

1. SOUNDED NOVEMBER 18, 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).



US Army Corps of Engineers
St. Louis District

| GAGE RECORD | | CAPE GARDEAU, MO | | WECOSIN SPRINGS, MO | | GRAND TOWER, L | | RED ROCK LAUNING, MO | |
|---------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| ZERO N.G.V.D. | 304.65 | 52.1 | 30.01 | 317.54 | 325.69 | 321.93 | 328.92 | 328.92 | 328.92 |
| MILE | 52.1 | 30.01 | 317.54 | 325.69 | 321.93 | 328.92 | 328.92 | 328.92 | 328.92 |
| LWRP 2014 | 300.01 | 300.01 | 317.54 | 325.69 | 321.93 | 328.92 | 328.92 | 328.92 | 328.92 |
| 18 NOV 2015 | 16.668(20) 17.4314(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) | 15.1618(20) 16.2014(20) |

| Survey Data | | NOVEMBER 18, 2015 | |
|-------------|---|-------------------|---|
| Drawn by: | X | Checked by: | X |
| Submitted: | X | Reviewed by: | X |
| Approved: | X | Approved: | X |

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

HYDROGRAPHIC SURVEYS
RIVER MILES 70.7 - 72.7

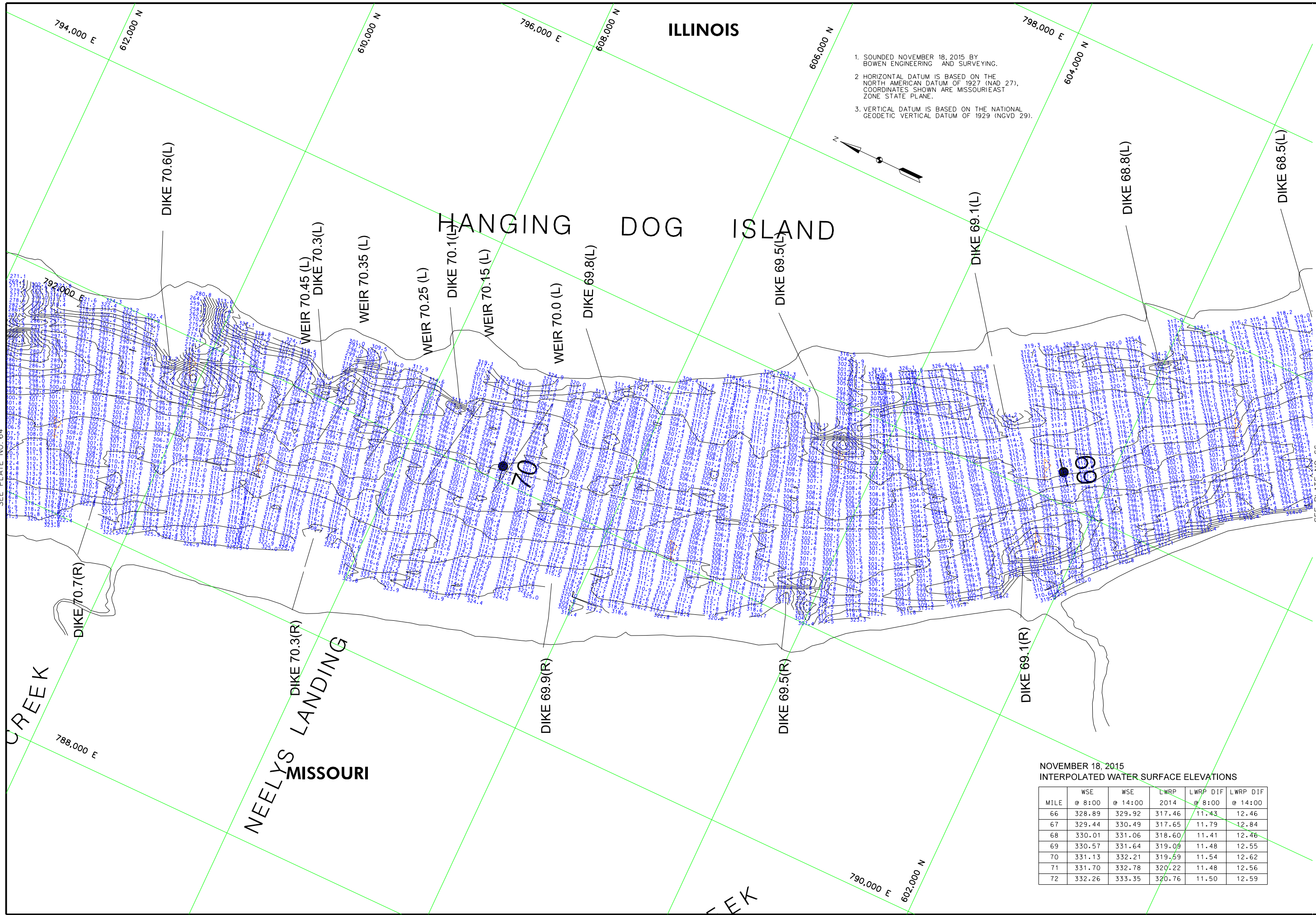
PLATE NUMBER
64

NOVEMBER 18, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 66 | 328.89 | 329.92 | 317.46 | 11.43 | 12.46 |
| 67 | 329.44 | 330.49 | 317.65 | 11.79 | 12.84 |
| 68 | 330.01 | 331.06 | 318.60 | 11.41 | 12.46 |
| 69 | 330.57 | 331.64 | 319.09 | 11.48 | 12.55 |
| 70 | 331.13 | 332.21 | 319.59 | 11.54 | 12.62 |
| 71 | 331.70 | 332.78 | 320.22 | 11.48 | 12.56 |
| 72 | 332.26 | 333.35 | 320.76 | 11.50 | 12.59 |

SEE PLATE NO. 63

SEE PLATE NO. 65



1. SOUNDED NOVEMBER 18, 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).



| CAGE RECORD | |
|------------------|---------------------|
| CAPE GARDEAU, MO | WCCCSN, SPRINGS, MO |
| 792,000 E | 604,000 N |
| 794,000 E | 606,000 N |
| 796,000 E | 608,000 N |
| 798,000 E | 610,000 N |
| 792,000 E | 602,000 N |
| 794,000 E | 604,000 N |
| 796,000 E | 606,000 N |
| 798,000 E | 608,000 N |

| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | |
|--|-----------------------|
| UPPER MISSISSIPPI RIVER BASIN | MISSISSIPPI RIVER |
| Survey Date: NOVEMBER 18, 2015 | Reviewed by: X |
| Drawn by: X | Approved: X |
| Submitted: X | Plot Date: 11/18/2015 |

| HYDROGRAPHIC SURVEYS | |
|----------------------|------------|
| 0 | 240 METERS |
| 400 | 800 FEET |
| 800 | 1600 FEET |

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED UNDER THE GENERAL CONDITIONS OF THE U.S. ARMY ENGINEER DIVISION.

PLATE NUMBER
65

NOVEMBER 18, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 66 | 328.89 | 329.92 | 317.46 | 11.43 | 12.46 |
| 67 | 329.44 | 330.49 | 317.65 | 11.79 | 12.84 |
| 68 | 330.01 | 331.06 | 318.60 | 11.41 | 12.46 |
| 69 | 330.57 | 331.64 | 319.09 | 11.48 | 12.55 |
| 70 | 331.13 | 332.21 | 319.59 | 11.54 | 12.62 |
| 71 | 331.70 | 332.78 | 320.22 | 11.48 | 12.56 |
| 72 | 332.26 | 333.35 | 320.76 | 11.50 | 12.59 |

SEE PLATE NO. 64

SEE PLATE NO. 66



US Army Corps of Engineers
St. Louis District

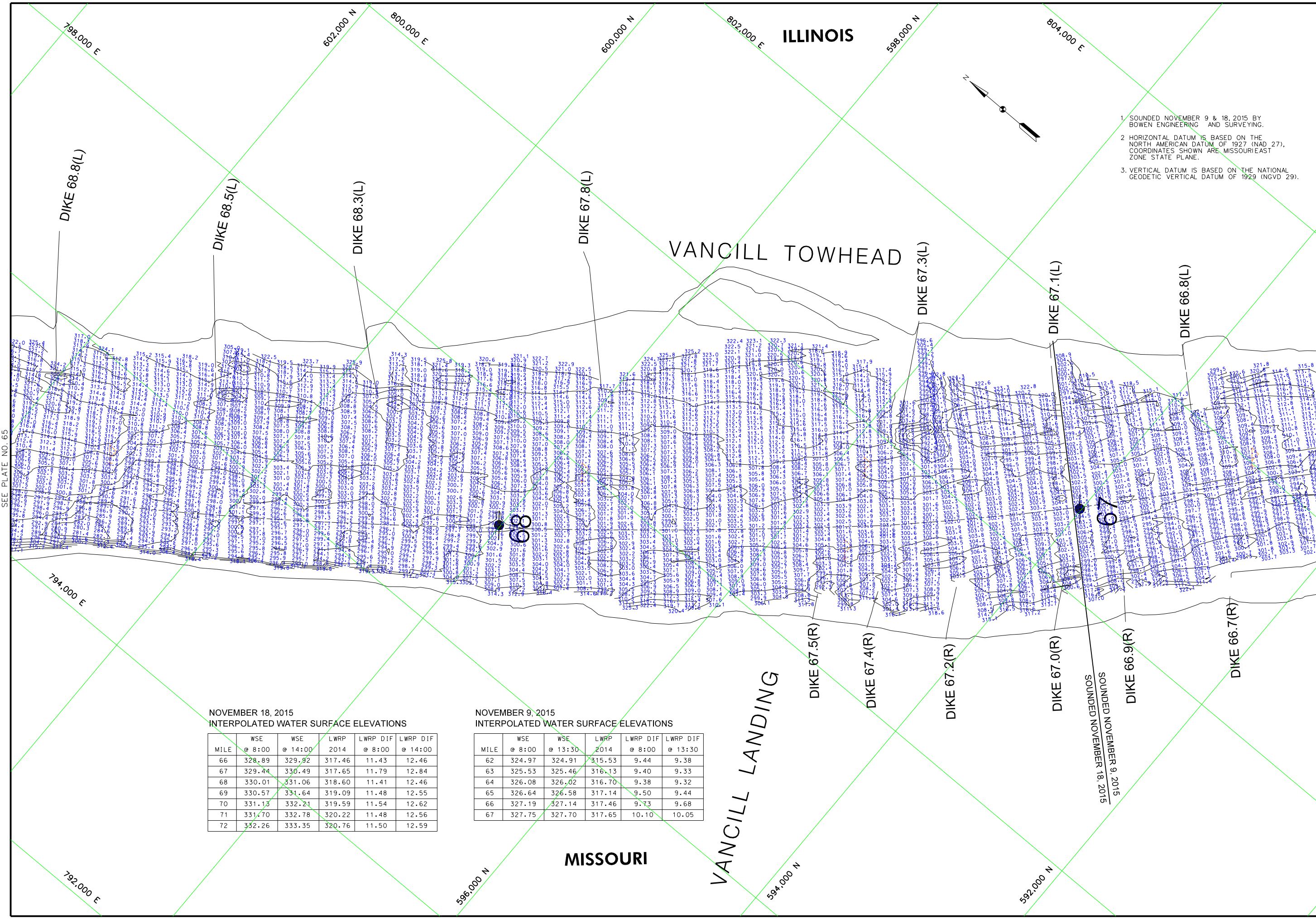
1. SOUNDED NOVEMBER 9 & 18, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

| CAGE RECORD | | RED ROCK LANDING, MO | |
|---------------|---------------|----------------------|----------------------|
| CAGE | GRAND TOWER E | GRAND TOWER L | RED ROCK LANDING, MO |
| ZERO N.G.V.D. | 304.65 | 321.93 | 328.92 |
| MILE | 52.1 | 81.9 | 94.1 |
| LWRP 2014 | 330.01 | 337.54 | 331.05 |
| 09 NOV 2015 | 330.01 | 337.54 | 331.05 |
| 18 NOV 2015 | 332.26 | 333.35 | 330.76 |

| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | | UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | |
|--|-------------------|--|-------------------|
| Drawn by: | Reviewed by: | Submitted: | Approved: |
| Down by: | Checked by: | Submitted: | Approved: |
| DATE: | DATE: | DATE: | DATE: |
| NOVEMBER 9, 2015 | NOVEMBER 18, 2015 | NOVEMBER 9, 2015 | NOVEMBER 18, 2015 |
| BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING |
| BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING |
| BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING | BOVEN ENGINEERING |

| HYDROGRAPHIC SURVEYS | |
|-------------------------|--|
| RIVER MILES 66.7 - 68.7 | |

PLATE NUMBER
66



NOVEMBER 18, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 66 | 328.89 | 329.92 | 317.46 | 11.43 | 12.46 |
| 67 | 329.44 | 330.49 | 317.65 | 11.79 | 12.84 |
| 68 | 330.01 | 331.06 | 318.60 | 11.41 | 12.46 |
| 69 | 330.57 | 331.64 | 319.09 | 11.48 | 12.55 |
| 70 | 331.13 | 332.21 | 319.59 | 11.54 | 12.62 |
| 71 | 331.70 | 332.78 | 320.22 | 11.48 | 12.56 |
| 72 | 332.26 | 333.35 | 320.76 | 11.50 | 12.59 |

NOVEMBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 62 | 324.97 | 324.91 | 315.53 | 9.44 | 9.38 |
| 63 | 325.53 | 325.46 | 316.13 | 9.40 | 9.33 |
| 64 | 326.08 | 326.02 | 316.70 | 9.38 | 9.32 |
| 65 | 326.64 | 326.58 | 317.14 | 9.50 | 9.44 |
| 66 | 327.19 | 327.14 | 317.46 | 9.73 | 9.68 |
| 67 | 327.75 | 327.70 | 317.65 | 10.10 | 10.05 |

