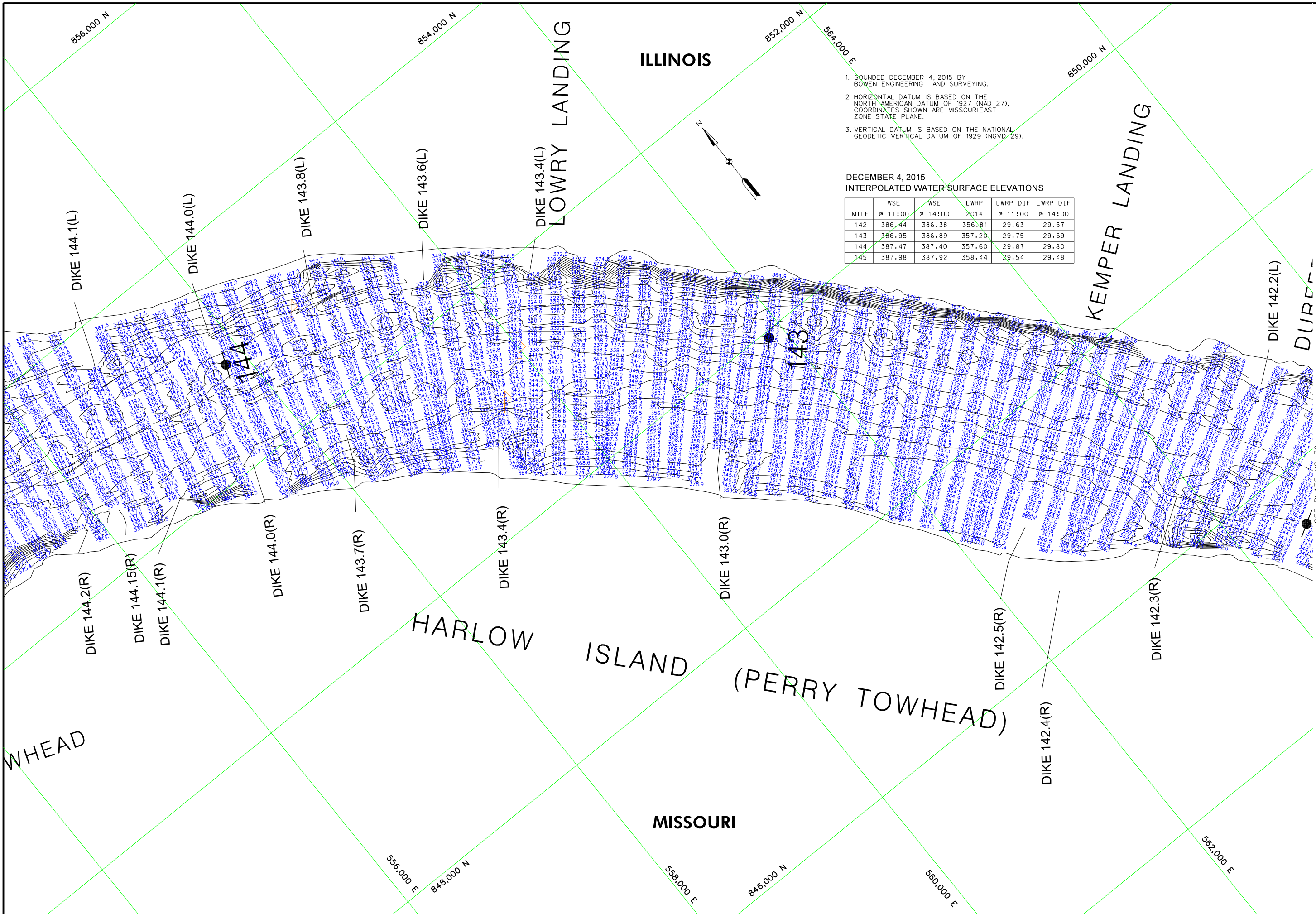
U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER



