

2013 Hydrographic Survey Maps

Mississippi River

Black Hawk, Louisiana to the Gulf of Mexico
Mile 324 A.H.P. to Mile 23 B.H.P.



**US Army Corps
of Engineers®**
Mississippi Valley
Division

Background

The Mississippi River has the third largest river basin in the world. It is the fabled river of Native Americans, the explorers Marquette and Joliet, the words and works of Mark Twain, and the scourge of steamboat pilots. Man's modern relationship with the Mississippi River began by using the river as the focal point for transportation, commerce, and trade. Favorable locations along the river, such as landings and river confluences, grew into settlements.

These settlements grew into towns, which grew into cities including Memphis, Vicksburg, Natchez, Baton Rouge, and New Orleans. Transportation progressed from canoes in the 1700's, to ferries and steamboats into the 1930's, and finally to a major transportation artery connecting the United States “Western Rivers.” Today, dredging of the Mississippi River’s Southwest Pass provides deep draft, ocean going vessels access to travel as far as 240 miles inland to the Port of Baton Rouge, LA.

The Mississippi River Commission (MRC) was established by an Act of Congress on June 28, 1879. Congress charged the MRC with the mission to develop plans to improve the condition of the Mississippi River, foster and give safety to navigation, promote commerce, and prevent destructive floods.

The MRC was charged with prosecuting the comprehensive river management program known as the Mississippi River and Tributaries (MR&T) project, which was authorized through the Flood Control Act of 1928. The MR&T project is the largest flood control project in the world, providing protection to the 36,000 square-mile lower Mississippi valley. The navigation features of the MR&T project seek to facilitate navigation and promote commerce on the nation’s most vital commercial artery. The MR&T project has developed a river channel with the dimensions and alignments that carry floodwater flows efficiently and are also suitable for navigation. Waterborne commerce on the Mississippi River increased from 30 million tons in 1940 to nearly 435 million tons today.

In 2011, the Ports of South Louisiana, New Orleans, Baton Rouge, and Plaquemines were ranked by tonnage, as the first, fifth, tenth, and fourteenth largest United States ports. When combined this port complex, outranks the fourth largest port in the world in tonnage, that of Rotterdam, Netherlands.

This Publication

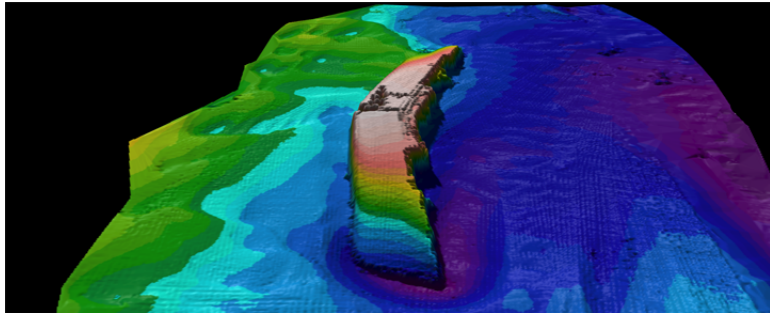
This publication of the 2013 Mississippi River Hydrographic Survey Book represents its 6th Edition in this format with prior surveys being published in 1949, 1961, 1973, 1985, and 1991. Prior comprehensive surveys were published by the Mississippi River Commission in 1883, 1913, and 1935.

This publication is produced at roughly ten year intervals or after a large flood event. Its supporting collected survey data will be used for the channel improvement, river engineering, and river management missions at the USACE New Orleans District.

Survey Data Collection

The earliest comprehensive surveys took years to complete and were performed by dropping a heavy lead weight on a marked line (leadline survey) to collect each shot at approximate positions between markers placed on the bankline that defined a range line across the river. The first 1883 effort took 30 years to complete. The 2013 publications survey was collected under several contracts in phases, in February 2011, December 2012, and Mar 2013. A small portion in the vicinity of River Mile 320 was run in December 2009. This survey exploited modern technologies, using DPGS positioning and Multibeam sounding equipment. This survey collected well into the millions of soundings.

The density of multibeam surveys provides extraordinary levels of detail and allows representations of underwater obstructions and wrecks below the muddy Mississippi. For example, USACE has produced detailed renderings of the Union Faith wreckage located near River Mile 95.



Union Faith Wreckage Color Rendering

The Union Faith was a general cargo freighter of medium size: 7,301 GT (gross tons), 503.25 feet in length overall, and a breadth of 64.11 feet. The vessel currently rests on the bottom of the Mississippi River, approximately 100 yards downriver from the Greater New Orleans Bridge, due to an explosive collision with a barge in 1969.

However, representation of this dense multibeam sounding survey has limitations when developing contours. Multibeam soundings create a significant noise level at the map sheet’s 1:20,000 scale. Therefore, a thinning process was used to provide a more cartographically pleasing interpretation of the original multibeam survey. The data was processed into DTMs from which depth values were extracted along the river range lines. Then these pseudo “single beam” cross-sections were contoured into depth curves. This data thinning results produce a representation of reality compatible with those in past hydrographic survey books.

Other data formats are available, if larger scale or other representations or analyses are required.

Other Data Formats

Publication Date	Available Data Formats
2014	Maps: MicroStation DGN files Survey: Text files for range line survey and multibeam
2004	Maps: MicroStation DGN files Survey: Text files for range line survey and soundings
1991	Maps: MicroStation DGN files Survey: Text files for range line survey and soundings
1985	Maps: PDF files Survey: Data not available

Refer to USACE New Orleans WWW site for data available to download:
<http://www.mvn.usace.army.mil/Missions/Engineering/GeospatialSection.aspx>

Low Water Reference Plane

Low Water Reference Plane (LWRP) is a hydraulic-based reference plane established from long-term observations of the river's stage, discharge rates, and flow duration periods developed about the 97% flow duration line and/or the 97% stage exceedence of daily lows for the period of record at a specific site. Per EM 1110-2-1003, Engineering and Design - Hydrographic Surveying, construction and improvements along the middle and lower Mississippi River are performed relative to the LWRP at a particular point.

Methodology of LWRP Depth Contouring

The Terra Scan software product running on top of Bentley MicroStation was utilized to both process the XYZ data of the 2’X2’ gridded points of the Mississippi River multi-beam survey. The data along the river ranges was extracted using a 10’ wide path. From this dense data, points were extrapolated every 100 feet along the range to develop a new XYZ dataset. The datasets were broken into reaches of similar LWRP values and the LWRP value subtracted from the Z values. The resultant XYZ datasets were triangulated within the Terra Scan software and contours displayed. The contours were modified to correct areas in which the software could not display the contours smoothly.

Topographic Features

The topographic features within this publication were reused from the topographic feature layers found within the 2004 publication, with the exception of adding the John James Audubon bridge at River Mile 262 and updating of Mississippi River revetments. The 2004 book’s stereocompilation was produced from aerial imagery collected in February 2002. Therefore, the topographic features should be considered for reference only. More current digital imagery and digital topographic data sets are readily available for other uses.

Datums & Elevations

Source of Hydrographic Survey Data:
The Mississippi River multi-beam survey was performed under Contract Number DACW912P8-09-C-0059. This survey covered River Miles 324 to 0. Survey was performed between December 2012 and to May 2013. The South and Southwest Pass surveys were performed in January 2013 and April 2013 respectively by the Corps of Engineers New Orleans Districts Operations Division maintenance surveys. The Pass A Loutre surveys were performed via separate contract, W912P8-10-D-0050 in September 2013.

Note: Pass A Loutre is not a federally maintained waterway.

The multi-beam surveys listed above provided coverage of the river bottom from as near to each bank as possible. The overbank survey data extending from the end of the multi-beam surveys were carried over from the 2003-2004 Hydrographic Survey Book.

All surveys were performed relative to NAD83, Louisiana South Zone 1702 horizontal datum and NAVD88, 2004.65 vertical datum.

Care must be taken when comparing LWRP contours from past products to the current product.

Care must be taken when comparing elevations from past products to the current product.

Submerged Pipelines and other Depicted Utilities

Please note that this product should not be considered an authoritative source for placement and existence of submerged pipelines. Refer to the National Pipeline Mapping System (www.npms.phmsa.dot.gov), USACE permit and regulatory information, other data sources specifically tracking pipeline infrastructure, and ultimately reference the physical pipeline crossing signage found along the river.

Authorization & Funding

The 1879 Mississippi River Commission Act (46th Congress, Sess. I. Ch. 43. 1879) empowered the MRC to make surveys and investigations necessary to prepare plans to improve the river channel, protect the banks, improve navigation, prevent destructive floods, and promote commerce.

Funding sources the current surveys came from Mississippi River O&M projects, the Channel Improvement Program, and the USACE Inland Electronic Navigational program. Funding to produce the publication was provided by Mississippi River O&M project.

Not Suitable for Navigation

This publication is not a navigational product. It is not considered suitable for navigation nor acceptable to meet USCG Chart Carriage requirements.

About the Cover

The 2013 Hydrographic Survey Book cover is a composite of the New Orleans “crescent” area of the Mississippi River. The left-most image is from Chart 76 of the 1913 Chart of the Mississippi River from the Mouth of the Ohio River to the Gulf of Mexico. The center image is from Sheet 50 of the 1973-1975 Mississippi River Hydrographic Survey Book. The right-most image is aerial photography from 2012.

MISSISSIPPI RIVER
HYDROGRAPHIC SURVEY 2013

NARRATIVE SHEET
CURRENT AND HISTORICAL RENDITION INFORMATION

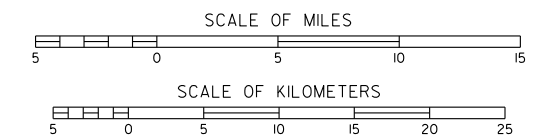
U.S. ARMY ENGINEERS DISTRICT, NEW ORLEANS

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MISSISSIPPI RIVER
HYDROGRAPHIC SURVEY
2013

BLACK HAWK, LA. TO HEAD OF PASSES, LA.
ALSO SOUTH AND SOUTHWEST PASSES
AND PASS A LOUTRE

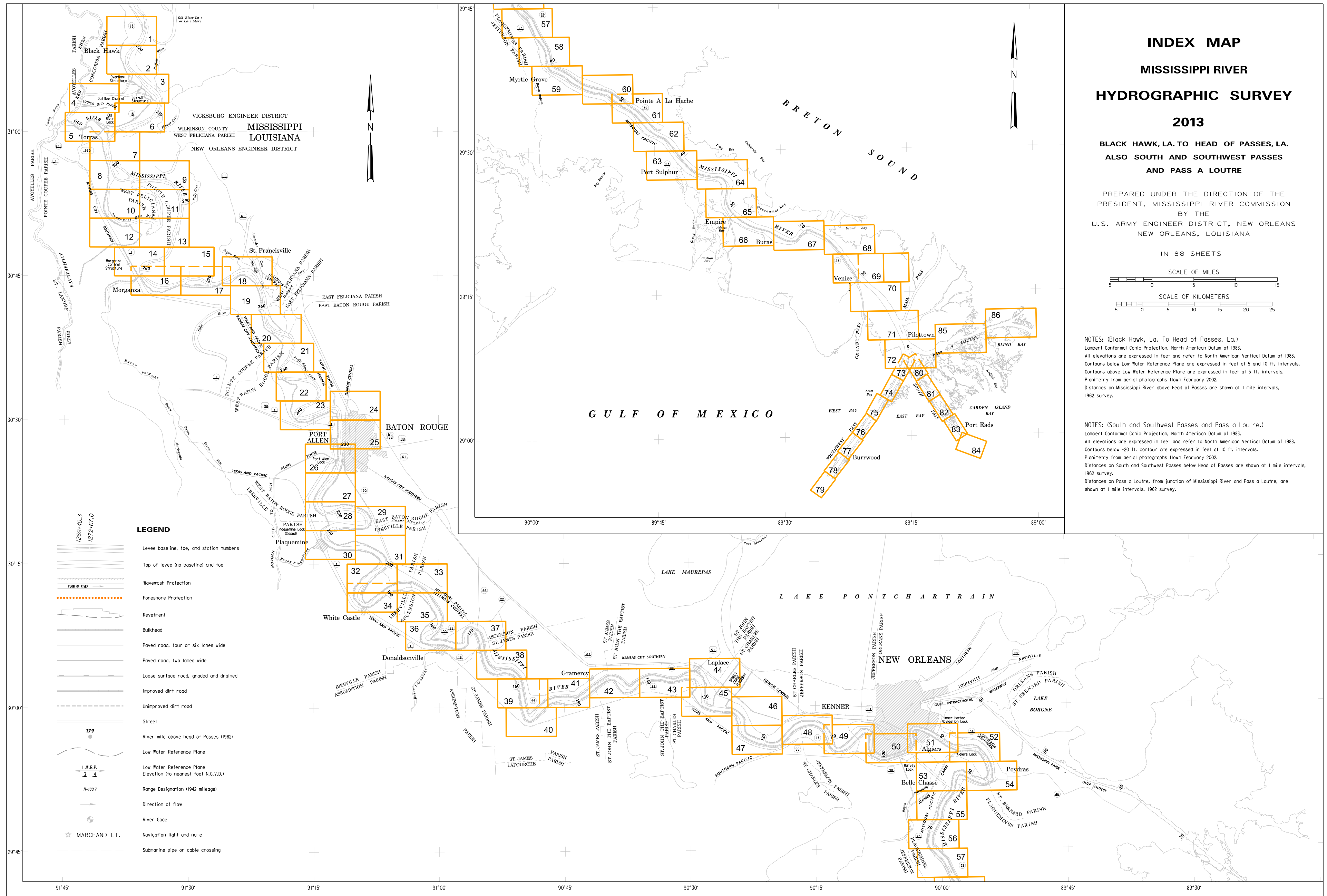
PREPARED UNDER THE DIRECTION OF THE
PRESIDENT, MISSISSIPPI RIVER COMMISSION
BY THE
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
NEW ORLEANS, LOUISIANA

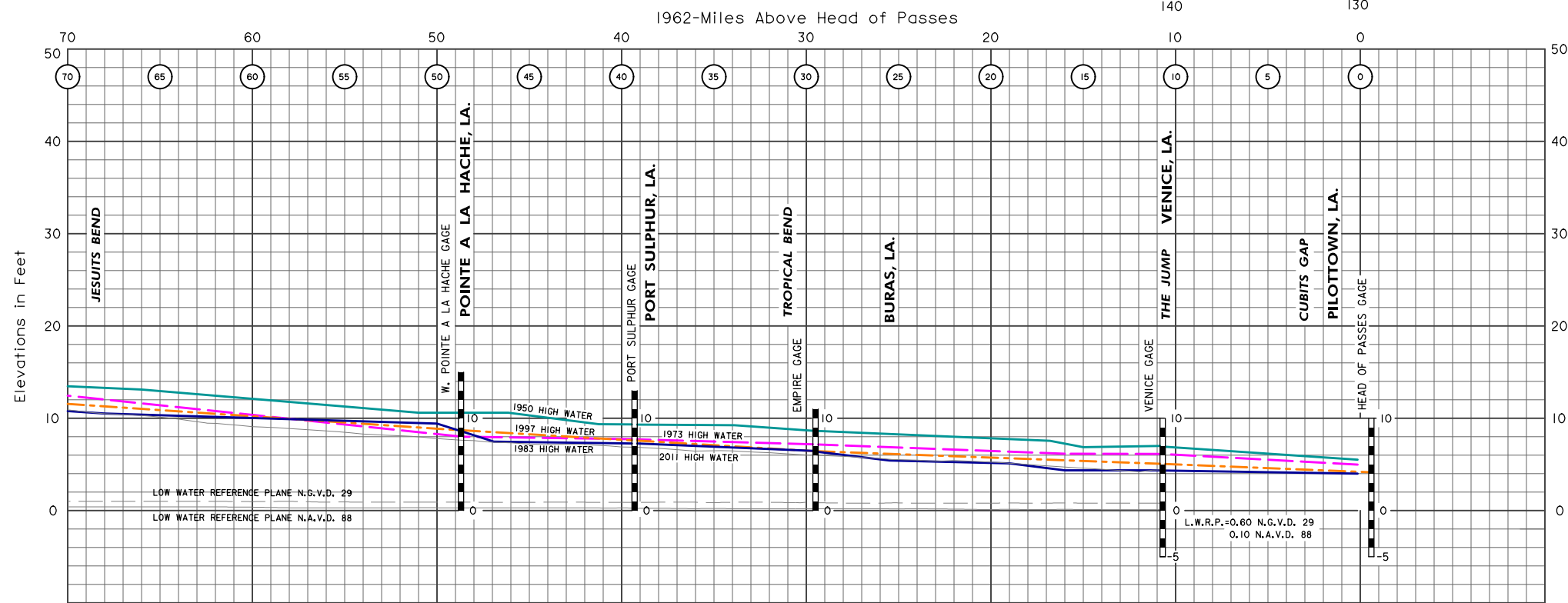
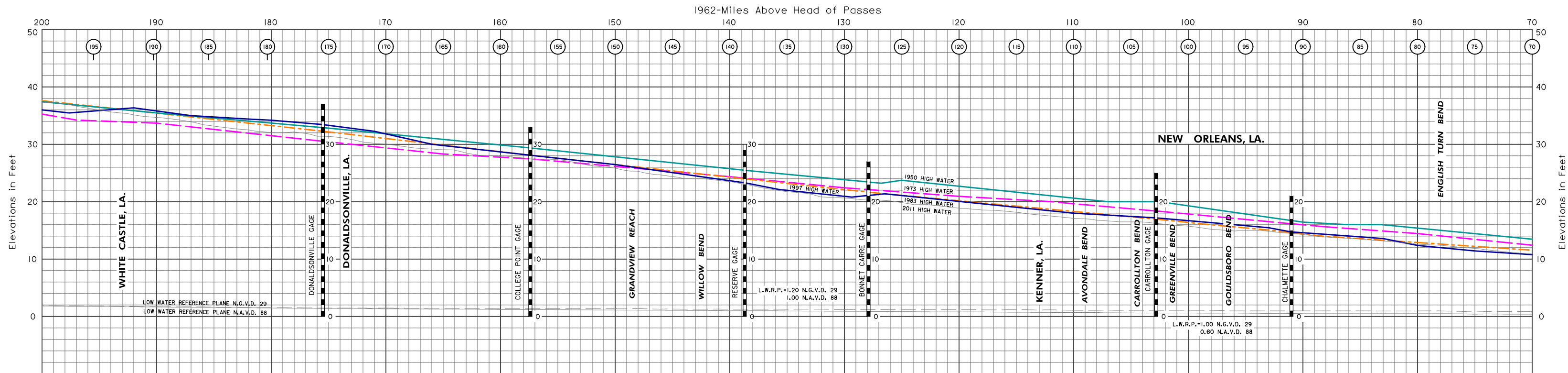
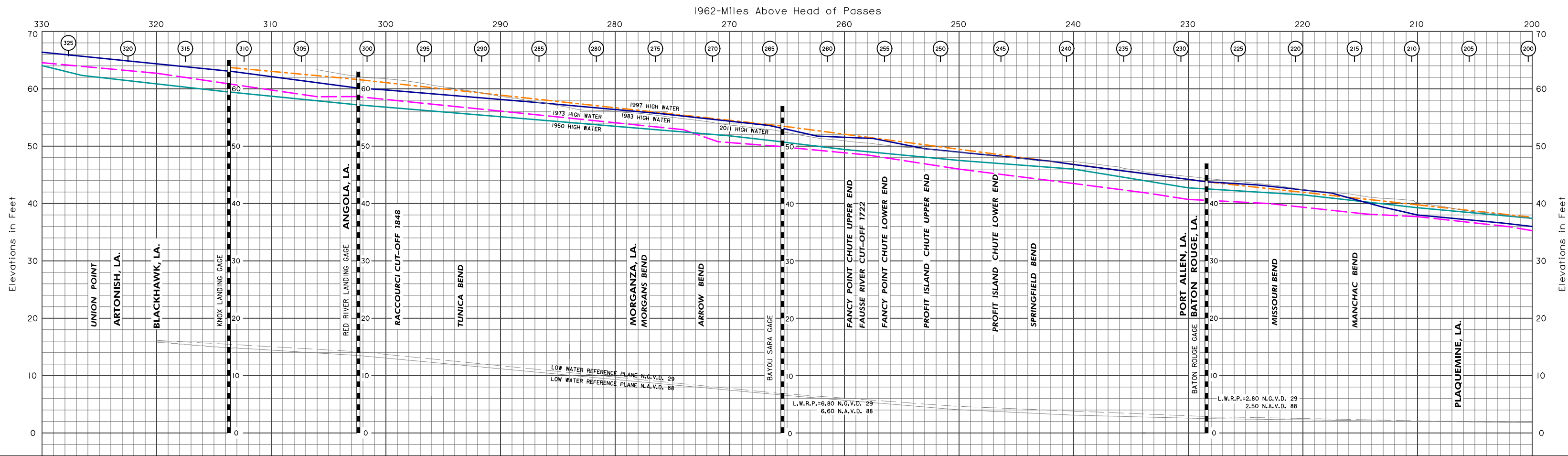
IN 86 SHEETS



NOTES: (Black Hawk, La. To Head of Passes, La.)
Lambert Conformal Conic Projection, North American Datum of 1983.
All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
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Planimetry from aerial photographs flown February 2002.
Distances on Mississippi River above Head of Passes are shown at 1 mile intervals,
1962 survey.