SEE PLATE NO. 65

SEE PLATE NO. 67

MISSOURI

VANCILL LANDING

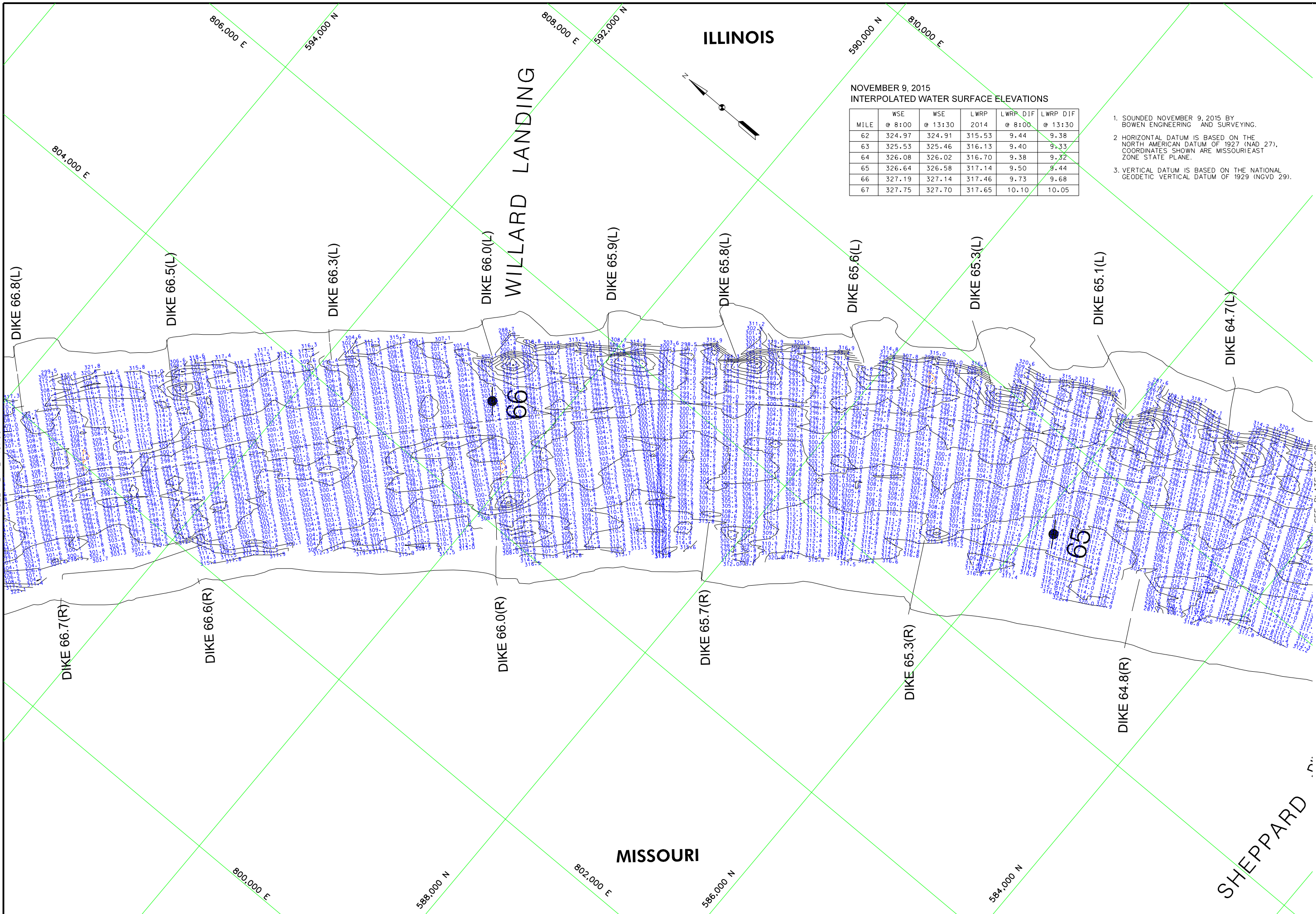
VANCILL TOWHEAD

ILLINOIS

170 0 100 200 300 400 500 600 700 800 900 1000 METERS

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED UNDER THE GENERAL CONDITIONS SET FORTH IN THE GENERAL CONDITIONS OF CONTRACT.

HYDROGRAPHIC SURVEYS
RIVER MILES 66.7 - 68.7



ILLINOIS

MISSOURI

NOVEMBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 62 | 324.97 | 324.91 | 315.53 | 9.44 | 9.38 |
| 63 | 325.53 | 325.46 | 316.13 | 9.40 | 9.33 |
| 64 | 326.08 | 326.02 | 316.70 | 9.38 | 9.32 |
| 65 | 326.64 | 326.58 | 317.14 | 9.50 | 9.44 |
| 66 | 327.19 | 327.14 | 317.46 | 9.73 | 9.68 |
| 67 | 327.75 | 327.70 | 317.65 | 10.10 | 10.05 |

1. SOUNDED NOVEMBER 9, 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).



| GAGE RECORD | | CAPE GIRARDEAU, MO | WECOSIN SPRINGS, MO | GRAND TOWER, IL | RED ROCK LANDING, MO |
|-------------|----------|--------------------|---------------------|-----------------|----------------------|
| MILE | 2014 | 52.1 | 66.3 | 81.9 | 94.1 |
| 09 NOV 2015 | 14:28:00 | 14:28:00 | 14:28:00 | 14:28:00 | 14:28:00 |
| | | 13.4718(20) | 13.4718(20) | 13.4718(20) | 13.4718(20) |
| | | 330.01 | 317.54 | 325.69 | 331.05 |
| | | X | X | X | X |

| | | | | |
|--|--|--|-----------------------------------|------------------|
| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | Survey Date: NOVEMBER 9, 2015 | Surveyed by: BOWEN ENGINEERING | Plate No.: 67 |
| Drawn by: X | Submitted: X | Checked by: X | Reviewed by: X | Approved: X |
| Plot Date: 11/09/2015 | | File Name: MISSISSIPPI_RIVER_BASIN_67.dwg | | |

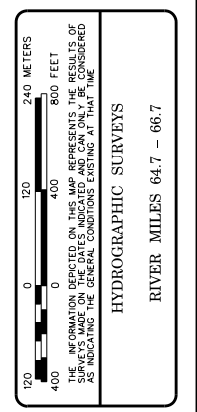


PLATE NUMBER
67

SEE PLATE NO. 66

SEE PLATE NO. 68

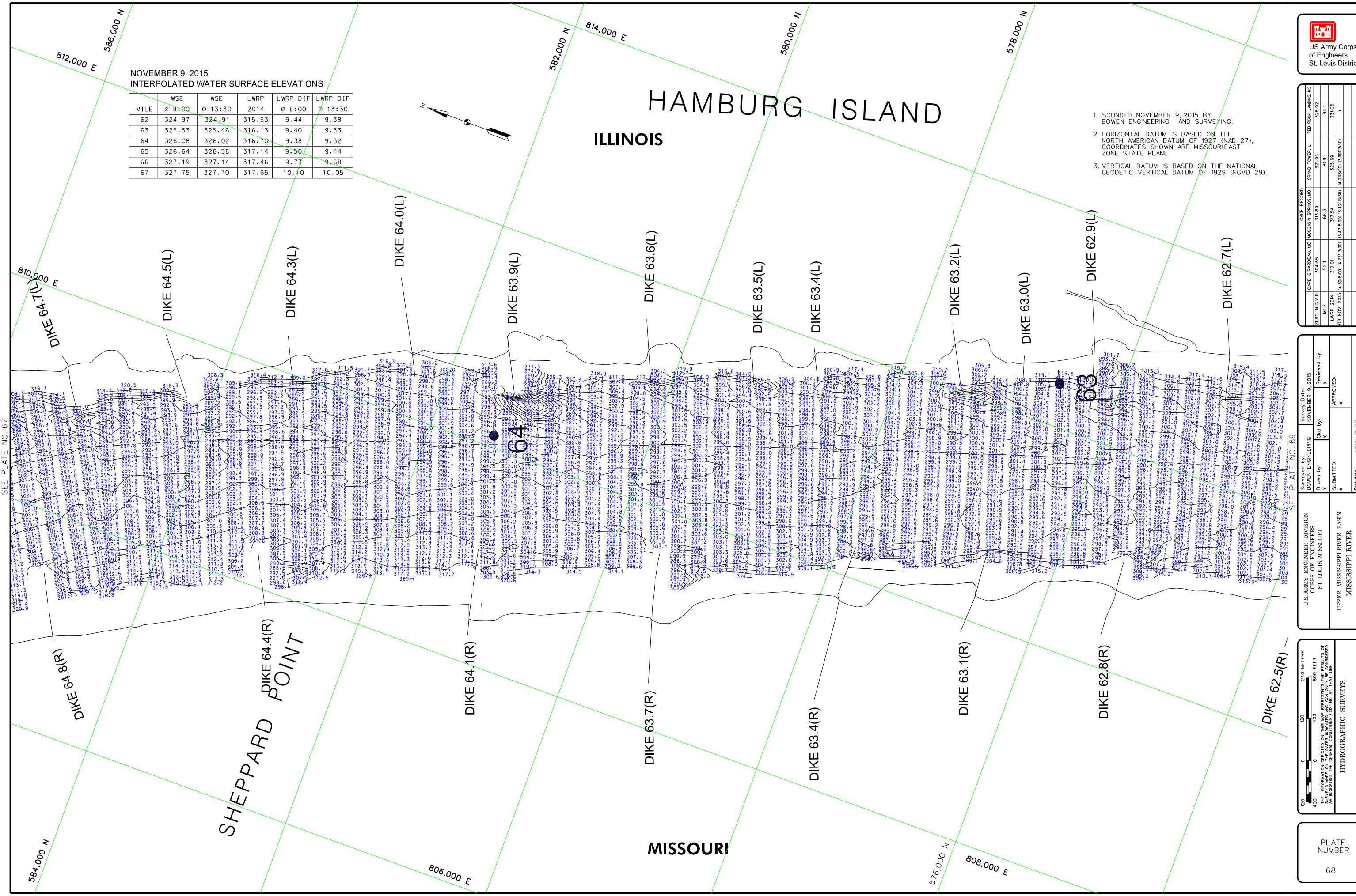
NOVEMBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE | | LWRP 2014 | LWRP DIF | |
|------|--------|---------|-----------|----------|---------|
| | @ 8:00 | @ 13:30 | | @ 8:00 | @ 13:30 |
| 62 | 324.97 | 324.91 | 315.53 | 9.44 | 9.38 |
| 63 | 325.53 | 325.46 | 316.13 | 9.40 | 9.33 |
| 64 | 326.08 | 326.02 | 316.70 | 9.38 | 9.32 |
| 65 | 326.64 | 326.58 | 317.14 | 9.50 | 9.44 |
| 66 | 327.19 | 327.14 | 317.46 | 9.73 | 9.68 |
| 67 | 327.75 | 327.70 | 317.65 | 10.10 | 10.05 |

HAMBURG ISLAND

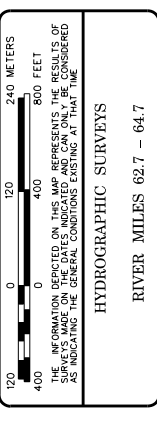
ILLINOIS

1. SOUNDED NOVEMBER 9, 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).



| GAGE RECORD | | CAPE GIRARDEAU, MO | WECOSIN SPRINGS, MO | GRAND TOWER, IL | RED ROCK LAUNING, MO |
|---------------|-------------|--------------------|---------------------|-----------------|----------------------|
| ZERO N.G.V.D. | 324.65 | 321.93 | 328.92 | | |
| MILE | 52.1 | 66.3 | 81.9 | 94.1 | |
| LWRP 2014 | 320.01 | 317.64 | 325.69 | 331.05 | X |
| 09 NOV 2015 | 14.2618(20) | 14.7113(20) | 13.4718(20) | 14.2168(20) | 13.9113(20) |

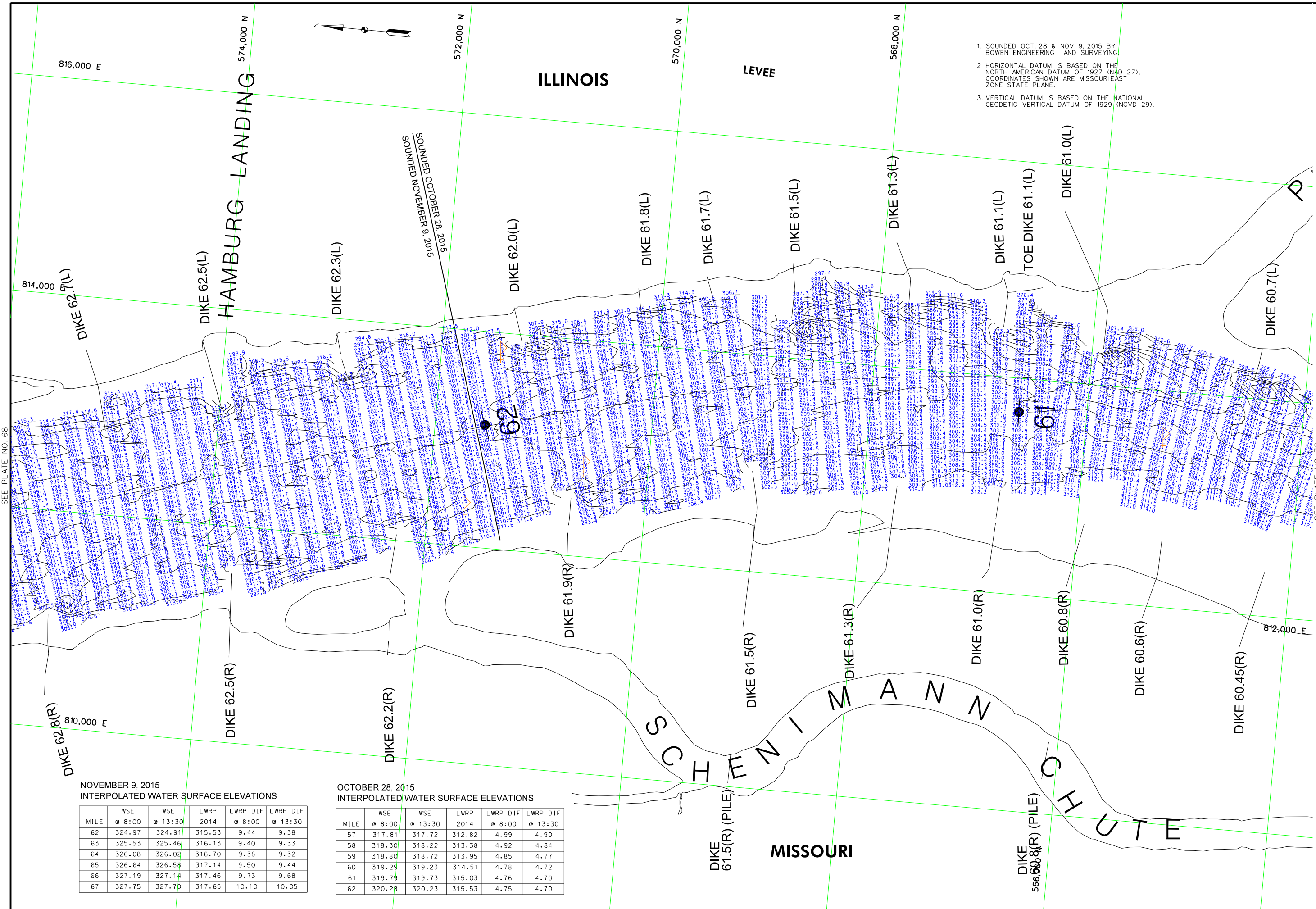
| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST LOUIS, MISSOURI | | UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | |
|---|------------------|--|-----------------------|
| Surveyed by: BOWEN ENGINEERING | November 9, 2015 | Reviewed by: X | APPROVED: X |
| Drawn by: X | Checked by: X | Submitted: X | Plot date: 11/09/2015 |
| SEE PLATE NO. 67 | | SEE PLATE NO. 69 | |





