



		GAGE RECORD			
		RED ROCK LANDING, MO	BISHOPS LANDING, MO	CHESTER, IL	BRICKEYS LANDING, MO
ZERO	NG V.D	328.92	334.11	341.05	357.78
1	18	334.1	334.8	339.8	358.6
2	18	334.1	334.8	339.8	358.6
3	18	334.1	334.8	339.8	358.6
4	18	334.1	334.8	339.8	358.6
5	18	334.1	334.8	339.8	358.6
6	18	334.1	334.8	339.8	358.6
7	18	334.1	334.8	339.8	358.6
8	18	334.1	334.8	339.8	358.6
9	18	334.1	334.8	339.8	358.6
10	18	334.1	334.8	339.8	358.6
11	18	334.1	334.8	339.8	358.6
12	18	334.1	334.8	339.8	358.6
13	18	334.1	334.8	339.8	358.6
14	18	334.1	334.8	339.8	358.6
15	18	334.1	334.8	339.8	358.6
16	18	334.1	334.8	339.8	358.6
17	18	334.1	334.8	339.8	358.6
18	NOV 2014	12,797.00	12,615.00	9,907.00	1,099.00
19	NOV 2014	UNRELIABLE	UNRELIABLE	UNRELIABLE	UNRELIABLE
20	NOV 2014	UNRELIABLE	UNRELIABLE	UNRELIABLE	UNRELIABLE
21	NOV 2014	UNRELIABLE	UNRELIABLE	UNRELIABLE	UNRELIABLE
22	NOV 2014	9,727.00	9,421.00	6,157.00	5,831.00

1. SOUNDED NOVEMBER 18 & 22, 2014 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).

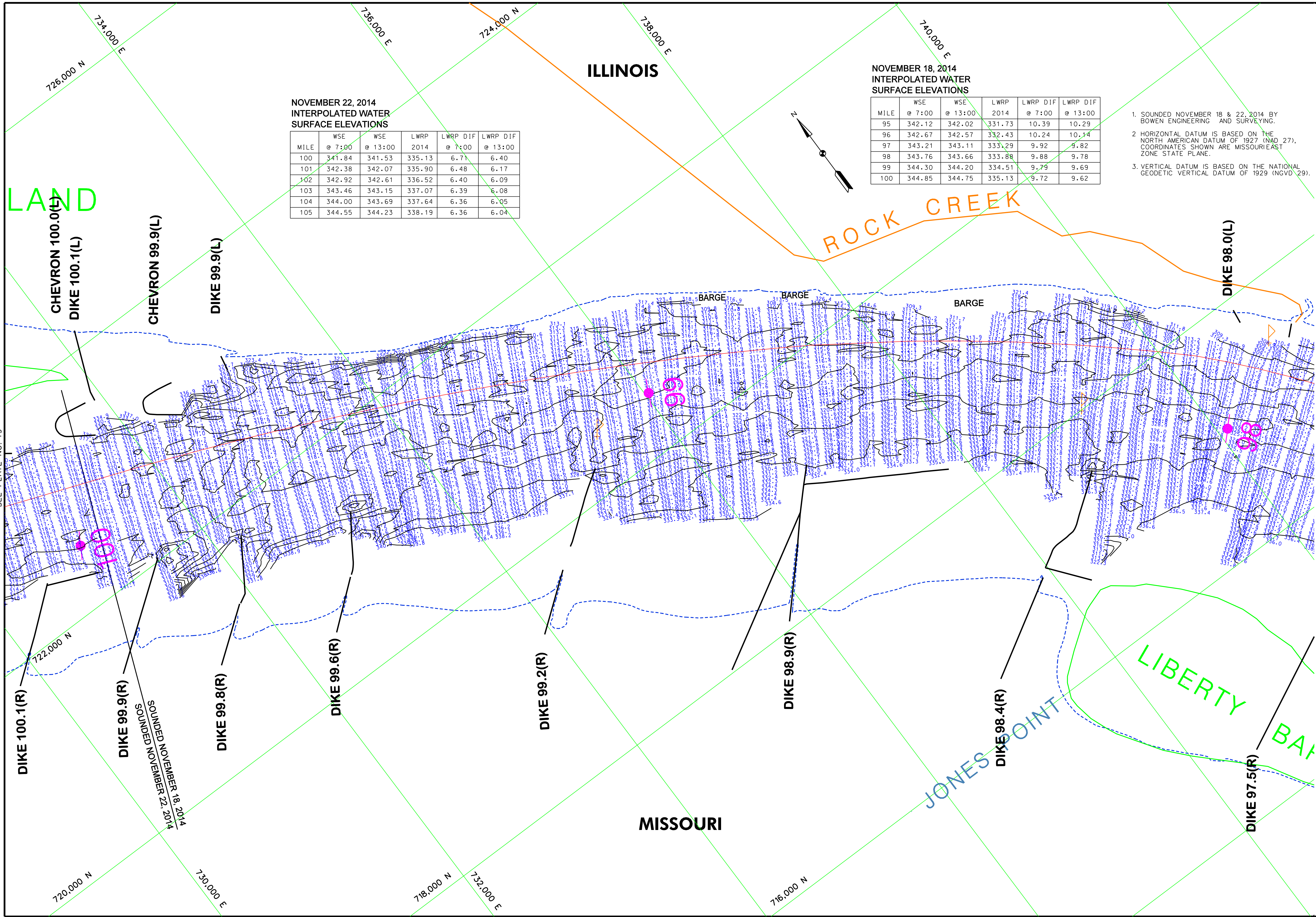
U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Surveyed by:	NOVEMBER 19 & 22, 2014	Survey Date:
	BOWEN ENGINEERING		
	Drawn by:	CKD by:	Reviewed by:
		X	X
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	SUBMITTED:		APPROVED:
	X		X
Plot date:		*****DATE TIME*****	
File name:		*****DESCRIPTION OF PROJECT*****	