NOTES: (South and Southwest Passes and Pass a Loutre.)
Lambert Conformal Conic Projection, North American Datum of 1983.
All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
Contours below -20 ft. contour are expressed in feet at 10 ft. intervals.
Planimetry from aerial photographs flown February 2002.
Distances on South and Southwest Passes below Head of Passes are shown at 1 mile intervals,
1962 survey.
Distances on Pass a Loutre, from junction of Mississippi River and Pass a Loutre, are
shown at 1 mile intervals, 1962 survey.





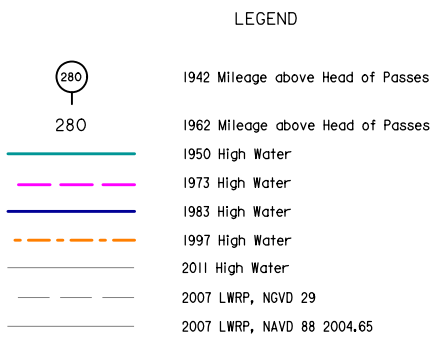
LWRP VALUE TABLE

LOCATION	1962 RIVER MILEAGE	2007 LWRP NGVD 29	2007 LWRP NAVD 88 2004.65
KNOX LANDING GAGE	313.7	15.40	14.80
RED RIVER LANDING GAGE	302.4	14.10	13.50
BAYOU SARA GAGE	265.4	6.80	6.60
LMS STA 2870+00	250.4	4.60	4.10
BATON ROUGE GAGE	228.4	2.80	2.50
RESERVE GAGE	138.7	1.20	1.00
CARROLLTON GAGE	102.8	1.00	0.60
VENICE GAGE	10.7	0.60	0.1

NOTES

The 2007 LWRP mile 313.7 to 265.4 is based on a 91% discharge duration of 146,000 cfs at Tarbert Landing (1954-2005) and corresponding 10 year mean stage of 14.8 ft. NAVD88 at Knox Landing, 13.5 ft NAVD88 at Red River Landing, and 6.6 ft NAVD88 at Bayou Sara.

The 2007 LWRP below mile 265.4, from Baton Rouge to Venice is based on a 91% stage exceedance of daily lows for the period of record at each site.



**MISSISSIPPI RIVER
HYDROGRAPHIC SURVEY 2013
LOW WATER REFERENCE PLANE
AND
1950, 1973, 1983, 1997 AND 2011 HIGH WATER
BLACK HAWK, LA TO HEAD OF PASSES, LA**

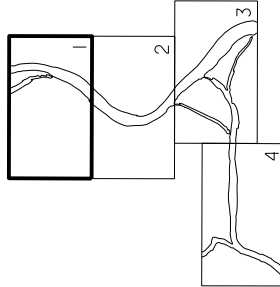
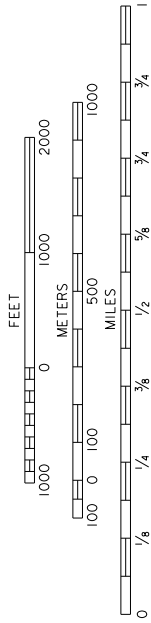
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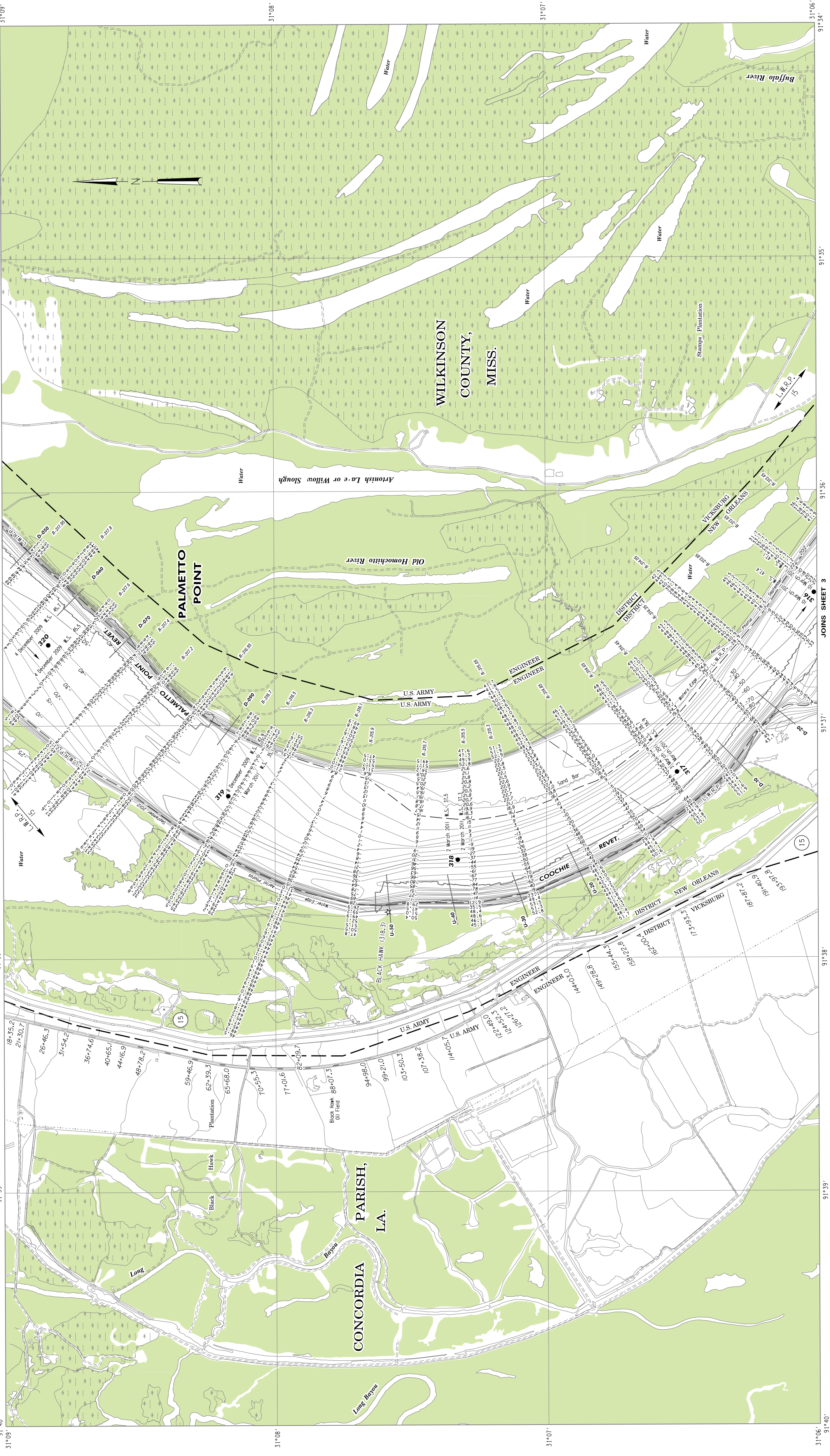
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L.W.R.P. - Low Water Reference Plane.

SCALE 1:20,000



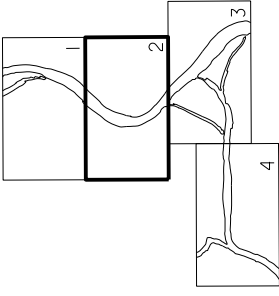
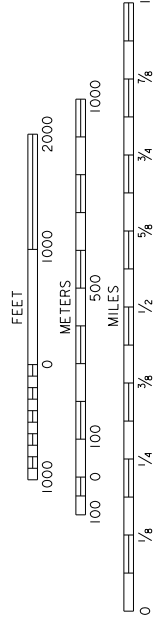
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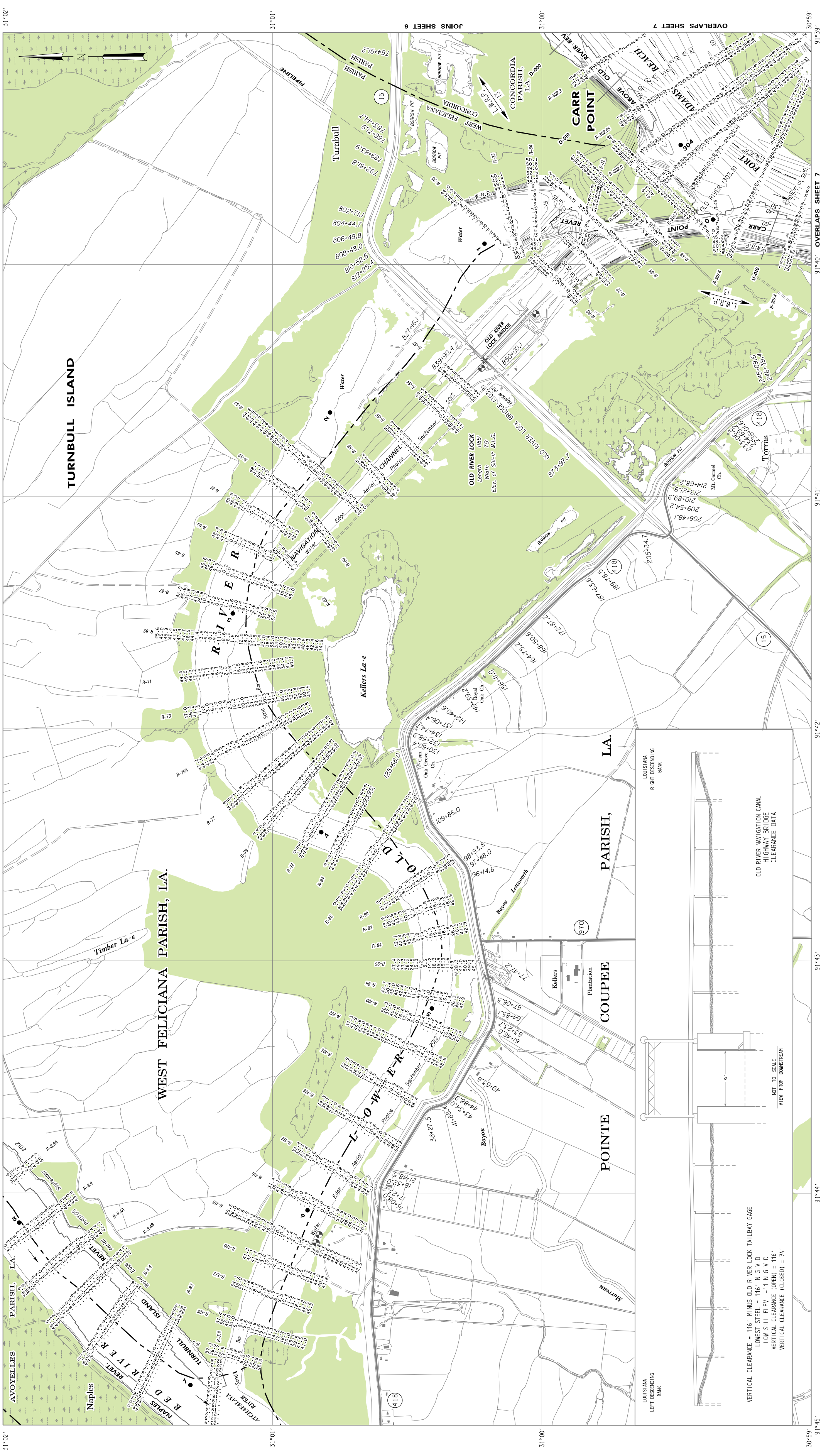
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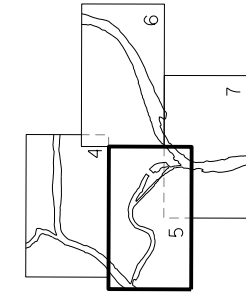
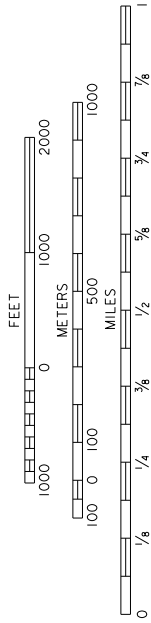
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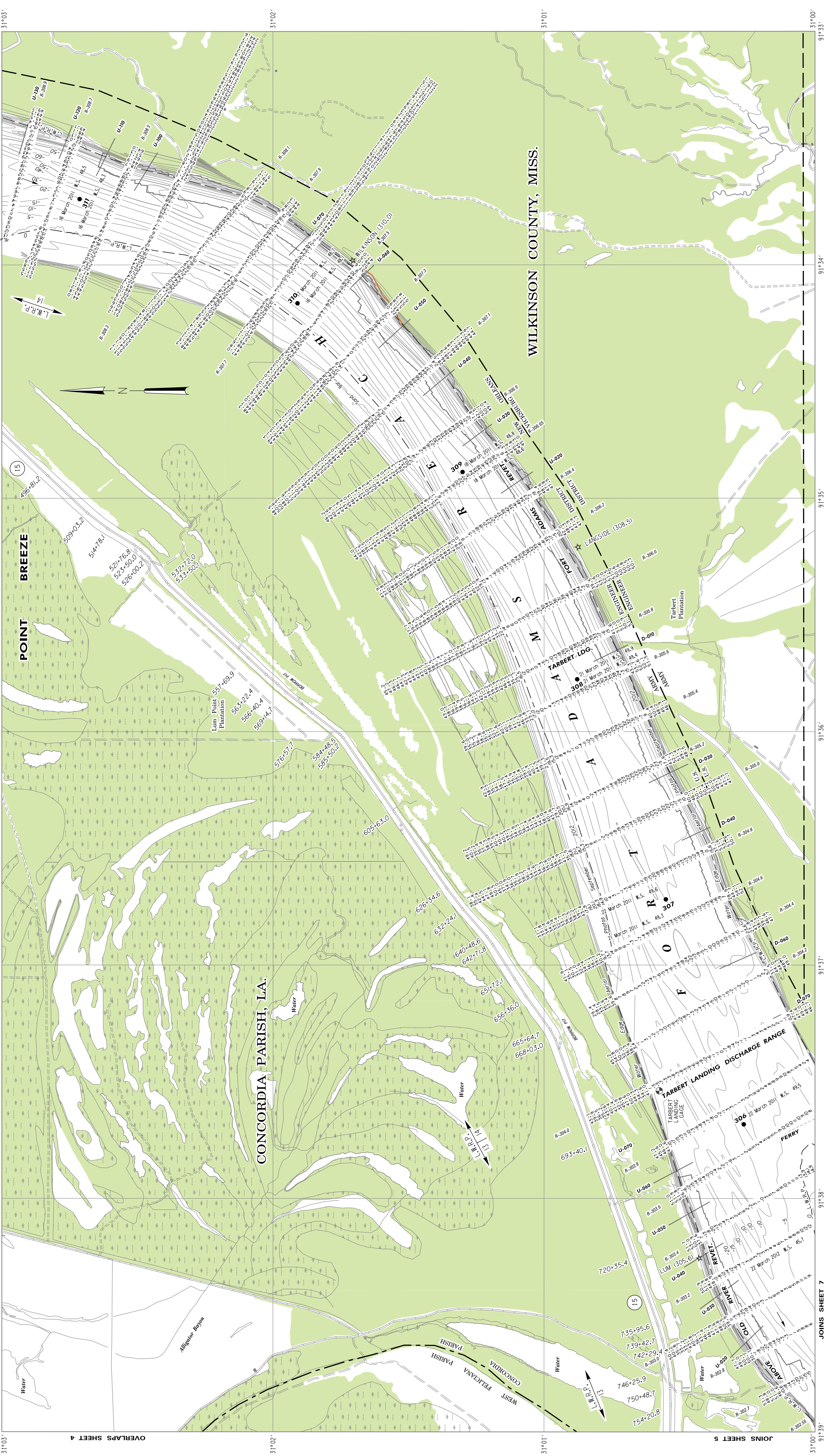
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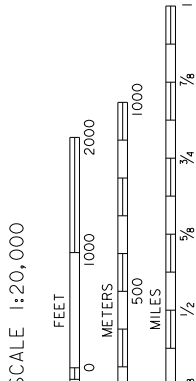
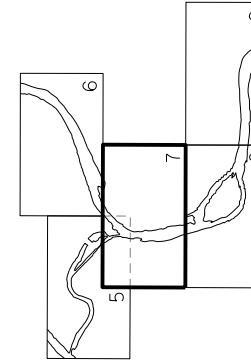
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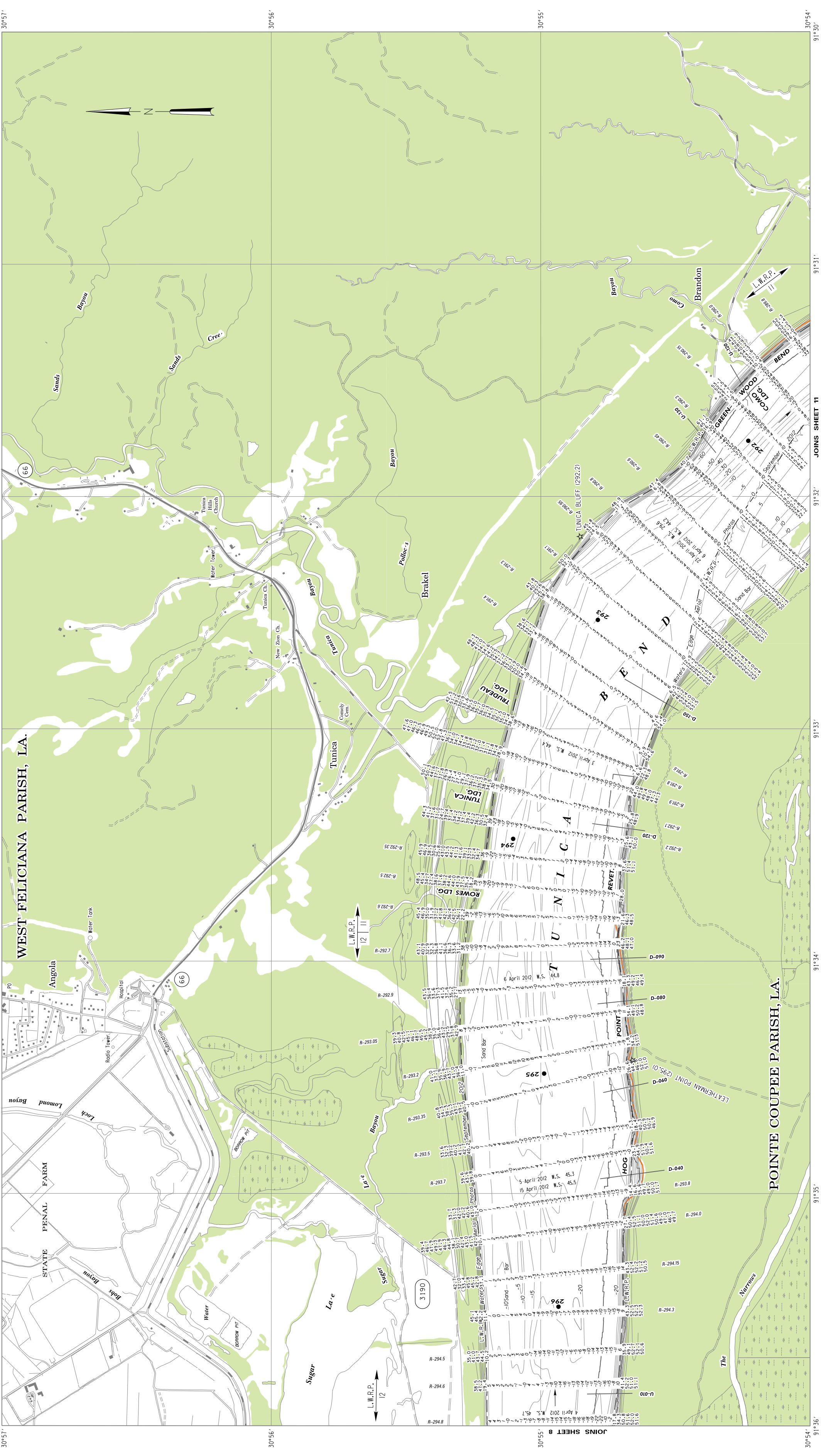