US Army Corps of Engineers
St. Louis District

1. SOUNDED OCT. 28 & NOV. 9, 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. 68

SEE PLATE NO. 70

NOVEMBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE | | LWRP 2014 | LWRP DIF | |
|------|--------|---------|-----------|----------|---------|
| | @ 8:00 | @ 13:30 | | @ 8:00 | @ 13:30 |
| 62 | 324.97 | 324.91 | 315.53 | 9.44 | 9.38 |
| 63 | 325.53 | 325.46 | 316.13 | 9.40 | 9.33 |
| 64 | 326.08 | 326.02 | 316.70 | 9.38 | 9.32 |
| 65 | 326.64 | 326.58 | 317.14 | 9.50 | 9.44 |
| 66 | 327.19 | 327.14 | 317.46 | 9.73 | 9.68 |
| 67 | 327.75 | 327.70 | 317.65 | 10.10 | 10.05 |

OCTOBER 28, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE | | LWRP 2014 | LWRP DIF | |
|------|--------|---------|-----------|----------|---------|
| | @ 8:00 | @ 13:30 | | @ 8:00 | @ 13:30 |
| 57 | 317.81 | 317.72 | 312.82 | 4.99 | 4.90 |
| 58 | 318.30 | 318.22 | 313.38 | 4.92 | 4.84 |
| 59 | 318.80 | 318.72 | 313.95 | 4.85 | 4.77 |
| 60 | 319.29 | 319.23 | 314.51 | 4.78 | 4.72 |
| 61 | 319.79 | 319.73 | 315.03 | 4.76 | 4.70 |
| 62 | 320.28 | 320.23 | 315.53 | 4.75 | 4.70 |

| CASE RECORD | | GRAND TOWER, L | |
|-----------------|--------|-----------------------|--------------------------|
| GRAYS POINT, MO | 304.65 | CAPE GARDEAU, MO | 313.89 |
| ZERO N.G.V.D. | 301.18 | MOCCASIN SPRINGS, MO | 321.93 |
| MILE | 46.3 | | 81.9 |
| LWRP 2014 | 306.20 | | 325.69 |
| 28 OCT 2015 | X | 10.718(00) 16.611(30) | 8.5218(00) 8.481(3.50) |
| 09 NOV 2015 | X | 14.262(00) 17.713(30) | 15.4718(00) 15.471(3.00) |
| | | | 14.218(00) 13.913(3.00) |

| Survey Data | | Survey Date | |
|-------------|-------------------|-------------|--------------------------|
| Surveyed by | BOWEN ENGINEERING | Survey Date | OCT 28 & NOV 9, 2015 |
| Drawn by | X | Reviewed by | X |
| Submitted | X | Approved | X |
| Plot Date | 11/10/15 | File Name | MISSOURI_RIVER_BASIN.dwg |

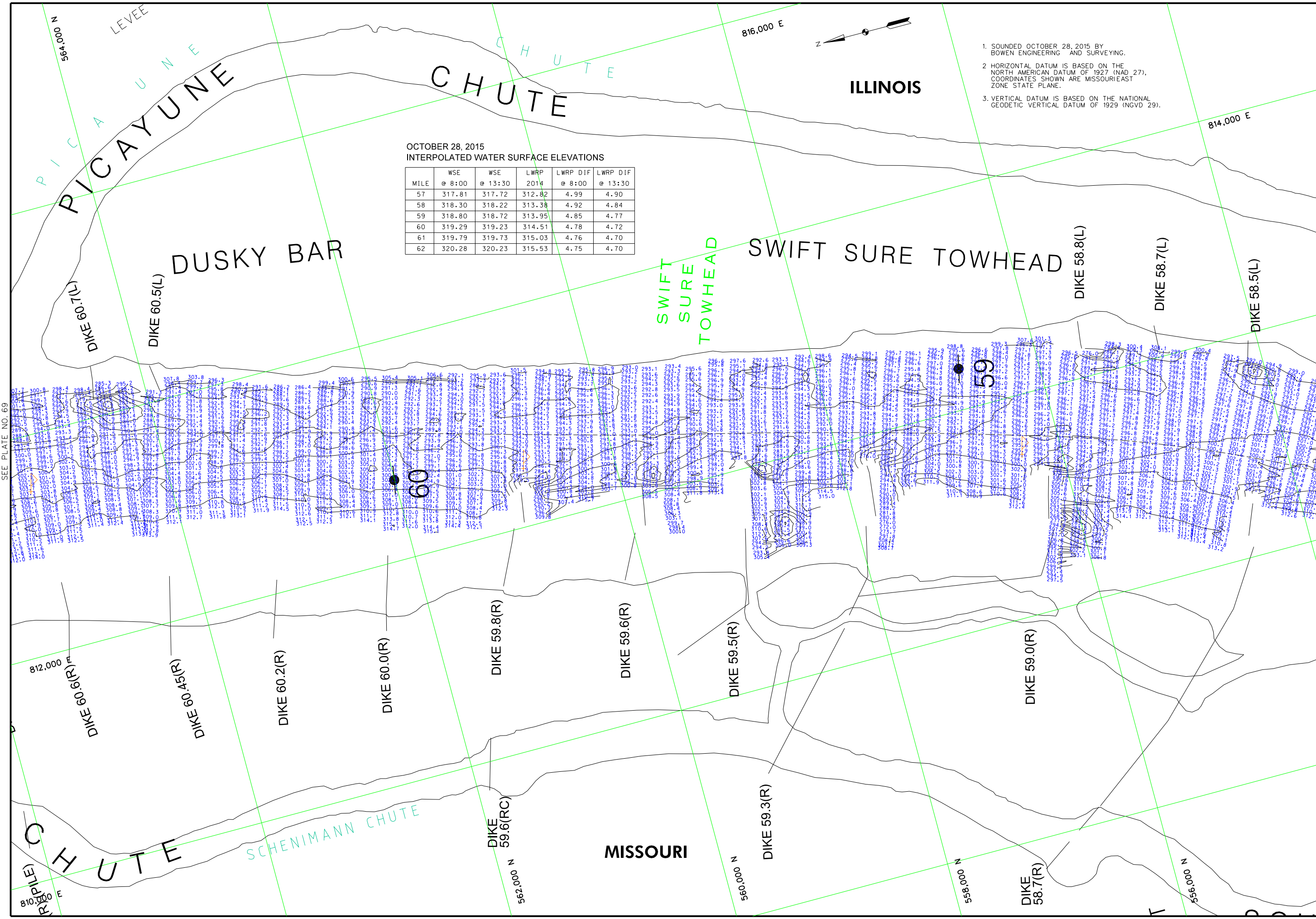
U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 60.6 - 62.7

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED BY THE U.S. ARMY ENGINEER DIVISION AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE U.S. ARMY ENGINEER DIVISION.

PLATE NUMBER
69



OCTOBER 28, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 57 | 317.81 | 317.72 | 312.82 | 4.99 | 4.90 |
| 58 | 318.30 | 318.22 | 313.38 | 4.92 | 4.84 |
| 59 | 318.80 | 318.72 | 313.95 | 4.85 | 4.77 |
| 60 | 319.29 | 319.23 | 314.51 | 4.78 | 4.72 |
| 61 | 319.79 | 319.73 | 315.03 | 4.76 | 4.70 |
| 62 | 320.28 | 320.23 | 315.53 | 4.75 | 4.70 |

1. SOUNDED OCTOBER 28, 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).

US Army Corps of Engineers
St. Louis District

| GRAYS POINT, MO | CAPE GARRETT, MO | MOCCASIN SPRINGS, MO | GRAND TOWER, L |
|-----------------|------------------|-----------------------|---------------------|
| 301.18 | 304.65 | 313.89 | 321.93 |
| 46.3 | 52.1 | 66.3 | 81.9 |
| 306.20 | 330.01 | 337.54 | 335.69 |
| X | X | 10.738(00) 16.611(30) | 8.528(00) 8.491(30) |
| | | | X |

GAGE RECORD

| | | | |
|--|--|--------------------------------|----------------|
| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | Survey Date: OCTOBER 28, 2015 | Reviewed by: X |
| Drawn by: X | Submitted: X | Checked by: X | Approved: X |
| Plot Code: #8801016 (04/08/08) | | File Name: #8801016 (04/08/08) | |

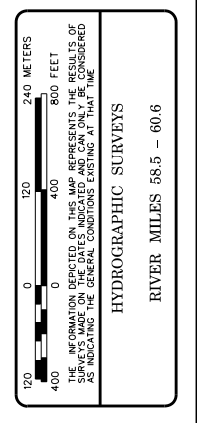


PLATE NUMBER
70

SEE PLATE NO. 69

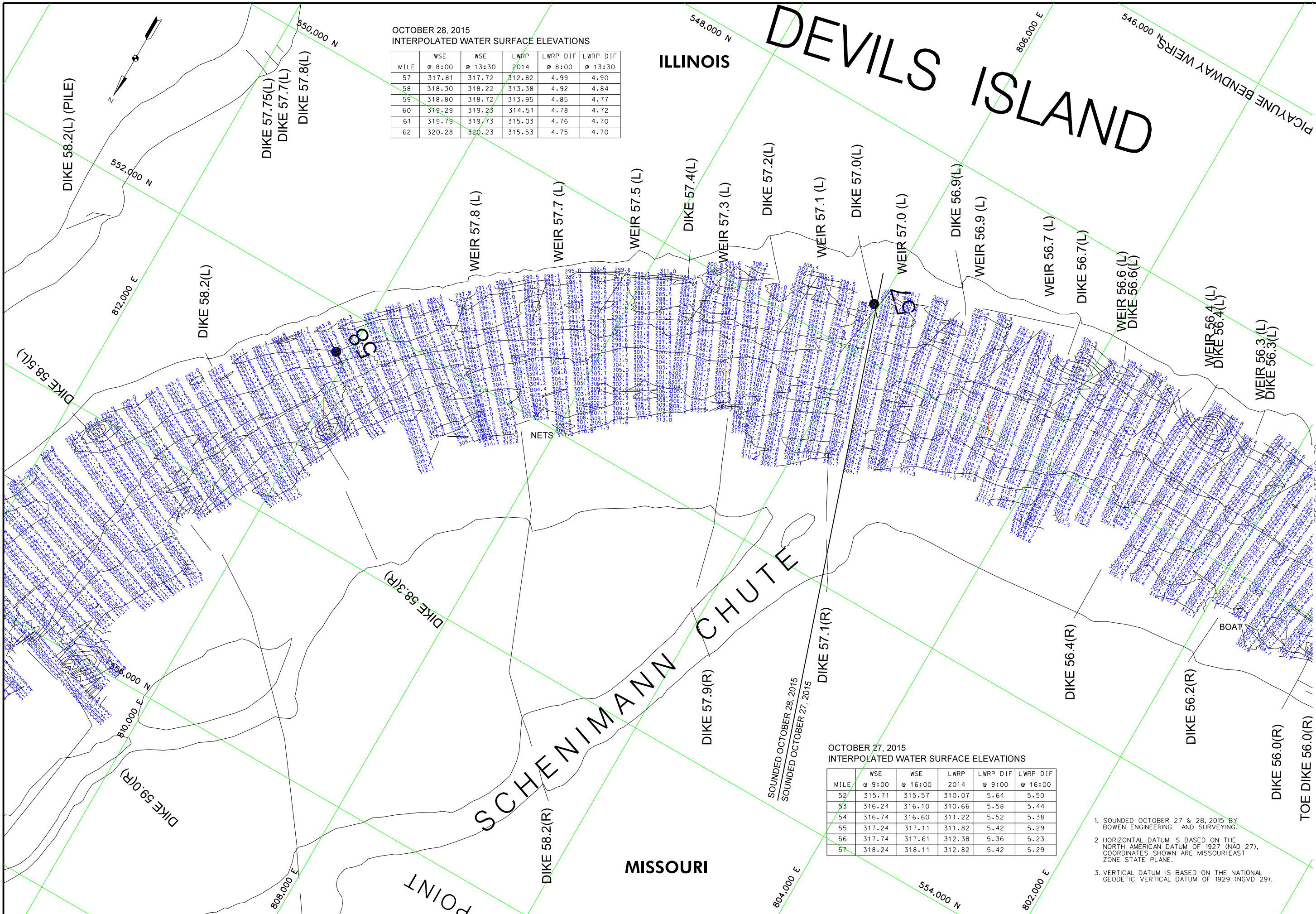
SEE PLATE NO. 71

OCTOBER 28, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 57 | 317.81 | 317.72 | 312.82 | 4.99 | 4.90 |
| 58 | 318.30 | 318.22 | 313.38 | 4.92 | 4.84 |
| 59 | 318.80 | 318.72 | 313.95 | 4.85 | 4.77 |
| 60 | 319.29 | 319.23 | 314.51 | 4.78 | 4.72 |
| 61 | 319.79 | 319.73 | 315.03 | 4.76 | 4.70 |
| 62 | 320.28 | 320.23 | 315.53 | 4.75 | 4.70 |

OCTOBER 27, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 16:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 16:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 52 | 315.71 | 315.57 | 310.07 | 5.64 | 5.50 |
| 53 | 316.24 | 316.10 | 310.66 | 5.58 | 5.44 |
| 54 | 316.74 | 316.60 | 311.22 | 5.52 | 5.38 |
| 55 | 317.24 | 317.11 | 311.82 | 5.42 | 5.29 |
| 56 | 317.74 | 317.61 | 312.38 | 5.36 | 5.23 |
| 57 | 318.24 | 318.11 | 312.82 | 5.42 | 5.29 |



GAGE RECORD

| GRAND TOWER L | GRAYS POINT MO | CAPE GARDEAU MO | MOCCASIN SPRINGS MO |
|---------------|----------------|-----------------|---------------------|
| 321.93 | 304.65 | 313.89 | 304.65 |
| 819 | 52.1 | 66.3 | 66.3 |
| 325.69 | 330.01 | 337.54 | 337.54 |
| X | X | X | X |

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Survey Dates: OCTOBER 27 & 28, 2015

Reviewed by: [Signature]

Drawn by: [Signature]

Submitted: [Signature]

Approved: [Signature]

HYDROGRAPHIC SURVEYS

RIVER MILES 56.1 - 58.5

Scale: 1" = 240 METERS

0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED BY THE U.S. ARMY CORPS OF ENGINEERS AND INDICATES THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.

