

20" Pipeline

Scale: 1 inch = 55.00 Feet



PLOT NOTES

MB SONAR DATA AND IMAGERY FROM 4/21/16 INCLUDES A COMBINATION OF THE DATA COLLECTED WITH BOTH THE RESON T50 MULTI-BEAM AND THE BLUE VIEW SCANNING SONAR.

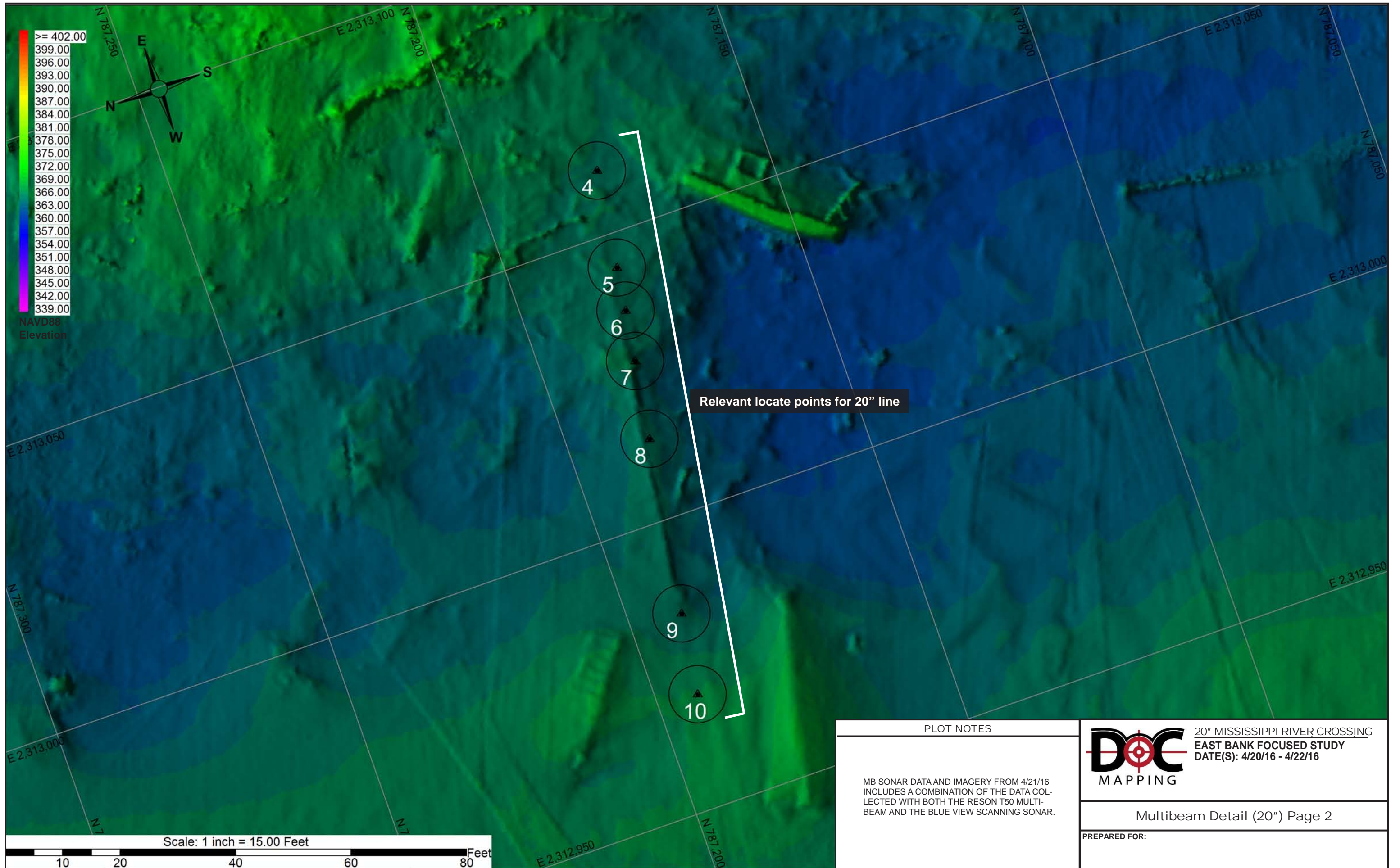


20" MISSISSIPPI RIVER CROSSING  
EAST BANK FOCUSED STUDY  
DATE(S): 4/20/16 - 4/22/16

Multibeam Detail (20") Page 1

PREPARED FOR:





