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ROCK ISLAND DISTRICT, CORPS OF ENGINEERS  
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REPLY TO  
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January 15, 2004

Planning, Programs, and  
Project Management Division

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The Rock Island District of the U.S. Army Corps of Engineers (Corps) has enclosed for your use the Post-Construction Performance Evaluation Report (PER) for the Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project (HREP) dated May 2002, 10-years after construction and the 11-Year Post Construction Addendum Report, dated September 2003. The 10-Year report is a product of post-construction field observations from September 1994 through December 2001. The 11-Year Addendum report is a supplemental product of post-construction observations from January thru December 2002.

Performance Evaluation Reports (PER), both initial and supplemental, are the Corps of Engineers primary mechanism for reviewing, documenting, and communicating the effectiveness of HREPs, which are a part of the Upper Mississippi River System Environmental Management Program (UMRS-EMP). The main purposes of PERs are to summarize project performance and operation and maintenance efforts, based on the goals/objectives, and to review the monitoring plan and performance criteria to aid in the design of future HREPs.

A draft of each report was provided to the project sponsors for their review and comment. Those comments were incorporated into the respective final PERs. If you have any questions regarding these reports, please contact Ms. Alaena Ensey in the Design Branch, Engineering Division, telephone 309/794-5265.

Sincerely,

A handwritten signature in black ink that reads "Gary L. Loss P.E.".

Gary L. Loss, P.E.  
Chief, Planning, Programs, and Project  
Management Division

2 Encls

**U.S. ARMY CORPS OF ENGINEERS  
ROCK ISLAND DISTRICT**

**UPPER MISSISSIPPI RIVER SYSTEM  
ENVIRONMENTAL MANAGEMENT PROGRAM**



**11-YEAR (YR) POST-CONSTRUCTION ADDENDUM  
TO THE  
10-YR POST-CONSTRUCTION  
PERFORMANCE EVALUATION REPORT  
DATED MAY 2002**

**FOR**

**BERTOM AND McCARTNEY LAKES HABITAT  
REHABILITATION AND ENHANCEMENT PROJECT**

**POOL 11, MISSISSIPPI RIVER MILES 599 - 603  
GRANT COUNTY, WISCONSIN**

**SEPTEMBER 2003**



**Bertom and McCartney Lakes HREP  
Performance Evaluation  
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[Please furnish any comments on this report to Alaena Ensey]

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## **ADDENDUM SUMMARY**

**1. General.** This is an 11-YR Post Construction Addendum to the Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project (HREP), 10-YR Post-Construction Performance Evaluation Report (PER) dated May 2002. This report is a continuation of the Bertom and McCartney 10-YR PER, with additional data collected and observations from January 2002 through December 2002, a period of approximately one year.

a. Previous Performance Evaluation Reports

- 1) Initial PER dated May 1995.
- 2) 10-YR Post Construction PER dated May 2002

b. Changes to Sampling and Data Collection:

Since the project has met the 10-year post-construction milestone, the Corps water quality sampling efforts will only be done for the 15-year and 20-year post-construction PERs. The Corps will not collect data during the interim years. Sedimentation transects are being collected only for the purpose of completing the sedimentation analysis that was recognized as a concern in the 10-year PER. Mussel and vegetative surveys are still not completed to date, so they are scheduled for the next Addendum report in FY2004. Budget reductions and scheduling conflicts are the primary reason for the delay in completing these survey efforts.

c. Concerns listed in the 10-YR PER were:

- 1) Completion of sedimentation transects surveys and data analysis primarily because of enlarging channels and excessive sedimentation in channels leading to habitat areas.
- 2) Completion of a mussel survey in the rock habitat channel and vegetation survey in project areas that had not been done to date.
- 3) Erosion assessment for the Confined Disposal Facility (CDF) Island that has developed into a perched wetland.
- 4) Flood damage assessment and subsequent repair in areas identified in the last performance evaluation report.

**2. Scope.** No change from the 10-YR PER. Observations and information in this addendum report covers the one-year period from January 2002 through December 2002 as mentioned above.