SEE PLATE NO. 70

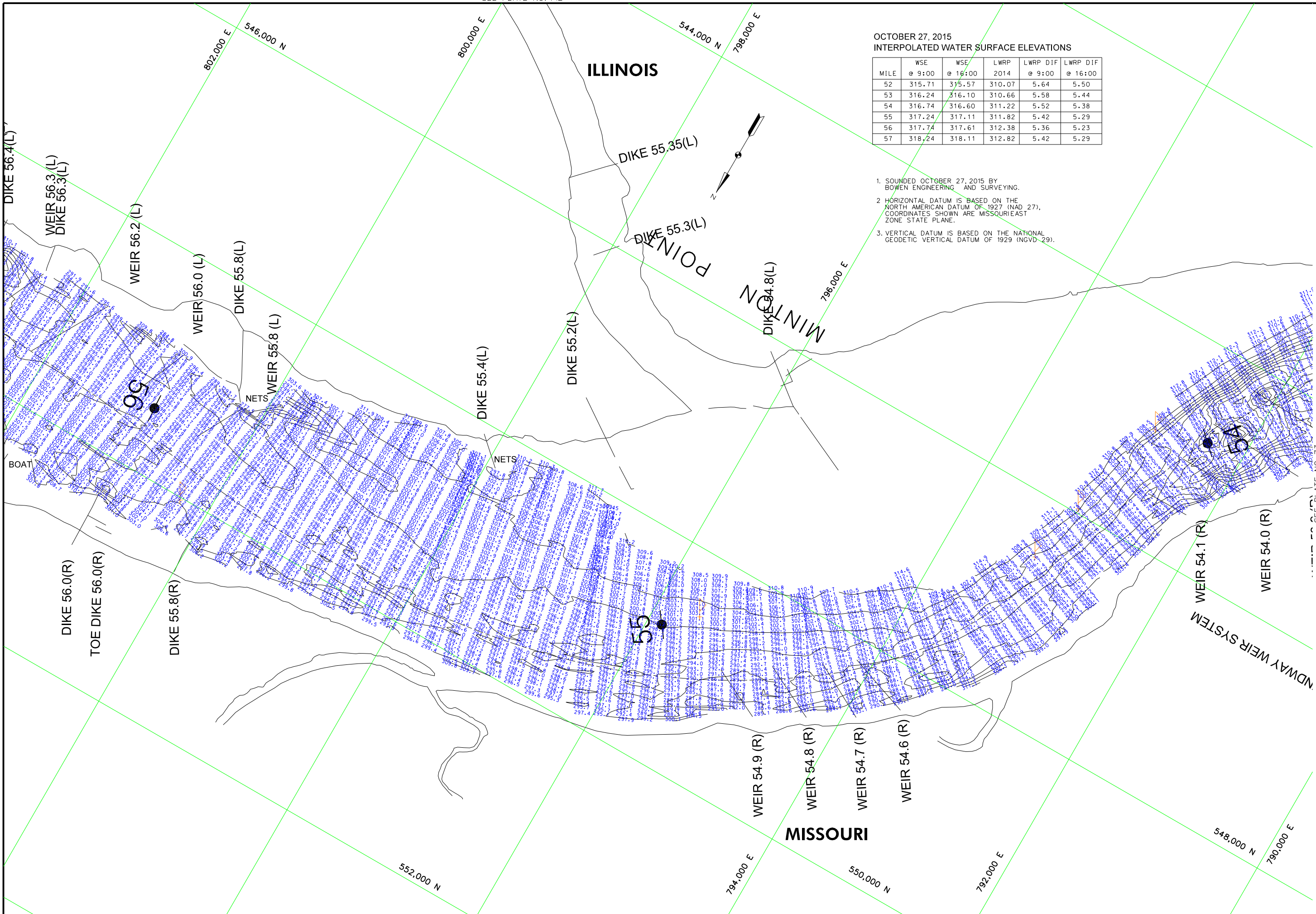
SEE PLATE NO. 72

- SOUNDED OCTOBER 27 & 28, 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).

OCTOBER 27, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 16:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 16:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 52 | 315.71 | 315.57 | 310.07 | 5.64 | 5.50 |
| 53 | 316.24 | 316.10 | 310.66 | 5.58 | 5.44 |
| 54 | 316.74 | 316.60 | 311.22 | 5.52 | 5.38 |
| 55 | 317.24 | 317.11 | 311.82 | 5.42 | 5.29 |
| 56 | 317.74 | 317.61 | 312.38 | 5.36 | 5.23 |
| 57 | 318.24 | 318.11 | 312.82 | 5.42 | 5.29 |

1. SOUNDED OCTOBER 27, 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).



US Army Corps of Engineers
St. Louis District

| GAGE RECORD | GRAVEY POINT, MO | CAPE GARRETT, MO | MOCCASIN SPRINGS, MO | GRAND TOWER, L |
|---------------|---------------------|-----------------------|----------------------|----------------|
| ZERO N.G.V.D. | 301.18 | 304.65 | 313.89 | 321.93 |
| MILE | 46.3 | 52.1 | 66.3 | 81.9 |
| LWRP 2014 | 306.20 | 310.01 | 317.54 | 325.69 |
| 27 OCT 2015 | 8.859(00) 57216(00) | 11.149(00) 110316(00) | 8.999(00) 83916(00) | |

| | | | | |
|--|-----------------------------------|-----------------|------------------|-------------------|
| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | SURVEY DATED: OCTOBER 27, 2015 | Drawn by: A | Checked by: A | Reviewed by: A |
| UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | APPROVED: X | SUBMITTED: X | APPROVED: X | APPROVED: X |

HYDROGRAPHIC SURVEYS
RIVER MILES 53.9 - 56.1

170 0 120 240 METERS
400 0 400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY CONDUCTED BY THE U.S. ARMY CORPS OF ENGINEERS AND INDICATES THE GENERAL CONDITIONS EXISTING AT THE TIME.

PLATE NUMBER
72

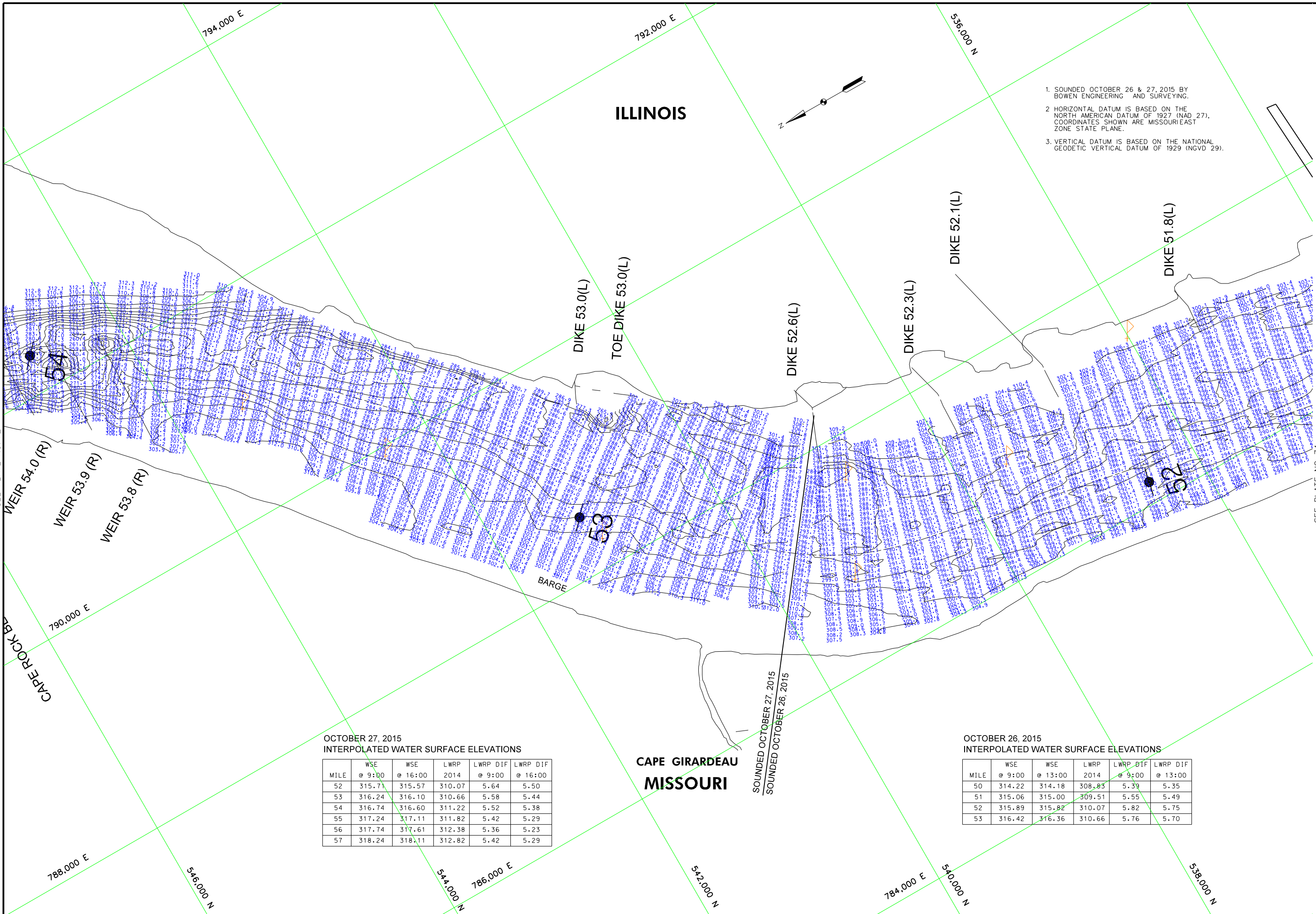
SEE PLATE NO. 71

SEE PLATE NO. 73



US Army Corps of Engineers
St. Louis District

1. SOUNDED OCTOBER 26 & 27, 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. 72

SEE PLATE NO. 74

OCTOBER 27, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 16:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 16:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 52 | 315.77 | 315.57 | 310.07 | 5.64 | 5.50 |
| 53 | 316.24 | 316.10 | 310.66 | 5.58 | 5.44 |
| 54 | 316.74 | 316.60 | 311.22 | 5.52 | 5.38 |
| 55 | 317.24 | 317.11 | 311.82 | 5.42 | 5.29 |
| 56 | 317.74 | 317.61 | 312.38 | 5.36 | 5.23 |
| 57 | 318.24 | 318.11 | 312.82 | 5.42 | 5.29 |

OCTOBER 26, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 13:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 13:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 50 | 314.22 | 314.18 | 308.83 | 5.39 | 5.35 |
| 51 | 315.06 | 315.00 | 309.51 | 5.55 | 5.49 |
| 52 | 315.89 | 315.82 | 310.07 | 5.82 | 5.75 |
| 53 | 316.42 | 316.36 | 310.66 | 5.76 | 5.70 |

| GAGE RECORD | | CAPE GIRARDEAU, MO | WOCOSIN SPRINGS, MO | GRAND TOWER, L |
|---------------|---------------------|-----------------------|---------------------|----------------|
| ZERO N.G.V.D. | 301.18 | 304.65 | 313.89 | 321.93 |
| MILE | 46.3 | 52.1 | 66.3 | 81.9 |
| LWRP 2014 | 306.20 | 310.01 | 317.54 | 325.69 |
| 26 OCT 2015 | 8,978,000 8,981,000 | 11,128,000 11,251,000 | 9,228,000 9,381,000 | X |
| 27 OCT 2015 | 8,959,000 8,721,600 | 11,149,000 11,001,600 | 8,999,000 8,876,600 | X |

| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | | Survey Dates: OCTOBER 26 & 27, 2015 | |
|--|---|--|---|
| Drawn by: | X | Checked by: | X |
| Submitted: | X | Reviewed by: | X |
| Approved: | X | | |
| UPPER MISSISSIPPI RIVER BASIN | | MISSISSIPPI RIVER | |

HYDROGRAPHIC SURVEYS
RIVER MILES 51.8 - 53.9

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS CONDUCTED UNDER THE GENERAL CONDITIONS SPECIFIED IN THE CONTRACT DOCUMENTS AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.