>= 402.00  
 399.00  
 396.00  
 393.00  
 390.00  
 387.00  
 384.00  
 381.00  
 378.00  
 375.00  
 372.00  
 369.00  
 366.00  
 363.00  
 360.00  
 357.00  
 354.00  
 351.00  
 348.00  
 345.00  
 342.00  
 339.00

NAVD88  
Elevation

Relevant locate points for 20" line

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 INCLUDES A COMBINATION OF THE DATA COL-  
 LECTED WITH BOTH THE RESON T50 MULTI-  
 BEAM AND THE BLUE VIEW SCANNING SONAR.

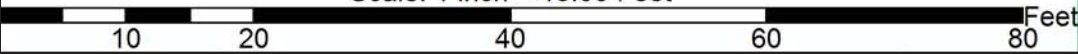


20" MISSISSIPPI RIVER CROSSING  
 EAST BANK FOCUSED STUDY  
 DATE(S): 4/20/16 - 4/22/16

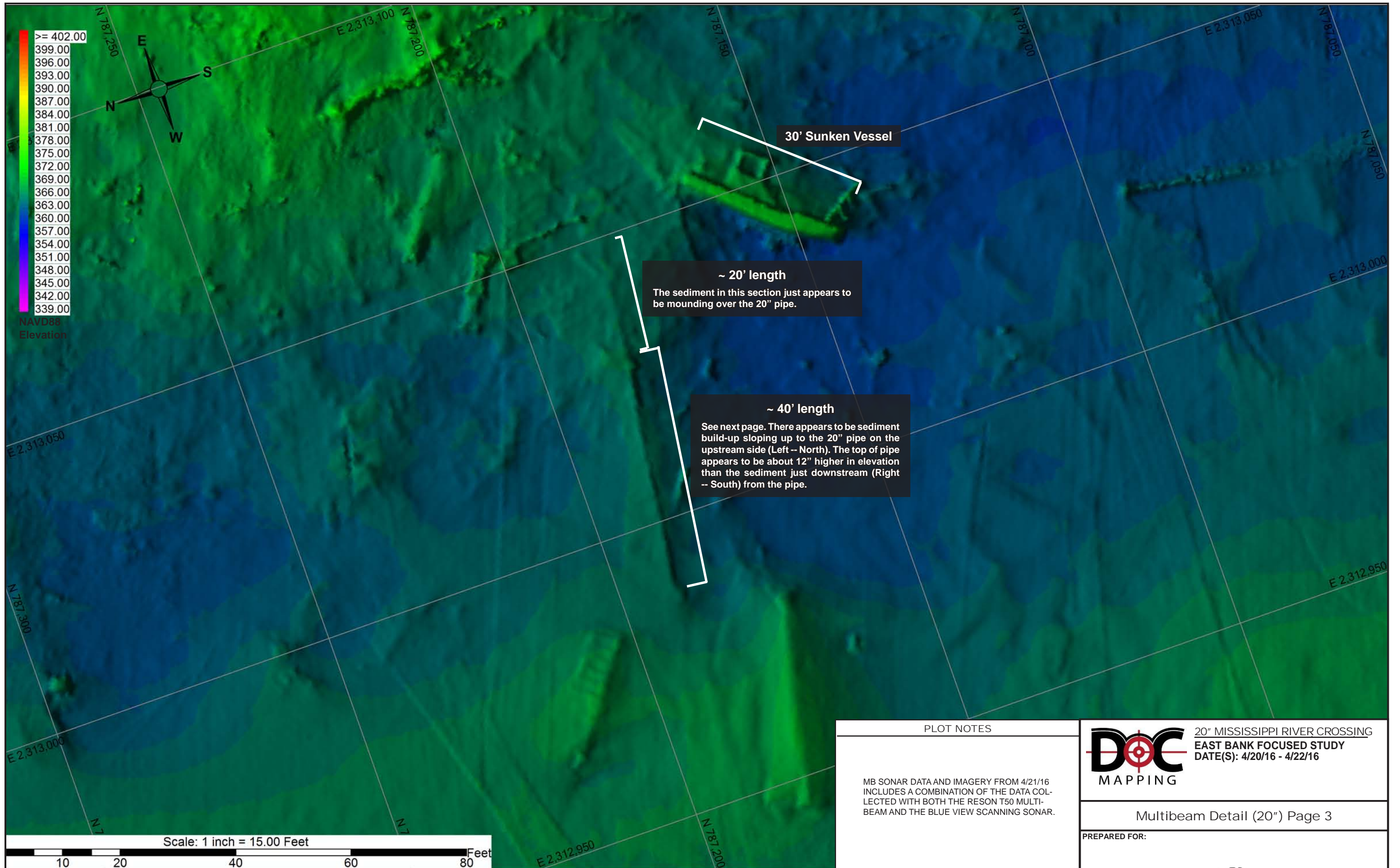
Multibeam Detail (20") Page 2

PREPARED FOR:

Scale: 1 inch = 15.00 Feet







>= 402.00  
 399.00  
 396.00  
 393.00  
 390.00  
 387.00  
 384.00  
 381.00  
 378.00  
 375.00  
 372.00  
 369.00  
 366.00  
 363.00  
 360.00  
 357.00  
 354.00  
 351.00  
 348.00  
 345.00  
 342.00  
 339.00

NAVD88  
Elevation

30' Sunken Vessel

~ 20' length  
 The sediment in this section just appears to be mounding over the 20" pipe.