HYDROGRAPHIC SURVEYS
RIVER MILES 144.2 - 146.2

PLATE NUMBER
28



1. SOUNDED DECEMBER 4, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

DECEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 14:00
142	386.44	386.38	356.81	29.63	29.57
143	386.95	386.89	357.20	29.75	29.69
144	387.47	387.40	357.60	29.87	29.80
145	387.98	387.92	358.44	29.54	29.48

SEE PLATE NO. 28

SEE PLATE NO. 30



GAGE RECORD	ST. LOUIS MO	BRICKEYS LANDING MO
CHESTER L	341.05	357.78
BISHOPS LANDING MO	334.11	357.78
ZERO N.G.V.D.	100.8	105.0
MILE	109.9	109.6
LWRP 2014	340.85	354.19
04 DEC 2015	X	X
		25.58(100) 25.51(100) 26.00(100) 25.91(100)

U.S. ARMY ENGINEER DIVISION	ST. LOUIS, MISSOURI	UPPER MISSISSIPPI RIVER BASIN	MISSISSIPPI RIVER
Surveyed by: BOWEN ENGINEERING	December 4, 2015	Reviewed by:	
Drawn by: X	Ctd by: X	APPROVED:	X
SUBMITTED: X			
Plot date:	File name:		

HYDROGRAPHIC SURVEYS
RIVER MILES 142.2 - 144.2

PLATE NUMBER
29

PLATE NUMBER
29

NOVEMBER 25, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

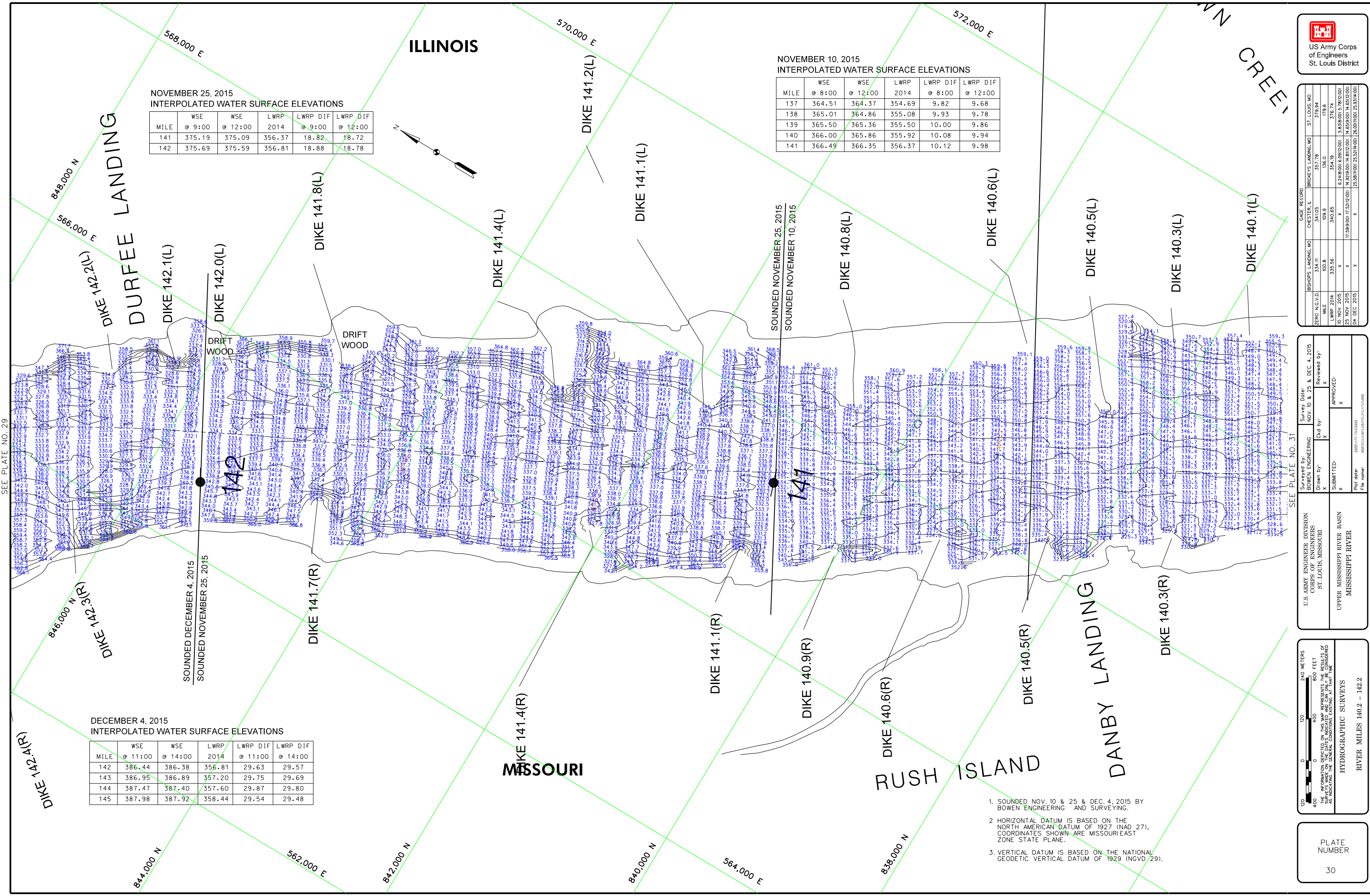
MILE	WSE @ 9:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 12:00
141	375.19	375.09	356.37	18.82	18.72
142	375.69	375.59	356.81	18.88	18.78