PLATE NUMBER
73

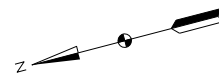
OCTOBER 26, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 13:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 13:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 50 | 314.22 | 314.18 | 308.83 | 5.39 | 5.35 |
| 51 | 315.06 | 315.00 | 309.51 | 5.55 | 5.49 |
| 52 | 315.89 | 315.82 | 310.07 | 5.82 | 5.75 |
| 53 | 316.42 | 316.36 | 310.66 | 5.76 | 5.70 |

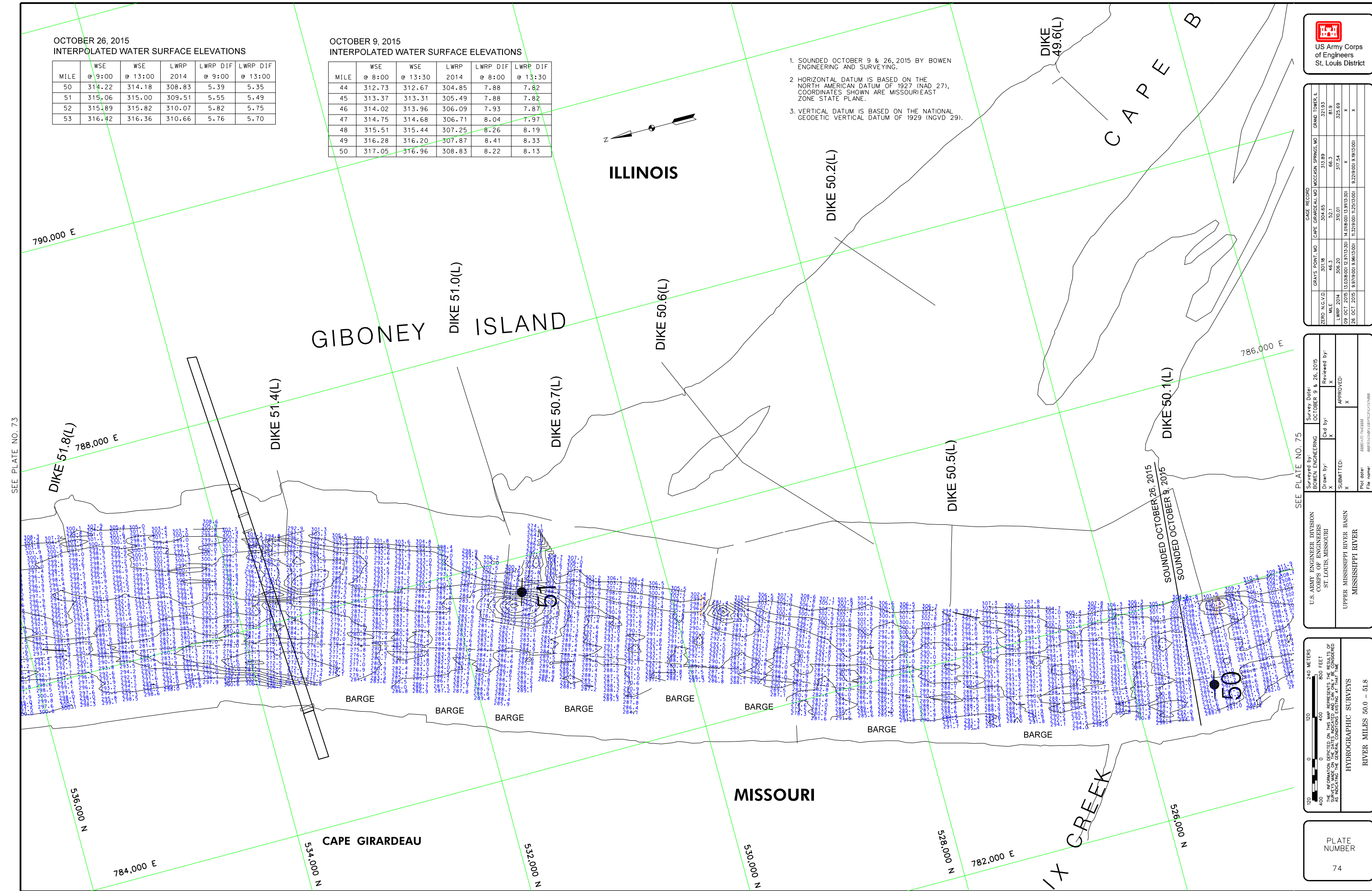
OCTOBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 44 | 312.73 | 312.67 | 304.85 | 7.88 | 7.82 |
| 45 | 313.37 | 313.31 | 305.49 | 7.88 | 7.82 |
| 46 | 314.02 | 313.96 | 306.09 | 7.93 | 7.87 |
| 47 | 314.75 | 314.68 | 306.71 | 8.04 | 7.97 |
| 48 | 315.51 | 315.44 | 307.25 | 8.26 | 8.19 |
| 49 | 316.28 | 316.20 | 307.87 | 8.41 | 8.33 |
| 50 | 317.05 | 316.96 | 308.83 | 8.22 | 8.13 |

1. SOUNDED OCTOBER 9 & 26, 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).



ILLINOIS



SEE PLATE NO. 73

SEE PLATE NO. 75



| GAGE RECORD | |
|-----------------|--------------------|
| GRAYS POINT, MO | CAPE GIRARDEAU, MO |
| ZERO N.G.V.D. | 304.65 |
| MILE | 52.1 |
| LWRP 2014 | 306.20 |
| 09 OCT 2015 | 315.89 |
| 26 OCT 2015 | 316.42 |

| U.S. ARMY ENGINEER DIVISION | |
|-----------------------------------|-------------------------------|
| ST. LOUIS, MISSOURI | UPPER MISSISSIPPI RIVER BASIN |
| MISSOURI RIVER | MISSISSIPPI RIVER |
| Survey Date: OCTOBER 9 & 26, 2015 | Reviewed by: [Signature] |
| Drawn by: [Signature] | APPROVED: [Signature] |
| Submitted: [Signature] | Plot Date: [Signature] |

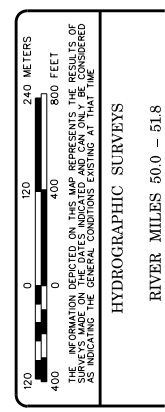
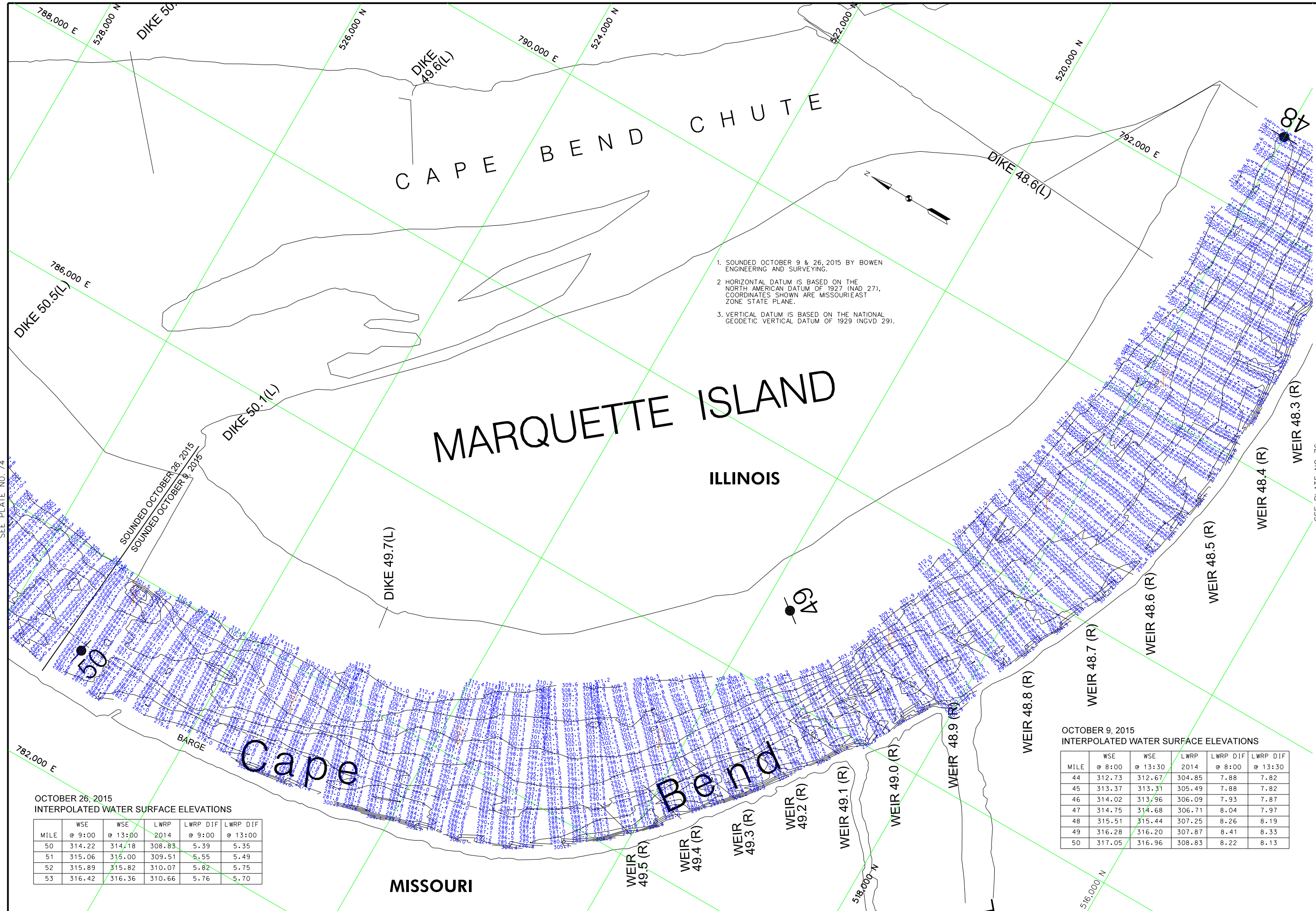


PLATE NUMBER
74

| DATE | PROJECT | LOCATION | COORDINATES | STATUS |
|-------------|-----------------|----------|-------------|--------|
| 09 OCT 2015 | CAPE BEND CHUTE | MISSOURI | 317.54 | X |
| 26 OCT 2015 | CAPE BEND CHUTE | MISSOURI | 325.69 | X |

| | |
|--|--|
| U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI | U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI |
| UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER | UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER |
| Drawn by: X | Reviewed by: X |
| Submitted: X | Approved: X |

HYDROGRAPHIC SURVEYS
RIVER MILES 48.3 - 50.0



1. SOUNDED OCTOBER 9 & 26, 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).

OCTOBER 26, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 13:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 13:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 50 | 314.22 | 314.18 | 308.83 | 5.39 | 5.35 |
| 51 | 315.06 | 315.00 | 309.51 | 5.55 | 5.49 |
| 52 | 315.89 | 315.82 | 310.07 | 5.82 | 5.75 |
| 53 | 316.42 | 316.36 | 310.66 | 5.76 | 5.70 |

OCTOBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 44 | 312.73 | 312.67 | 304.85 | 7.88 | 7.82 |
| 45 | 313.37 | 313.31 | 305.49 | 7.88 | 7.82 |
| 46 | 314.02 | 313.96 | 306.09 | 7.93 | 7.87 |
| 47 | 314.75 | 314.68 | 306.71 | 8.04 | 7.97 |
| 48 | 315.51 | 315.44 | 307.25 | 8.26 | 8.19 |
| 49 | 316.28 | 316.20 | 307.87 | 8.41 | 8.33 |
| 50 | 317.05 | 316.96 | 308.83 | 8.22 | 8.13 |

SEE PLATE NO. 74

SEE PLATE NO. 76

SOUNDED OCTOBER 26, 2015
SOUNDED OCTOBER 9, 2015

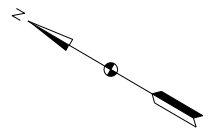
BARGE

Cape Bend

MISSOURI

MARQUETTE ISLAND
ILLINOIS

CAPE BEND CHUTE



49

48

50

SOUNDED OCTOBER 26, 2015
SOUNDED OCTOBER 9, 2015

DIKE 50.1(L)

DIKE 50.5(L)

DIKE 49.6(L)

DIKE 48.6(L)

DIKE 49.7(L)

WEIR 49.5 (R)

WEIR 49.4 (R)

WEIR 49.3 (R)

WEIR 49.2 (R)

WEIR 49.1 (R)

WEIR 49.0 (R)

WEIR 48.9 (R)

WEIR 48.8 (R)

WEIR 48.7 (R)

WEIR 48.6 (R)

WEIR 48.5 (R)

WEIR 48.4 (R)

WEIR 48.3 (R)

WEIR 48.2 (R)

WEIR 48.1 (R)

WEIR 48.0 (R)

