

ALUMINUM COMPANY OF AMERICA

P.O. BOX 3567

DAVENPORT, IOWA 52808

(319) 359-2000



April 24, 1995

Site: <u>MRP #15</u>
ID # <u>JAD981117161</u>
Break: <u>3.4</u>
Other: <u>Comments</u> <u>4-24-95</u>

#140047

James Colbert  
 Superfund Branch  
 USEPA Region VII  
 726 Minnesota Ave.  
 Kansas City, Kansas 66101



140047

SUPERFUND RECORDS

RECEIVED

APR 26 1995

OFFICE OF THE DIRECTOR  
WSTM DIVISION

Dear Jim:

Attached is a copy of an April 17, 1995, letter from Woodward-Clyde regarding a preliminary report of a hydrographic survey that was conducted in conjunction with Phase III of the Sediment Study of the Mississippi River. As stated in the attached, the survey was not completed due to equipment problems and poor weather. However, it explains the work that was completed and provides an indication of the type of information that will be gathered as we begin the Phase III Sediment Study.

If you have any comments on the enclosed, please do not hesitate to call. However, the enclosed is provided for your general information and I am not expecting any sort of approval letter. The hydrographic survey work for the other Critical Study Areas will be completed when we mobilize for the Phase III field sampling; hopefully this summer.

Yours truly,

Marshall Sonksen, P.E.

Location Remediation Manager

cc: Carl Crane, Woodward-Clyde



April 17, 1995

Mr. Marshall Sonksen  
Aluminum Company of America  
4879 State Street  
Riverdale, Iowa 52722

RE: Preliminary Report of Hydrographic Survey

Dear Marshall:

As part of the Phase III Field Sampling Plan of Alcoa's Sediment/Soil Investigation Studies, the Critical Study areas will be mapped using hydrographic surveying techniques. A hydrographic survey of the Critical Study Areas in Mississippi River Pool 15 (MRP15) was initiated on November 17-19, 1994. Hydrographic data collection in the field was curtailed due to a combination of survey equipment malfunction and poor weather. However, sufficient data were collected to develop a preliminary hydrographic map of Area 2. Though a large number of data points were obtained from Areas 1 and 3, the information was insufficient to adequately define the shoreline boundary or river depths beyond about 200 ft from shore. These data are necessary for appropriate contour development. Collection of these data will be a primary focus of additional field activities for all three Critical Study Areas. Sediment depth and river velocity measurements will also be collected during the additional studies. The remaining activities associated with the hydrographic survey will be completed concurrently with Phase III field investigations outlined in the Phase III Field Sampling Plan. The following sections present a summary of activities completed during November of 1994.

## APPROACH

Hydrographic data were collected with an International Measurement Control (IMC) Hydro I surveying system linked with a SIMRAD precision depth echosounder. The Hydro I is a fully automated ranged azimuth surveying system that uses laser technology with conventional surveying techniques (i.e., X, Y, and Z coordinates). The shore unit of the Hydro I consists of a directional theodolite, an electronic distance measuring instrument (EDMI), a microcomputer with navigational software, and a two-way radio. The ship unit of the Hydro I includes glass prisms (to which distances are measured), a microcomputer with navigational software, and a two-way radio. The SIMRAD echosounder contains a transducer, a processing unit with a color recorder, and a digitizer.

The shore unit is set up directly over a pre-established control point. The theodolite is mounted on a standard surveying tripod and the EDM is fastened to the theodolite. These

## Woodward-Clyde

Mr. Marshall Sonksen

Page 2

April 17, 1995

instruments are wired directly to the shore computer. The ship unit is arranged with the transducer mounted directly below the prisms so that X and Y coordinate data correspond to Z coordinate, i.e., depth data. The data output from the echosounder is input directly to the ship computer to provide digital depth readings.