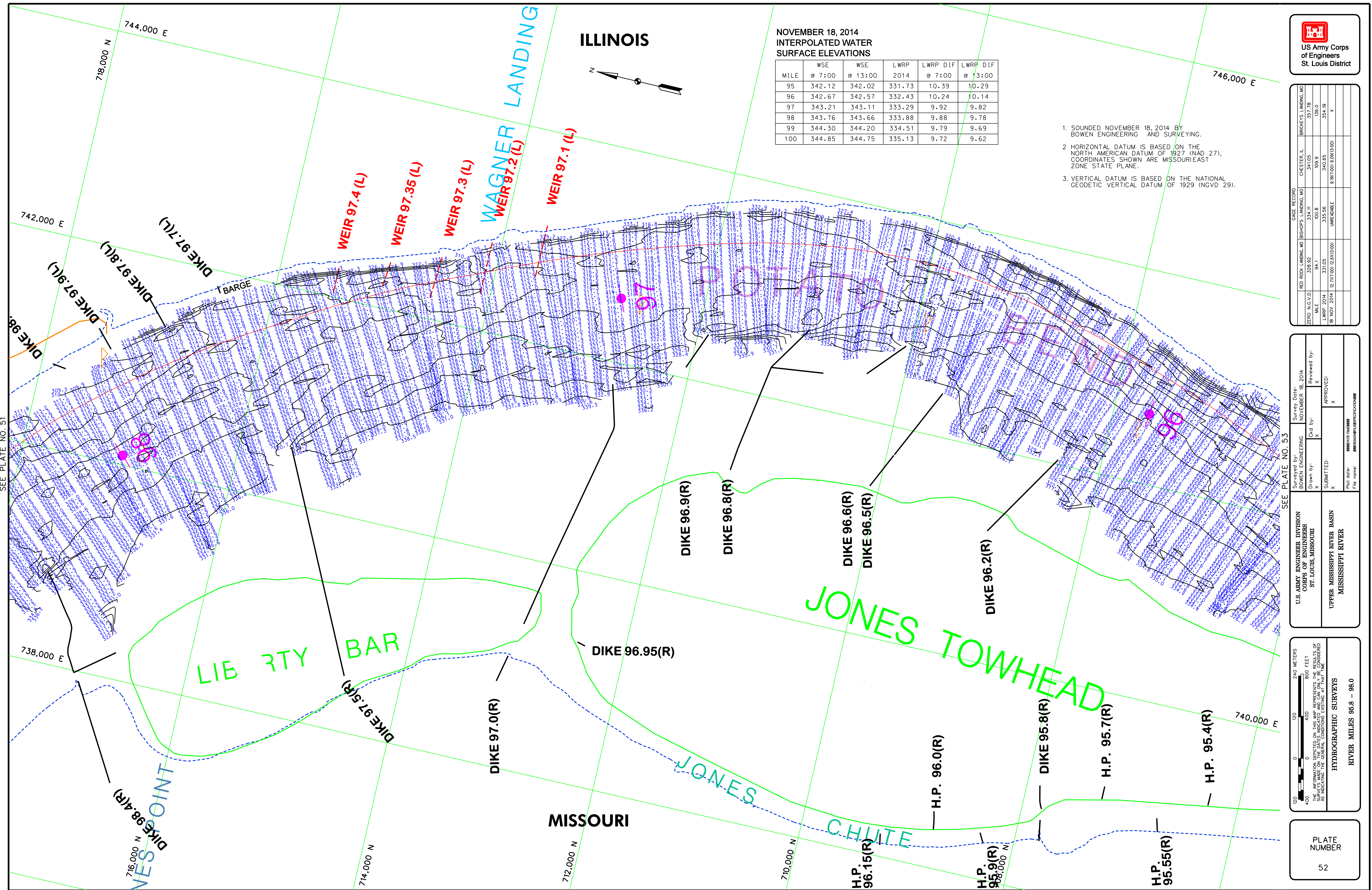
HYDROGRAPHIC SURVEYS

RIVER MILES 98.0 - 100.0

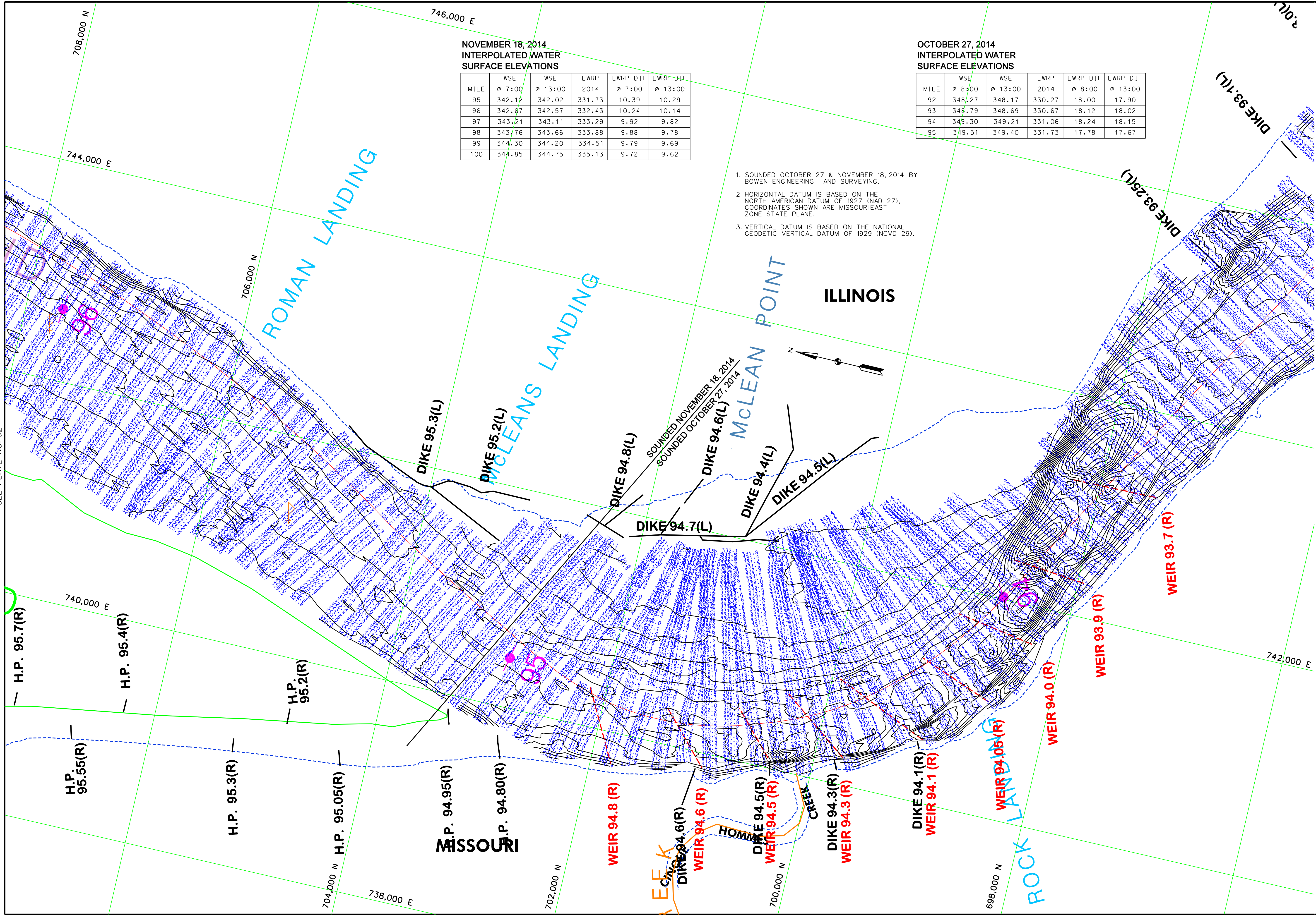
PLATE
NUMBER

51





SEE PLATE NO. 52



NOVEMBER 18, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
95	342.12	342.02	331.73	10.39	10.29
96	342.67	342.57	332.43	10.24	10.14
97	343.21	343.11	333.29	9.92	9.82
98	343.76	343.66	333.88	9.88	9.78
99	344.30	344.20	334.51	9.79	9.69
100	344.85	344.75	335.13	9.72	9.62

OCTOBER 27, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 13:00
92	348.27	348.17	330.27	18.00	17.90
93	348.79	348.69	330.67	18.12	18.02
94	349.30	349.21	331.06	18.24	18.15
95	349.51	349.40	331.73	17.78	17.67

1. SOUNDED OCTOBER 27 & NOVEMBER 18, 2014 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).



CAGE RECORD	GRAND TOWER, IL	RED ROCK LANDING, MO	BISHOPS LANDING, MO	CHESTER, IL
ZERO NGVD	321.83	338.92	334.11	341.05
MILE	94	94	94	94
LWRP 2014	325.89	331.05	335.56	340.85
27 OCT 2014	21.66(400) 21.00(13.00)	20.43(600) 20.34(13.00)	16.41(600) 16.36(13.00)	16.41(600) 16.36(13.00)
18 NOV 2014	X	X	X	X

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Survey Date: OCT 27 & NOVEMBER 18, 2014
Drawn by: X	Checked by: X
Submitted by: X	Reviewed by: X
APPROVED: X	
U.P. MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	Plot Date: File Name:

HYDROGRAPHIC SURVEYS RIVER MILES 93.5 - 95.8
120 0 100 200 300 400 500 600 700 800 900 1000 METERS
400 0 400 800 1200 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

PLATE NUMBER 53

SEE PLATE NO. 54



GAGE RECORD				
GRAND TOWER, IL	RED ROCK LANDING, MO	BISHOPS, LANDING, MO	CHESTER, IL	
ZERO N.C.V.D.	321.93	328.92	334.11	341.05
MILE	81.9	94.1	100.8	105.9
LWRP 2014	325.69	337.05	335.56	340.65
24 OCT 2014	22,337,407/22,601,300	22,251,767/22,081,300	x	x
24 OCT 2014	21,168,600/21,001,500	20,438,907/20,341,300	UNEADJABLE	16,418,000/16,181,300