782,000 E

786,000 E

790,000 E

792,000 E

528,000 N

526,000 N

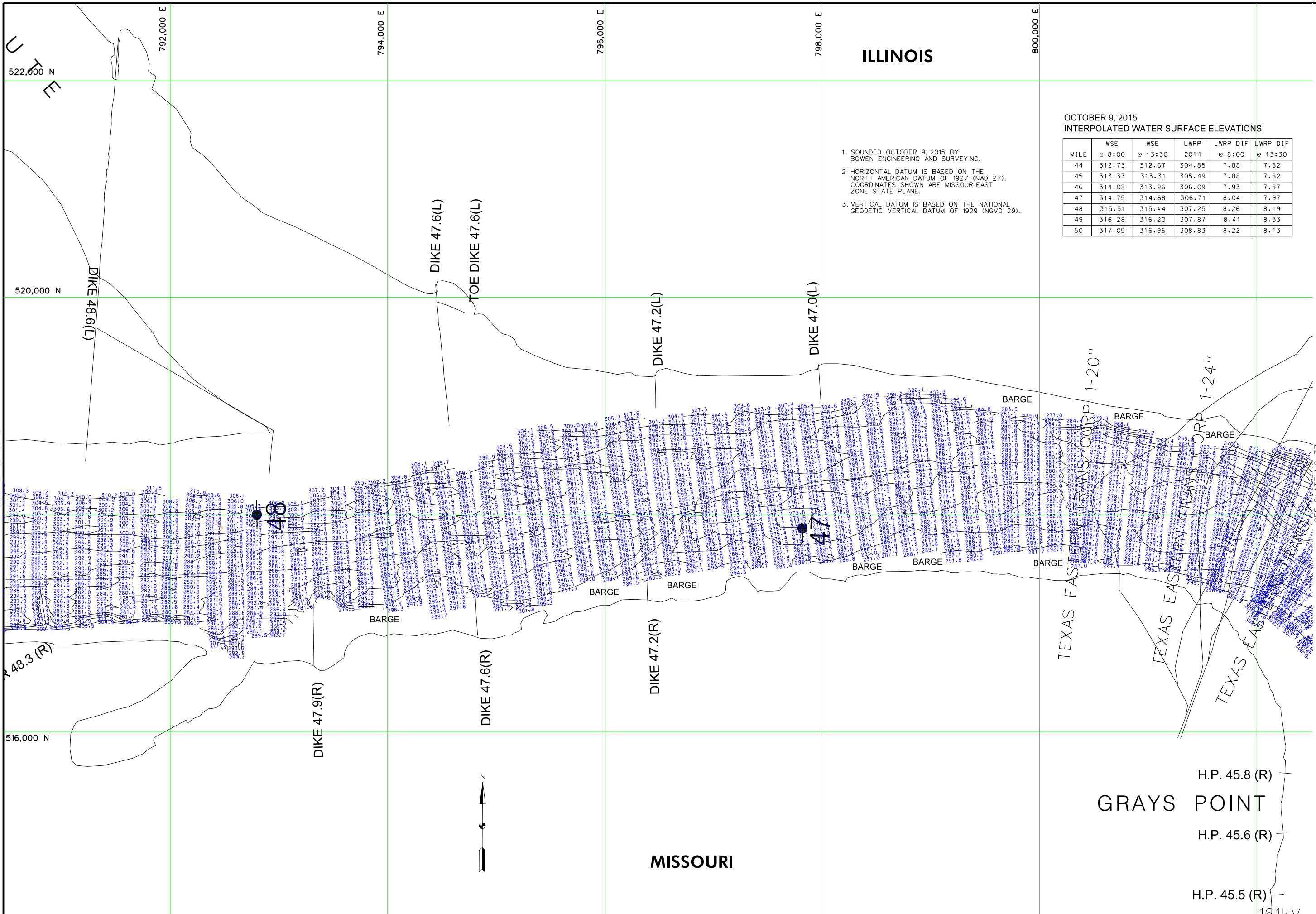
524,000 N

522,000 N

520,000 N

518,000 N

516,000 N



ILLINOIS

1. SOUNDED OCTOBER 9, 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).

OCTOBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 44 | 312.73 | 312.67 | 304.85 | 7.88 | 7.82 |
| 45 | 313.37 | 313.31 | 305.49 | 7.88 | 7.82 |
| 46 | 314.02 | 313.96 | 306.09 | 7.93 | 7.87 |
| 47 | 314.75 | 314.68 | 306.71 | 8.04 | 7.97 |
| 48 | 315.51 | 315.44 | 307.25 | 8.26 | 8.19 |
| 49 | 316.28 | 316.20 | 307.87 | 8.41 | 8.33 |
| 50 | 317.05 | 316.96 | 308.83 | 8.22 | 8.13 |

SEE PLATE NO. 75

SEE PLATE NO. 77



| GAGE RECORD | | GRAY'S POINT, MO | | CAPE GARRETT, MO | |
|-------------|-------------------------|------------------|-------------------------|------------------|-------------------------|
| DATE | WATER SURFACE ELEVATION | DATE | WATER SURFACE ELEVATION | DATE | WATER SURFACE ELEVATION |
| 09 OCT 2015 | 317.05 | 13.03.86.00 | 307.87 | 13.03.86.00 | 308.83 |
| 09 OCT 2015 | 316.28 | 13.03.86.00 | 307.25 | 13.03.86.00 | 307.25 |
| 09 OCT 2015 | 314.75 | 13.03.86.00 | 306.71 | 13.03.86.00 | 306.71 |
| 09 OCT 2015 | 313.37 | 13.03.86.00 | 305.49 | 13.03.86.00 | 305.49 |
| 09 OCT 2015 | 312.73 | 13.03.86.00 | 304.85 | 13.03.86.00 | 304.85 |

| U.S. ARMY ENGINEER DIVISION | | CORPS OF ENGINEERS | | ST. LOUIS, MISSOURI | |
|------------------------------|-------------------|----------------------|-------------------------|---------------------|----|
| Uppr Mississippi River Basin | Mississippi River | Hydrographic Surveys | River Miles 46.3 - 48.3 | Plate Number | 76 |

| HYDROGRAPHIC SURVEYS | |
|--|------------------------|
| Scale: 1" = 400 Feet | Scale: 1" = 240 Meters |
| 0 400 800 FEET | 0 120 240 METERS |
| 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. | |

| APPROVED: | |
|-------------------------------|--------------------------------|
| Drawn by: Bowen Engineering | Reviewed by: Bowen Engineering |
| Checked by: Bowen Engineering | Reviewed by: Bowen Engineering |
| Submitted: Bowen Engineering | Approved: Bowen Engineering |

PLATE NUMBER 76



US Army Corps of Engineers
St. Louis District

OCTOBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 44 | 312.73 | 312.67 | 304.85 | 7.88 | 7.82 |
| 45 | 313.37 | 313.31 | 305.49 | 7.88 | 7.82 |
| 46 | 314.02 | 313.96 | 306.09 | 7.93 | 7.87 |
| 47 | 314.75 | 314.68 | 306.71 | 8.04 | 7.97 |
| 48 | 315.51 | 315.44 | 307.25 | 8.26 | 8.19 |
| 49 | 316.28 | 316.20 | 307.87 | 8.41 | 8.33 |
| 50 | 317.05 | 316.96 | 308.83 | 8.22 | 8.13 |

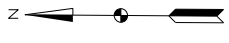
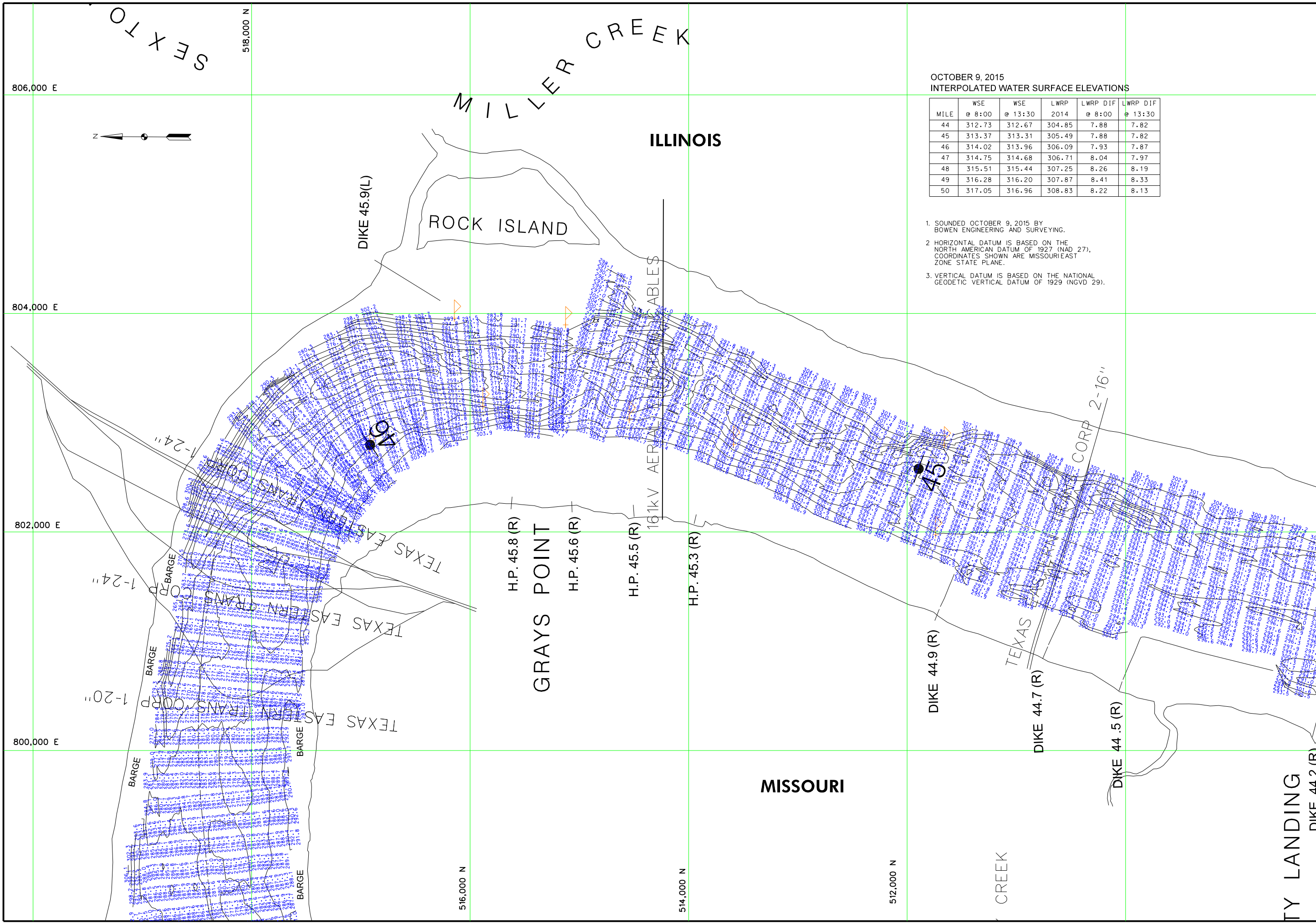
1. SOUNDED OCTOBER 9, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

| COMMERCE NO | GRAY'S POINT NO | CAPE GARRETTAL NO |
|---------------------|-------------------------|-------------------------|
| 30183 | 30118 | 30465 |
| 39.5 | 44.3 | 52.1 |
| 30148 | 30520 | 31001 |
| 8.00E+007.15E+03.0D | 13.03E+007.1E.27E+03.0D | 14.01E+007.1E.27E+03.0D |
| 09 OCT 2015 | 8.00E+007.15E+03.0D | MAC/UNC/TOWING |

| U.S. ARMY ENGINEER DIVISION | SURVEY DATE | REVIEWED BY |
|-------------------------------|----------------------|----------------------------|
| CORPS OF ENGINEERS | OCTOBER 9, 2015 | |
| ST. LOUIS, MISSOURI | Drawn by: X | Reviewed by: X |
| UPPER MISSISSIPPI RIVER BASIN | Submitted: X | APPROVED: X |
| MISSISSIPPI RIVER | Plot date: 8/28/2015 | File name: 15101001001.dwg |

| HYDROGRAPHIC SURVEYS |
|-------------------------|
| RIVER MILES 44.4 - 46.3 |

PLATE NUMBER
77



SEE PLATE NO. 76

SEE PLATE NO. 78



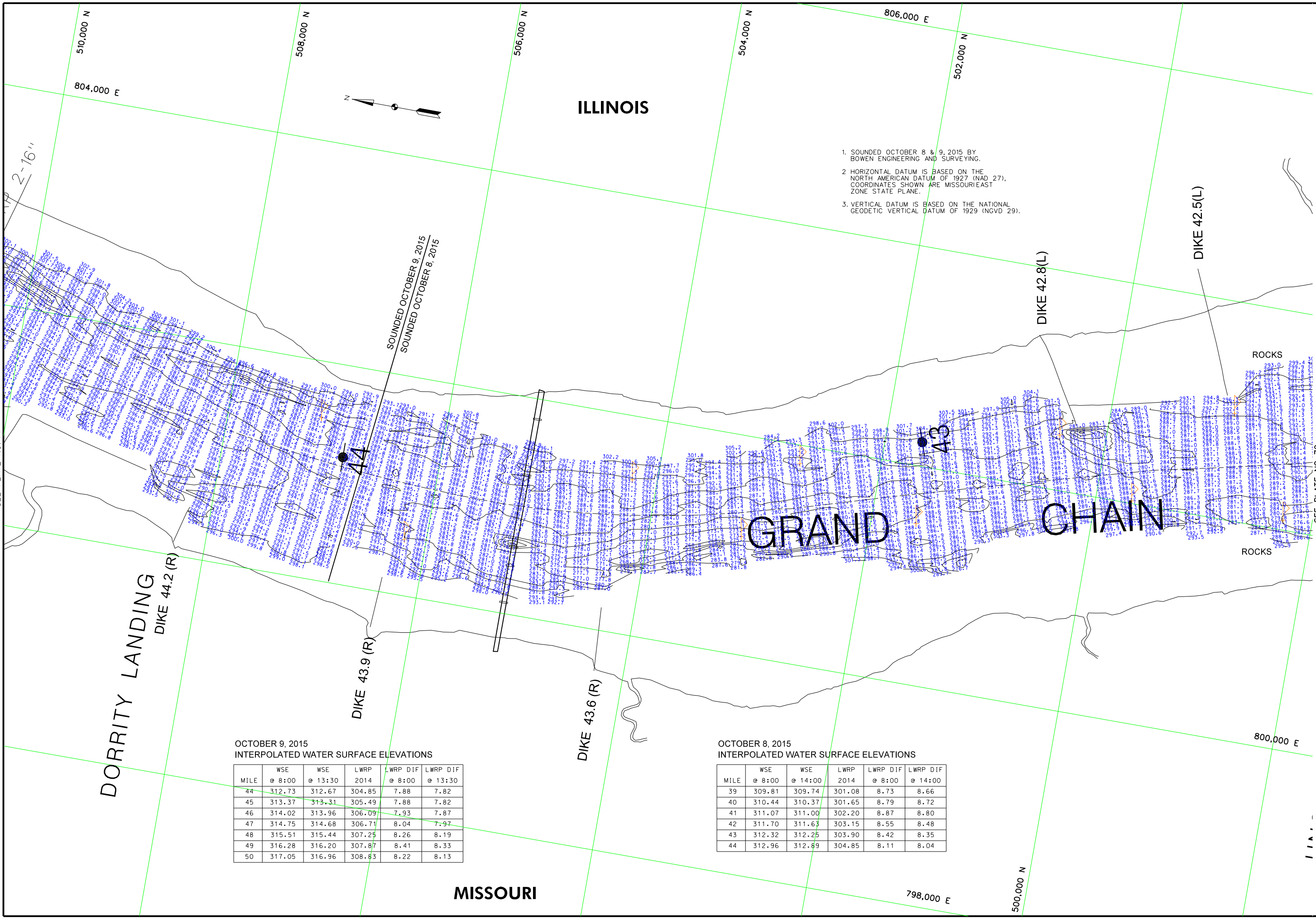
US Army Corps of Engineers
St. Louis District

| COMMERCE NO. | ZERO N.G.V.D. MILE | GRAY'S POINT, MO | CAPE GARRETT, MO |
|---------------------|-----------------------|-----------------------|-----------------------|
| 301.83 | 39.5 | 301.18 | 304.65 |
| 301.48 | 304.00 | 46.3 | 52.1 |
| 8.30E(00) 8.21H(00) | 12.76E(00) 12.61H(00) | 13.13E(00) 12.91H(00) | 13.01E(00) 12.81H(00) |
| 08 OCT 2015 | 8.30E(00) 8.21H(00) | 12.76E(00) 12.61H(00) | 13.13E(00) 12.91H(00) |
| 09 OCT 2015 | 8.00E(00) 7.95H(00) | MAC/ON/ON/ING | 13.03E(00) 12.91H(00) |

| U.S. ARMY ENGINEER DIVISION | Survey Date | Survey Dates |
|-------------------------------|-------------------------------|---------------------|
| CORPS OF ENGINEERS | BOWEN ENGINEERING | OCTOBER 8 & 9, 2015 |
| ST. LOUIS, MISSOURI | Drawn by: | Reviewed by: |
| UPPER MISSISSIPPI RIVER BASIN | X | X |
| MISSISSIPPI RIVER | Submitted: | APPROVED: |
| | JAMES L. REIM | X |
| | Chief, Engr. Data Mgmt. Sect. | |
| | Plot date: | File name: |

| HYDROGRAPHIC SURVEYS |
|-------------------------|
| RIVER MILES 42.5 - 44.4 |

PLATE NUMBER
78



ILLINOIS

MISSOURI

- SOUNDED OCTOBER 8 & 9, 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).