The shore unit personnel tracks the prisms manually with the theodolite. The shore computer uses azimuth and distance data to calculate the X and Y coordinates of the boat. The X and Y coordinates are transmitted by radio frequency telemetry to the ship computer where all of the X, Y, and Z coordinate data are stored. The shore computer uses angular and distance data to continuously update (0.7 second update cycle) the position of the boat. All X, Y, and Z coordinates are logged to the computer at preset distance intervals. The accuracy of the hydrographic mapping equipment is plus or minus 0.2 feet on the horizontal axis and plus or minus 0.3 feet on the vertical axis assuming calm surface water conditions.

The US Army Corps of Engineers Rock Island District provided information regarding several benchmarks along MRP15. Shore control points for the survey were selected to allow a direct line of sight between the ship and shore units, and were referenced to the nearest benchmark. A backsight to another benchmark was used to establish horizontal angle. The following control points, benchmarks were used:

AREA	CONTROL POINT	BENCHMARK	BACKSIGHT
Area 1	Established control station on Illinois side of river by shooting from the benchmark location. Control station located at 568,415N; 2832738 E (Iowa South State Plane Coordinates).	Station 489.3R	Groundwater Monitoring Well 21
Area 2	A mooring cell located downstream from a tank farm on the Illinois side of the river at MRM 486.6 at 1,765,845 N; 409,445 E. (Illinois West State Plane Coordinates).	486.6L	486.7R

# Woodward-Clyde

Mr. Marshall Sonksen  
Page 3  
April 17, 1995

AREA	CONTROL POINT	BENCHMARK	BACKSIGHT
Area 3	A dock located downstream from Interstate Highway 74 at 1,768,606.98 N; 405,151.35 E (Illinois West State Plane Coordinates).	15R	10L (TBM2 used for elevation)

Benchmark and backsight locations (with the exception of the groundwater monitoring well) are US Army Corp of Engineer designations. Description of the benchmarks provided by the US Army Corps of Engineers are provided in Attachment 1.

## MAPPING

A grid-based contouring program, Surfer (Golden Software, Golden Colorado), was used to prepare contour lines from the x, y, z data. Maps of the Critical Study Areas have not yet been completed since additional data will be collected in subsequent field studies. However, a sufficient number of data were collected from Area 2 to prepare a preliminary map as presented in Figure 1. This map is currently based on Illinois West State Plane Coordinates, as this was the system used to designate benchmarks by the US Army Corps of Engineers. The coordinate system will be converted to Iowa State Plane Coordinates when the final maps are prepared. To provide an indication of the number of data that are collected by the Hydro I surveying system and subsequently used to develop bottom contours, the survey points used in the development of the Area 2 map are shown in Figure 2.

In addition to the type of map shown in Figure 1, three dimensional maps will also be developed. The maps will be used to assist in interpretation of river morphology and hydraulic character of the study areas.

# Woodward-Clyde

Mr. Marshall Sonksen

Page 4

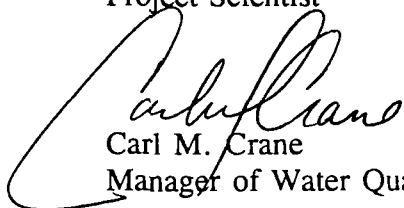
April 17, 1995

Please contact us at 615/790-0003 if you have any questions or need additional information.