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Survived by: BOWEN ENGINEERING		Survey Date: OCTOBER 24 & 27, 2014	
	Drawn by: X	Ckd by: X	Reviewed by: X	
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	SUBMITTED: X		APPROVED: X	
	Plot date: File name: #00000METUE0000# #00000G00000#			

120 0 120 240 METERS
400 0 400 800 FEET

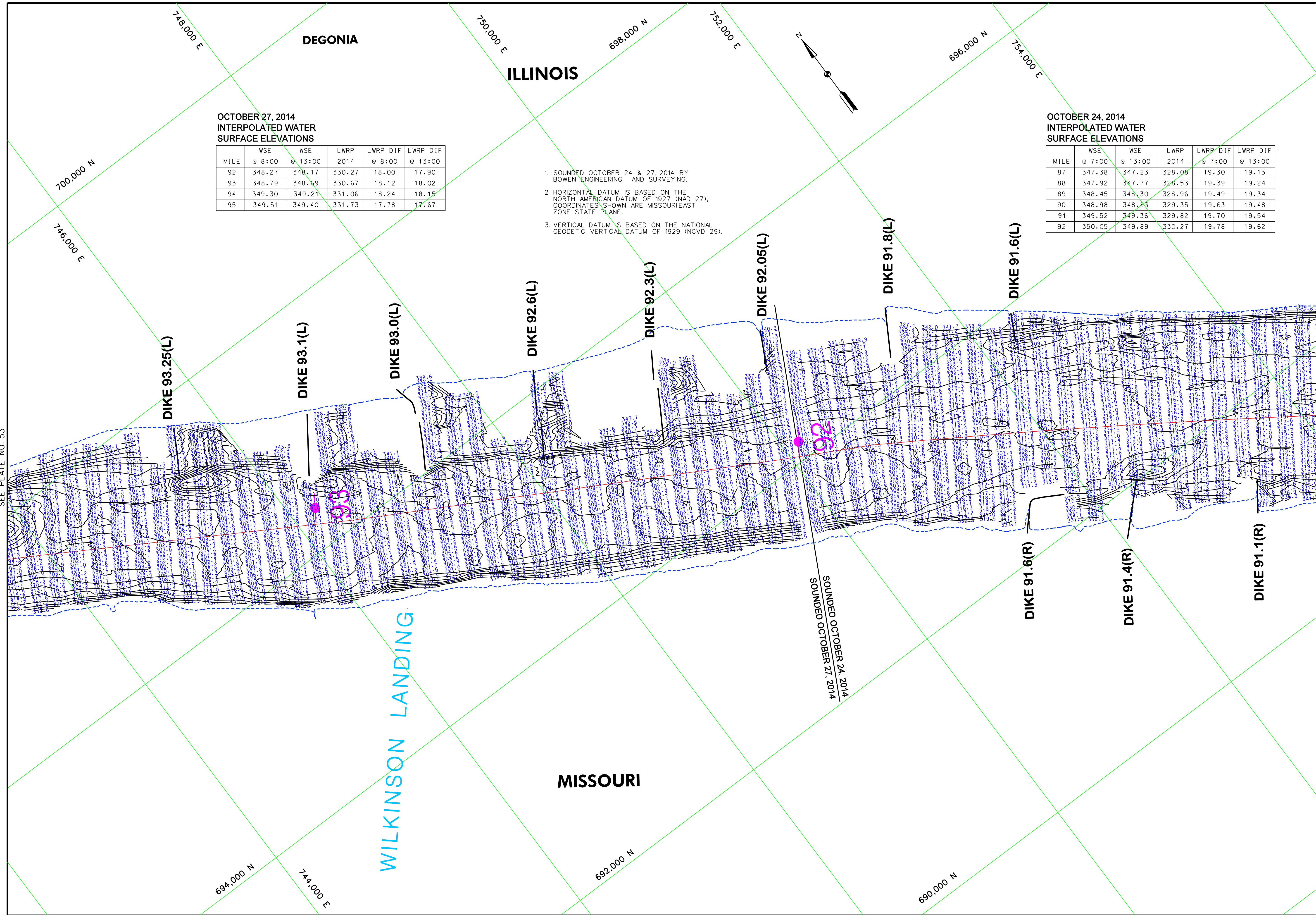
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF
AERIAL PHOTOGRAPHY CONSIDERED
AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

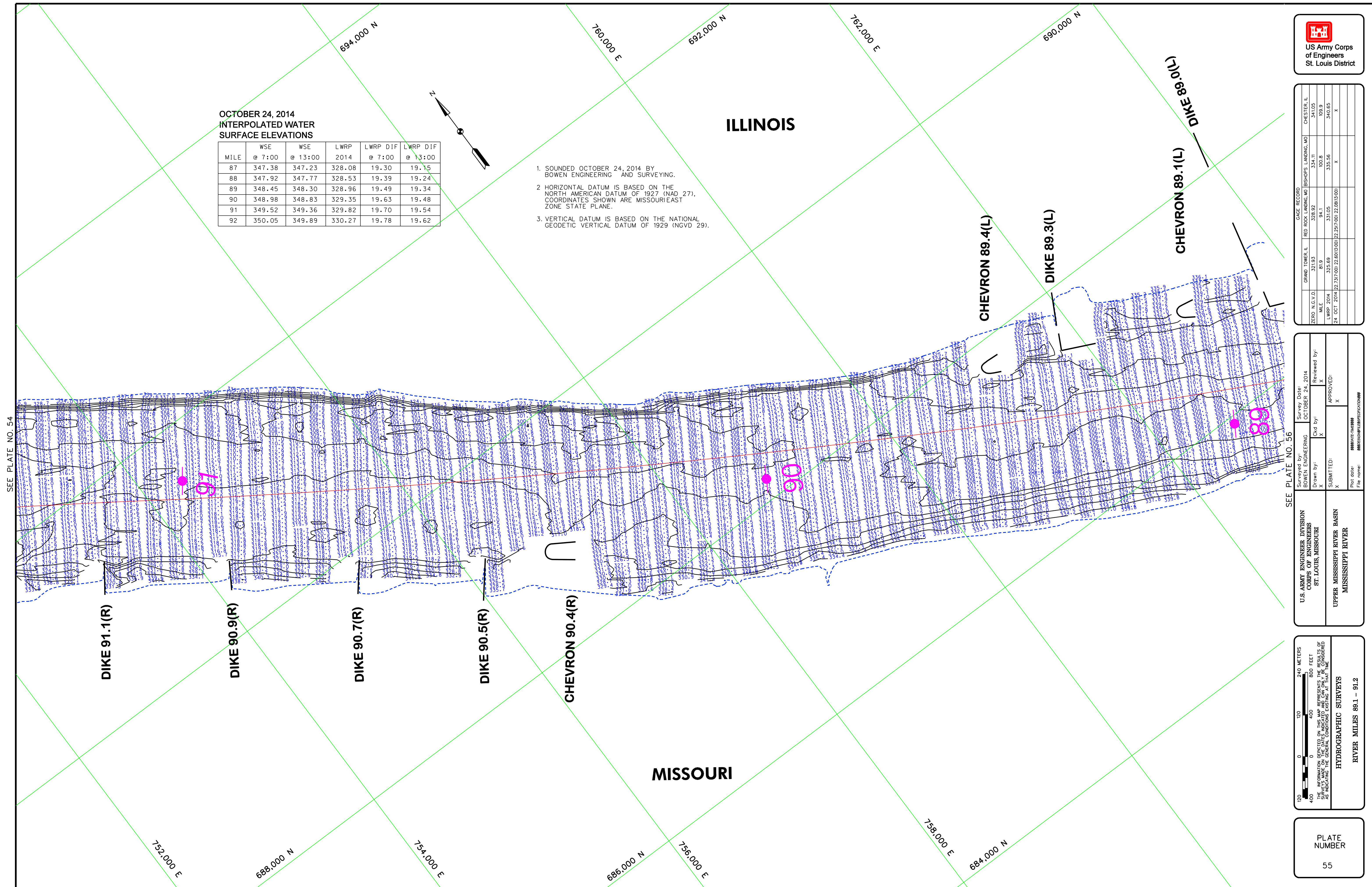
HYDROGRAPHIC SURVEYS

RIVER MILES 91.2 - 93.5

PLATE
NUMBER

54



[illegible]