~ 40' length  
 See next page. There appears to be sediment build-up sloping up to the 20" pipe on the upstream side (Left -- North). The top of pipe appears to be about 12" higher in elevation than the sediment just downstream (Right -- South) from the pipe.

Scale: 1 inch = 15.00 Feet

0 10 20 40 60 80 Feet

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Multibeam Detail (20") Page 3

PREPARED FOR:



PERSPECTIVE - FACING EASTERN BANK ALONG 20" LINE'S TRAJECTORY

~ 20' length  
The sediment in this section just appears to be mounding over the 20" pipe.

~ 40' length  
There appears to be sediment build-up sloping up to the 20" pipe on the upstream side (Left -- North).

30' Sunken Vessel

~ 40' length  
The top of pipe appears to be about 12" higher in elevation than the sediment just downstream (Right -- South) from the pipe.

PLOT NOTES

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EAST BANK FOCUSED STUDY  
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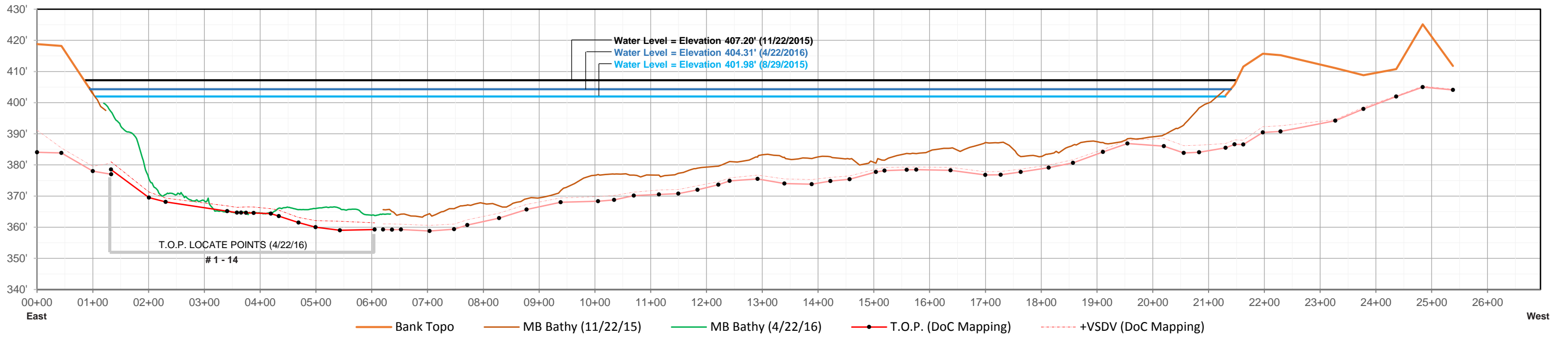
Multibeam Detail (20") Page 4