Yours very truly,



Todd D. Hunt  
Project Scientist

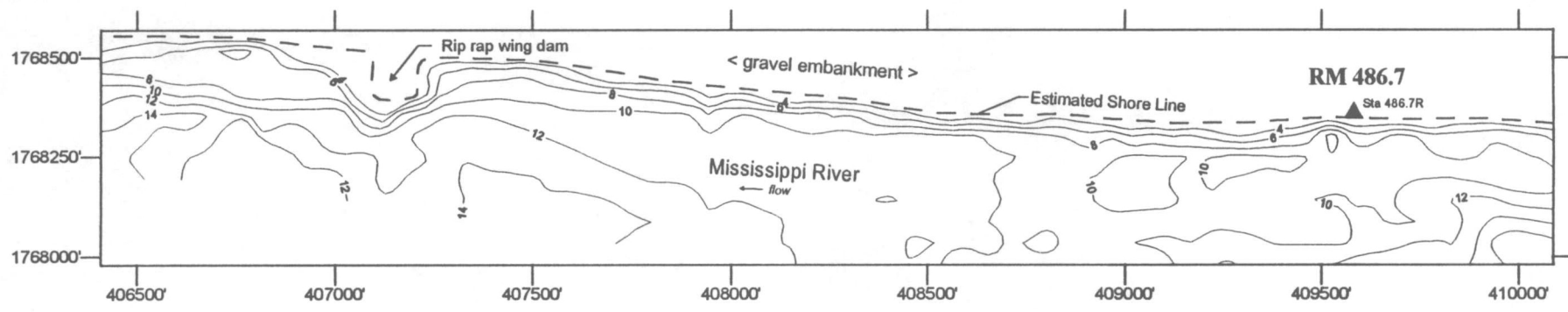


Carl M. Crane  
Manager of Water Quality and Toxicology

cc: Richard Young

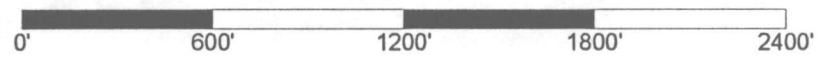


# Area 2



Illinois West State Plane Coordinate Grid (ft)

### Scale Bar



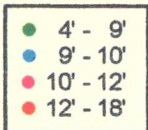
(Scale: 1" = 600')

2' Contours show depth of water

State Plane Coordinate System  
(Illinois West)

<b>Woodward-Clyde Consultants</b> Franklin, Tennessee		
Scale: 1" = 600'	Approved by: CC	Drawn by: BL
Date: April 14, 1995		94N055/T-100
<b>ALCOA Davenport Facility</b>		
Preliminary Hydrographic Survey of Area 2	Drawing No.	1

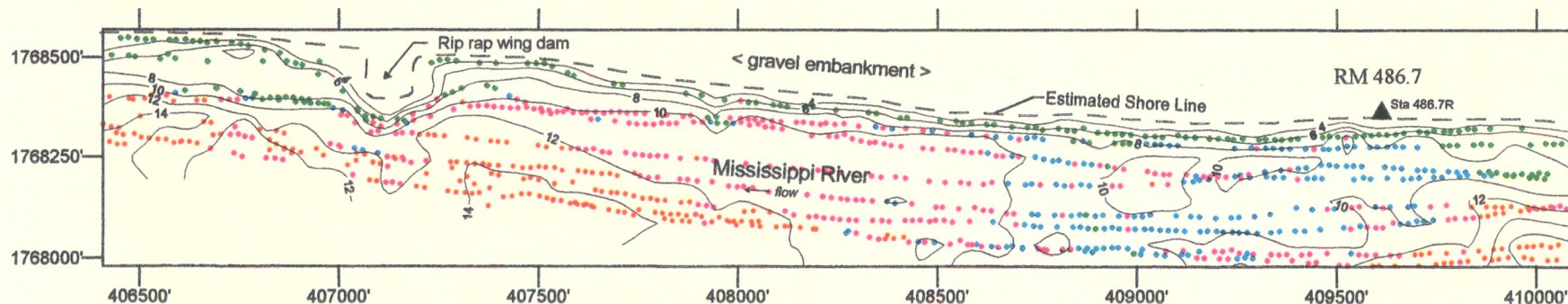
**Depth Legend**



(Data points collected in the field)

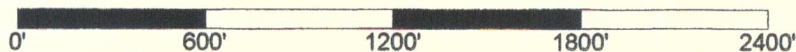


**Area 2**



Illinois West State Plane Coordinate Grid (ft)

**Scale Bar**



(Scale: 1" = 600')

2' Contours show depth of water

State Plane Coordinate System  
(Illinois West)

**Woodward-Clyde Consultants**  
Franklin, Tennessee

Scale: 1" = 600'

Approved by:

CC

Drawn by: BL

Date: April 14, 1995

94N055/T-100

**ALCOA Davenport Facility**

Preliminary Hydrographic Survey of Area 2

Drawing No.