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Surveyed by: BOWEN ENGINEERING	Survey Date: OCTOBER 24, 2014
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	Drawn by: X	Reviewed by: X
	SUBMITTED: X	
	APPROVED: X	
Plot date: ##### File name: #####\COMP\REPORT\DATA\####		

120 0 120 240 METERS
400 0 400 800 FEET

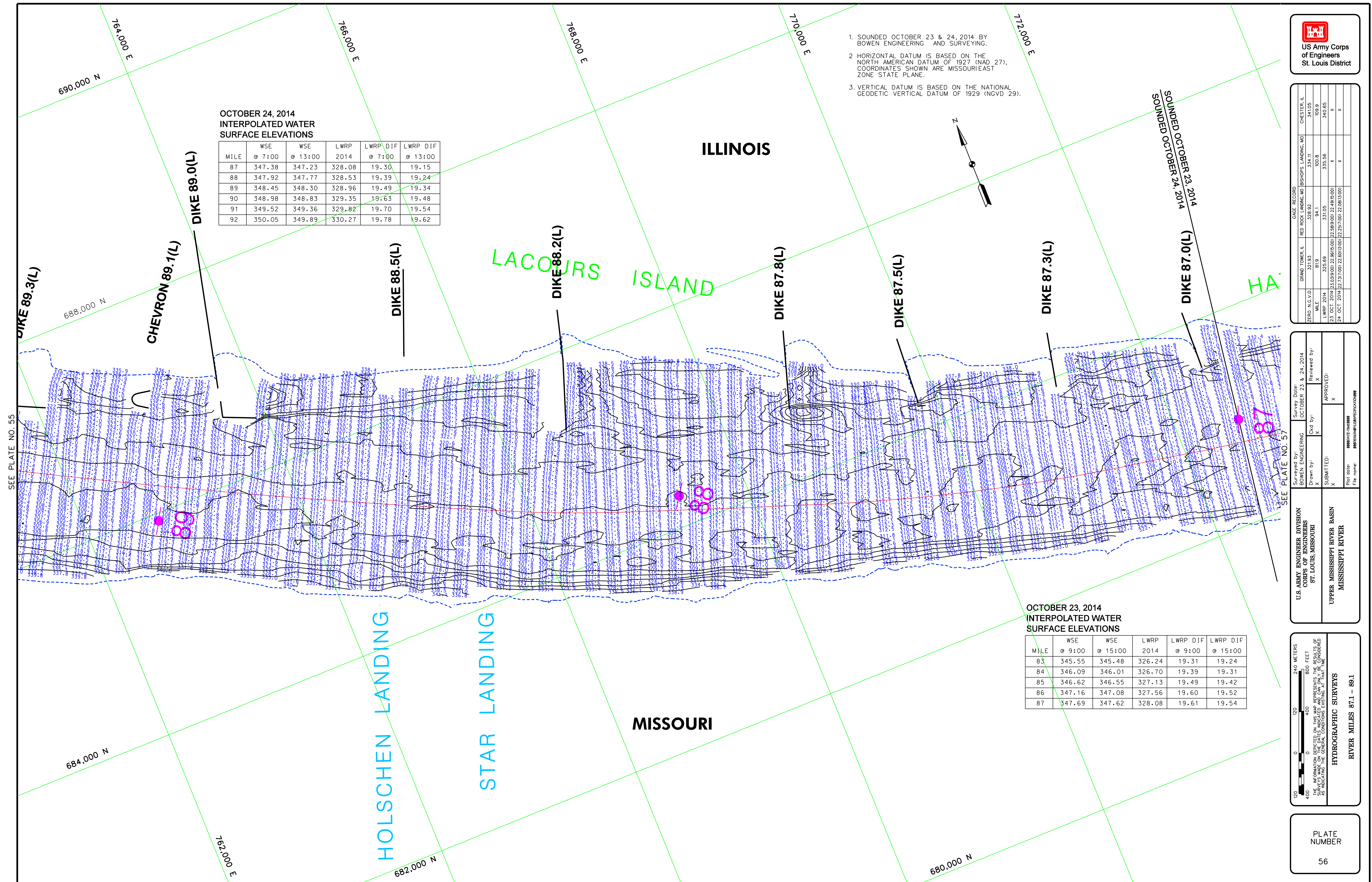
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF
AERIAL PHOTOGRAPHY CONSIDERED
AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

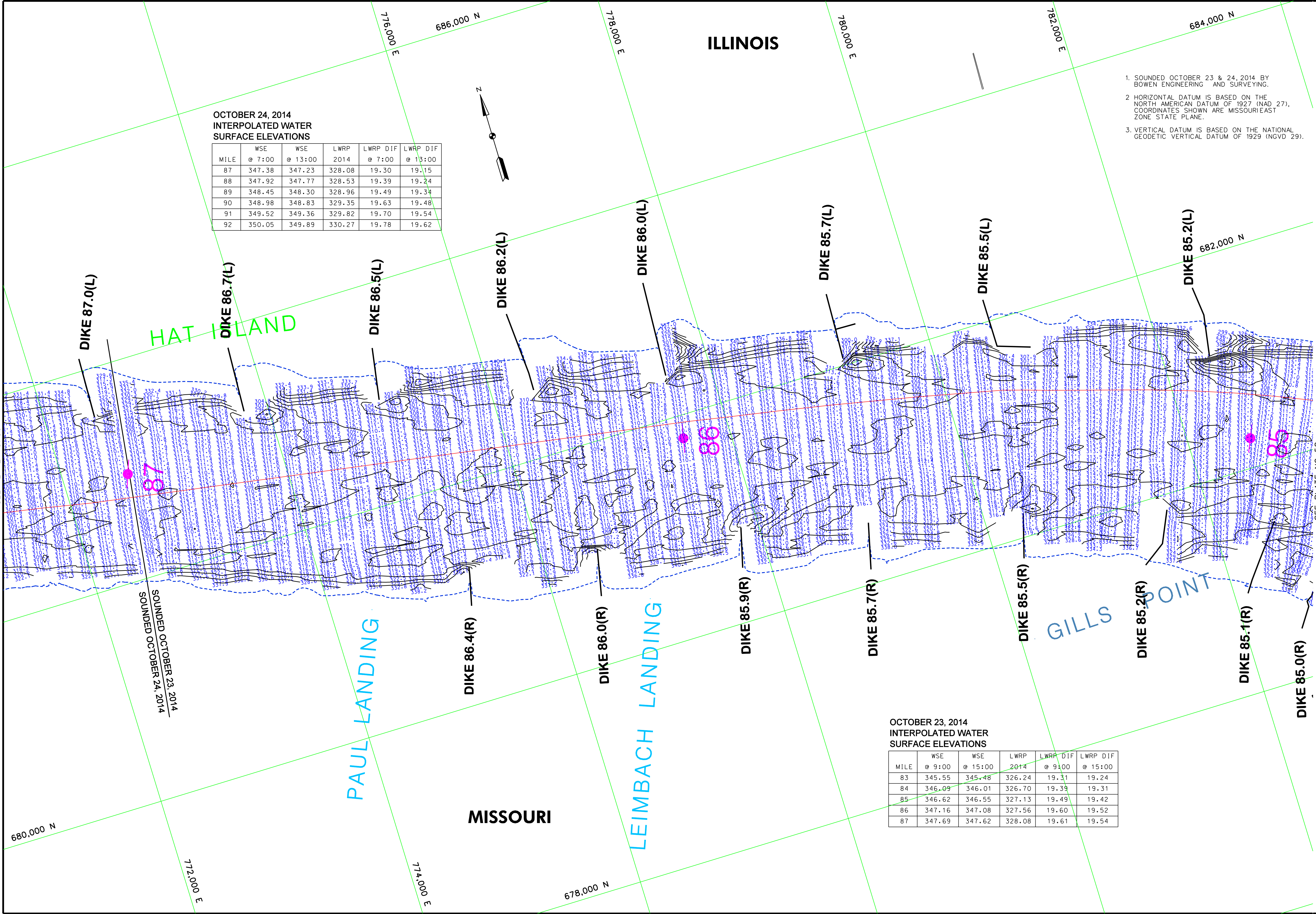
HYDROGRAPHIC SURVEYS

RIVER MILES 89.1 - 91.2

PLATE
NUMBER

55





OCTOBER 24, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
87	347.38	347.23	328.08	19.30	19.15
88	347.92	347.77	328.53	19.39	19.24
89	348.45	348.30	328.96	19.49	19.34
90	348.98	348.83	329.35	19.63	19.48
91	349.52	349.36	329.82	19.70	19.54
92	350.05	349.89	330.27	19.78	19.62