NOVEMBER 10, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 12:00
137	364.51	364.37	354.69	9.82	9.68
138	365.01	364.86	355.08	9.93	9.78
139	365.50	365.36	355.50	10.00	9.86
140	366.00	365.86	355.92	10.08	9.94
141	366.49	366.35	356.37	10.12	9.98

DECEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 11:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 11:00	LWRP DIF @ 14:00
142	386.44	386.38	356.81	29.63	29.57
143	386.95	386.89	357.20	29.75	29.69
144	387.47	387.40	357.60	29.87	29.80
145	387.98	387.92	358.44	29.54	29.48



GAGE RECORD		ST. LOUIS MO	
BISHOPS LANDING MO	CHESTER L	BROCKEYS LANDING MO	ST. LOUIS MO
MILE 100.8	109.9	MILE 105.0	179.84
LWRP 2014 335.56	X	LWRP 2014 340.85	X
25 NOV 2015 X	X	25 NOV 2015 X	X
04 DEC 2015 X	X	04 DEC 2015 X	X

U.S. ARMY ENGINEER DIVISION		CORPS OF ENGINEERS		ST. LOUIS, MISSOURI	
UPPER MISSISSIPPI RIVER BASIN	MISSISSIPPI RIVER	NOV. 10 & 25 & DEC. 4, 2015	Reviewed by:	APPROVED:	
Drawn by:	Checked by:	Submitted:	Approved:	File name:	

240 METERS
800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED UNDER THE GENERAL CONDITIONS SPECIFIED IN THE GENERAL CONDITIONS OF CONTRACT FOR HYDROGRAPHIC SURVEYS.

RIVER MILES 140.2 - 142.2

- SOUNDED NOV. 10 & 25 & DEC. 4, 2015 BY BOWEN ENGINEERING AND SURVEYING.
- HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
- VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).