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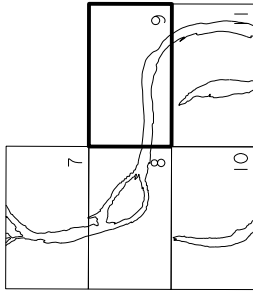
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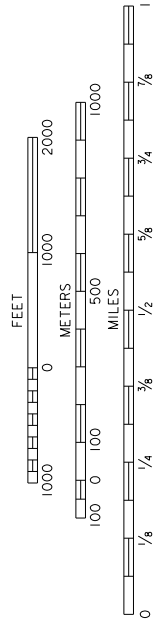
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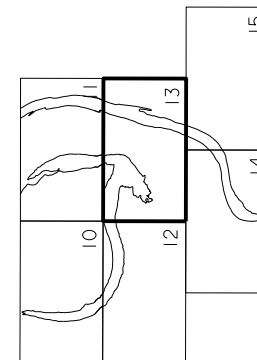
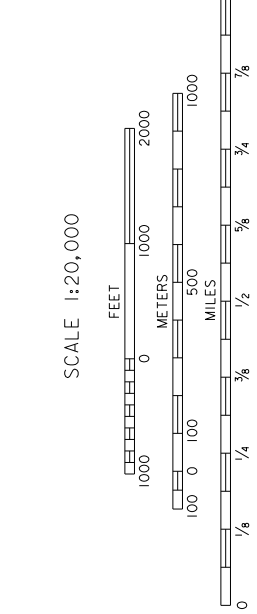


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30°48'

91°39'

JOINS SHEET 12

91°36'

JOINS SHEET 13

91°35'

91°34'

30°48'

91°33'

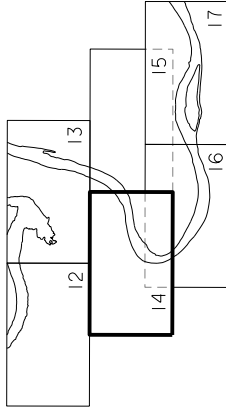
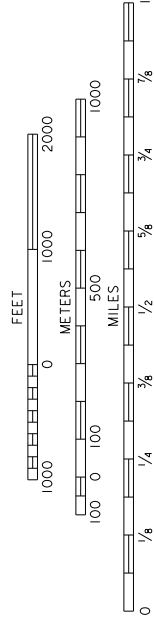
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30°47'



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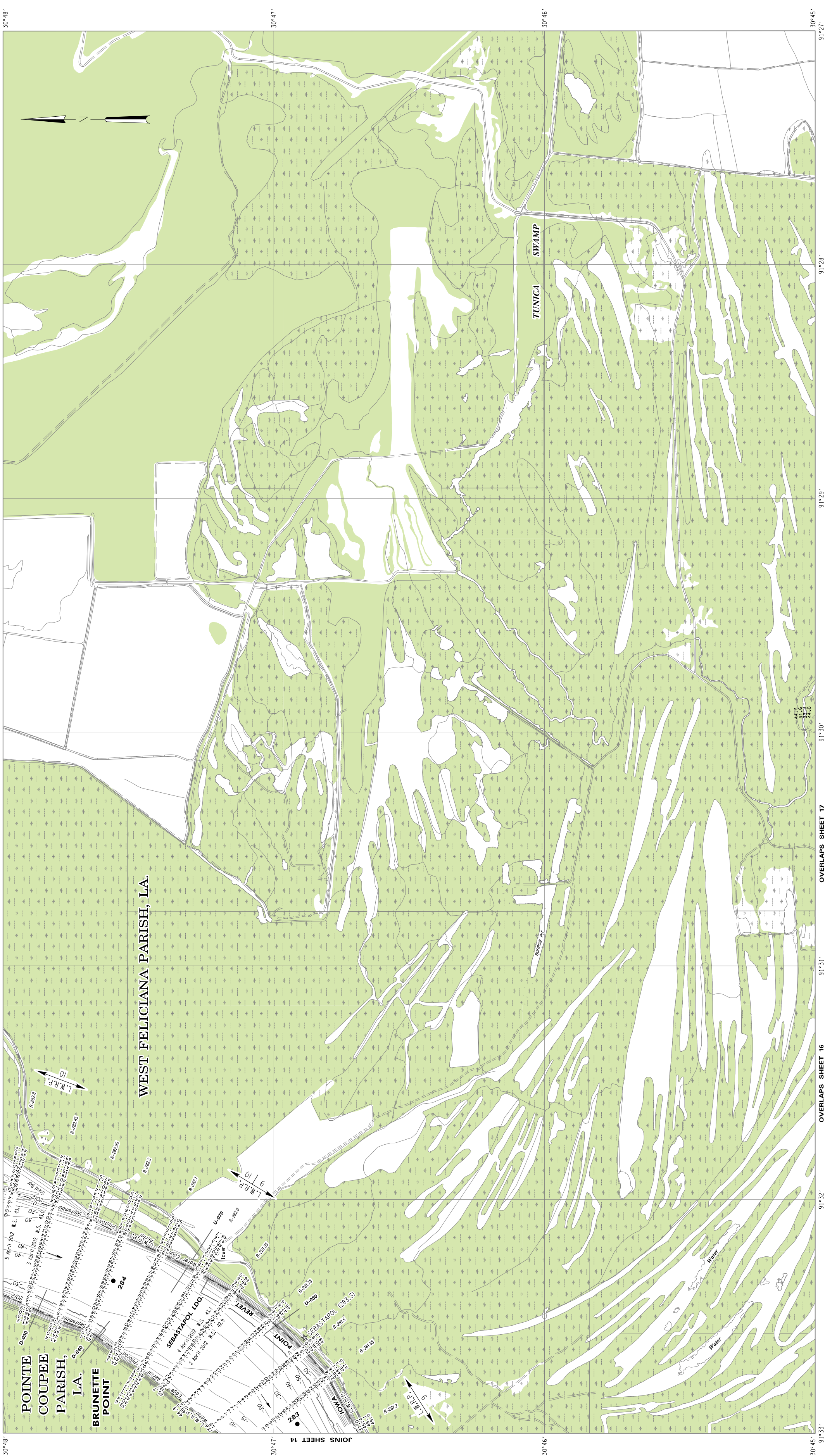
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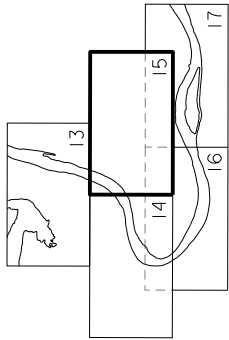
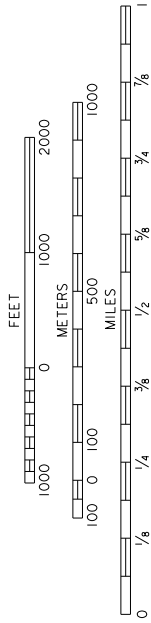
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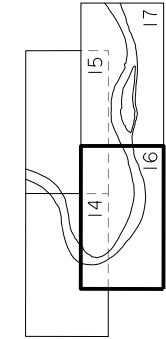
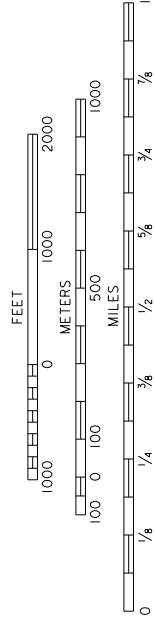


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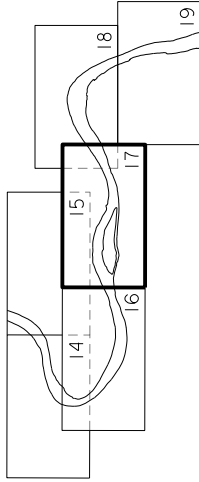
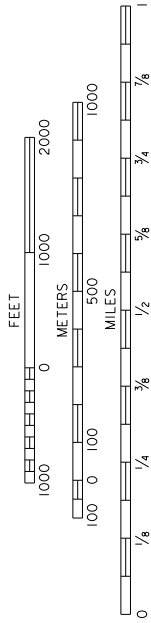
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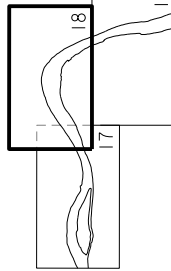
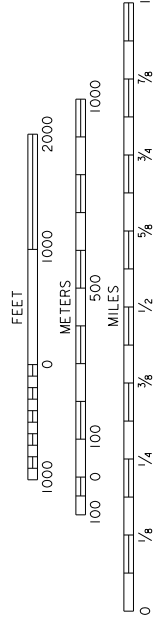
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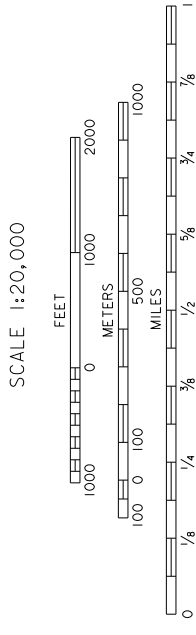
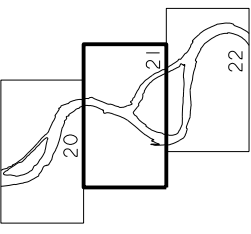
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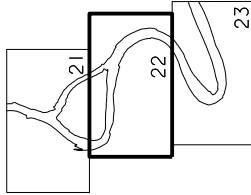
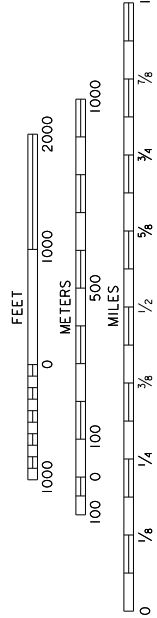


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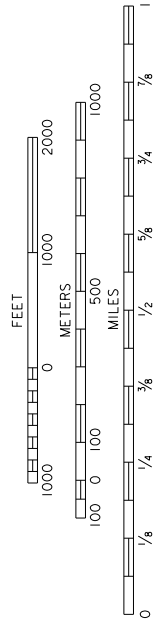
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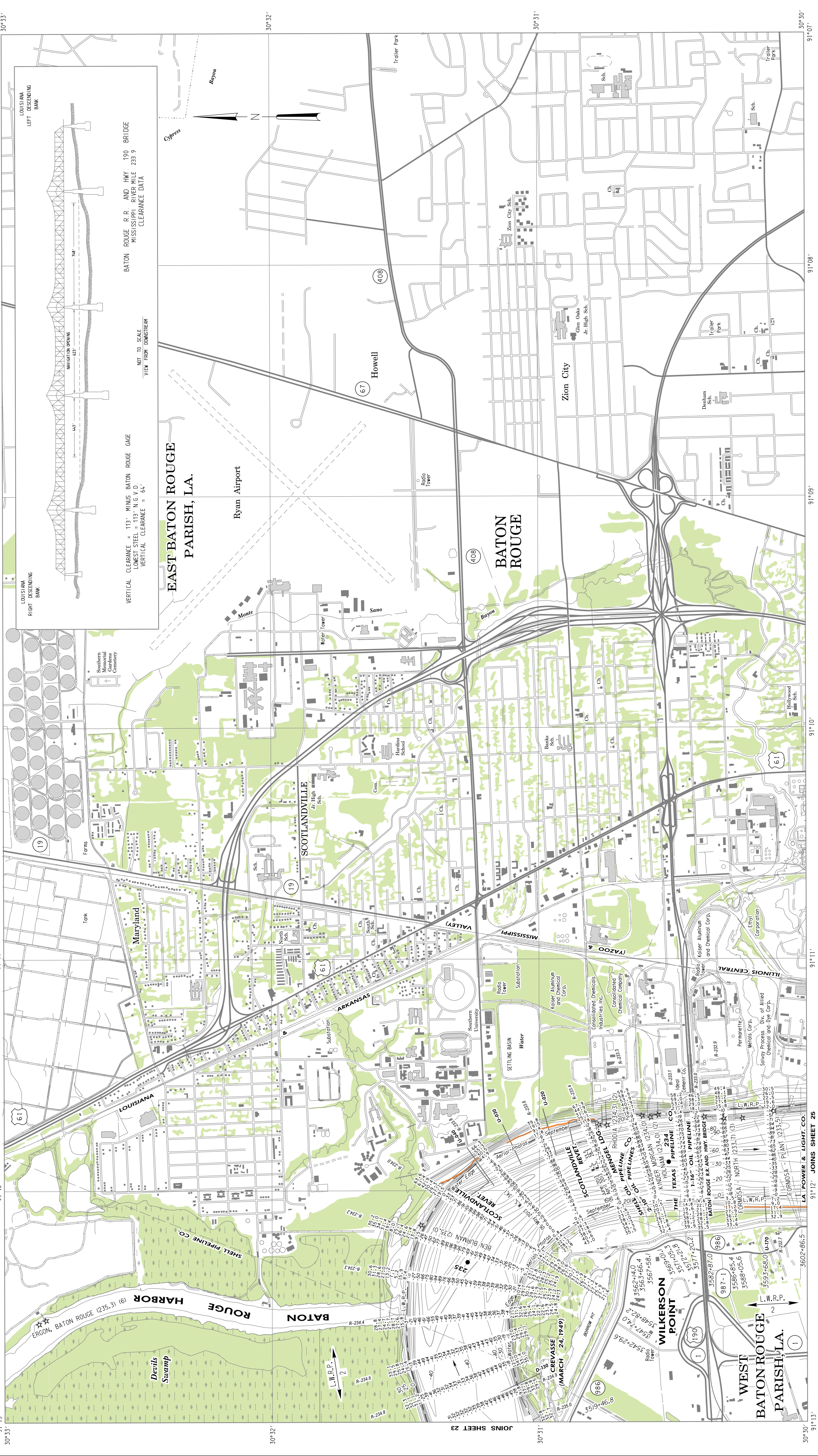
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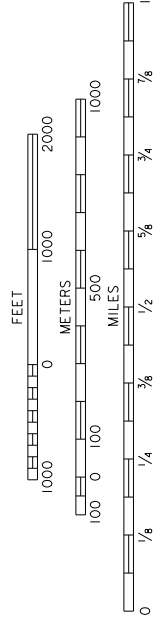
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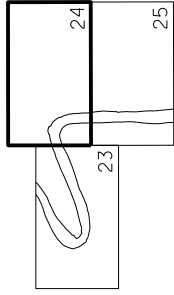


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SCALE 1:20,000

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METERS 0 1000 2000

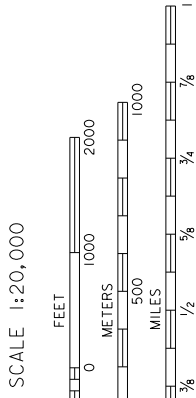
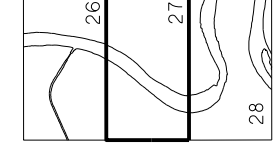
MILES 0 1/4 1/2 3/4 1

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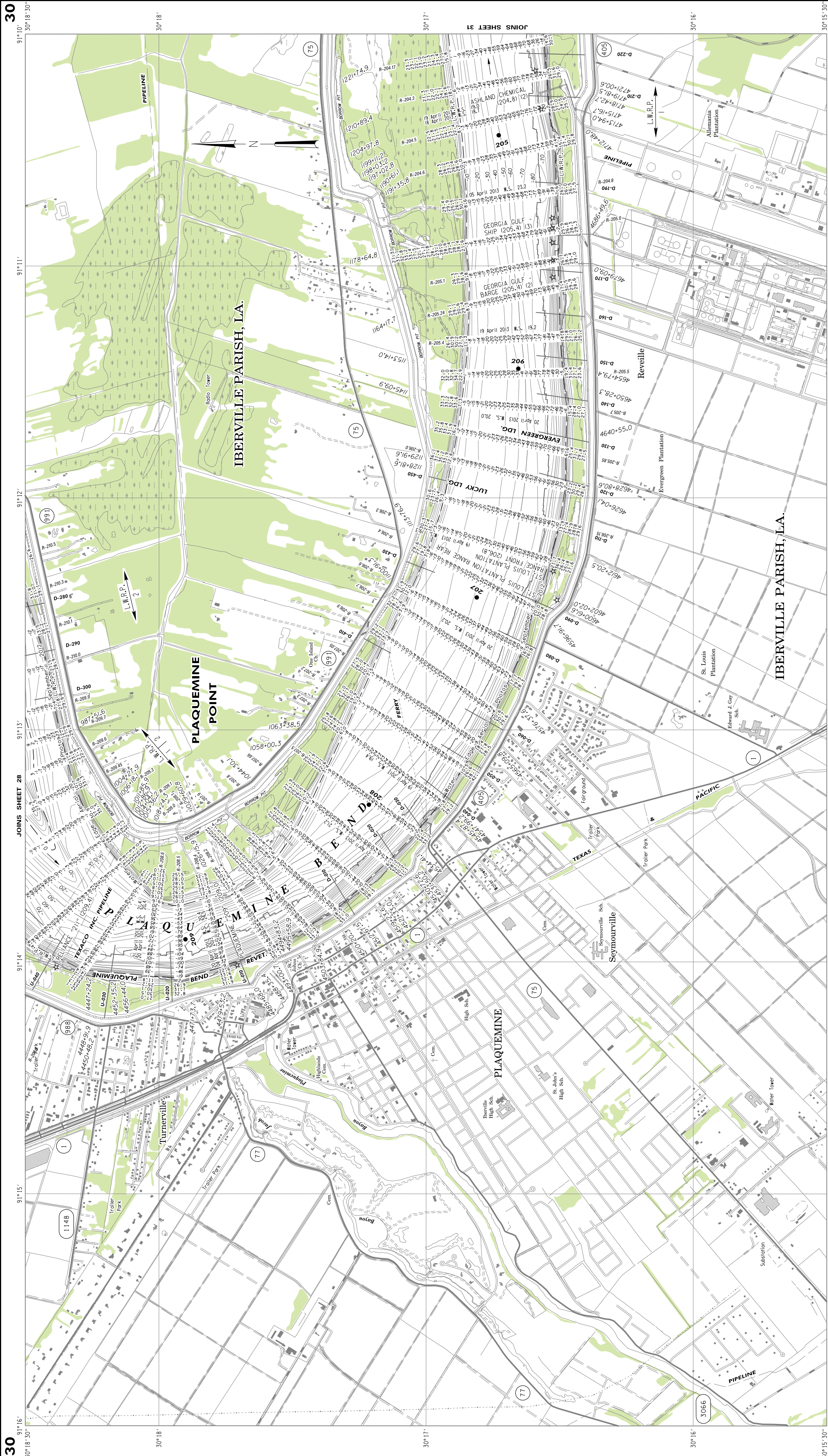