OCTOBER 23, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
83	345.55	345.48	326.24	19.31	19.24
84	346.09	346.01	326.70	19.39	19.31
85	346.62	346.55	327.13	19.49	19.42
86	347.16	347.08	327.56	19.60	19.52
87	347.69	347.62	328.08	19.61	19.54

1. SOUNDED OCTOBER 23 & 24, 2014 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).

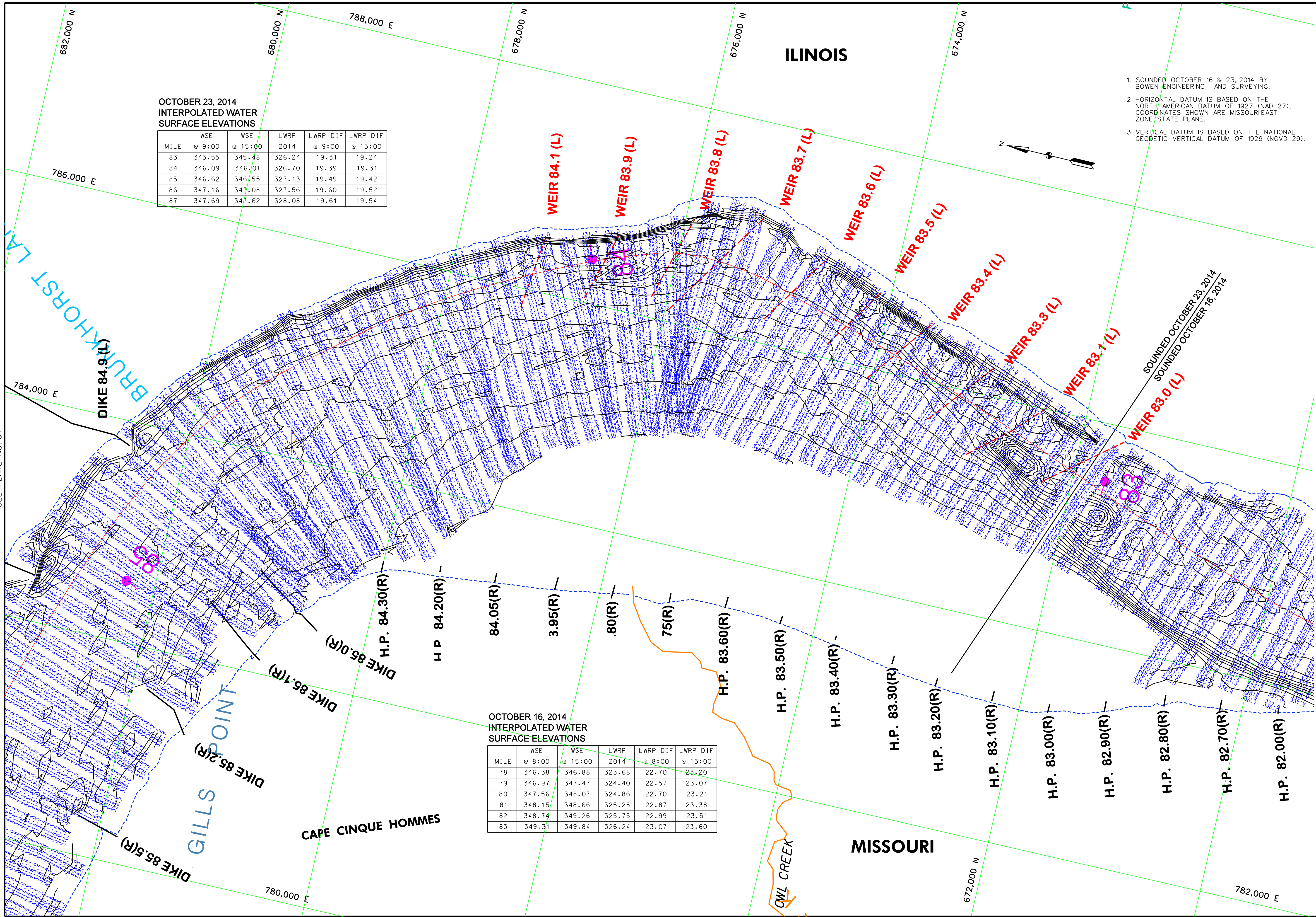


CAGE RECORD	MOCCASH SPRINGS, MO	GRAND TOWER, IL	RED ROCK LANDING, MO	BISHOPS LANDING, MO
ZERO N.G.V.D.	313.59	321.03	328.92	334.31
MILE	86.3	81.8	84	80.8
LWRP 2014	37.24	325.89	33.05	335.56
23 OCT 2014	X	23.0319400 22.8615100	22.8619400 22.8615100	X
24 OCT 2014	X	22.7377000 22.8615100	22.2577000 22.8615100	X

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Surveyed by: BOWEN ENGINEERING	Survey Date: OCTOBER 23 & 24, 2014
	Drawn by: X	Reviewed by: X
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	Submitted: X	Approved: X
	Plot Date: File Name:	##PROJECT## ##PROJECT##