PREPARED FOR:



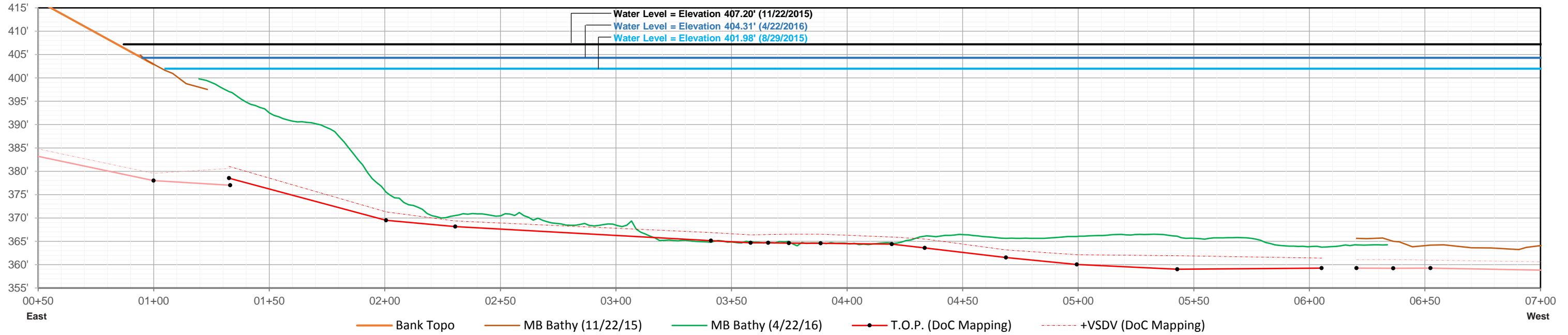
**Mississippi River**

**20" Pipeline Profile**



**Mississippi River**

**20" Pipeline Profile Detail (4/22/16)**



**DEFINITIONS**

**DoC** - Depth of Cover  
**T.O.P.** - Top of Pipe (or Cable, Conduit, etc.)  
**+VSDV** - Positive aspect of vertical confidence level. Represents a 95% likelihood that the true position of the target lies deeper than this point.  
**MSDoC\*** - Minimum Statistical Depth of Cover. This reflects the measured distance from the +VSDV component to the Topo / Bathymetry line.

**GEODETIC SETTINGS**

**PLOT NOTES**

MB sonar data collected on 11/22/2015 was performed to gather bathymetric data under the barges that was unavailable to the single-beam sonar used in the initial survey on 8/29/2015.

MB sonar data and imagery from 4/18/16 includes a combination of the data collected with both the Reson T50 multi-beam and the Blue View scanning sonar.



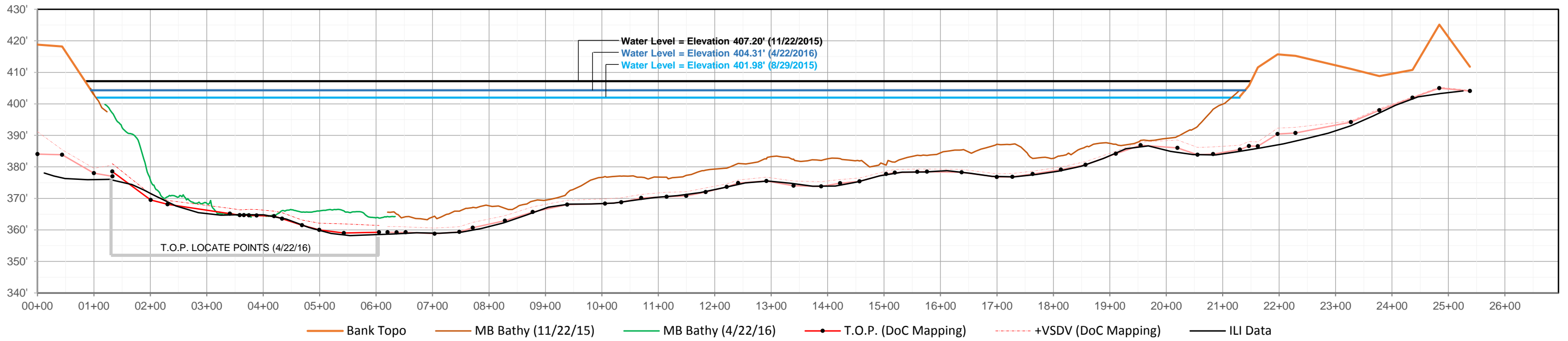
**20" MISSISSIPPI RIVER CROSSING  
 EAST BANK FOCUSED STUDY  
 DATE(S): 4/20/16 - 4/22/16**