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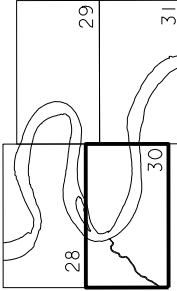
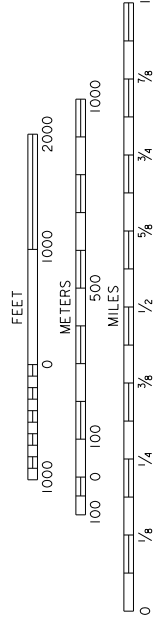


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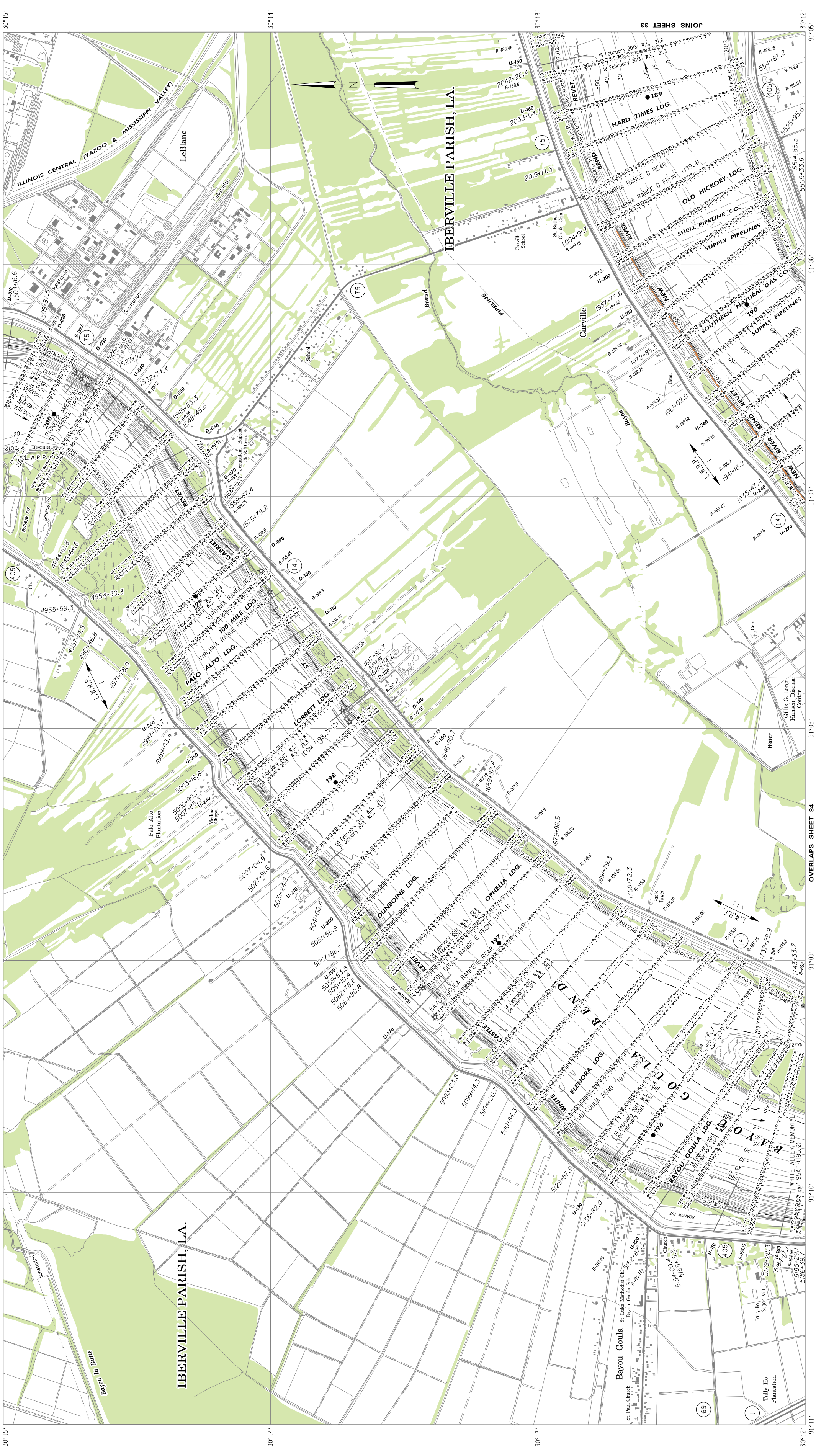
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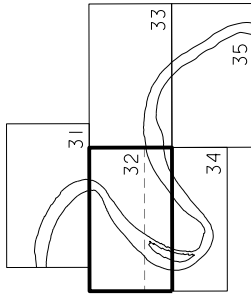
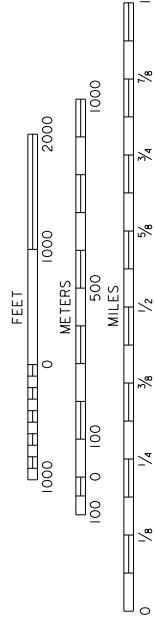
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FEET
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METERS
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MILES
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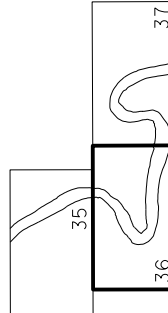
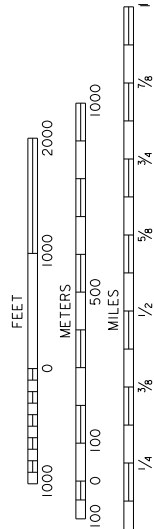
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30°09' 91°04' 91°03' 91°02' 91°01' 91°00' 90°59' 90°58' 30°08' 30°07' 30°06'



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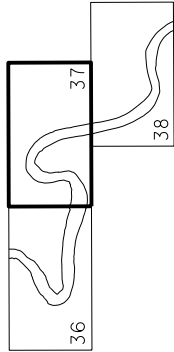
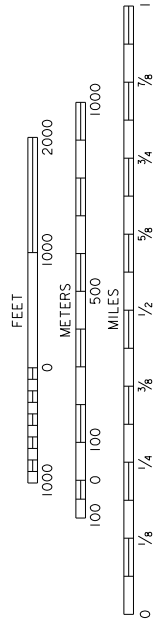
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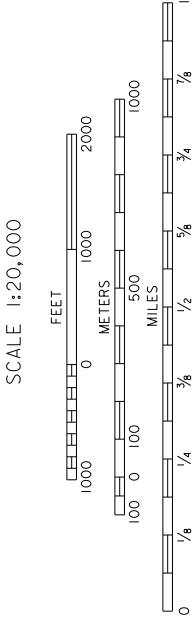
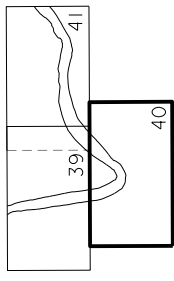
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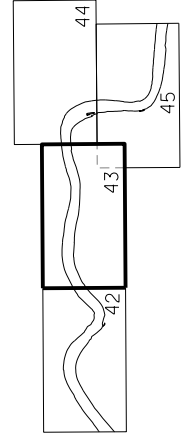
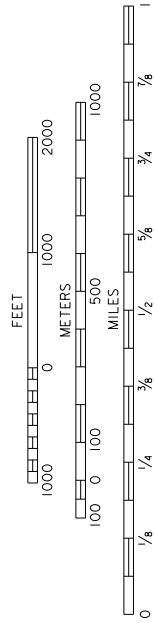
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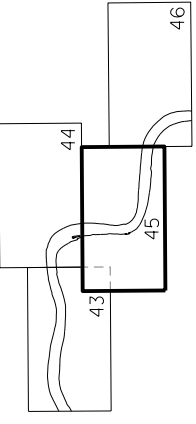
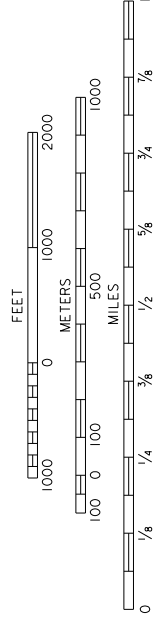
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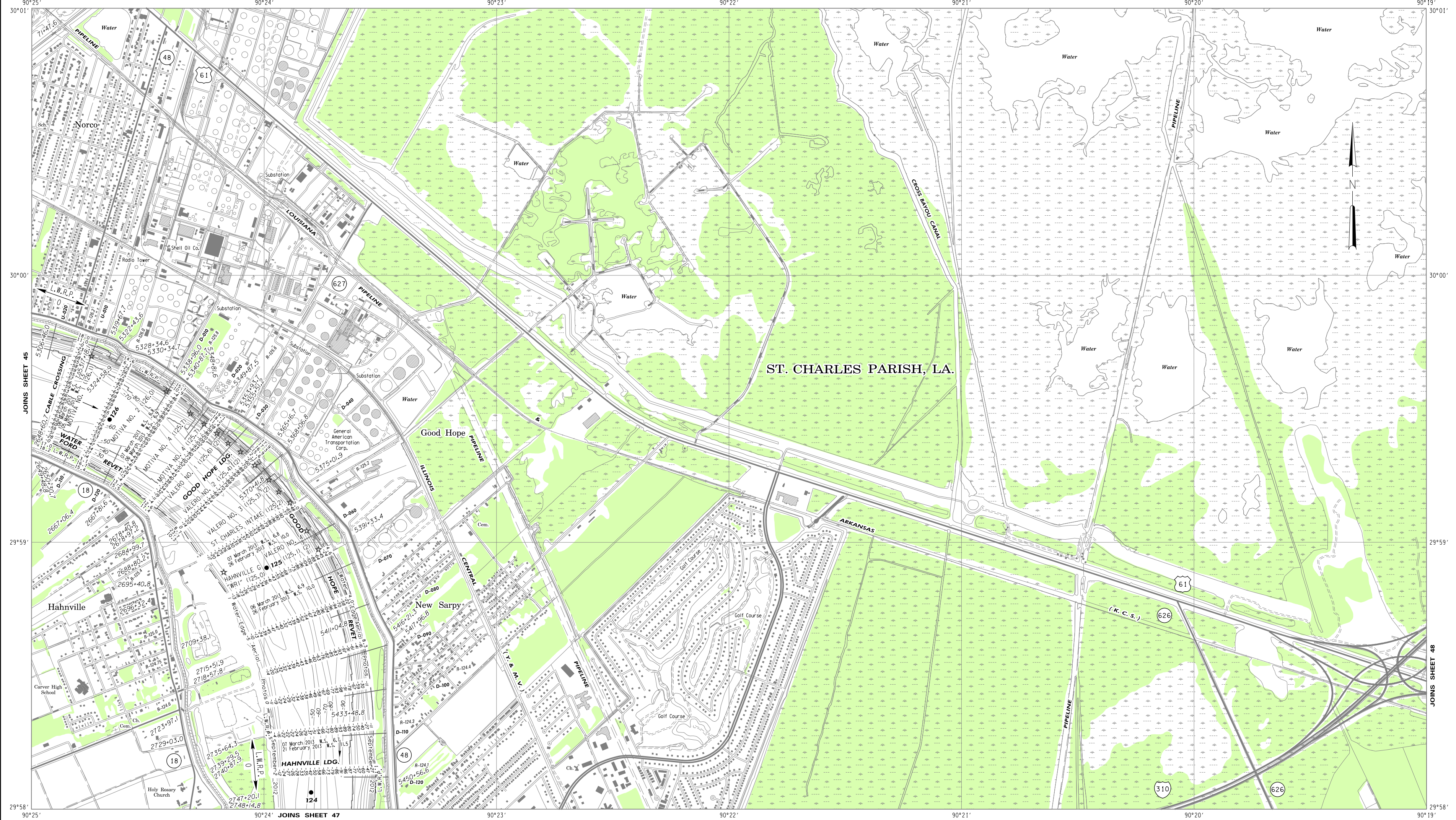
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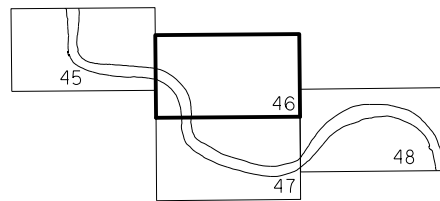
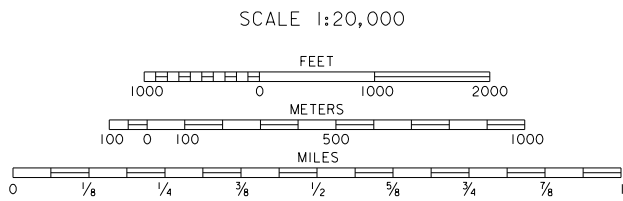
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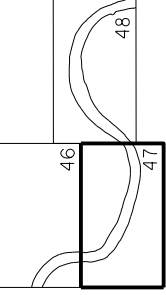
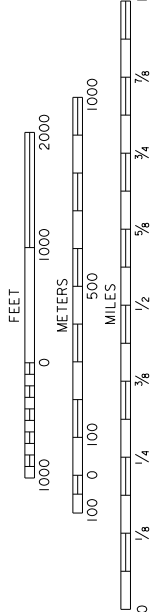
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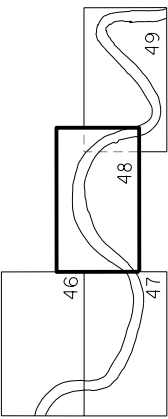
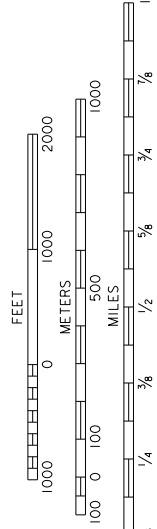
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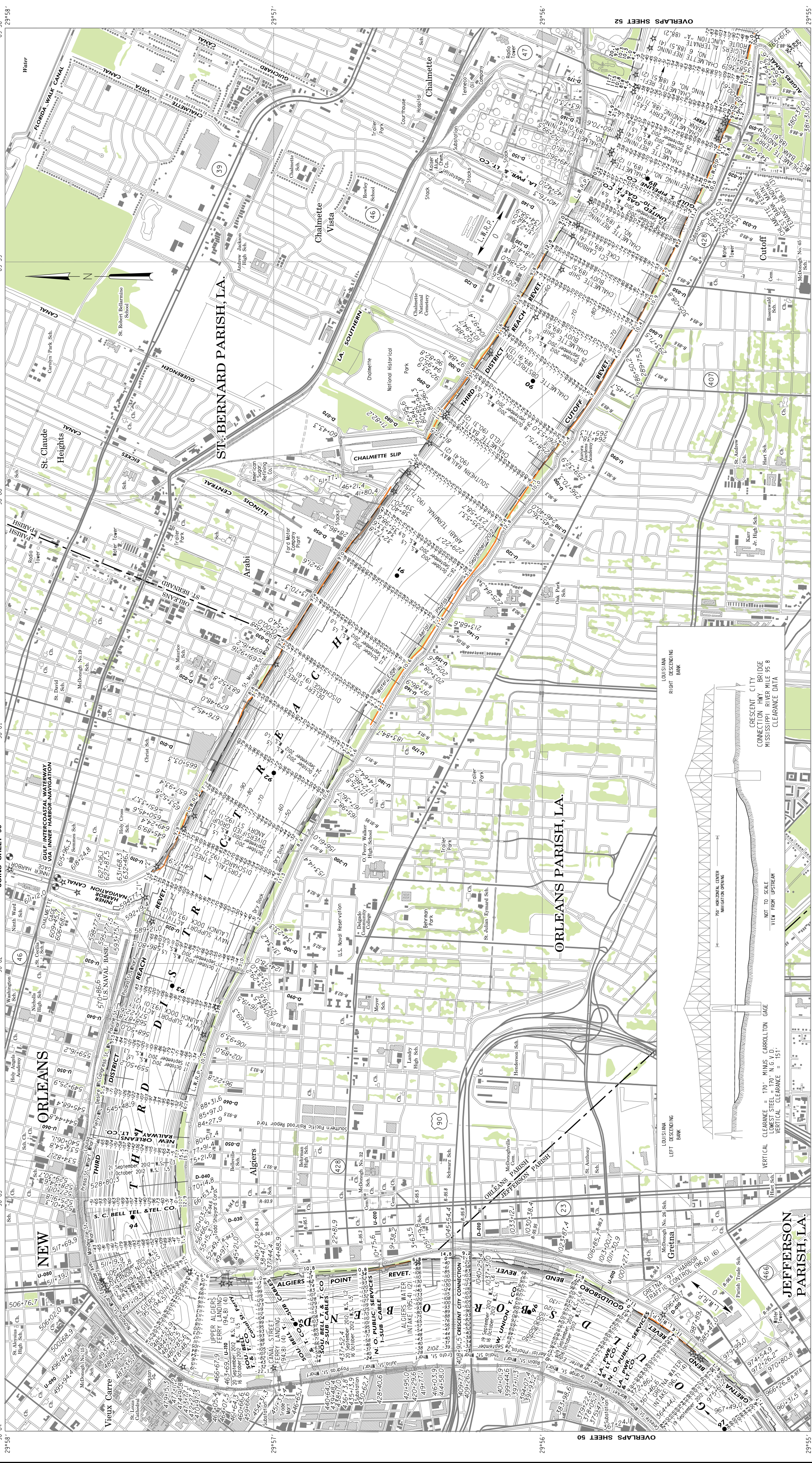
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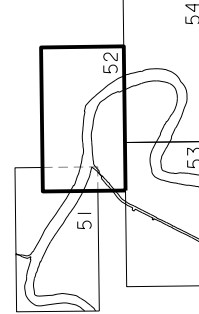
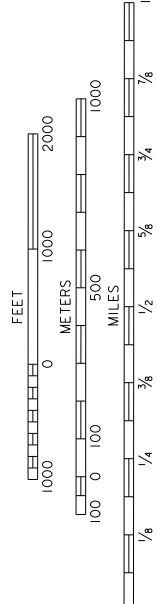
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IN 86 SHEETS
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS,
CORPS OF ENGINEERS





All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
Contours above Low Water Reference Plane are expressed in feet of 5 and 10 ft. intervals.
Contours below Low Water Reference Plane are expressed in feet of 5 and 10 ft. intervals.
Planimetry from aerial photographs from January 2002.
Distances on Mississippi River above head of Passes are shown at 1 mile intervals.
Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.

SCALE 1:20,000

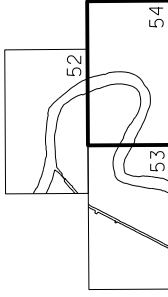


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Ellipsoid GRS 80
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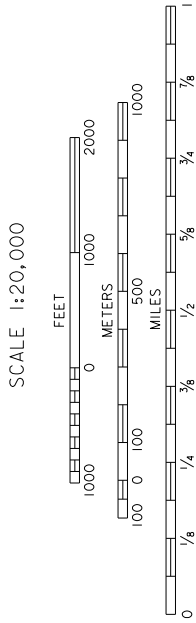
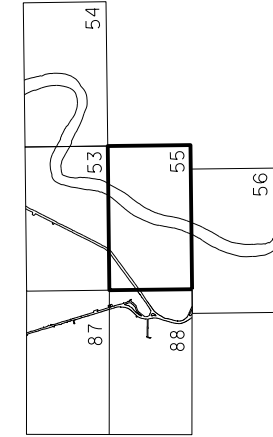


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Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Planimetry from aerial photographs flown January 2002.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
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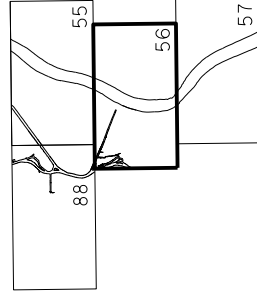
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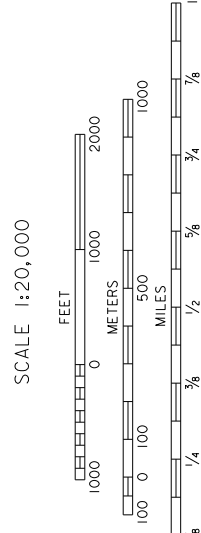
All elevations are expressed in feet and refer to North American Vertical Datum of 1988. Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals. Contours above Low Water Reference Plane are expressed in feet at 5 ft. intervals. Planimetry from aerial photographs (Iowa January, 2002).