120 400 800 1200 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000 10100 10200 10300 10400 10500 10600 10700 10800 10900 11000 11100 11200 11300 11400 11500 11600 11700 11800 11900 12000 12100 12200 12300 12400 12500 12600 12700 12800 12900 13000 13100 13200 13300 13400 13500 13600 13700 13800 13900 14000 14100 14200 14300 14400 14500 14600 14700 14800 14900 15000 15100 15200 15300 15400 15500 15600 15700 15800 15900 16000 16100 16200 16300 16400 16500 16600 16700 16800 16900 17000 17100 17200 17300 17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 18500 18600 18700 18800 18900 19000 19100 19200 19300 19400 19500 19600 19700 19800 19900 20000 20100 20200 20300 20400 20500 20600 20700 20800 20900 21000 21100 21200 21300 21400 21500 21600 21700 21800 21900 22000 22100 22200 22300 22400 22500 22600 22700 22800 22900 23000 23100 23200 23300 23400 23500 23600 23700 23800 23900 24000 24100 24200 24300 24400 24500 24600 24700 24800 24900 25000 25100 25200 25300 25400 25500 25600 25700 25800 25900 26000 26100 26200 26300 26400 26500 26600 26700 26800 26900 27000 27100 27200 27300 27400 27500 27600 27700 27800 27900 28000 28100 28200 28300 28400 28500 28600 28700 28800 28900 29000 29100 29200 29300 29400 29500 29600 29700 29800 29900 30000 30100 30200 30300 30400 30500 30600 30700 30800 30900 31000 31100 31200 31300 31400 31500 31600 31700 31800 31900 32000 32100 32200 32300 32400 32500 32600 32700 32800 32900 33000 33100 33200 33300 33400 33500 33600 33700 33800 33900 34000 34100 34200 34300 34400 34500 34600 34700 34800 34900 35000 35100 35200 35300 35400 35500 35600 35700 35800 35900 36000 36100 36200 36300 36400 36500 36600 36700 36800 36900 37000 37100 37200 37300 37400 37500 37600 37700 37800 37900 38000 38100 38200 38300 38400 38500 38600 38700 38800 38900 39000 39100 39200 39300 39400 39500 39600 39700 39800 39900 40000 40100 40200 40300 40400 40500 40600 40700 40800 40900 41000 41100 41200 41300 41400 41500 41600 41700 41800 41900 42000 42100 42200 42300 42400 42500 42600 42700 42800 42900 43000 43100 43200 43300 43400 43500 43600 43700 43800 43900 44000 44100 44200 44300 44400 44500 44600 44700 44800 44900 45000 45100 45200 45300 45400 45500 45600 45700 45800 45900 46000 46100 46200 46300 46400 46500 46600 46700 46800 46900 47000 47100 47200 47300 47400 47500 47600 47700 47800 47900 48000 48100 48200 48300 48400 48500 48600 48700 48800 48900 49000 49100 49200 49300 49400 49500 49600 49700 49800 49900 50000 50100 50200 50300 50400 50500 50600 50700 50800 50900 51000 51100 51200 51300 51400 51500 51600 51700 51800 51900 52000 52100 52200 52300 52400 52500 52600 52700 52800 52900 53000 53100 53200 53300 53400 53500 53600 53700 53800 53900 54000 54100 54200 54300 54400 54500 54600 54700 54800 54900 55000 55100 55200 55300 55400 55500 55600 55700 55800 55900 56000 56100 56200 56300 56400 56500 56600 56700 56800 56900 57000 57100 57200 57300 57400 57500 57600 57700 57800 57900 58000 58100 58200 58300 58400 58500 58600 58700 58800 58900 59000 59100 59200 59300 59400 59500 59600 59700 59800 59900 60000 60100 60200 60300 60400 60500 60600 60700 60800 60900 61000 61100 61200 61300 61400 61500 61600 61700 61800 61900 62000 62100 62200 62300 62400 62500 62600 62700 62800 62900 63000 63100 63200 63300 63400 63500 63600 63700 63800 63900 64000 64100 64200 64300 64400 64500 64600 64700 64800 64900 65000 65100 65200 65300 65400 65500 65600 65700 65800 65900 66000 66100 66200 66300 66400 66500 66600 66700 66800 66900 67000 67100 67200 67300 67400 67500 67600 67700 67800 67900 68000 68100 68200 68300 68400 68500 68600 68700 68800 68900 69000 69100 69200 69300 69400 69500 69600 69700 69800 69900 70000 70100 70200 70300 70400 70500 70600 70700 70800 70900 71000 71100 71200 71300 71400 71500 71600 71700 71800 71900 72000 72100 72200 72300 72400 72500 72600 72700 72800 72900 73000 73100 73200 73300 73400 73500 73600 73700 73800 73900 74000 74100 74200 74300 74400 74500 74600 74700 74800 74900 75000 75100 75200 75300 75400 75500 75600 75700 75800 75900 76000 76100 76200 76300 76400 76500 76600 76700 76800 76900 77000 77100 77200 77300 77400 77500 77600 77700 77800 77900 78000 78100 78200 78300 78400 78500 78600 78700 78800 78900 79000 79100 79200 79300 79400 79500 79600 79700 79800 79900 80000 80100 80200 80300 80400 80500 80600 80700 80800 80900 81000 81100 81200 81300 81400 81500 81600 81700 81800 81900 82000 82100 82200 82300 82400 82500 82600 82700 82800 82900 83000 83100 83200 83300 83400 83500 83600 83700 83800 83900 84000 84100 84200 84300 84400 84500 84600 84700 84800 84900 85000 85100 85200 85300 85400 85500 85600 85700 85800 85900 86000 86100 86200 86300 86400 86500 86600 86700 86800 86900 87000 87100 87200 87300 87400 87500 87600 87700 87800 87900 88000 88100 88200 88300 88400 88500 88600 88700 88800 88900 89000 89100 89200 89300 89400 89500 89600 89700 89800 89900 90000 90100 90200 90300 90400 90500 90600 90700 90800 90900 91000 91100 91200 91300 91400 91500 91600 91700 91800 91900 92000 92100 92200 92300 92400 92500 92600 92700 92800 92900 93000 93100 93200 93300 93400 93500 93600 93700 93800 93900 94000 94100 94200 94300 94400 94500 94600 94700 94800 94900 95000 95100 95200 95300 95400 95500 95600 95700 95800 95900 96000 96100 96200 96300 96400 96500 96600 96700 96800 96900 97000 97100 97200 97300 97400 97500 97600 97700 97800 97900 98000 98100 98200 98300 98400 98500 98600 98700 98800 98900 99000 99100 99200 99300 99400 99500 99600 99700 99800 99900 100000 100100 100200 100300 100400 100500 100600 100700 100800 100900 101000 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129700 129800 129900 130000 130100 130200 130300 130400 130500 130600 130700 130800 130900 131000 131100 131200 131300 131400 131500 131600 131700 131800 131900 132000 132100 132200 132300 132400 132500 132600 132700 132800 132900 133000 133100 133200 133300 133400 133500 133600 133700 133800 133900 134000 134100 134200 134300 134400 134500 134600 134700 134800 134900 135000 135100 135200 135300 135400 135500 135600 135700 135800 135900 136000 136100 136200 136300 136400 136500 136600 136700 136800 136900 137000 137100 137200 137300 137400 137500 137600 137700 137800 137900 138000 138100 138200 138300 138400 138500 138600 138700 138800 138900 139000 139100 139200 139300 139400 139500 139600 139700 139800 139900 140000 14

SEE PLATE NO. 57



OCTOBER 23, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
83	345.55	345.48	326.24	19.31	19.24
84	346.09	346.01	326.70	19.39	19.31
85	346.62	346.55	327.13	19.49	19.42
86	347.16	347.08	327.56	19.60	19.52
87	347.69	347.62	328.08	19.61	19.54

OCTOBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
78	346.38	346.88	323.68	22.70	23.20
79	346.97	347.47	324.40	22.57	23.07
80	347.56	348.07	324.86	22.70	23.21
81	348.15	348.66	325.28	22.87	23.38
82	348.74	349.26	325.75	22.99	23.51
83	349.31	349.84	326.24	23.07	23.60