**3. Purpose.** The purpose of this addendum is to provide a summary of the observations for the performance evaluation monitoring that has been ongoing since December 2001 and the completion of the last Performance Evaluation Report, dated May 2002.

The two goals for this project are: 1) Enhance Aquatic Habitat; and 2) Enhance Migratory Waterfowl Habitat. The monitoring requirements associated with the project objectives and features are shown in Tables 1 and 2 below.

**Table 1. Project Goals and Objectives**

<b>Enhancement Potential</b>										
<b>Goal</b>	<b>Objective</b>	<b>Alternative</b>	<b>Enhancement Feature</b>	<b>Unit</b>	<b>Year 0 (1991) without Alternative</b>	<b>Year 0 with Alternative (As-Built)</b>	<b>Year 7 with Alternative</b>	<b>Year 50 Target with Alternative</b>	<b>Feature Measurement</b>	<b>Annual Field Observations by Site Manager</b>
<b>Enhance Aquatic Habitat</b>	Restore deep (≥6') aquatic habitat volume	McCartney Lake dredging	Hydraulic dredging	Ac-Ft	0	290	263	200	Perform hydrographic soundings	Observe sedimentation effects by pole soundings or depth gauging
	Restore lentic-lotic habitat access cross-sectional area	McCartney Lake dredging	Hydraulic dredging	SF	300			1,800	Perform hydrographic soundings	Observe sedimentation erosion changes
	Increase rock substrate aquatic habitat	Fish and mussel rock habitat	Rock habitat channel	SY	0			10,000	Perform profile of rock substrate transect	Observe changes in rock substrate (i.e., movement, sedimentation, organic growth)
	Establish mussel bed	Fish and mussel rock habitat	Rock habitat channel	#/SY	0			10	Perform area mussel survey	Observe mussel changes
	Reduce movement of bedload sediment into the Bertom Lake	Partial closing structure	Rock partial closing structure	In/Yr	0.7		0.46	0.55	Perform hydrographic soundings of transect	Observe condition of dam and localized effects
	Improve dissolved oxygen concentration during critical seasonal stress periods	McCartney Lake dredging	Hydraulic dredging	Mg/l	<5.0	>5.0		>5.0	Perform water quality tests at Stations W-M600.3C, W-M598.9E, W-M599.8B, W-M599.5D, W-M599.2C	Observe aquatic life changes (i.e., fish kills, sport fishing)
<b>Enhance Migratory Waterfowl Habitat</b>	Establish aquatic vegetation bed	In-water confined dredged material placement site	Aquatic Bed Perched Wetland (new)	Acre	0	0	Unknown	10	Perform Aerial Surveys	Observe vegetation development

1/ The Habitat Unit is a methodology used to quantitatively measure wildlife habitat characteristics. Missouri Department of Conservation (MDOC) and the Soil Conservation Service (SCS) developed the methodology. The methodology is called the Wildlife Habitat Appraisal Guide (WHAG).

<b>Table 2. Data Collection Transects &amp; Surveys for Project Objectives Evaluation</b>				
Engineering Data				
<b>Type of Transect</b>	<b>Project Feature</b>	<b>Monitoring Site Title</b>	<b>Transect Title &amp; Station</b>	<b>Objectives Evaluated</b>
Transects 2/ Hydrographic Soundings	Lake Dredging	S-M601.2B  S-M600.8B S-M600.2B S-M599.6B	STA. 68+90 (D) (Extra for Flood of 1993) STA. 71+92 (E) STA. 75+74 (F) (Extra for Flood of 1993) STA. 89+90 (G) STA. 107+87 (H) STA. 125+85 (I) (Extra for Flood of 1993) STA. 131+84 (J)	Enhance Aquatic Habitat
Transect 3/ Profile	Substrate Channel	S-M602.1G S-M602.1D	STA. -10+00 rock habitat channel (Transect H)	Enhance Aquatic Habitat
Transects 4/ Hydrographic Soundings	Bertom Lake	S-M602.1J  S-M602.2J S-M602.3B S-M602.2B S-M602.0B	STA. -10+01 submerged partial closing structure (Transect G)  Transect E STA. -6+00 STA. 5+99 STA. 29+95	Enhance Aquatic Habitat
Surveys (Transects 5)/Vegetation Survey	Aquatic Bed  Perched Wetland (new)	V-M599.5B V-M599.2B  V-M599.4B	Aerial Photo Interpretation/Vegetation Mapping Aerial Photo Interpretation/Vegetation Mapping  Wildlife Observations by Site Manager	Enhance Migratory Waterfowl Habitat