- Distances on Mississippi River above head of PASSES are shown at 1 mile intervals, 1982 survey.
- Projection Lambert Conformal Conic
- Horizontal Datum North American Datum 1983 (NAD 83)
- Ellipsoid GPS 80
- L.W.R.P. = Low Water Reference Plane.

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FILE NO. H-5-47753

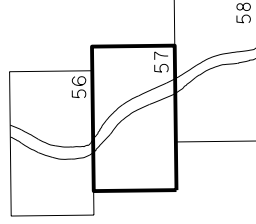
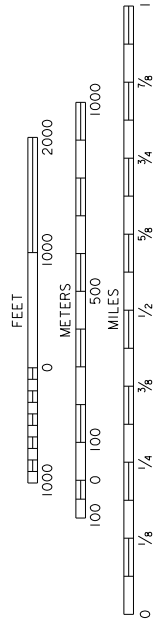
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FILE NO. H-5-47753



All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.

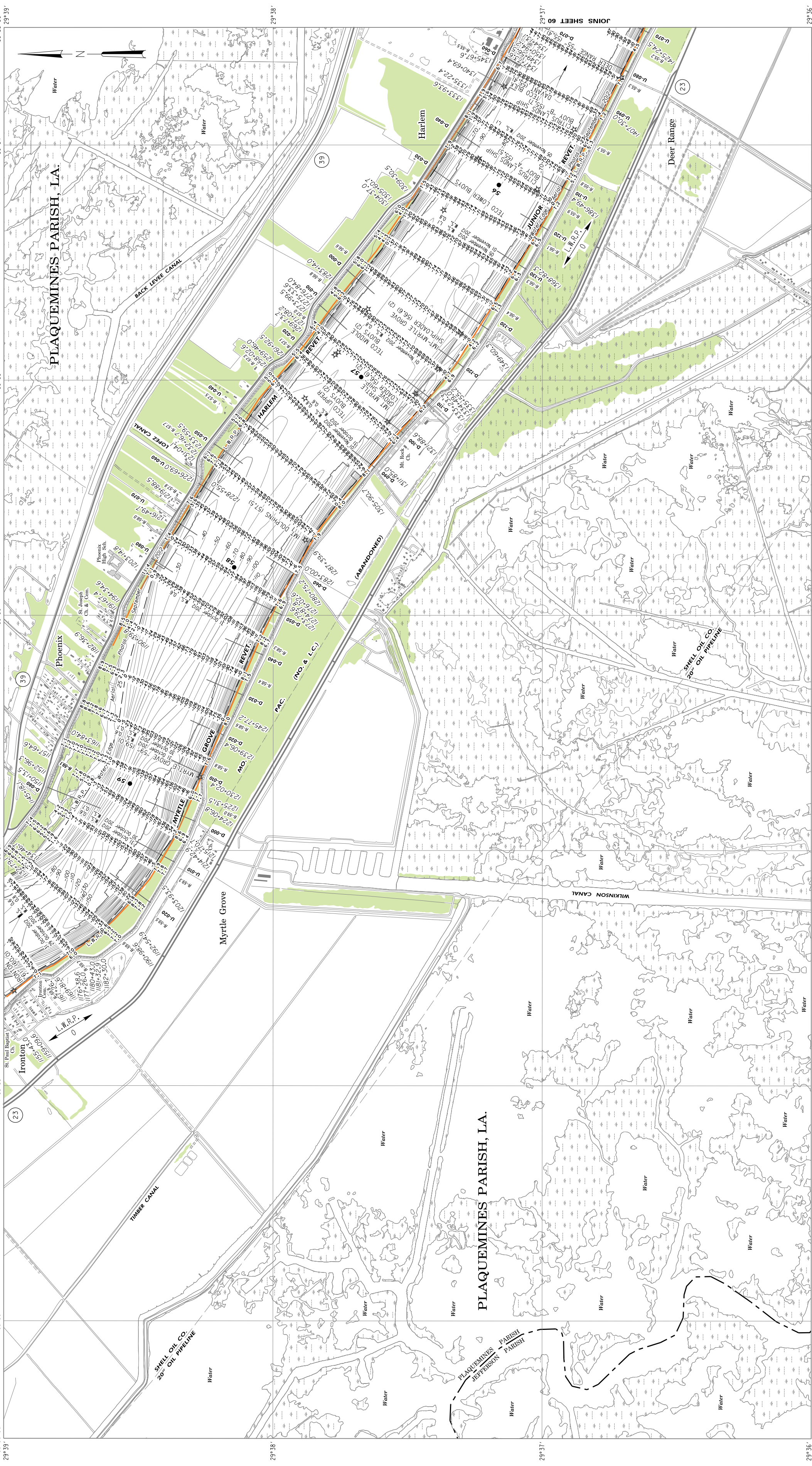
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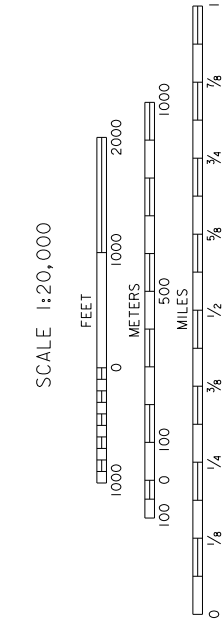
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Contours above Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Planimetry from aerial photographs flown January 2002.
Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
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SCALE 1:20,000

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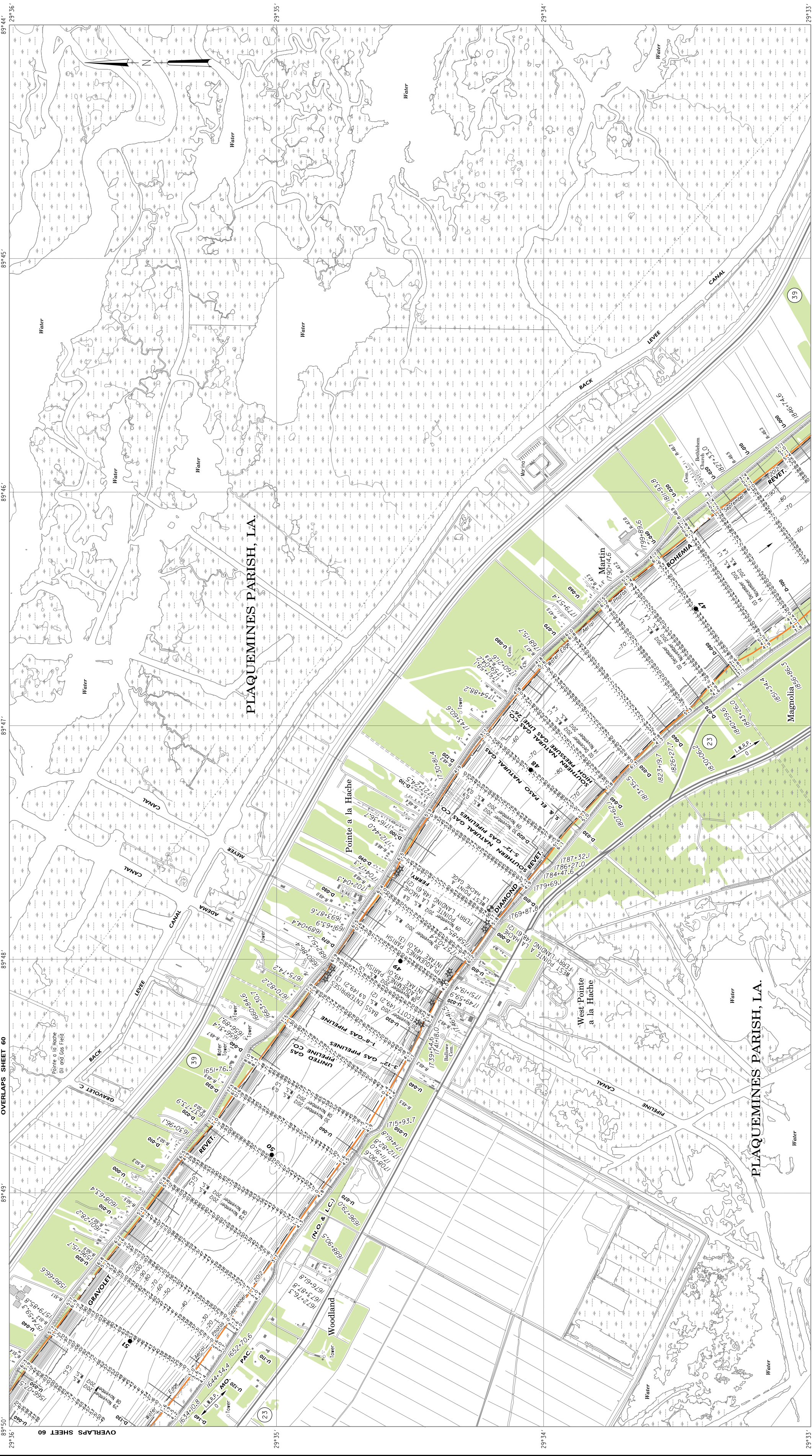
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MILES
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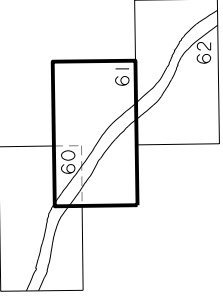
59 60 61

OVERLAPS SHEET 61



All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Planimetry from aerial photographs flown January 2002.
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Projection Lambert Conformal Conic
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SCALE 1:20,000

FEET 0 1000 2000

METERS 0 100 200

MILES 0 1/4 1/2 3/4 1

All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
Contours above Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals.
Planimetry from aerial photographs from February 2002.
Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.



All elevations are expressed in feet and refer to North American Vertical Datum of 1985. Contours at below Water Reference Plane are expressed in feet at 5 and 10 ft. intervals. Contours above Water Reference Plane are expressed in feet at 5 ft. intervals.

Photography from aerial photographs (from February 2002).

• Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1962 survey.

Projection Lambert Conformal Conic

Horizontal Datum North American Datum 1983 (NAD 83)

Ellipsoid GRS 80

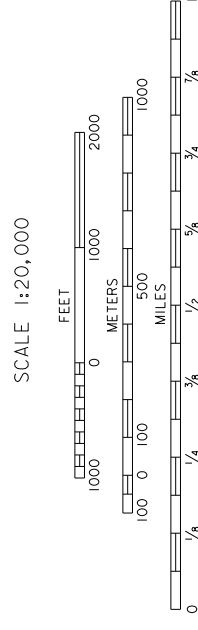
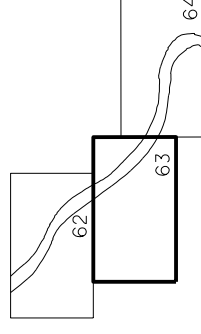
L.W.R.P. = Lower Water Reference Plane.

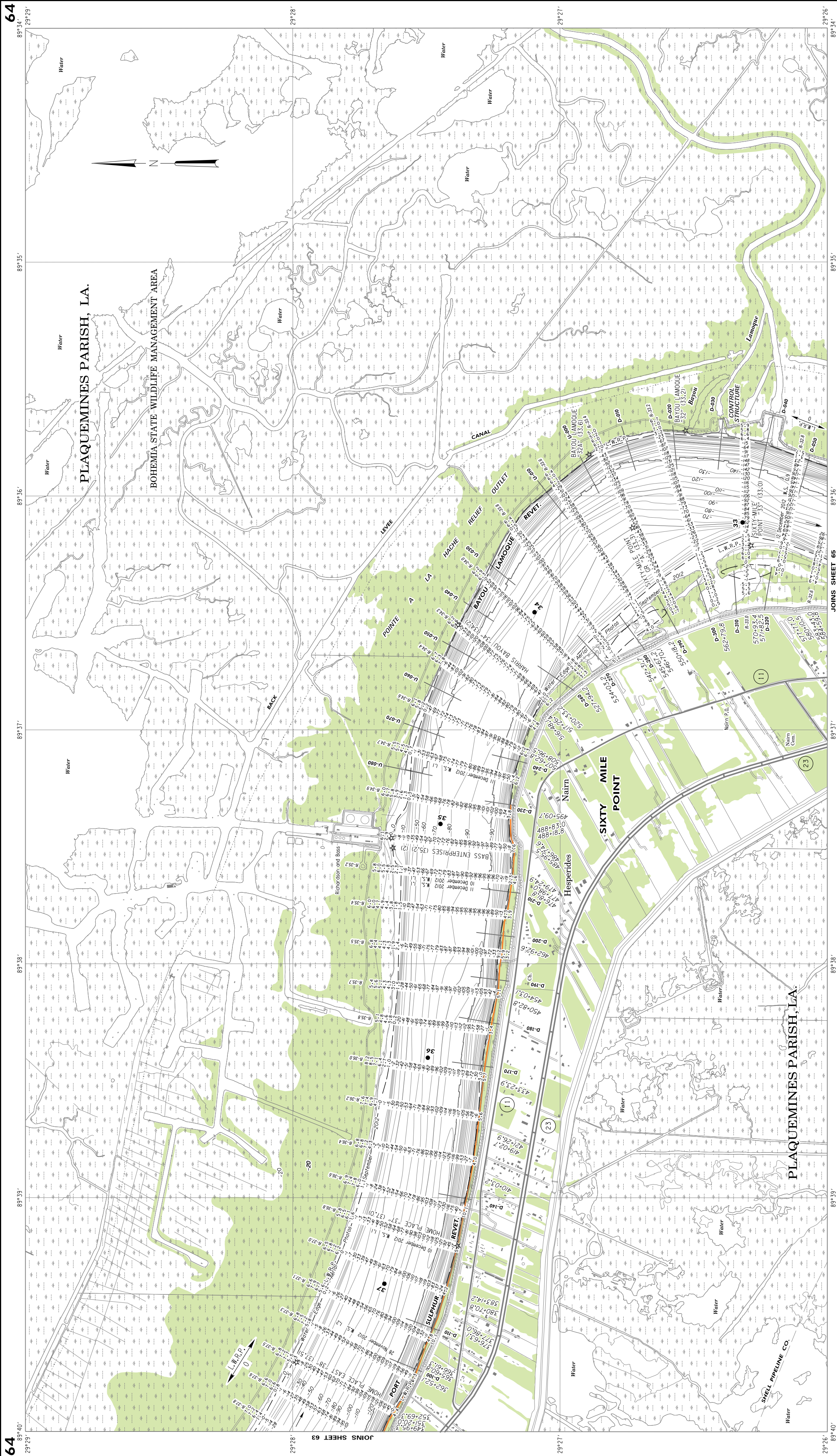
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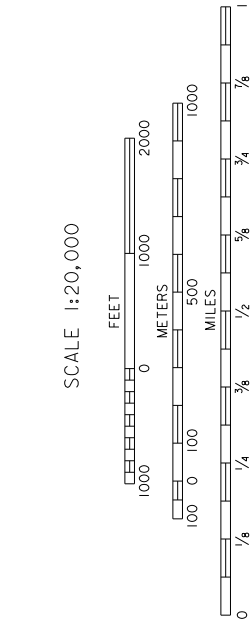
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Projection Lambert Conformal Conic
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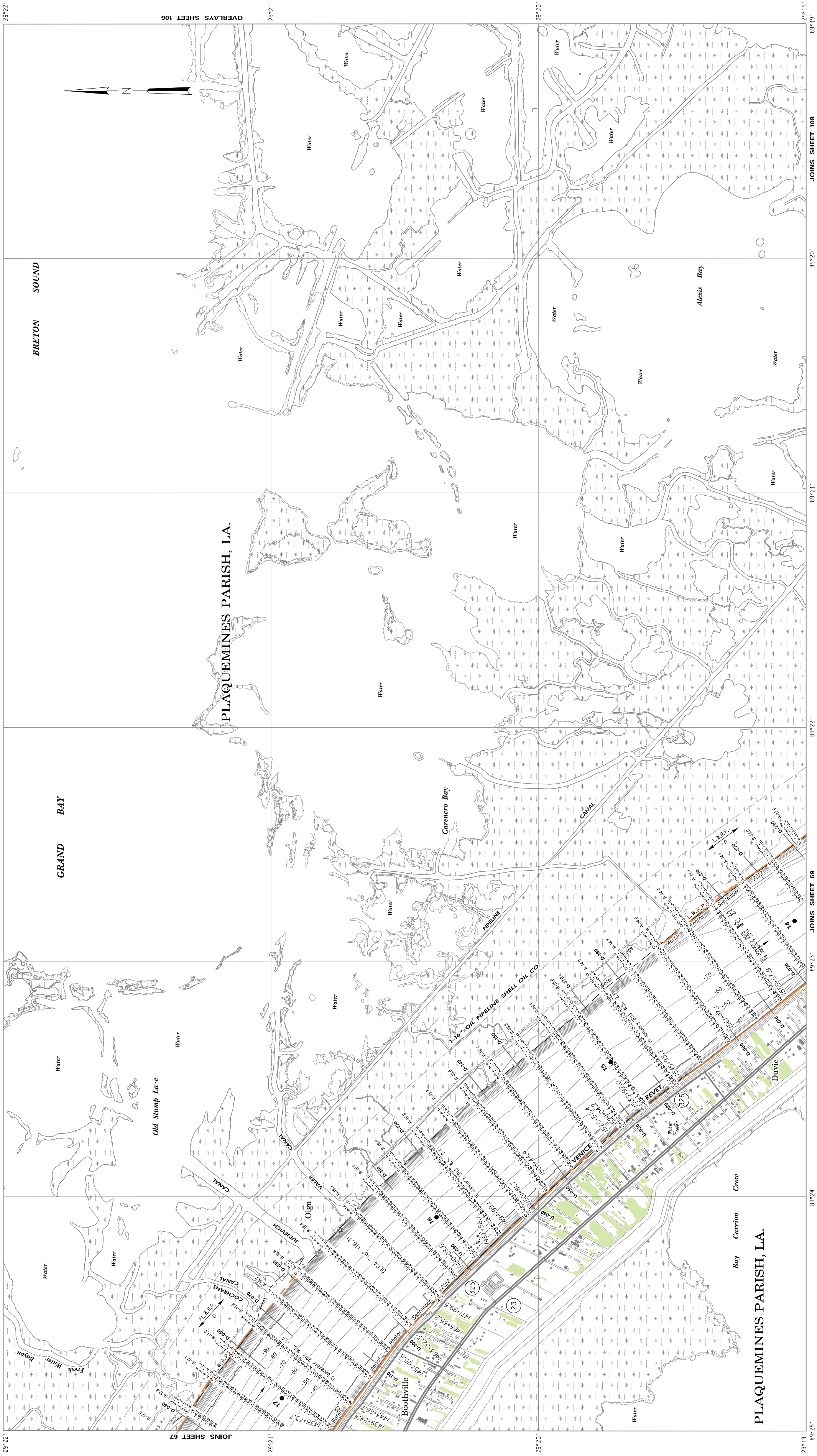
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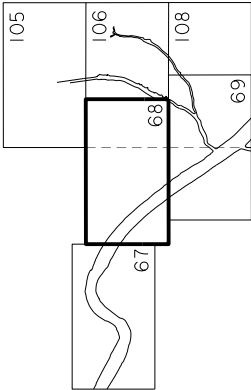
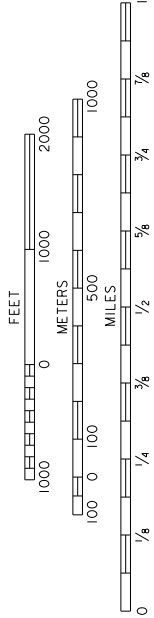
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FEET 0 1000 2000
METERS 0 500 1000
MILES 0 1/4 1/2 3/4 1



All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.