1. SOUNDED OCTOBER 16 & 23, 2014 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).

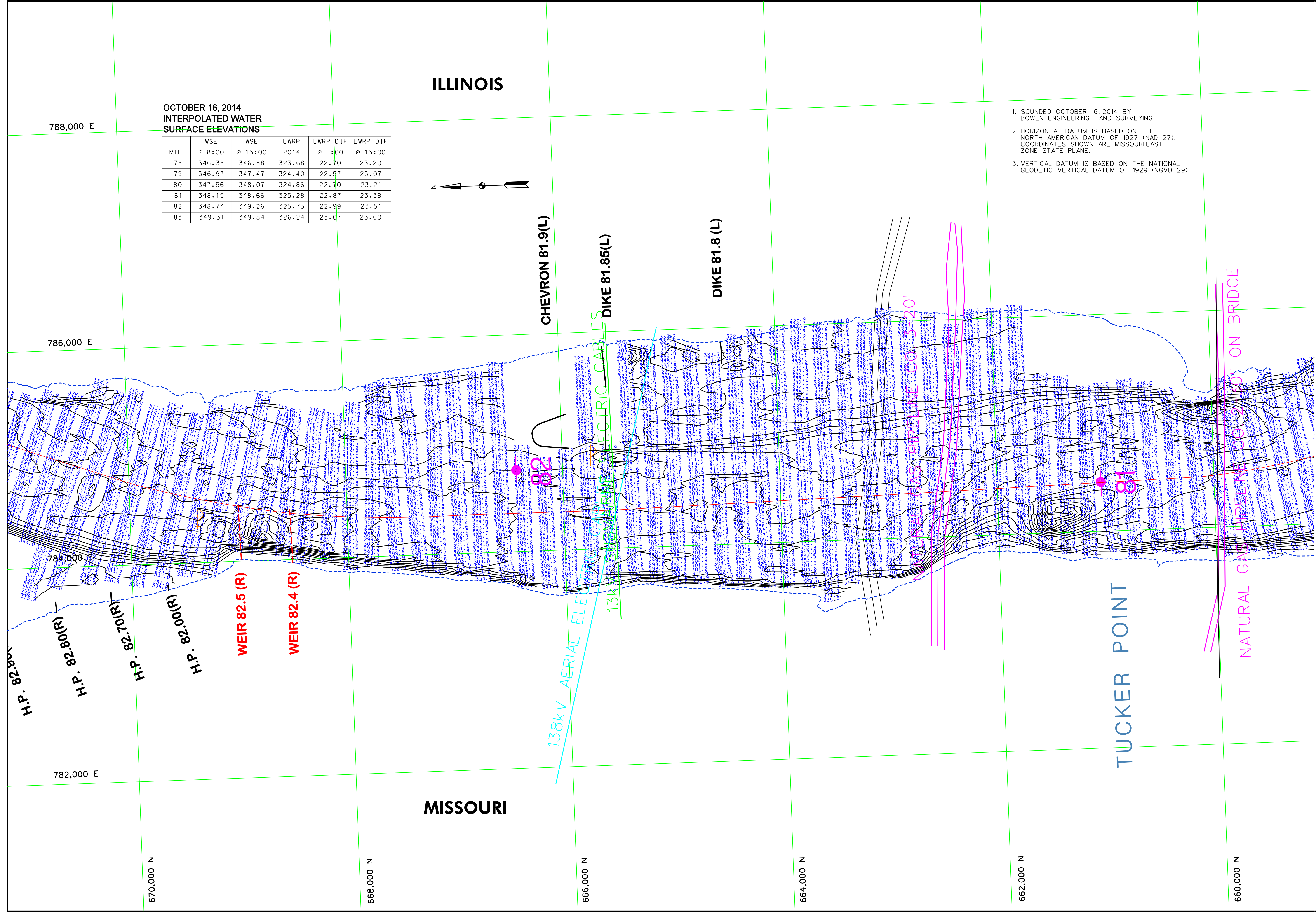


CAPE CINQUE HOMMES, MO	CAPE CINQUE HOMMES, MO	CAPE CINQUE HOMMES, MO	CAPE CINQUE HOMMES, MO	CAPE CINQUE HOMMES, MO	CAPE CINQUE HOMMES, MO
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1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
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29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
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99	99	99	99	99	99
100	100	100	100	100	100

SEE PLATE NO. 59

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	BOWEN, ENGINEERING	OCTOBER 16 & 23, 2014		
	Drawn by: X	Checked by: X	Reviewed by: X	
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	SUBMITTED: X	APPROVED: X		
	Plot date: #####DATE/TIME#### File name: #####DESCRIPTION/FILE/PROJECT/DATE####			

HYDROGRAPHIC SURVEYS RIVER MILES 82.7 - 85.0



OCTOBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE		LWRP 2014	LWRP DIF	
	@ 8:00	@ 15:00		@ 8:00	@ 15:00
78	346.38	346.88	323.68	22.70	23.20
79	346.97	347.47	324.40	22.57	23.07
80	347.56	348.07	324.86	22.70	23.21
81	348.15	348.66	325.28	22.87	23.38
82	348.74	349.26	325.75	22.99	23.51
83	349.31	349.84	326.24	23.07	23.60

1. SOUNDED OCTOBER 16, 2014 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).

US Army Corps
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CPPE	CIRADEAL	MO	MOCCASH	SPRINGS	MO	GRAND TOWER	L	RED ROCK LANDING	MO
ZERO	NGVD					313.59		321.03	328.92
MILE						32.1		36.2	34
LWRP	2014					37.24		323.69	331.05
16	OCT	2014				X		25.569(600)	26.716(600)

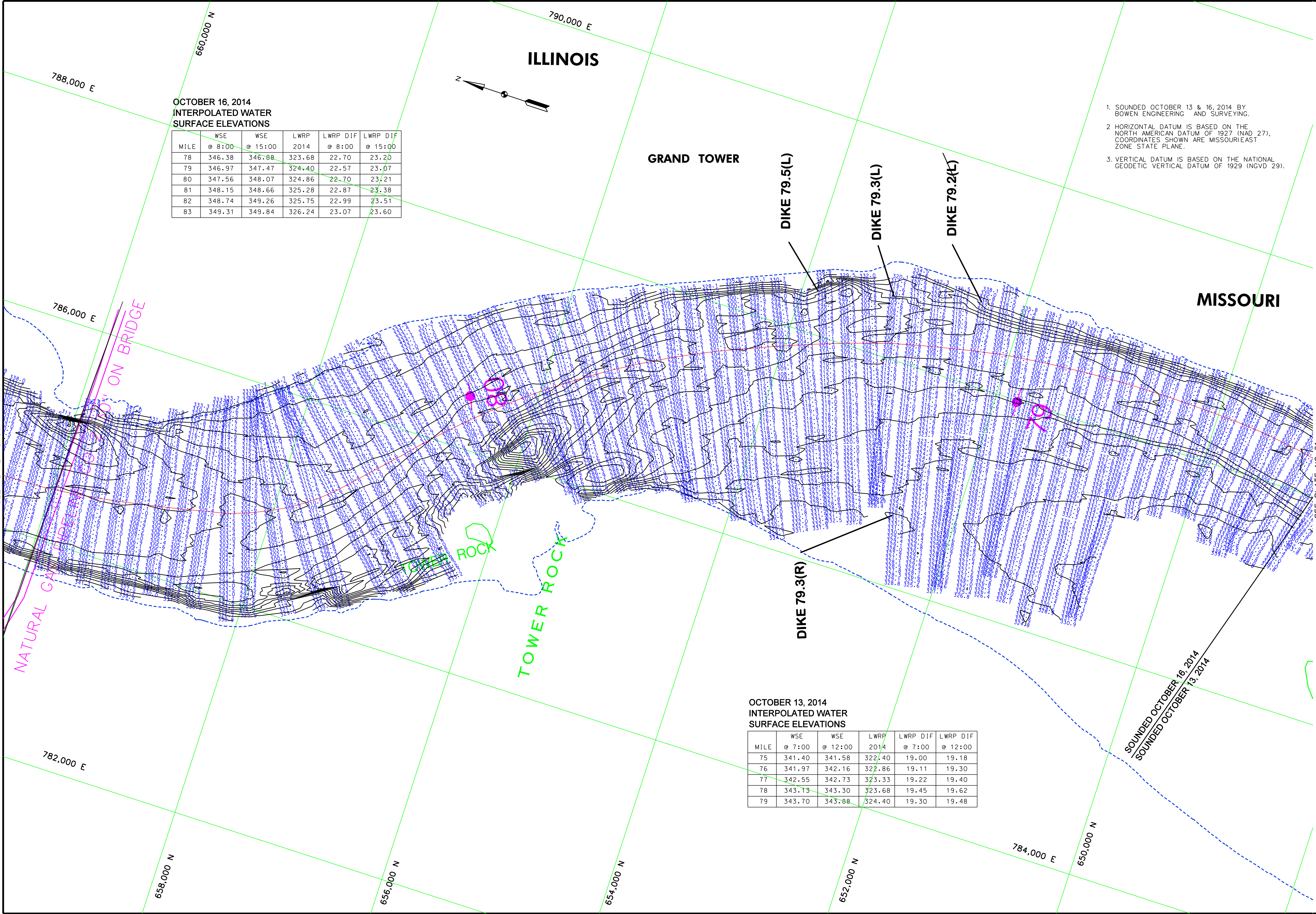
U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Survey Date: 2014 OCTOBER 16	Drawn by: X	Cad by: X	Reviewed by: X
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER		SUBMITTED: X	APPROVED: X	
Plot Date: File Name:		##PROJECT## ##PROJECT##		