SOUNDED OCTOBER 9, 2015
SOUNDED OCTOBER 8, 2015

OCTOBER 9, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 13:30 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 13:30 |
|------|------------|-------------|-----------|-----------------|------------------|
| 44 | 312.73 | 312.67 | 304.85 | 7.88 | 7.82 |
| 45 | 313.37 | 313.31 | 305.49 | 7.88 | 7.82 |
| 46 | 314.02 | 313.96 | 306.09 | 7.93 | 7.87 |
| 47 | 314.75 | 314.68 | 306.71 | 8.04 | 7.97 |
| 48 | 315.51 | 315.44 | 307.25 | 8.26 | 8.19 |
| 49 | 316.28 | 316.20 | 307.87 | 8.41 | 8.33 |
| 50 | 317.05 | 316.96 | 308.83 | 8.22 | 8.13 |

OCTOBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 39 | 309.81 | 309.74 | 301.08 | 8.73 | 8.66 |
| 40 | 310.44 | 310.37 | 301.65 | 8.79 | 8.72 |
| 41 | 311.07 | 311.00 | 302.20 | 8.87 | 8.80 |
| 42 | 311.70 | 311.63 | 303.15 | 8.55 | 8.48 |
| 43 | 312.32 | 312.25 | 303.90 | 8.42 | 8.35 |
| 44 | 312.96 | 312.89 | 304.85 | 8.11 | 8.04 |

SEE PLATE NO. 77

SEE PLATE NO. 79

DORRITY LANDING
DIKE 44.2 (R)

DIKE 43.9 (R)

DIKE 43.6 (R)

DIKE 42.8 (L)

DIKE 42.5 (L)

GRAND CHAIN

ROCKS

ROCKS

510,000 N
804,000 E

508,000 N

506,000 N

504,000 N

806,000 E

502,000 N

800,000 E

798,000 E

500,000 N



US Army Corps of Engineers
St. Louis District

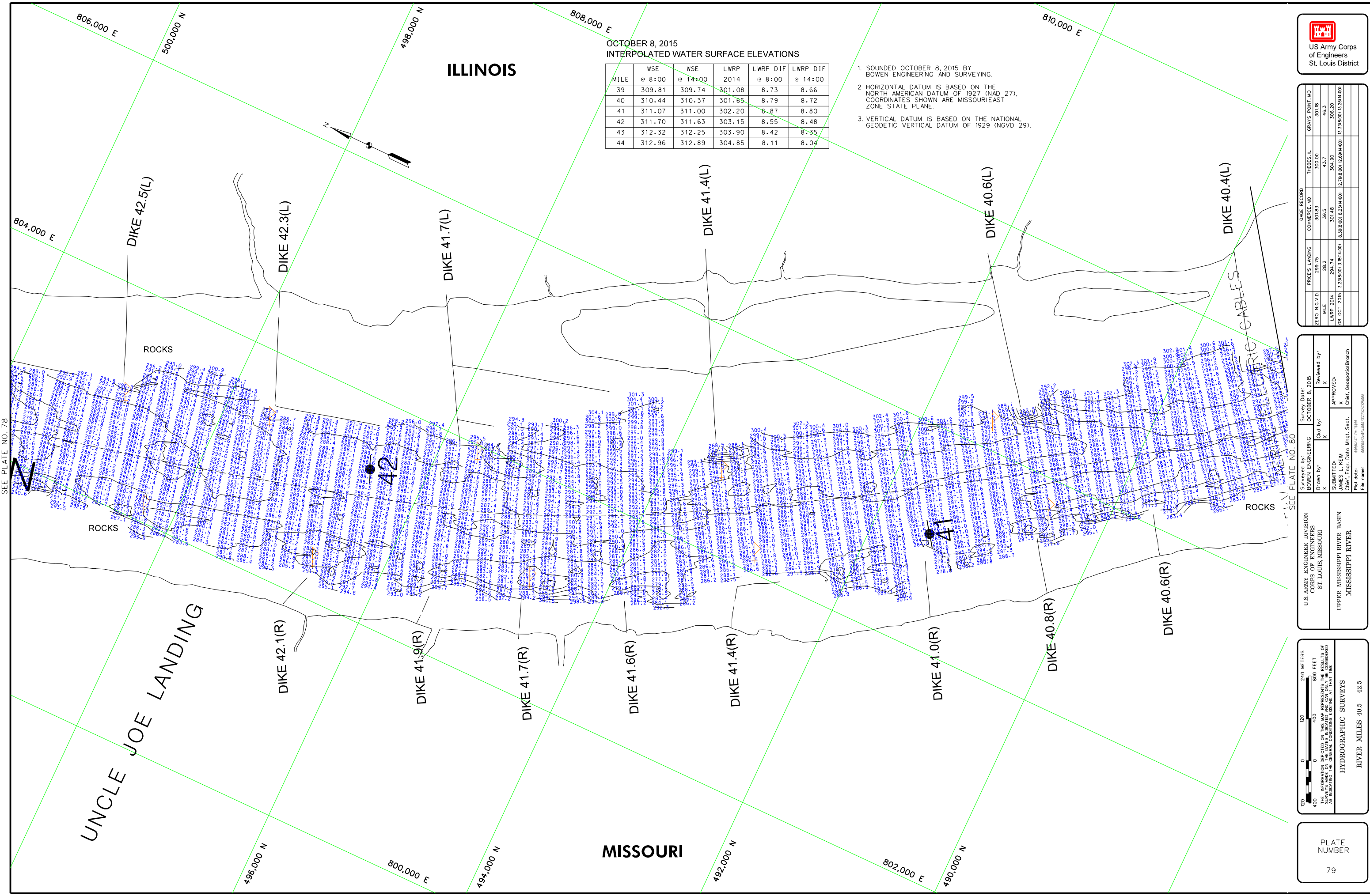
OCTOBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 39 | 309.81 | 309.74 | 301.08 | 8.73 | 8.66 |
| 40 | 310.44 | 310.37 | 301.65 | 8.79 | 8.72 |
| 41 | 311.07 | 311.00 | 302.20 | 8.87 | 8.80 |
| 42 | 311.70 | 311.63 | 303.15 | 8.55 | 8.48 |
| 43 | 312.32 | 312.25 | 303.90 | 8.42 | 8.35 |
| 44 | 312.96 | 312.89 | 304.85 | 8.11 | 8.04 |

1. SOUNDED OCTOBER 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).

ILLINOIS

MISSOURI



SEE PLATE NO. 78

SEE PLATE NO. 80

| PRICE'S LANDING | COMMERCE NO. | THERES, L | GRAYS POINT, MO |
|-----------------|--------------|------------|-----------------|
| 299.75 | 301.83 | 300.00 | 301.18 |
| 28.2 | 39.5 | 43.7 | 46.3 |
| 284.74 | 301.48 | 304.90 | 306.20 |
| 3.338E+00 | 8.305E+00 | 12.765E+00 | 13.338E+00 |
| 08 OCT 2015 | 13.814E+00 | 12.765E+00 | 12.814E+00 |

| Survey Date: | Survey Date: |
|-----------------|------------------------------|
| October 8, 2015 | October 8, 2015 |
| Drawn by: | Reviewed by: |
| James L. Heim | Chief, Eng. Data Mgt. Sect. |
| Submitted: | Approved: |
| James L. Heim | Chief, Geospatial Branch |
| Plot date: | File name: |
| 10/08/2015 | MISSOURI_RIVER_40.5-42.5.dwg |

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

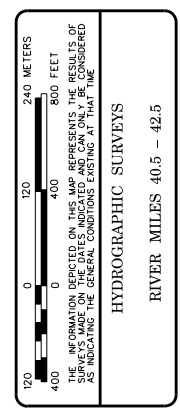


PLATE NUMBER
79



US Army Corps of Engineers
St. Louis District

| GRAYS POINT, MO | HERBES, L | COMMERCE, MO | PRICE'S LANDING | ZERO N.G.V.D. |
|-----------------|-----------|--------------|-----------------|---------------|
| 301.18 | 300.00 | 299.75 | 298.75 | 301.83 |
| 46.3 | 44.7 | 28.2 | 28.2 | 39.5 |
| 306.20 | 304.00 | 294.74 | 294.74 | 301.48 |
| 13,338.00 | 14,741.00 | 9,701.00 | 4,831.00 | 14,741.00 |
| 12,261.00 | 13,338.00 | 8,305.00 | 3,238.00 | 12,261.00 |

| U.S. ARMY ENGINEER DIVISION | ST. LOUIS, MISSOURI | UPPER MISSISSIPPI RIVER BASIN | MISSISSIPPI RIVER |
|-----------------------------------|-------------------------------------|-------------------------------|-----------------------|
| Surveyed by: BOWEN ENGINEERING | Survey Date: OCTOBER 5 & 8, 2015 | Drawn by: X | Reviewed by: X |
| Submitted: X | Approved: X | Plot date: #888888 | File name: #888888 |

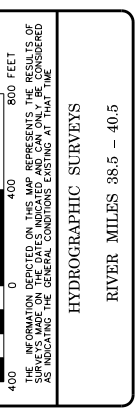
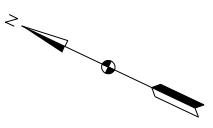


PLATE NUMBER
80

1. SOUNDED OCTOBER 5 & 8, 2015 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927. COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

ILLINOIS



DIKE 39.6(L)

WEIR 39.6(L)

MISSOURI

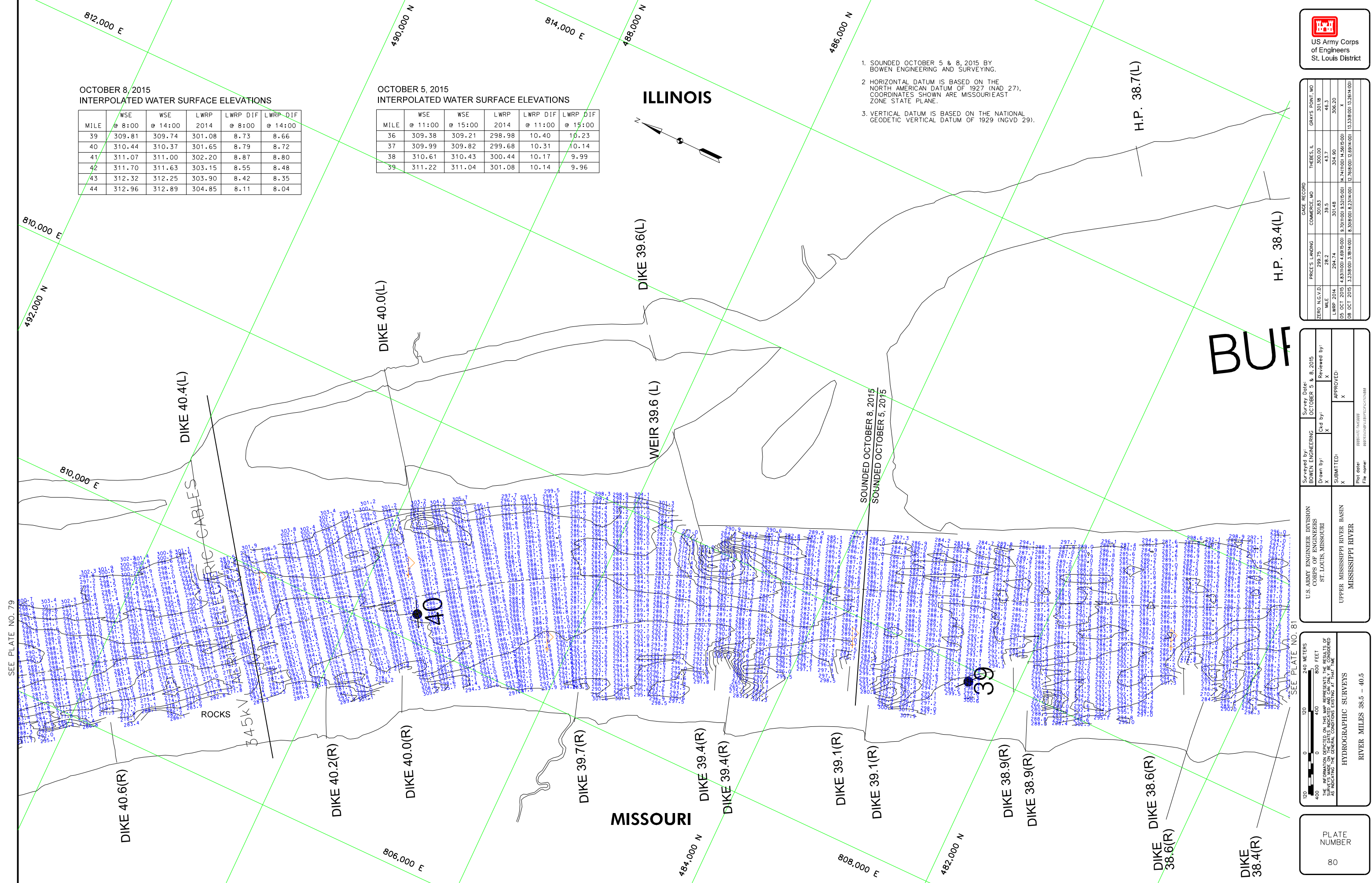
BUF

OCTOBER 8, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 8:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 8:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 39 | 309.81 | 309.74 | 301.08 | 8.73 | 8.66 |
| 40 | 310.44 | 310.37 | 301.65 | 8.79 | 8.72 |
| 41 | 311.07 | 311.00 | 302.20 | 8.87 | 8.80 |
| 42 | 311.70 | 311.63 | 303.15 | 8.55 | 8.48 |
| 43 | 312.32 | 312.25 | 303.90 | 8.42 | 8.35 |
| 44 | 312.96 | 312.89 | 304.85 | 8.11 | 8.04 |