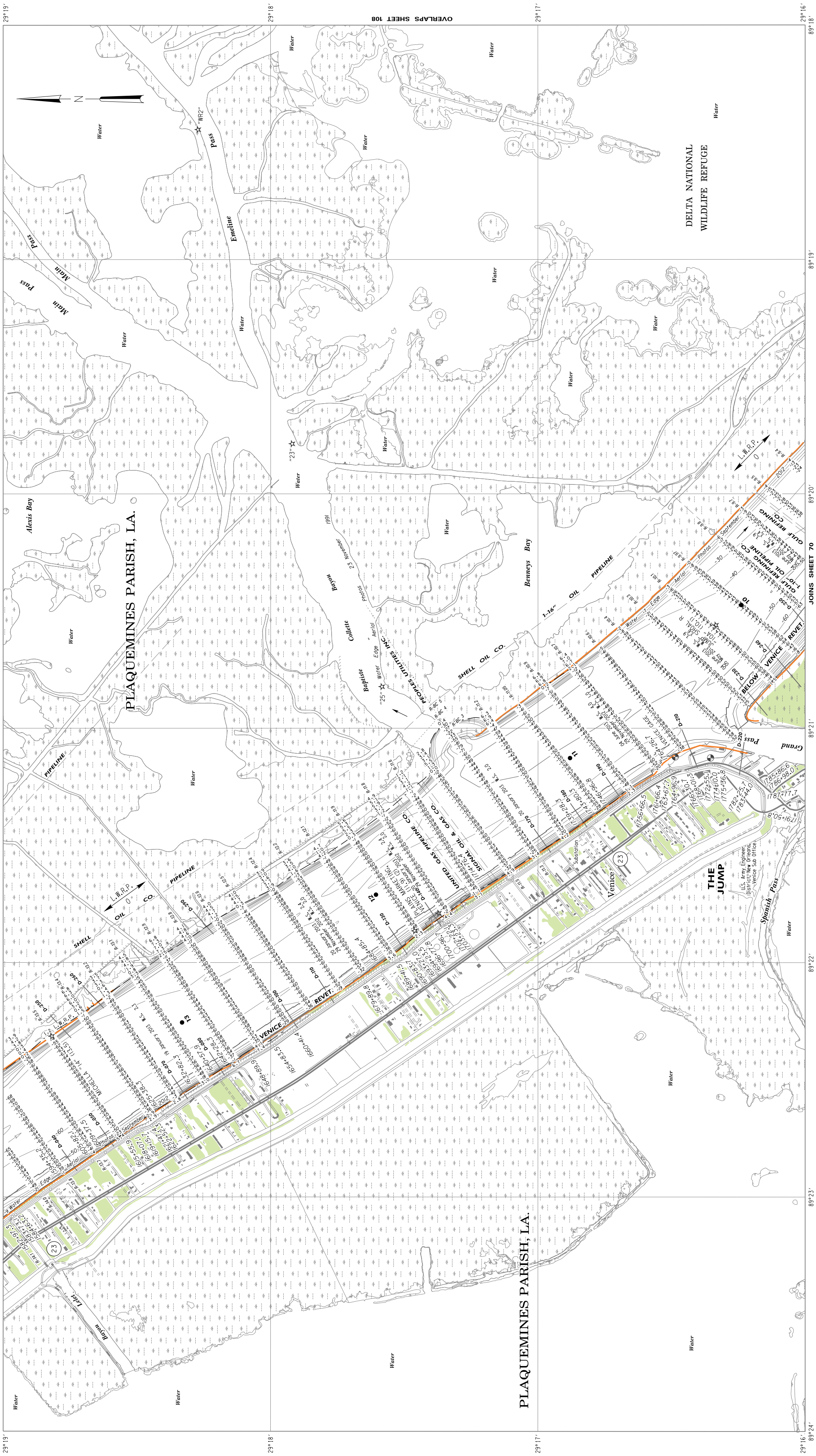
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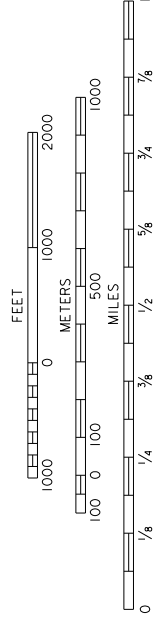
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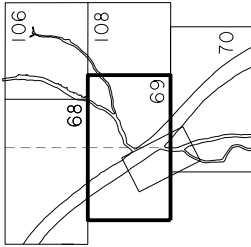


All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.

SCALE 1:20,000

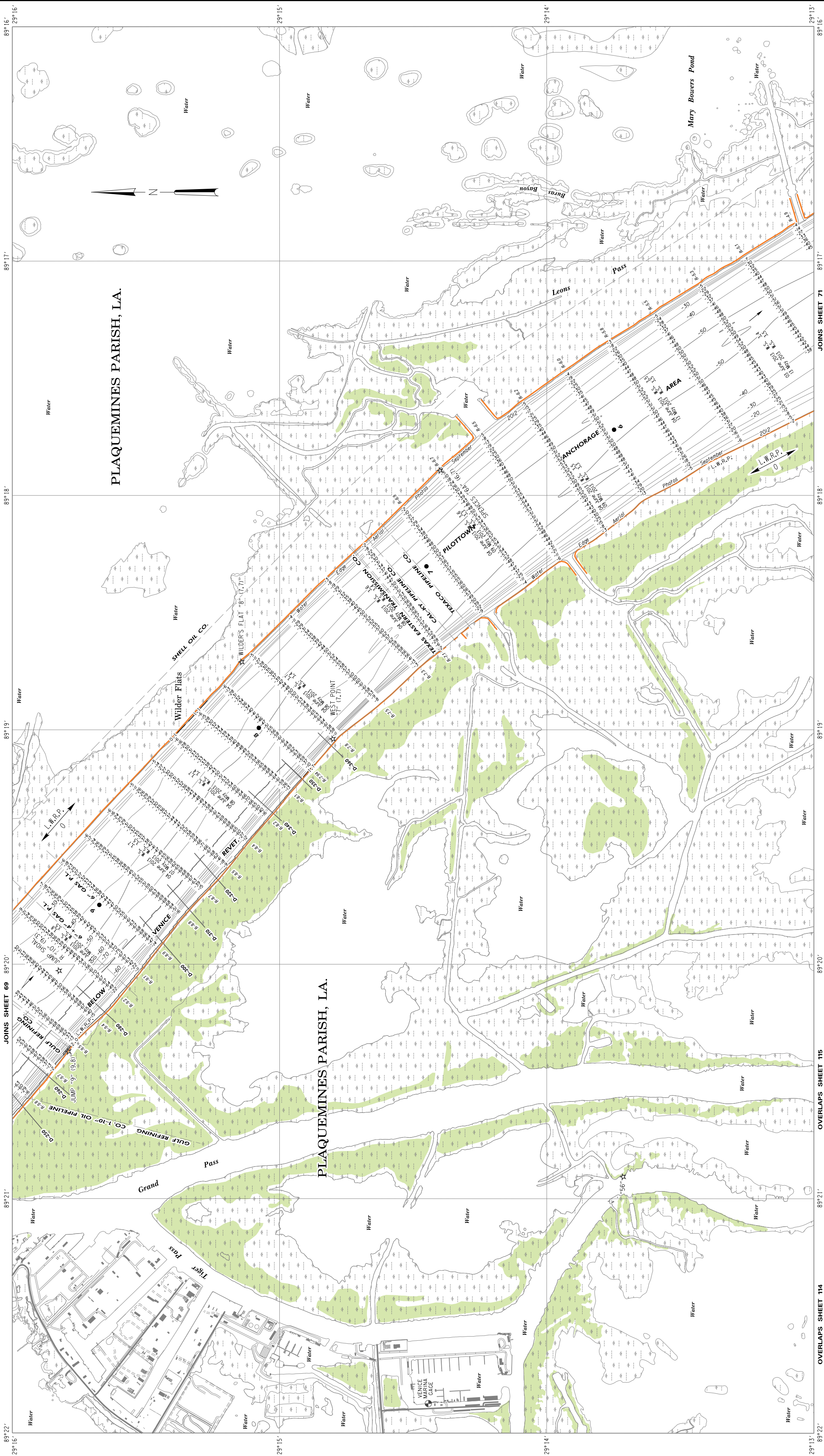


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69 70 71

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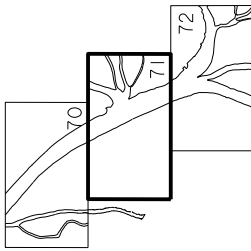
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METERS 0 1000 2000
MILES 0 1/4 1/2 3/4 1

All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.W.R.P. - Low Water Reference Plane.



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Datum Relationships at Pilot's Station East, Southwest Pass Station 8760922

The relationships shown are valid for Southwest Pass and should not be used in other locations.

Each project location's relationships must be determined with local observations.

Vertical Datum	Horizontal Datum	Projection
MLW (2002-2006)	North American Datum 1983 (NAD 83)	Universal Transverse Mercator (UTM)
MSL (2002-2006)	North American Datum 1983 (NAD 83)	Universal Transverse Mercator (UTM)
MLW (2002-2006)	North American Datum 1983 (NAD 83)	Universal Transverse Mercator (UTM)
NAD83 (2004-65)	North American Datum 1983 (NAD 83)	Universal Transverse Mercator (UTM)

Historic MLD of -0.78' NAD029 was based on low tide at Biloxi MS and was not valid for Louisiana.

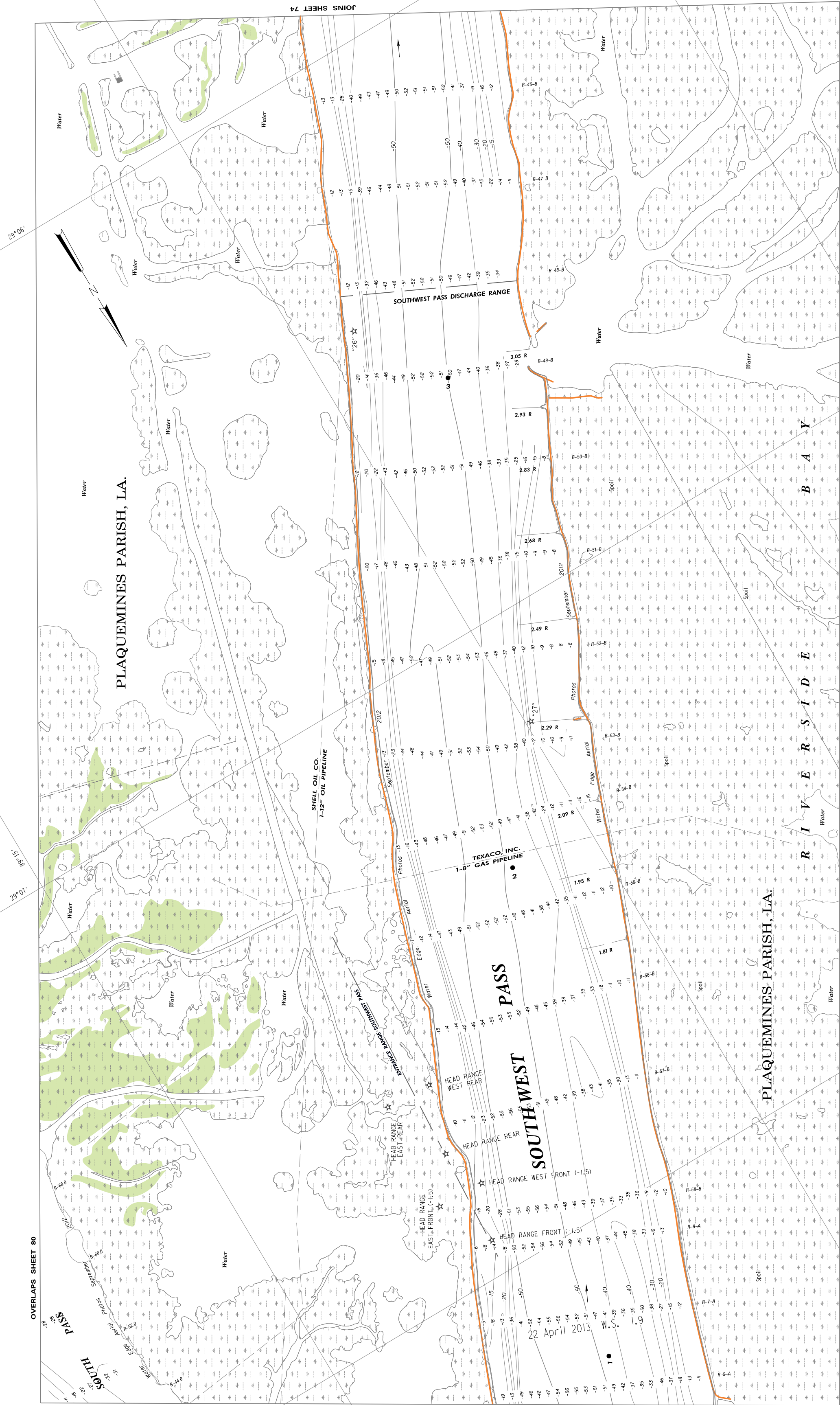
The data relationships hold true through March 2011.

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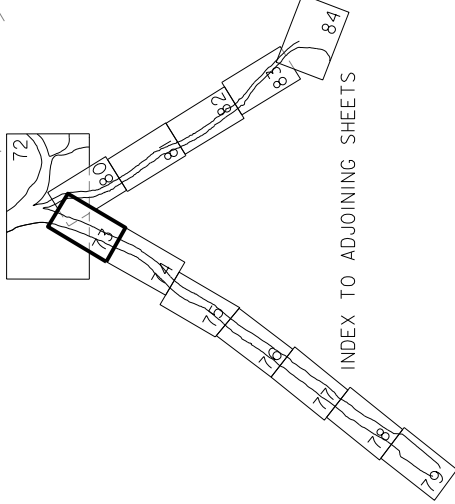
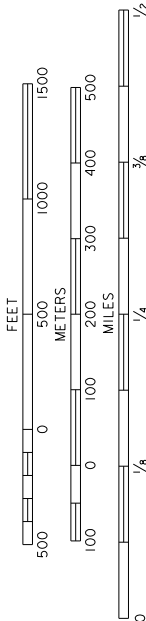
METERS 0 1000 2000

MILES 0 1/4 1/2 3/4 1



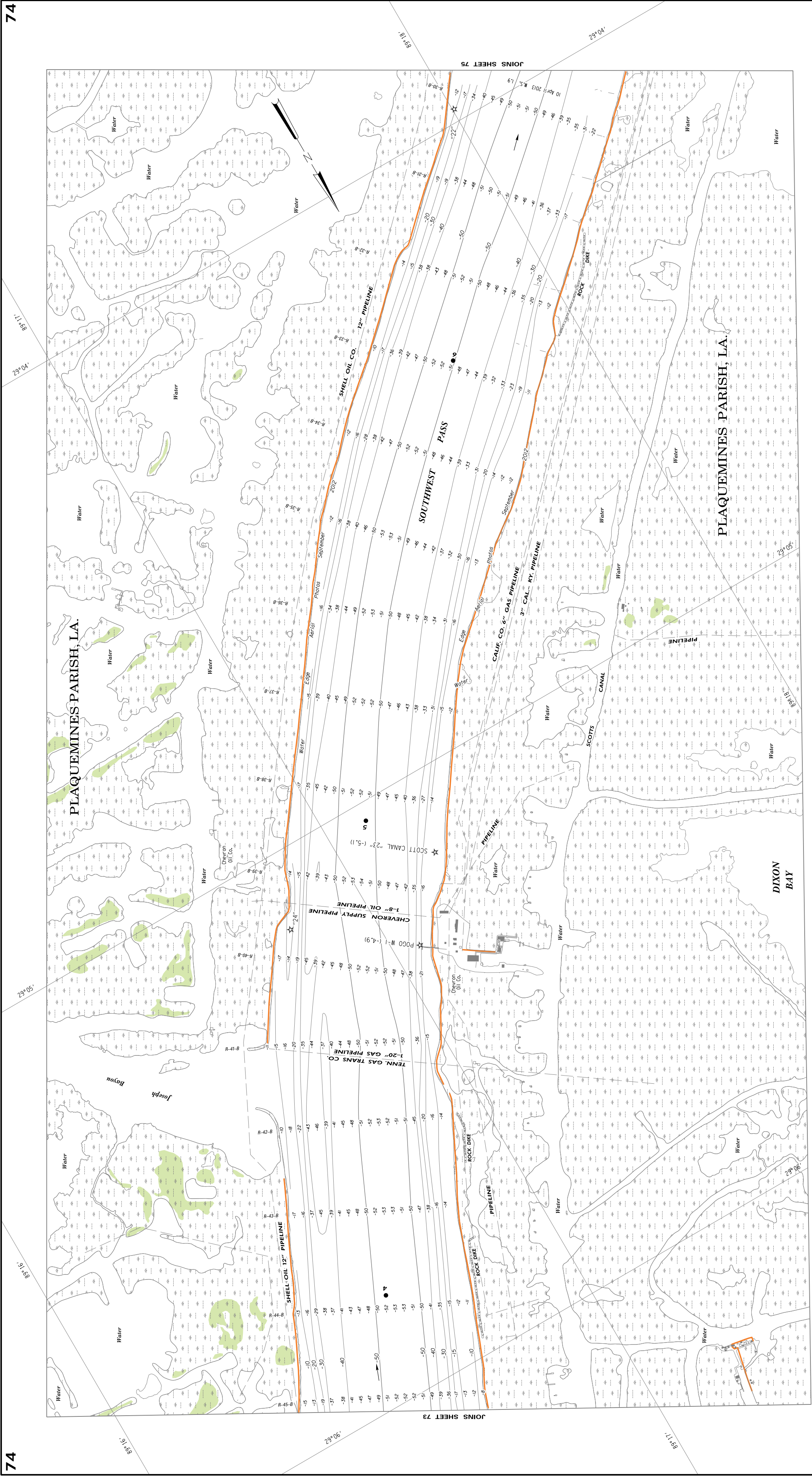
All elevations are expressed in feet and refer to North American Vertical Datum of 1988.
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Projection Lambert Conformal Conic
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Ellipsoid GRS 80
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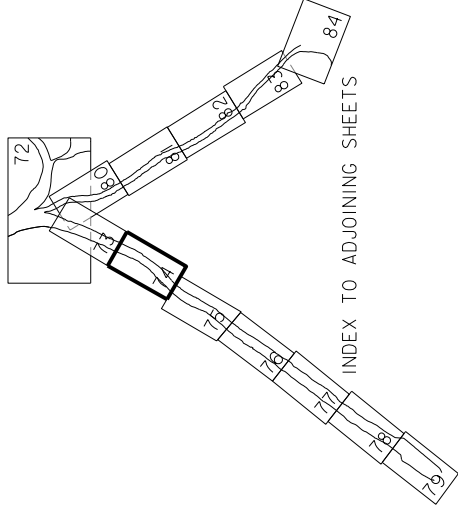


All elevations are expressed in feet and refer to North American Vertical Datum of 1988. Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals. Contours above Low Water Reference Plane are expressed in feet at 5 ft. intervals. Piezometry from local photographs from January 2002.