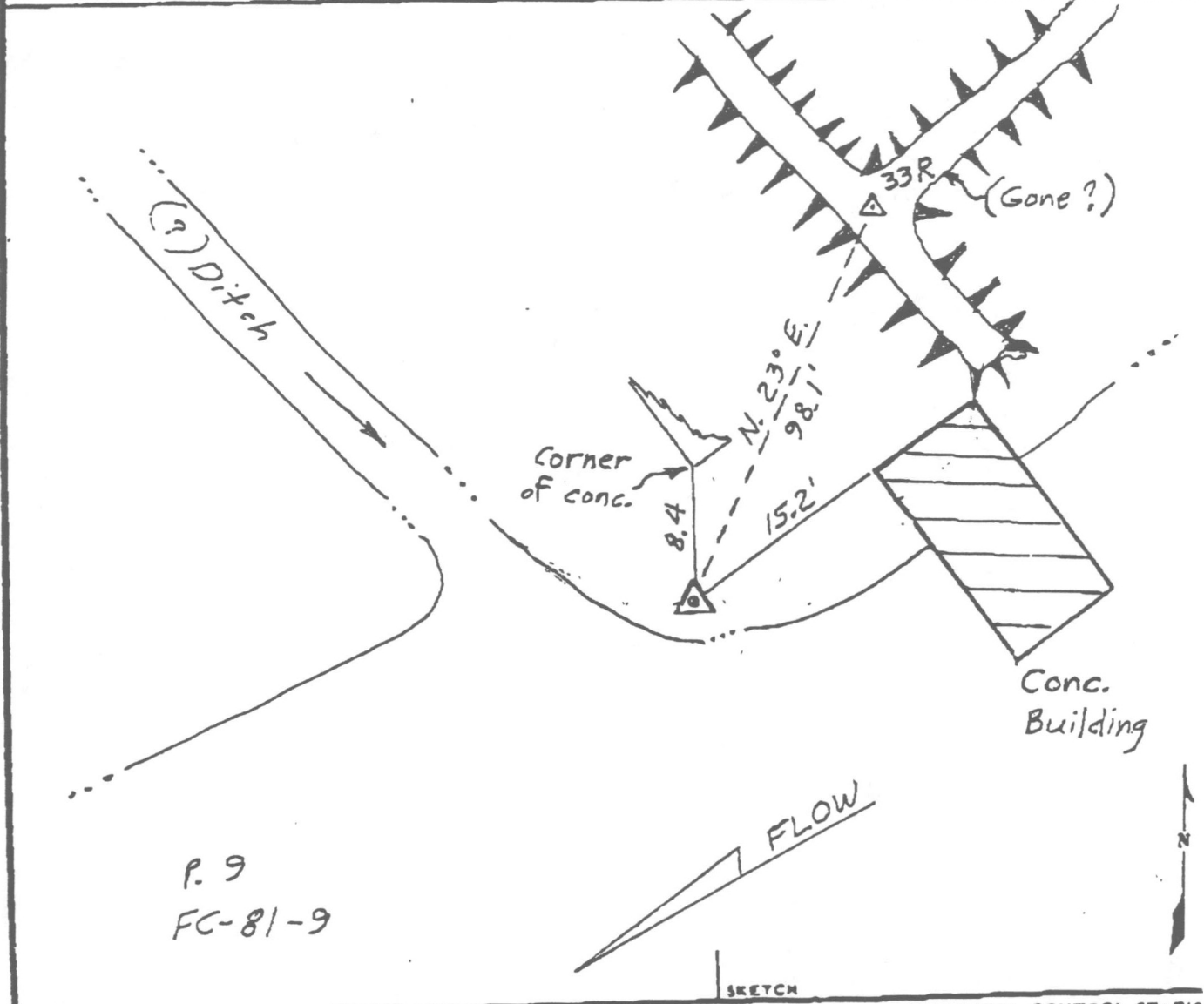
2

**ATTACHMENT 1**  
**BENCHMARK DESCRIPTIONS**



MR 15/5

COUNTRY		TYPE OF MARK <i>ALUM. MON. w/cap</i>		STATION <i>489.3R</i>	
LOCALITY		STAMPING ON MARK		AGENCY (CAST IN MARKS)	
LATITUDE		LONGITUDE		DATUM	
(NORTHING)(EASTING) <i>1,772,527</i>	(FT) <i>000</i>	(EASTING)(NORTHING) <i>421,490</i>	(FT) <i>000</i>	GRID AND ZONE <i>ILL.-West</i>	
(NORTHING)(EASTING)	(FT)	(EASTING)(NORTHING)	(FT)	ESTABLISHED BY (AGENCY)	
	(M)		(M)	DATE	ORDER
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)	
<i>32L</i>				<i>4285.84</i>	