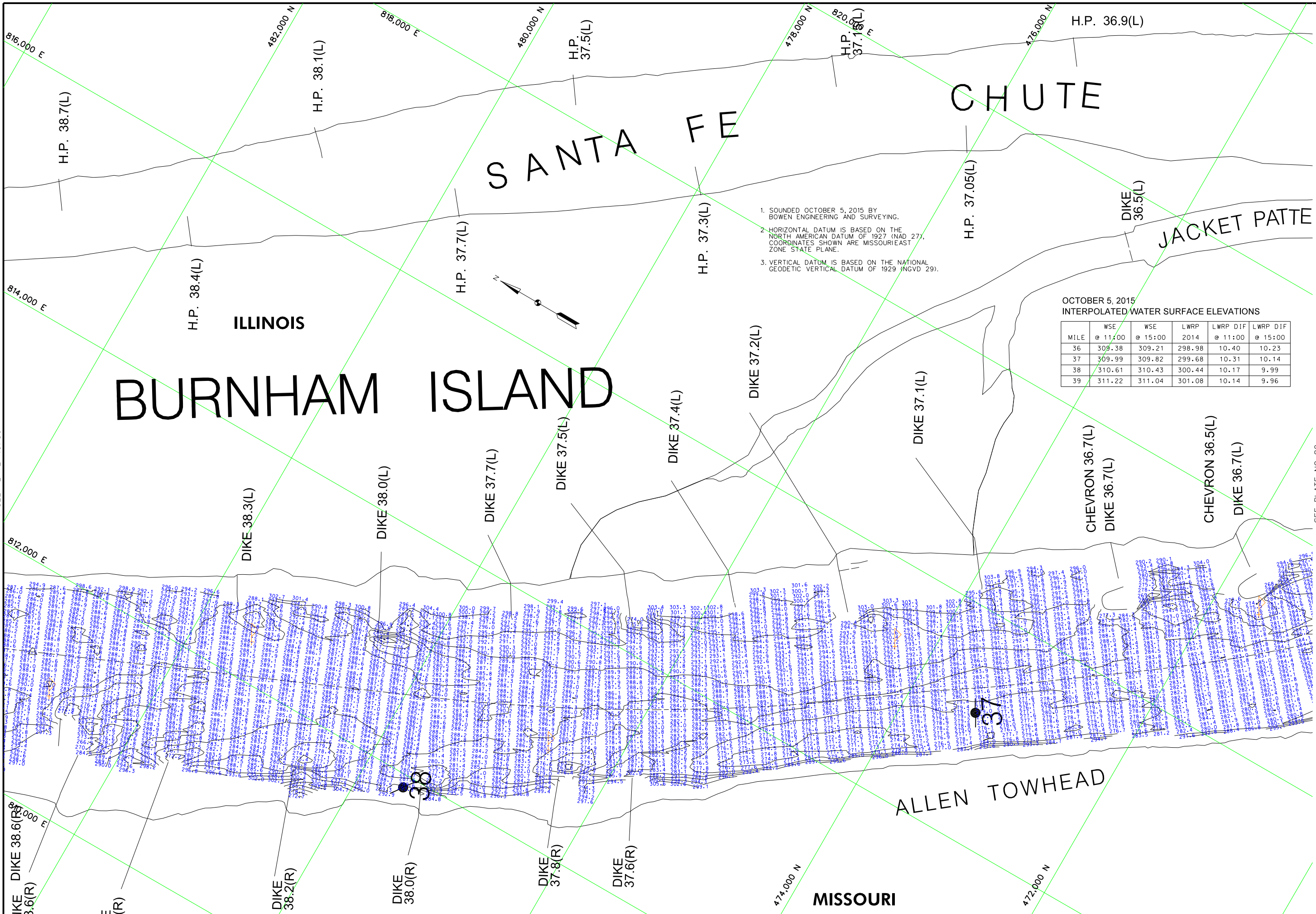
OCTOBER 5, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 11:00 | WSE @ 15:00 | LWRP 2014 | LWRP DIF @ 11:00 | LWRP DIF @ 15:00 |
|------|-------------|-------------|-----------|------------------|------------------|
| 36 | 309.38 | 309.21 | 298.98 | 10.40 | 10.23 |
| 37 | 309.99 | 309.82 | 299.68 | 10.31 | 10.14 |
| 38 | 310.61 | 310.43 | 300.44 | 10.17 | 9.99 |
| 39 | 311.22 | 311.04 | 301.08 | 10.14 | 9.96 |



SEE PLATE NO. 79

SEE PLATE NO. 81



1. SOUNDED OCTOBER 5, 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).

OCTOBER 5, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 11:00 | WSE @ 15:00 | LWRP 2014 | LWRP DIF @ 11:00 | LWRP DIF @ 15:00 |
|------|-------------|-------------|-----------|------------------|------------------|
| 36 | 309.38 | 309.21 | 298.98 | 10.40 | 10.23 |
| 37 | 309.99 | 309.82 | 299.68 | 10.31 | 10.14 |
| 38 | 310.61 | 310.43 | 300.44 | 10.17 | 9.99 |
| 39 | 311.22 | 311.04 | 301.08 | 10.14 | 9.96 |



US Army Corps of Engineers
St. Louis District

| THOMPSON LANDING | PRICE'S LANDING | COMMERCE MO | THEBES, IL |
|------------------|-----------------|-----------------------|-----------------------|
| 280.00 | 299.75 | 301.83 | 300.00 |
| 20.2 | 28.2 | 39.5 | 43.7 |
| 289.90 | 294.74 | 301.48 | 304.90 |
| X | X | 4.83(1000) 1.69(1500) | 9.70(1000) 15.5(1500) |

| Survey Date | Survey Date | Reviewed by |
|-----------------|-----------------|-------------|
| October 5, 2015 | October 5, 2015 | X |
| Drawn by | Checked by | Approved |
| X | X | X |

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

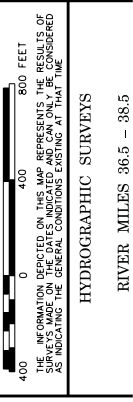
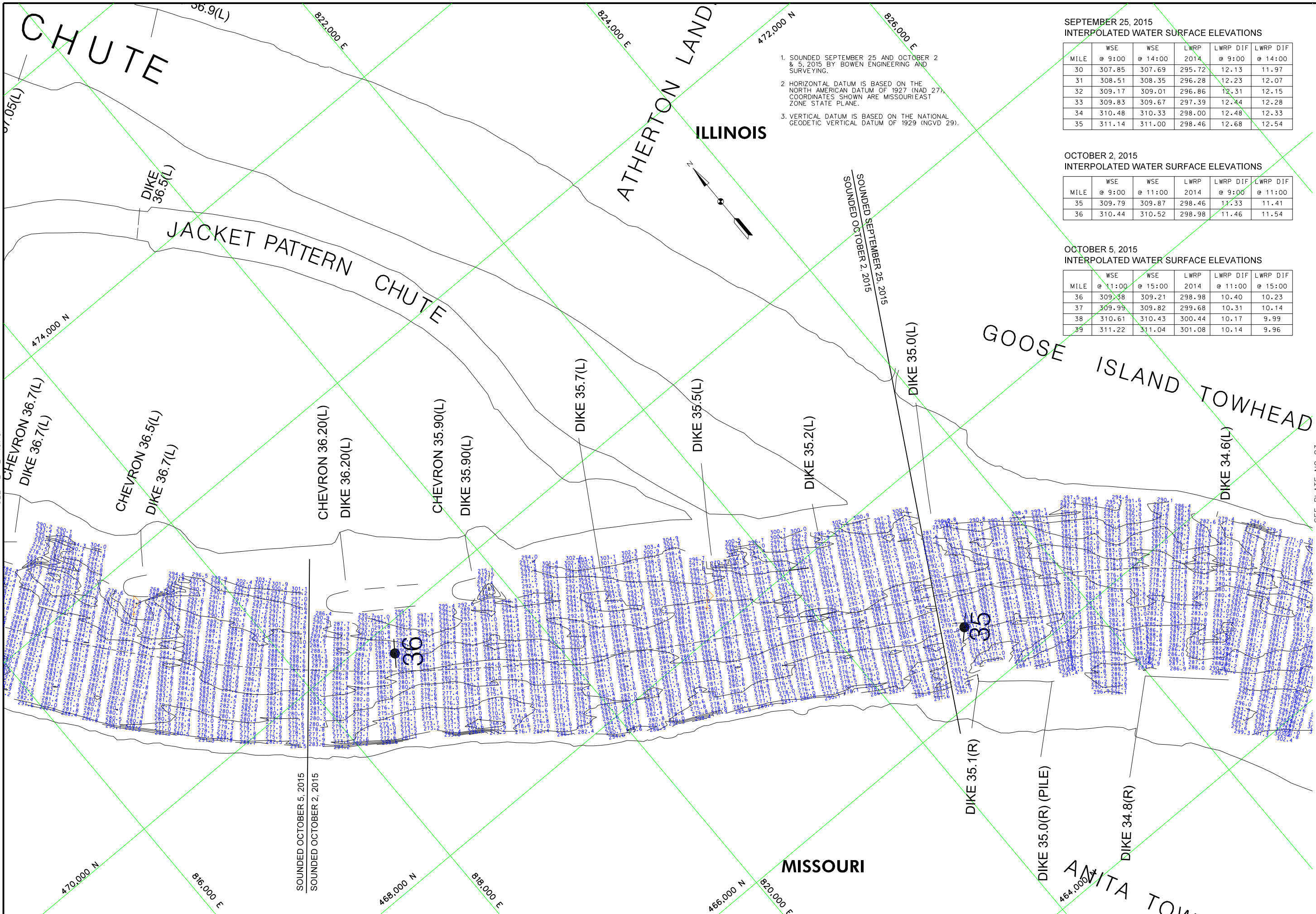


PLATE NUMBER
81

SEE PLATE NO. 80

SEE PLATE NO. 82



1. SOUNDED SEPTEMBER 25 AND OCTOBER 2 & 5, 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).

SEPTEMBER 25, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 30 | 307.85 | 307.69 | 295.72 | 12.13 | 11.97 |
| 31 | 308.51 | 308.35 | 296.28 | 12.23 | 12.07 |
| 32 | 309.17 | 309.01 | 296.86 | 12.31 | 12.15 |
| 33 | 309.83 | 309.67 | 297.39 | 12.44 | 12.28 |
| 34 | 310.48 | 310.33 | 298.00 | 12.48 | 12.33 |
| 35 | 311.14 | 311.00 | 298.46 | 12.68 | 12.54 |

OCTOBER 2, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 11:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 11:00 |
|------|------------|-------------|-----------|-----------------|------------------|
| 35 | 309.79 | 309.87 | 298.46 | 11.33 | 11.41 |
| 36 | 310.44 | 310.52 | 298.98 | 11.46 | 11.54 |

OCTOBER 5, 2015
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 11:00 | WSE @ 15:00 | LWRP 2014 | LWRP DIF @ 11:00 | LWRP DIF @ 15:00 |
|------|-------------|-------------|-----------|------------------|------------------|
| 36 | 309.38 | 309.21 | 298.98 | 10.40 | 10.23 |
| 37 | 309.99 | 309.82 | 299.68 | 10.31 | 10.14 |
| 38 | 310.61 | 310.43 | 300.44 | 10.17 | 9.99 |
| 39 | 311.22 | 311.04 | 301.08 | 10.14 | 9.96 |



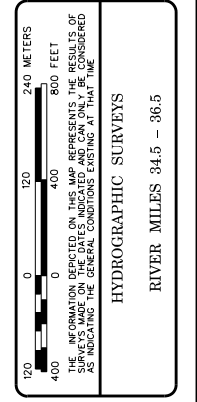
| CAGE RECORD | THOMPSON LANDING | PRICE'S LANDING | COMMERCE MO | HERBES L |
|-------------|------------------|----------------------|-----------------------|----------|
| ZERO NGVD | 280.00 | 299.75 | 301.83 | 300.00 |
| MILE 2014 | 20.2 | 28.2 | 39.5 | 43.7 |
| LWRP 2014 | 289.90 | 294.74 | 301.48 | 304.90 |
| 25 SEP 2015 | x | 5.816.00 (E.1414.00) | 12.279.00 (E.1414.00) | x |
| 02 OCT 2015 | x | 5.859.00 (E.1414.00) | 12.297.00 (E.1414.00) | x |
| 05 OCT 2015 | x | 4.831.00 (E.1414.00) | 9.707.00 (E.1414.00) | x |

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Hydrographic Surveys
RIVER MILES 34.5 - 36.5

Survey Date: SEPT. 25 - OCT. 5, 2015
Reviewed by: [Signature]
Drawn by: [Signature]
Checked by: [Signature]
Submitted: [Signature]
Approved: [Signature]
Plot Date: [Signature]
File Name: [Signature]



SEE PLATE NO. 81

SEE PLATE NO. 83