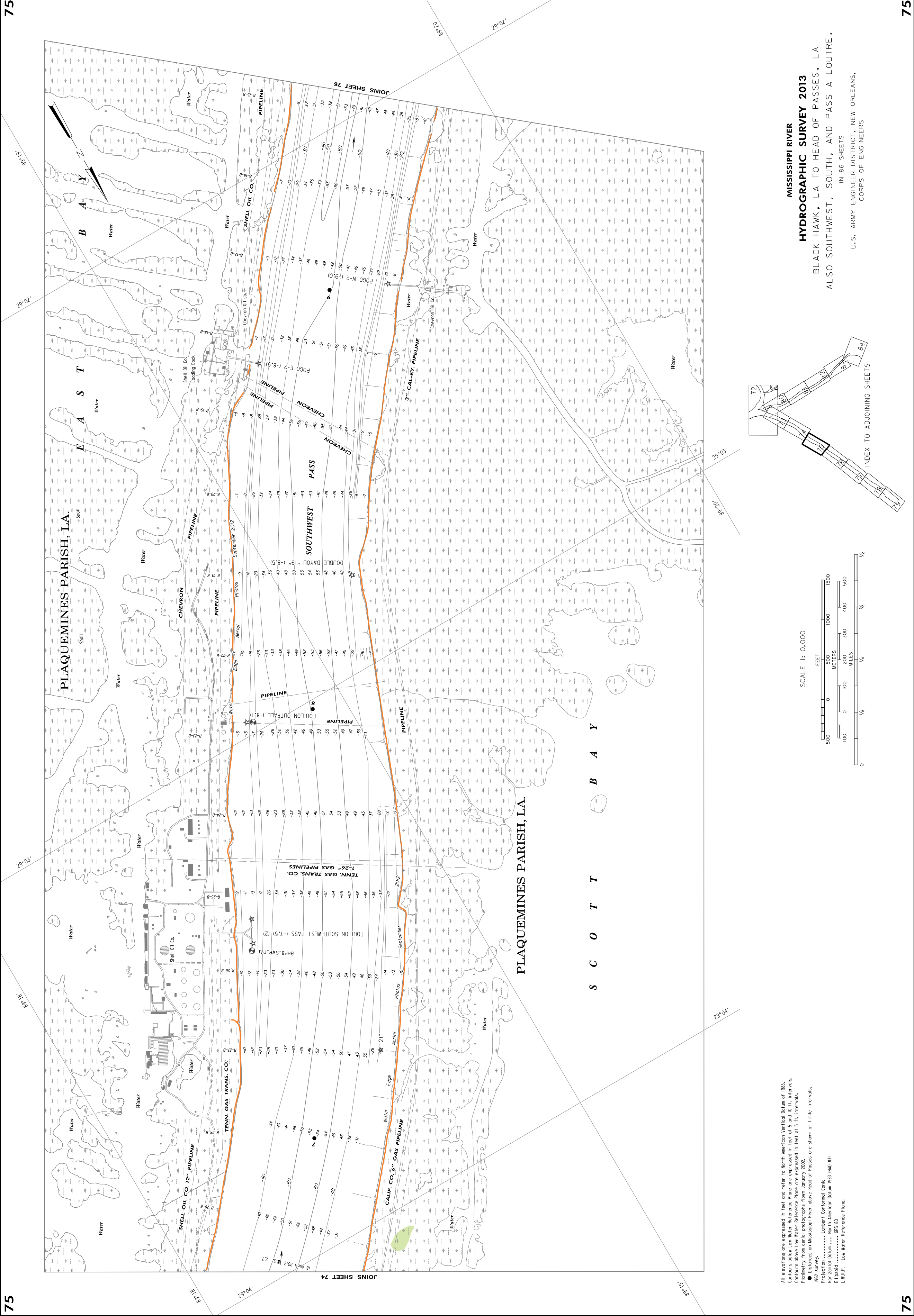
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1982 survey.

Projection Lambert Conformal Conic
Horizontal datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
M.S.P. - Low Water Reference Plane.

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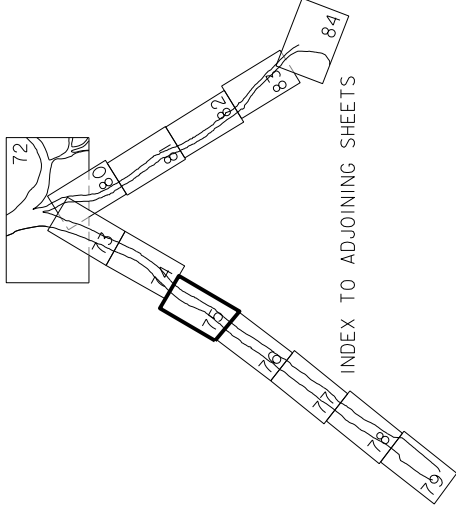
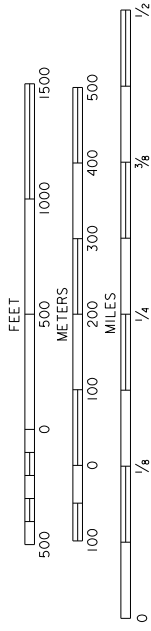


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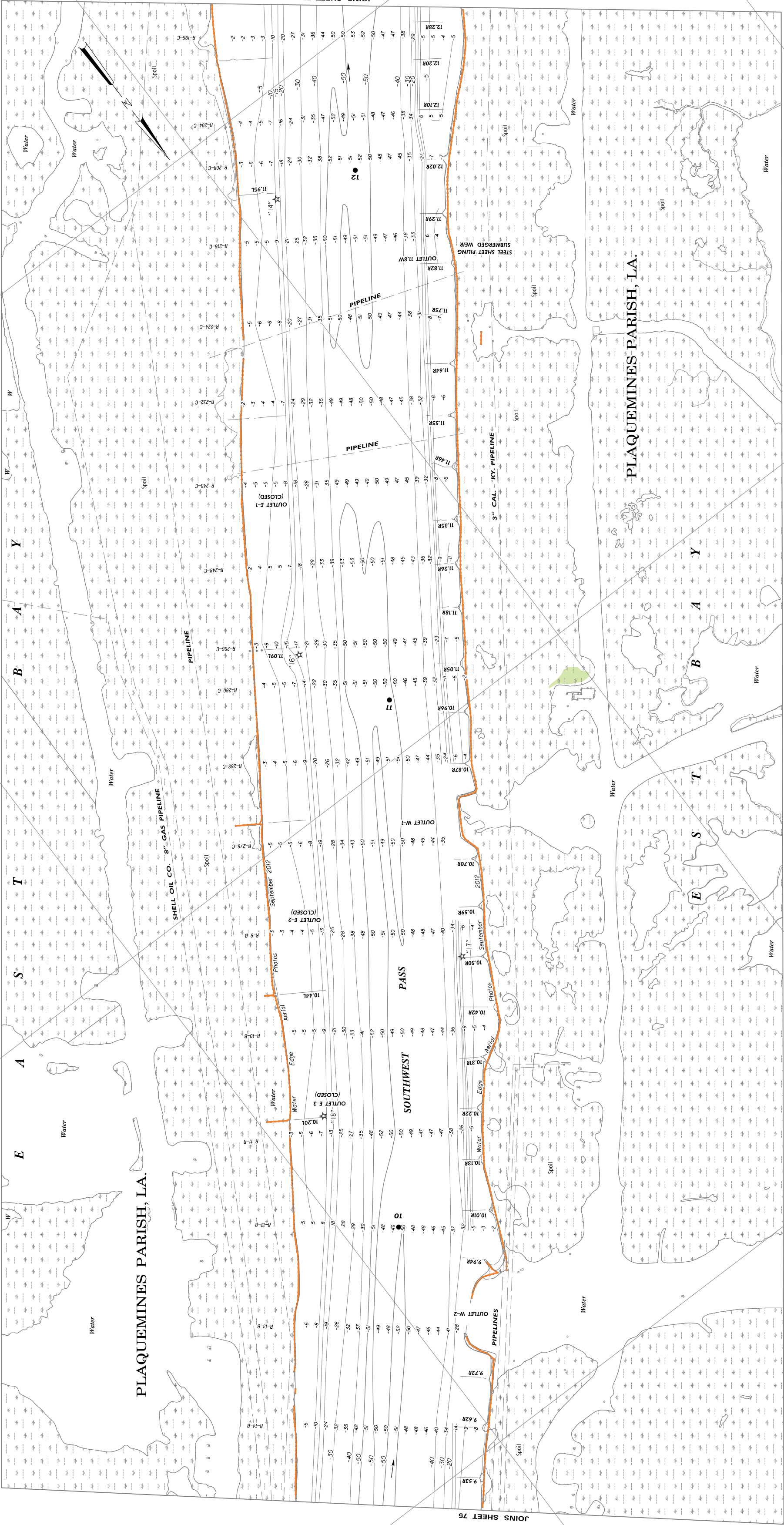
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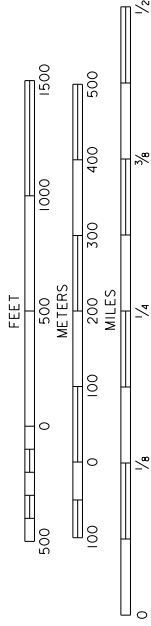
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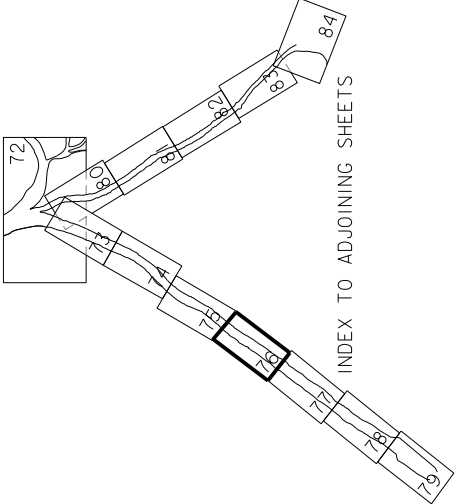


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Projection Lambert Conformal Conic
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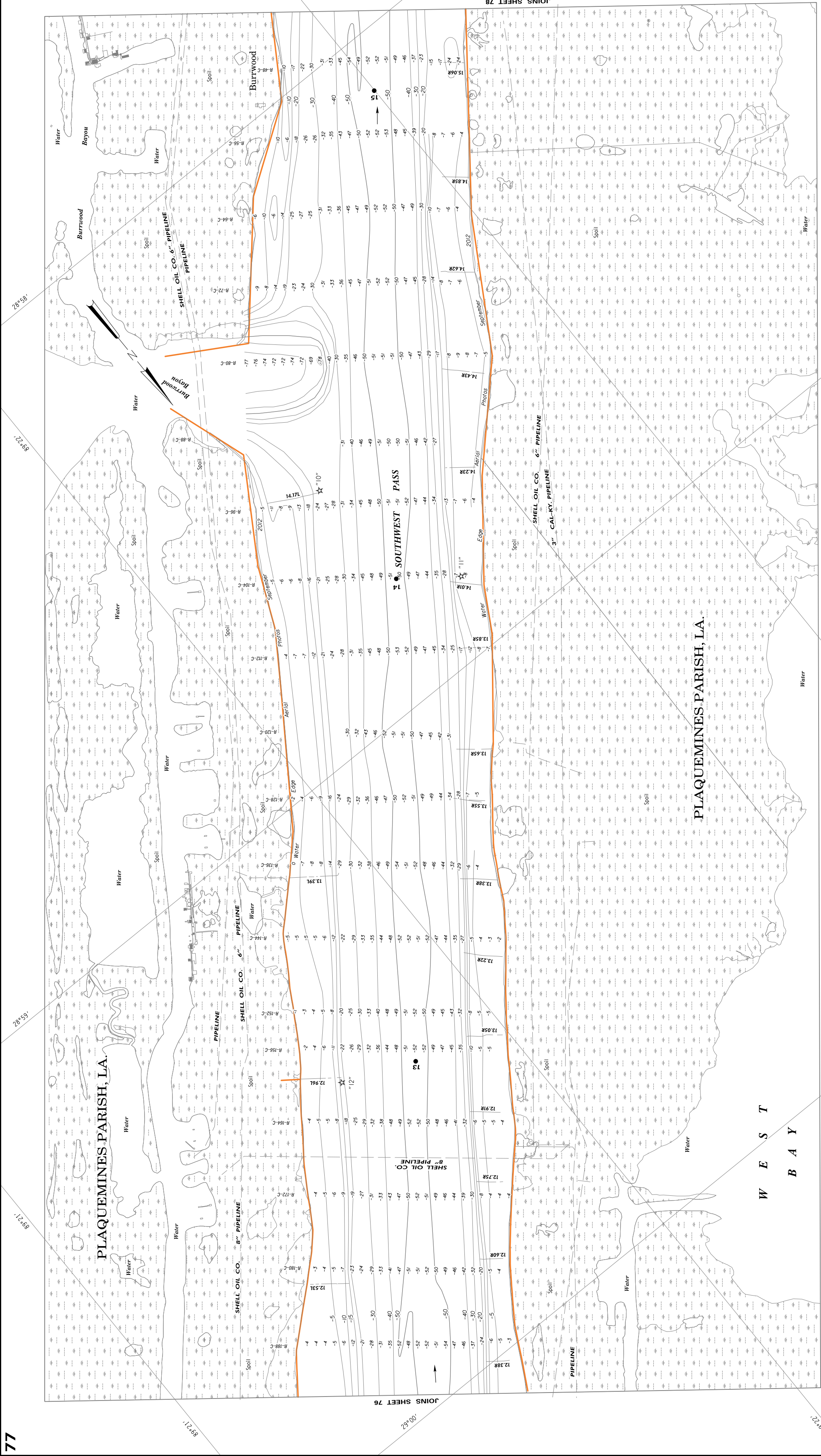


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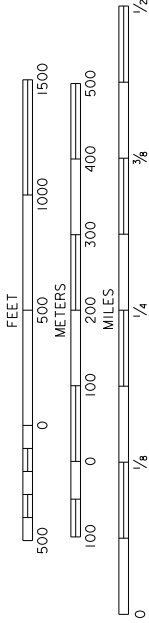
MISSISSIPPI RIVER
HYDROGRAPHIC SURVEY 2013
BLACK HAWK, LA TO HEAD OF PASSES, LA
ALSO SOUTHWEST, SOUTH, AND PASS A LOUTRE.

IN 86 SHEETS
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS,
CORPS OF ENGINEERS



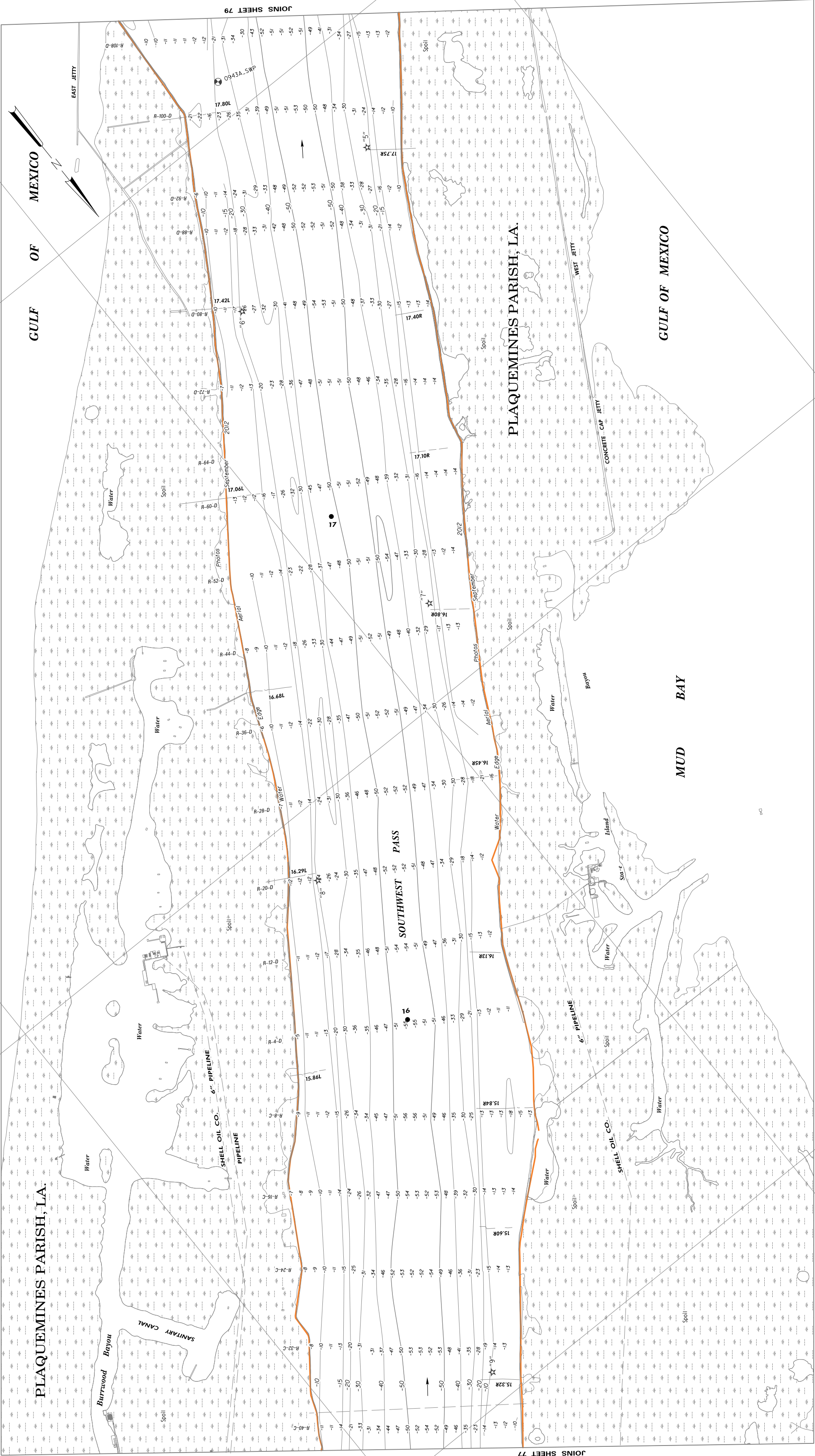
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Planimetry from aerial photographs taken January 2002.
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Projection Lambert Conformal Conic
Horizontal Datum North American Datum 1983 (NAD 83)
Ellipsoid GRS 80
L.M.R.P. - Low Water Reference Plane.

SCALE 1:10,000



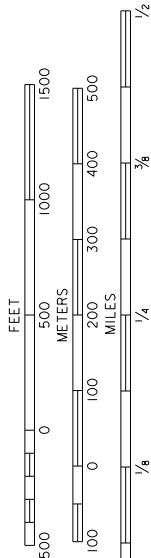
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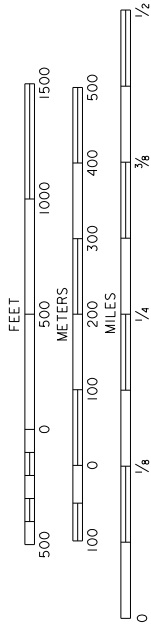
PLAQUEMINES PARISH, LA.

G U L F O F M E X I C O

PLAQUEMINES PARISH, LA.