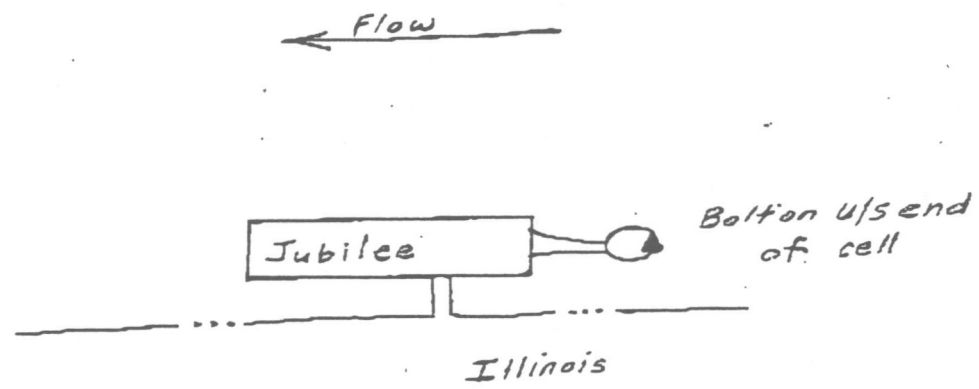
P. 9  
FC-81-9

Sheet 15/3

COUNTRY		TYPE OF MARK <i>Bolt</i>	STATION <i>486.6L</i>	
LOCALITY		STAMPING ON MARK	AGENCY (CAST IN MARKS)	ELEVATION (FT) (M)
LATITUDE		LONGITUDE	DATUM	DATUM
(NORTHING)(EASTING) <i>1,765,845.52</i> (M)	(EASTING)(NORTHING) <i>409,447.10</i> (M)	(FT)	GRID AND ZONE <i>IL-West</i>	ESTABLISHED BY (AGENCY)
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	(FT)	GRID AND ZONE	DATE <i>7/28/89</i>

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETTIC AZIMUTH  
 TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETTIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION		BACK AZIMUTH	GEOD. DISTANCE		GRID DISTANCE	
	(GEODETTIC)	(GRID)		(METERS)	(FEET)	(METERS)	(FEET)
<i>486.3L</i>	<i>562-28-46°E</i>					<i>1884.94'</i>	