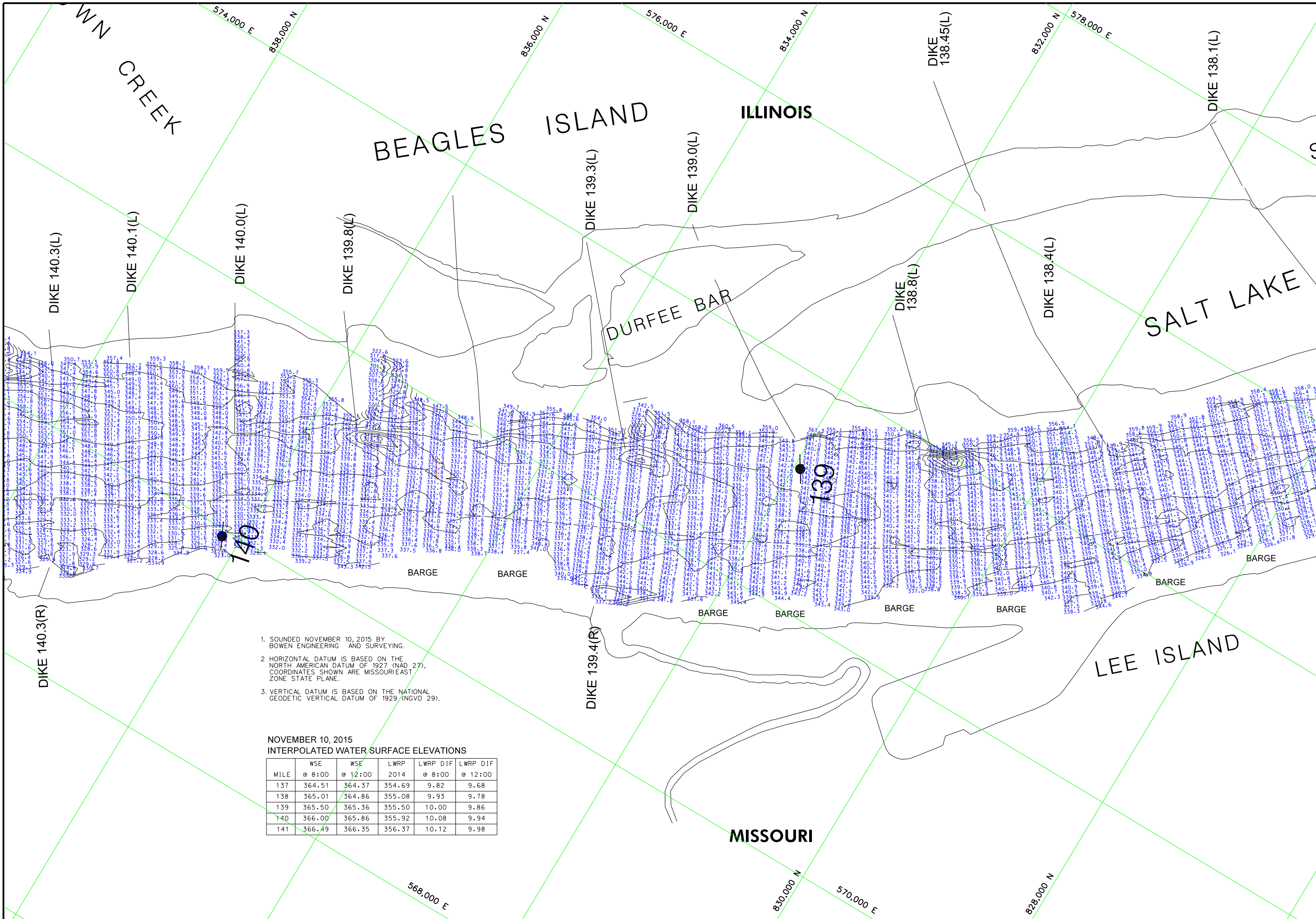
US Army Corps of Engineers
St. Louis District

ST. LOUIS MO	ST. LOUIS MO
BRICKEYS LANDING MO	BRICKEYS LANDING MO
CHESTER L	CHESTER L
341.05	341.05
309.9	309.9
340.85	340.85
X	X
NOV 2014	NOV 2014
NOV 2015	NOV 2015
5.818(00) 5.7812(00)	5.818(00) 5.7812(00)