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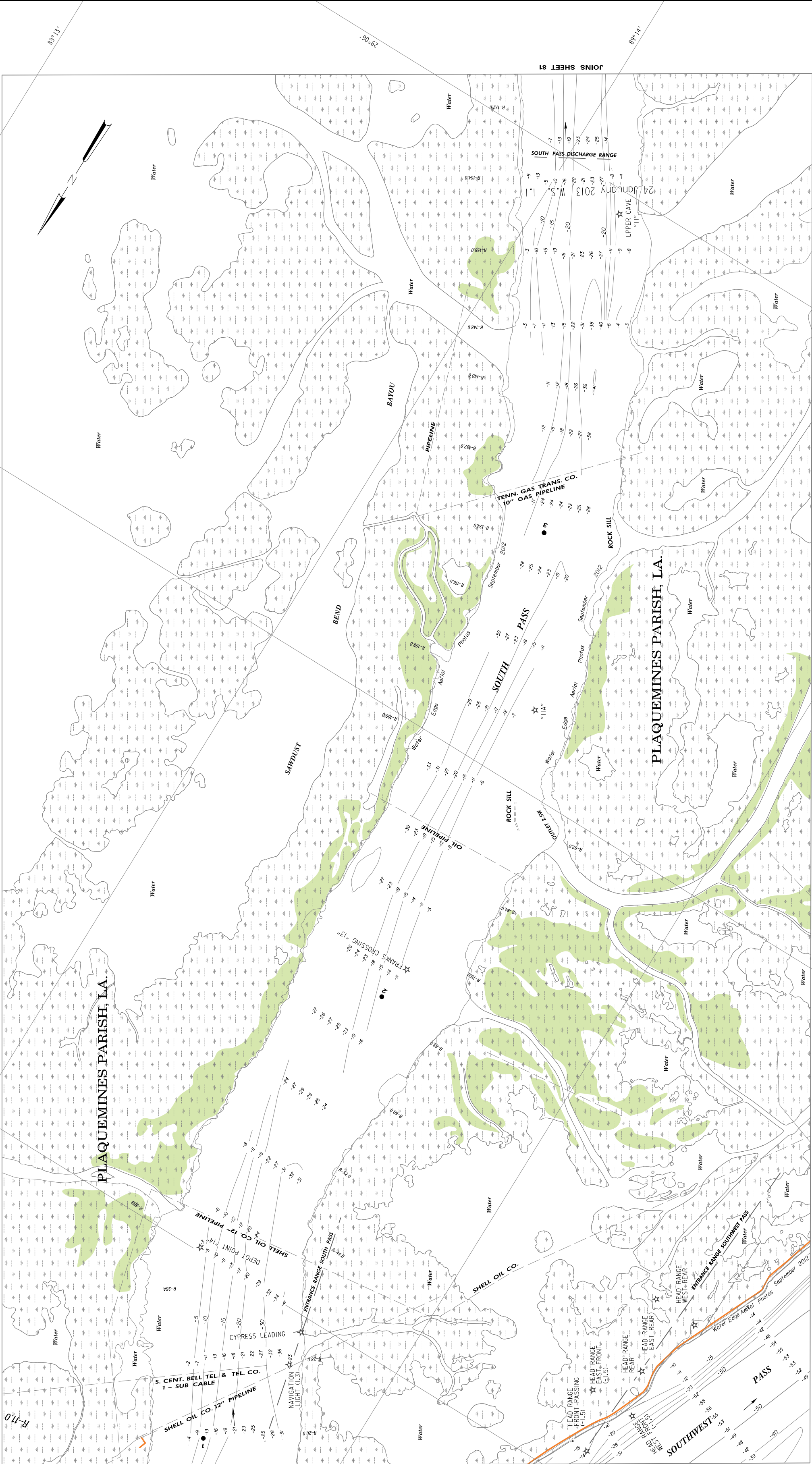
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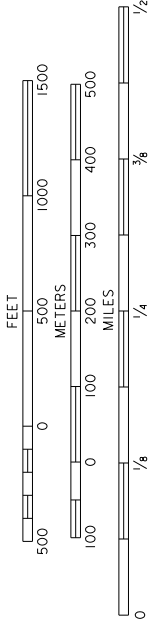
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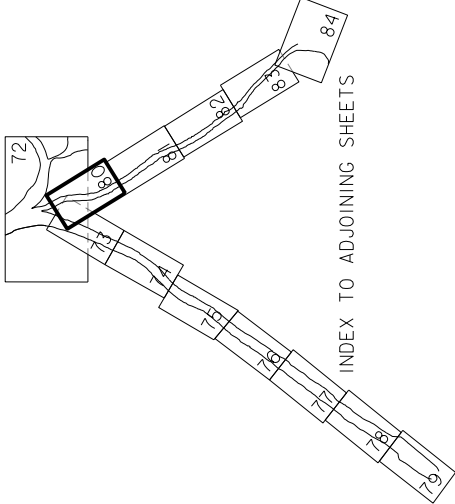


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SCALE 1:10,000



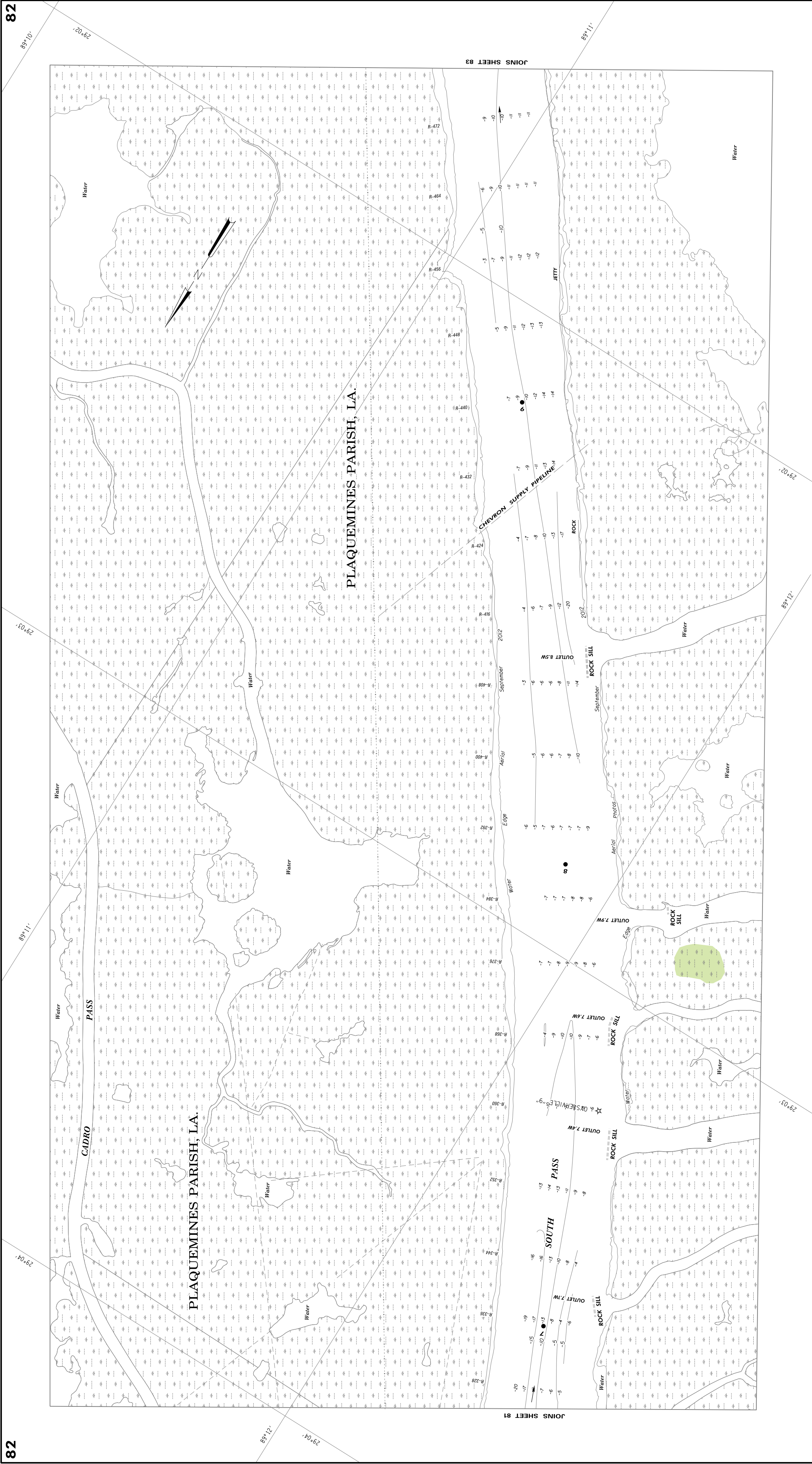
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IN 86 SHEETS
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CORPS OF ENGINEERS

OVERLAPS SHEET 73

JOINS SHEET 81



All elevations are expressed in feet and refer to North American Vertical Datum of 1983. Contours below Low Water Reference Plane are expressed in feet at 5 and 10 ft. intervals. Contours above Low Water Reference Plane are expressed in feet at 5 ft. intervals. Photometry from aerial photographs from January, 2002.

• Distances on Mississippi River above head of Passes are shown at 1 mile intervals, 1962 survey.

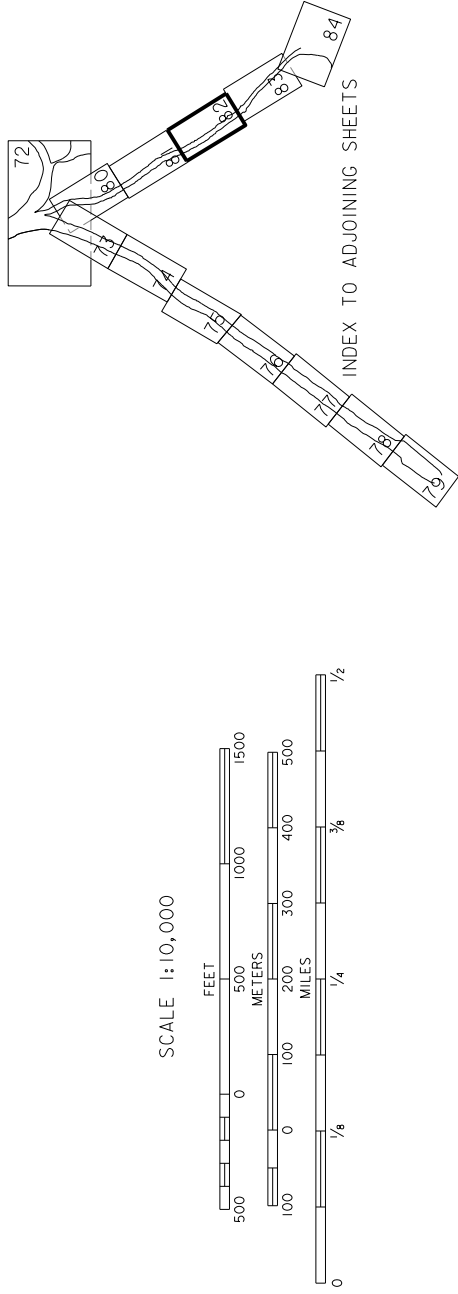
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Ellipsoid GRS 80
M.S.R.P. - Low Water Reference Plane.

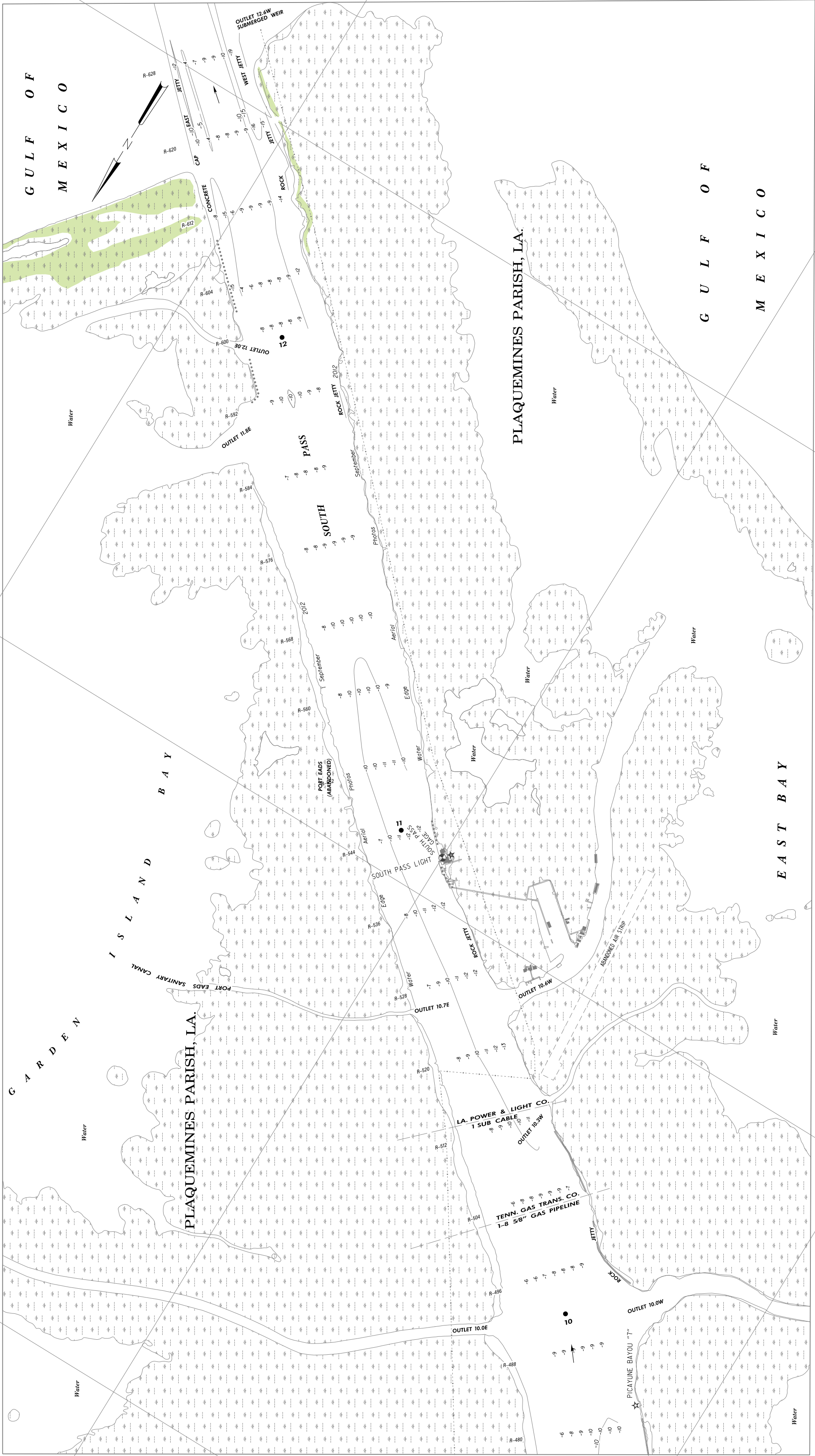
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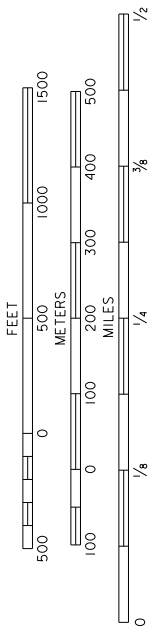
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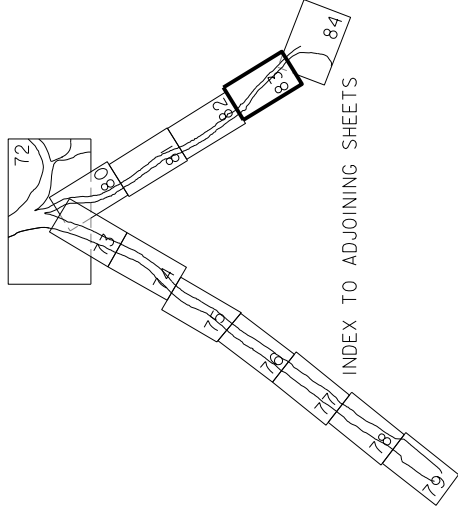


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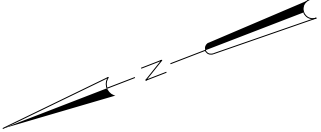
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PLAQUEMINES PARISH, LA.



ENTRANCE RANGE SOUTH PASS

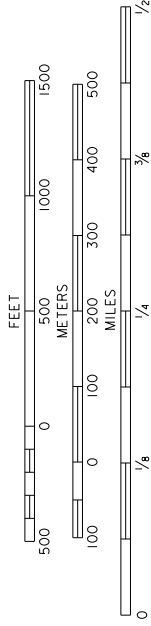
★ G "3"

★ R "2" ★

G U L F
M E X I C O
PLAQUEMINES PARISH, LA.

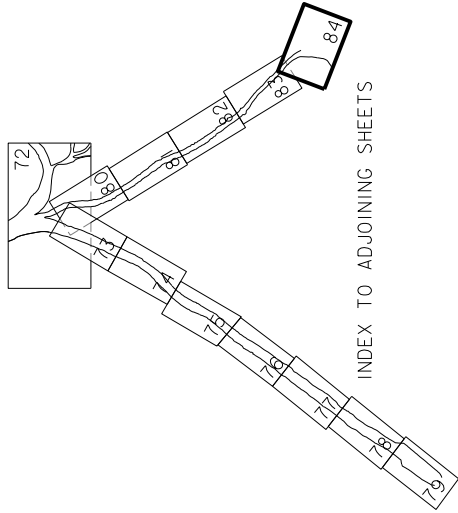
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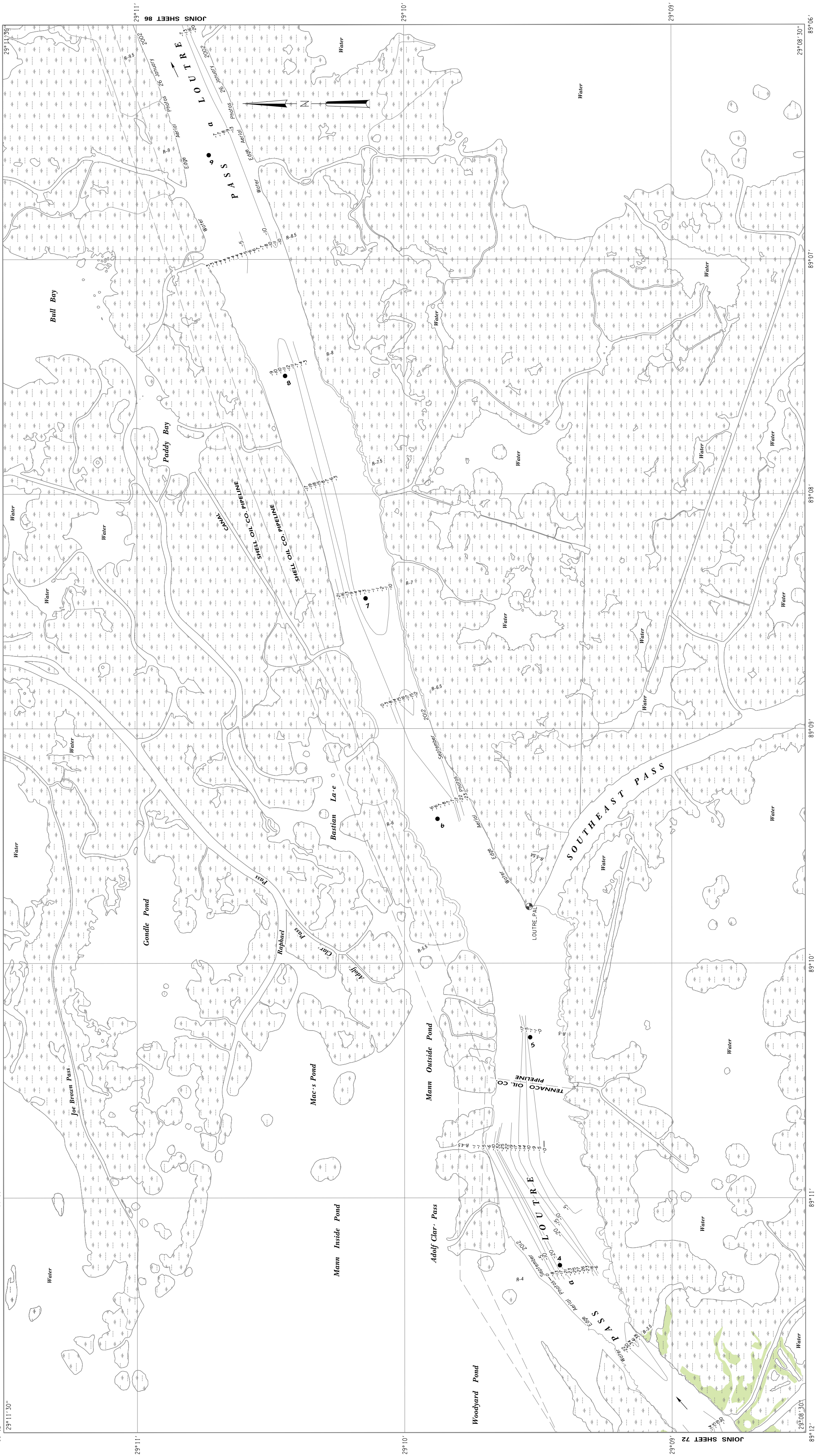


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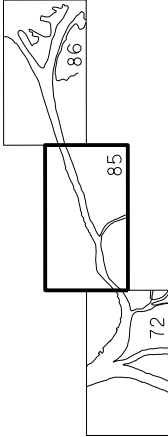
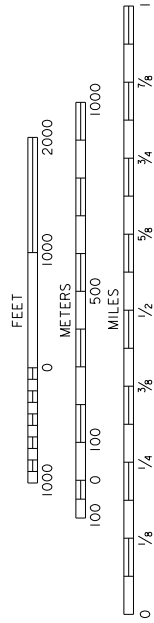


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