**PROFILE w/ DETAIL**

PREPARED FOR:

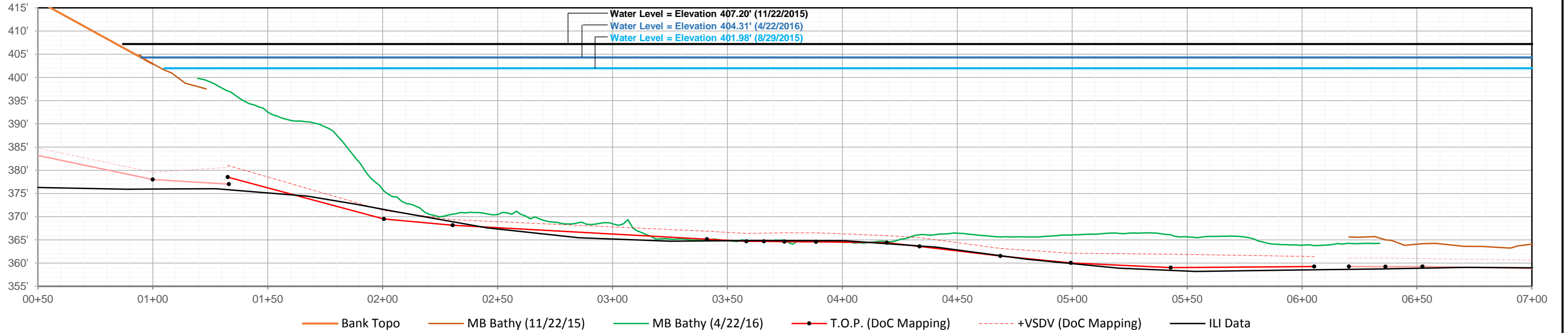
**Mississippi River**


**20" Pipeline Profile**



**Mississippi River**

**20" Pipeline Profile Detail (4/22/16)**



|  | DEFINITIONS  | GEODETTIC SETTINGS | PLOT NOTES  |  |  <p><b>20" MISSISSIPPI RIVER CROSSING<br/>EAST BANK FOCUSED STUDY</b><br/>DATE(S): 4/20/16 - 4/22/16</p> |
|--|--|--------------------|---|--|---|
|  | <p><b>DoC</b> - Depth of Cover</p> <p><b>T.O.P.</b> - Top of Pipe (or Cable, Conduit, etc.)</p> <p><b>+VSDV</b> - Positive aspect of vertical confidence level. Represents a 95% likelihood that the true position of the target lies deeper than this point.</p> <p><b>MSDoC*</b> - Minimum Statistical Depth of Cover. This reflects the measured distance from the +VSDV component to the Topo / Bathymetry line.</p> |                    | <p>MB sonar data collected on 11/22/2015 was performed to gather bathymetric data under the barges that was unavailable to the single-beam sonar used in the initial survey on 8/29/2015.</p> <p>MB sonar data and imagery from 4/18/16 includes a combination of the data collected with both the Reson T50 multi-beam and the Blue View scanning sonar.</p> |  | <p><b>ILI COMPARISON PROFILE</b></p> <p>PREPARED FOR:</p>   |