Survey Date:	NOVEMBER 10, 2015	Reviewed by:	
Drawn by:	BOWEN ENGINEERING	Submitted:	X
Checked by:	X	Approved:	X
U.S. ARMY ENGINEER DIVISION	CORPS OF ENGINEERS	ST. LOUIS, MISSOURI	UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER		MISSISSIPPI RIVER	

120	0	120	240 METERS
400	0	400	800 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED UNDER THE GENERAL CONDITIONS SET FORTH IN THE STANDARD SPECIFICATIONS FOR HYDROGRAPHIC SURVEYS.			
HYDROGRAPHIC SURVEYS		RIVER MILES 138.2 - 140.2	

PLATE NUMBER
31



1. SOUNDED NOVEMBER 10, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

NOVEMBER 10, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 12:00
137	364.51	364.37	354.69	9.82	9.68
138	365.01	364.86	355.08	9.93	9.78
139	365.50	365.36	355.50	10.00	9.86
140	366.00	365.86	355.92	10.08	9.94
141	366.49	366.35	356.37	10.12	9.98



US Army Corps of Engineers
St. Louis District

GAGE RECORD		ST. LOUIS NO	
BISHOPS LANDING, MO	CHESTER, L	BRICKEYS LANDING, MO	ST. LOUIS NO
334.11	341.05	357.78	379.84
100.8	109.9	135.0	179.6
335.55	340.85	354.19	376.74
7.94(9/00) 8.00(12/00)	5.61(9/00) 5.70(12/00)	5.82(9/00) 5.88(12/00)	5.82(9/00) 5.88(12/00)
10 NOV 2015	X	6.24(6/00) 6.03(12/00)	3.83(6/00) 3.78(12/00)
	X		