#### **4. Observations and Comments.**

For the report period of January 2002 to December 2002, the objectives to meet each goal had the following observations:

##### **Enhance Aquatic Habitat:**

Target fish sampling efforts have been ongoing as scheduled. Water quality personnel only completed two sampling efforts during the winter from January to March 2002. An *in-situ* water quality monitoring instrument was deployed at station W-M599.8B during this time frame.

Sediment transect surveys in Bertom Lake were completed, but the transect surveys in McCartney Lake have not been done. Due to a reduction in the program budget, the completion of these surveys has been postponed to FY2004 provided funding is available. The Corps is currently establishing parameters for the sedimentation assessment to help define the data that is required. New plates showing the results of the completed surveys include Plates 5 – 7 and 15 – 26, and are attached at the end of this report.

For the report period, no hydrographic soundings have been performed at the access areas where the dredged channels merge with the deeper open water areas. The remainder of the survey work has been postponed to FY2004 due to funding constraints.

Repair of the scouring along the rock habitat channel has not occurred. Access into this area to do the repair would be difficult and the reduced budget has hampered further efforts to strive towards the repair of the damage. The Corps Channel Maintenance section did repair some of the bankline erosion noted along the main channel of the Mississippi River since it created a concern that there was a new channel being formed that would cut to Coal Pit Slough. This repair was done in coordination with the Site Manager, Clyde Male. Plate 5 shows the general location of this bankline protection repair.

The mussel survey has been postponed to FY2004 due to funding constraints.

The water quality data collection has been stopped for this project since the monitoring plan prescribes monitoring for years 15 and 20. There was some data collected during the winter in the months of January thru March that showed expected water quality conditions.

##### **Enhance Migratory Waterfowl Habitat:**

Site manager observations continue to show diverse waterfowl usage of the project area. The Corps did not conduct a site visit in 2002.

**Comments from Site Manager and Project Team Members:** The Site Manager performed the normal site inspection for 2002 and worked with the Corp's Channel Maintenance crews for the repairs that are discussed earlier in this report. The Site Manager and other project members provided comments for this report and their observations:

*Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project 11-Year (YR)  
Post-Construction Addendum to the 10-YR Post Construction Performance Evaluation Report*

*Comments from email message sent by the USFWS, Clyde Male, Site Manager, 22 May 2003:  
“We still have concerns with the current functionality of the closing structure on Coal Pit Slough just off the main channel. In addition, cross section E appears to have not changed since 1991. Is this correct? This is the same side channel that is responsible for delivering significant sediment load further down that slough, especially where it enters Bertom Lake. The integrity of the berm around the perched wetland located on the dredge spoil islands (NW & SE) side appears to be getting worst. During a recent site visit 5/21/03 the NW edge was within 12" of overtopping (Cassville river stage, lower plant 15.6). It sounds like the problem with the new cut development RM 601.2 might be addressed this summer, so that should alleviate that concern. “*

*Excerpt from a Letter from the Iowa DNR, Mike Griffin, Fisheries Biologist, 15 May 2003:  
“Field biologist from the Iowa DNR have reviewed the PER for Bertom and McCartney HREP, dated May of 2003.*

*We have no comments on the document as written for form or content. We do wish to encourage the COE to complete the monitoring that was scheduled and not completed because of scheduling and budget constraints.”*