SKETCH

DA FORM 1959  
1 OCT 64

REPLACES DA FORMS 1958 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

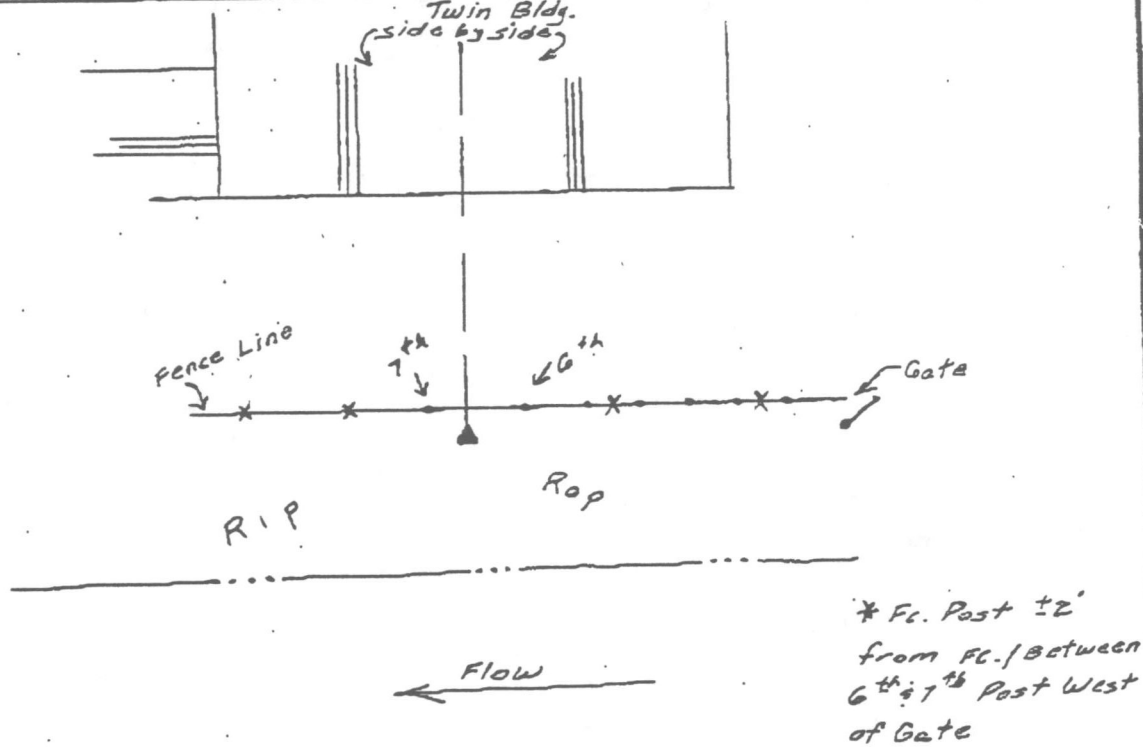
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION  
 For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

Sheet 15/3

COUNTRY		TYPE OF MARK Fence Post	STATION 486.7 R	
LOCALITY		STAMPING ON MARK	AGENCY (CAST IN MARKS)	ELEVATION (FT) (M)
LATITUDE		LONGITUDE	DATUM	DATUM
(NORTHING)(EASTING) (FT) 1,768,367.06 (M)	(EASTING)(NORTHING) (FT) 409,581.00 (M)	GRID AND ZONE III-West		ESTABLISHED BY (AGENCY)
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 7/28/89	ORDER

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)
486.3 L	N 47° 34' 05" E			2446.28'