HYDROGRAPHIC SURVEYS

RIVER MILES 80.7 - 82.7

PLATE
NUMBER

59



OCTOBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE		LWRP 2014	LWRP DIF	
	@ 8:00	@ 15:00		@ 8:00	@ 15:00
78	346.38	346.88	323.68	22.70	23.20
79	346.97	347.47	324.40	22.57	23.07
80	347.56	348.07	324.86	22.70	23.21
81	348.15	348.66	325.28	22.87	23.38
82	348.74	349.26	325.75	22.99	23.51
83	349.31	349.84	326.24	23.07	23.60

OCTOBER 13, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE		LWRP 2014	LWRP DIF	
	@ 7:00	@ 12:00		@ 7:00	@ 12:00
75	341.40	341.58	322.40	19.00	19.18
76	341.97	342.16	322.86	19.11	19.30
77	342.55	342.73	323.33	19.22	19.40
78	343.13	343.30	323.68	19.45	19.62
79	343.70	343.88	324.40	19.30	19.48

US Army Corps
of Engineers
St. Louis District

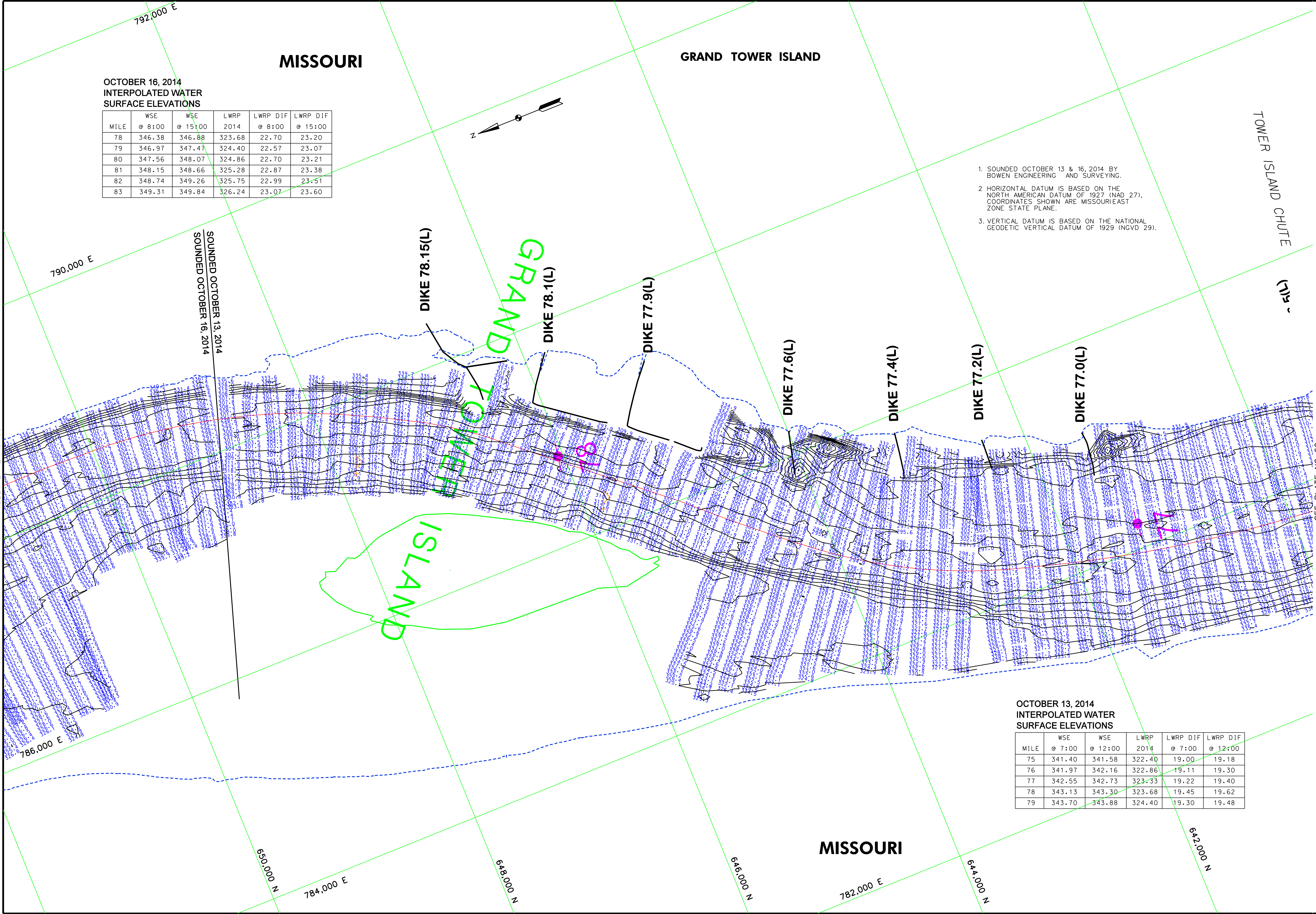
CAGE RECORD		CAGE RECORD		CAGE RECORD	
CPPE	CHADREAL, MO	MOCCASH, MO	SPRINGS, MO	GRAND TOWER, L	RED ROCK LANDING, MO
ZERO	NGVD	304.65	313.59	321.03	328.92
MILE	2014	32.1	36.2	36.1	34
13 OCT 2014	X	37.24	37.24	325.09	33.05
16 OCT 2014	X	22.507/300/22.1012/300/23.447/300/23.6102/300/	X	26.750/300/27.2715/300/	26.716/300/27.3115/300/

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI	Survey Data: OCTOBER 13 & 16, 2014 Drawn by: X Checked by: X Reviewed by: X
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER	APPROVED: X

HYDROGRAPHIC SURVEYS
RIVER MILES 80.7 - 78.6

PLATE
NUMBER
60

120
400
0
100
240 METERS
800 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF
SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED
AS INDICATING THE GENERAL LOCATIONS OF SURVEY DATA.



OCTOBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
78	346.38	346.88	323.68	22.70	23.20
79	346.97	347.47	324.40	22.57	23.07
80	347.56	348.07	324.86	22.70	23.21
81	348.15	348.66	325.28	22.87	23.38
82	348.74	349.26	325.75	22.99	23.51
83	349.31	349.84	326.24	23.07	23.60

SOUNDED OCTOBER 13, 2014
SOUNDED OCTOBER 16, 2014

OCTOBER 13, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 12:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 12:00
75	341.40	341.58	322.40	19.00	19.18
76	341.97	342.16	322.86	19.11	19.30
77	342.55	342.73	323.33	19.22	19.40
78	343.13	343.30	323.68	19.45	19.62
79	343.70	343.88	324.40	19.30	19.48

1. SOUNDED OCTOBER 13 & 16, 2014 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).

US Army Corps
of Engineers
St. Louis District

CAGE RECORD	CAGE RECORD	CAGE RECORD	CAGE RECORD	CAGE RECORD	CAGE RECORD
CPPE CIBADEAL MO	MOCCASH SPRINGS MO	GRAND TOWER IL	RED ROCK LANDING MO		
304.65	313.59	321.03	328.92		
32.01	36.53	36.53	34.71		
30.01	37.75	37.75	33.05		
X	X	X	X		
13 OCT 2014	13 OCT 2014	13 OCT 2014	13 OCT 2014		
16 OCT 2014	16 OCT 2014	16 OCT 2014	16 OCT 2014		

Survey Date: OCTOBER 13 & 16, 2014	Reviewed by: X
Drawn by: X	Approved: X
Submitted: X	Plot Date: File Name: ##PROJECT##

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
RIVER MILES 76.8 - 78.6

HYDROGRAPHIC SURVEYS
RIVER MILES 76.8 - 78.6

PLATE
NUMBER

61