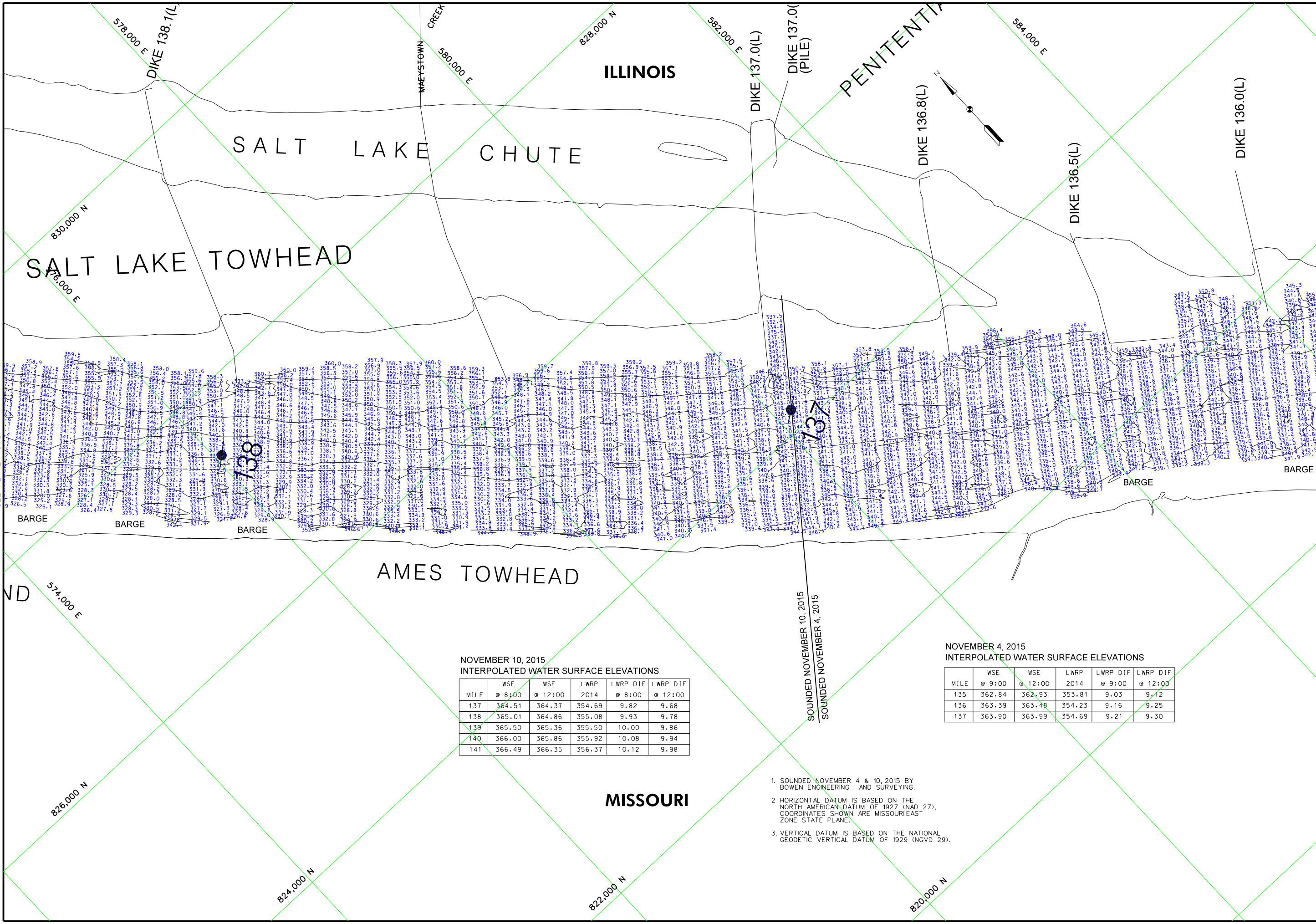
Survey Dates		Reviewed by	
NOVEMBER 4 & 10, 2015	NOVEMBER 4, 2015		
Drawn by	Checked by	Approved by	Reviewed by
X	X	X	X
SUBMITTED:		APPROVED:	
X	X	X	X
Plot code: #888016 (M1888)		#888016 (M1888)	
File name: #888016 (M1888)		#888016 (M1888)	

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 136.2 - 138.2

PLATE NUMBER
32



NOVEMBER 10, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE	WSE	LWRP	LWRP DIF	LWRP DIF
	@ 8:00	@ 12:00	2014	@ 8:00	@ 12:00
137	364.51	364.37	354.69	9.82	9.68
138	365.01	364.86	355.08	9.93	9.78
139	365.50	365.36	355.50	10.00	9.86
140	366.00	365.86	355.92	10.08	9.94
141	366.49	366.35	356.37	10.12	9.98

NOVEMBER 4, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE	WSE	LWRP	LWRP DIF	LWRP DIF
	@ 9:00	@ 12:00	2014	@ 9:00	@ 12:00
135	362.84	362.93	353.81	9.03	9.12
136	363.39	363.48	354.23	9.16	9.25
137	363.90	363.99	354.69	9.21	9.30

1. SOUNDED NOVEMBER 4 & 10, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

SEE PLATE NO. 31

SEE PLATE NO. 33

SOUNDED NOVEMBER 10, 2015
SOUNDED NOVEMBER 4, 2015

MISSOURI

ILLINOIS

PENITENTIA

SALT LAKE CHUTE

SALT LAKE TOWHEAD

AMES TOWHEAD

BARGE

BARGE

BARGE

826,000 N

824,000 N

822,000 N

820,000 N

830,000 N

578,000 E

580,000 E

582,000 E

584,000 E

574,000 E

DIKE 138.1(L)

DIKE 137.0(L)

DIKE 137.0(PILE)

DIKE 136.8(L)

DIKE 136.5(L)

DIKE 136.0(L)

138

137