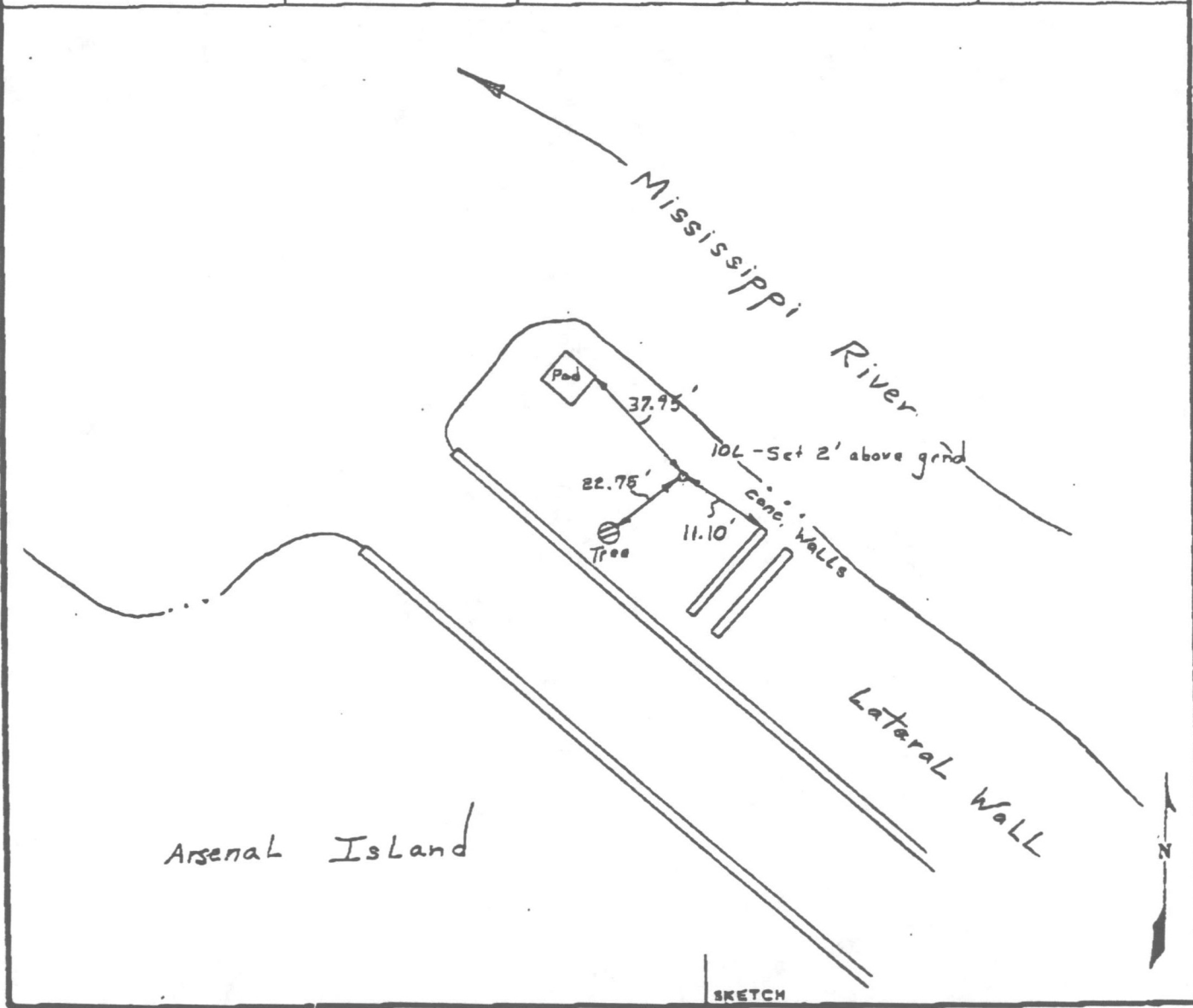
SKETCH

DA FORM 1959  
1 OCT 64

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION  
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY		TYPE OF MARK <i>Fence Post</i>		STATION <i>10L</i>	
LOCALITY		STAMPING ON MARK		AGENCY (CAST IN MARKS)	
LATITUDE		LONGITUDE		DATUM	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		GRID AND ZONE	
<i>1,768,544.56</i> (M)		<i>401,282.89</i> (M)		<i>Illinois West</i>	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		GRID AND ZONE	
(M)		(M)		DATE	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT		AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH	
<i>11R</i>		<i>N10°32'39"E</i>			
<i>9R</i>		<i>N51°45'08"W</i>			
				GEOD. DISTANCE (METERS) (FEET)	
				GRID DISTANCE (METERS) (FEET)	
				<i>1240.89</i>	
				<i>3014.21</i>	



DA FORM 1959  
1 OCT 64

REPLACES DA FORMS 1959  
AND 1960, 1 FEB 67, WHICH  
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION  
For use of this form, see TM 5-237; the proponent  
agency is U.S. Continental Army Command.

COUNTRY		TYPE OF MARK <i>Fence Post</i>		STATION <i>15 R</i>	
LOCALITY		STAMPING ON MARK		AGENCY (CAST IN MARKS)	ELEVATION (FT) (M)
LATITUDE		LONGITUDE		DATUM	DATUM
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE		ESTABLISHED BY (AGENCY)	
<i>1,768,590.12</i>	<i>405,241.12</i>	<i>Illinos, West</i>			
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE		DATE	ORDER

TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)	
<i>12 R</i>	<i>N 68° 36' 26" W</i>			<i>2,230.48</i>	
<i>20 L</i>	<i>S 52° 05' 27" E</i>			<i>4,774.28</i>	
<i>18 C</i>	<i>S 55° 56' 40" E</i>			<i>333.1.75</i>	