*Comments from email message sent by the Iowa DNR, Mike Griffin:  
“Lets fight for the completion of the monitoring. It will help us when we are planning other projects. This project has been done for 11 years and we still don't know how long the channels will last or if we improved the vegetive structure of the area. Maybe we could take the money for next years report and use it to get the monitoring done and skip a year of the annual report.”*

At this time, incomplete surveys are scheduled for FY04. The Corps has already looked into streamlining reporting of the performance evaluation to ensure that monitoring is funded. The concerns regarding the closing structure, the perched wetland, and the sediment load in the side channels in the project area that were identified in the message from the Site Manager are also scheduled to be addressed in FY04.

## **5. Conclusions and Recommendations.**

a. Project Goals, Objectives, and Management Plan. The evaluation of the unexpected benefits of the confined placement site is still required to help determine if a management plan is needed there. The vegetation and fish/mussel surveys still need to be done. The next survey of sediment transects should be completed in FY2004 for the assessment of bedload movement in the project area.

b. Post-Construction Evaluation and Monitoring Schedules. In general, most project monitoring efforts have been performed according to the Post-Construction Performance Evaluation Plan in Appendix A and the Resource Monitoring and Data Collection Summary in Appendix B, except where flood conditions or other obstacles have prevented monitoring tasks. As the project has moved beyond the 10-years after construction, the water quality data collection by the Corps will now only be completed at the 15-yr and 20-yr post-construction timeframes. Since some of the sedimentation transects are being done for the first time and

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because there is concern of unexpected sediment movement in the project area, survey data is still being collected and will be discussed in subsequent supplemental evaluation reports. A Post-Construction Performance Evaluation Supplement will be prepared annually. The next Post-Construction Performance Evaluation Supplement will be completed for 2003, 12-years after construction, for distribution in March 2004.

c. Project Operation and Maintenance. Project operation and maintenance has been conducted in accordance with the O&M Manual. Annual site inspections by the Site Manager will and have resulted in proper corrective maintenance actions since project completion. Noted areas of concern attributed to flood impacts are still being assessed for level of repair or continued monitoring. Further discussions are still needed between the Corps and the Site Managers to determine whether the repair work can be done for the scouring in the rock habitat/closure structure. Some repair of the bankline protection along the main channel, as shown on Plate 6, was accomplished in 2002 for the purpose of channel maintenance due to the main channel trying to cut across an island to Coal Pit Slough. Hopefully, the bankline protection should reduce any further sediment from entering the McCartney Lake habitat areas that was caused by the river flows cutting a new channel across this island from the main channel.

d. Project Monitoring and Evaluation. The littoral zone development and perched wetland assessments have not change from the 10-year evaluation. Once the remainder of the sediment transects are collected, then an assessment of the sedimentation analysis will be done. The concerns regarding the closing structure and sediment loads of the adjacent side channels will also be discussed as part of this analysis. The erosion of the perched wetland island requires an assessment by both the Corps and the Site Manager to identify alternatives for preventing further damage or repair to the banks of the island. The mussel and vegetation surveys need to be completed as well.

In general, water quality objectives are being met in the dredged habitat areas based on the analysis from the 10-year PER, and this will be checked for the 15-year PER. The objectives of enhancing aquatic habitat for fish are generally being met, however; the mussel habitat development still requires an assessment that is scheduled for FY2004. The perched wetland has improved migratory waterfowl habitat based on the monitoring provided by the Site Manager, although the objective for this goal includes the establishment of an aquatic vegetation bed. The aquatic vegetation objective still needs an assessment that is currently scheduled for FY2004 as well. The observations and monitoring of the other channels and the partial closure structure in the project area have raised concerns with the Site Manager and the Wisconsin DNR. The physical changes such as channel widening, erosion and scouring, and excessive sediment build-up in habitat areas and channels appear as though the long-term objectives of habitat improvement may not be achieved. The objective of a sediment analysis is to address these concerns. Continued monitoring by the Corps, the Site Managers, and the Wisconsin DNR is needed to determine the continued development of the project's habitat areas since at this time it is unclear what is causing the physical changes and whether the long-term objectives can be achieved.

*Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project 11-Year  
(YR) Post-Construction Addendum to the 10-YR Post Construction Performance  
Evaluation Report*  
**REFERENCES**

Published reports related to the Bertom and McCartney Lakes Project that supplement the June 2000 Post-Construction Evaluation Report or which were used as references in the production of this document are listed below.

1) *Definite Project Report with Integrated Environmental Assessment, Bertom and McCartney Lakes Rehabilitation and Enhancement*, June 1989 (DPR). This presents a detailed proposal for extensive dredging of McCartney Lake's adjacent side channels and sloughs, in-water confined placement of dredged material, construction of an underwater rock partial closing structure, and placement of rock substrate and protective cover structures in a Bertom Lake side channel. The report marks the conclusion of the planning process and serves as a basis for approval of the preparation of final plans and specifications and subsequent project construction.

2) *Plans and Specifications, Upper Mississippi River System, Environmental Management Program, Pool 11, River Miles 599-603, Bertom and McCartney Lakes*, October 1989 (P&S). This document was prepared to provide sufficient detail of project features to allow construction of the dredged sloughs and side channels adjacent to McCartney Lake, utilization of the dredged material to construct a barrier island in McCartney Lake, construction of an underwater rock partial closing structure, lining a side channel with several different sizes, gradations, and types of rock, and installation of protective fish cover structures in the rock-lined side channel by a contractor.

3) *Operation and Maintenance Manual, Bertom and McCartney Lakes Rehabilitation and Enhancement*, March 1996 (O&M Manual). This manual has been prepared to serve as a guide for the operation and maintenance of Bertom and McCartney Lakes Rehabilitation and Enhancement. Operation and maintenance instructions for major features of the project are presented. These instructions are consistent with the general procedures presented in the Definite Project Report. This manual has been written for project and management personnel familiar with the project and does not contain detailed information which is common to site personnel or which is presented in other existing manuals or regulations.

4) *Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project Great Flood of 93 Damage Assessment*, February 1994 (93 DA). This document was prepared to provide a summary describing the Flood of 1993 damage, proposed corrective action, and estimated cost for repairs.

5) *Post Construction Performance Evaluation Report (PER3F), Bertom and McCartney Lakes Rehabilitation and Enhancement, Pool 11, Upper Mississippi River Miles 599-603, Grant County, Wisconsin*, May 1995 (95PER). This document was prepared to summarize all available monitoring data, project inspections, and project observations by the Corps, the USFWS, and the WDNR since project completion in the fall of 1991 through August 1994.

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(YR) Post-Construction Addendum to the 10-YR Post Construction Performance  
Evaluation Report*

6) *Post Construction Performance Evaluation Report (10-YRS After Construction), Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement, Pool 11, Upper Mississippi River Miles 599-603, Grant County, Wisconsin, May 2002.* This document was prepared to summarize all available monitoring data, project inspections, and project observations by the Corps, the USFWS, and the WDNR since project completion in August 1994 through December 2001.

7) *Letter from Iowa DNR, Mike Griffin, 15 May 2003.* This letter encourages the Corps to continue funding and scheduling monitoring even though the budget is reduced. In a separate email message from Mike Griffin, the Iowa DNR expressed the need forego the publication of performance evaluation reports to ensure funding is available for the actual monitoring work.

*Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project 11-Year  
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*Bertom and McCartney Lakes Habitat Rehabilitation and Enhancement Project 11-Year  
(YR) Post-Construction Addendum to the 10-YR Post Construction Performance Evaluation  
Report*

**PLATES**

**GENERAL NOTES:**

1. THE SCOPE OF WORK CONSISTS OF, BUT MAY NOT BE LIMITED TO:

**A. CONSTRUCT :**

- 1) NEW STREAM ALIGNMENT THROUGH FORMER MILL POND AND HARBISON POND.
- 2) NOTCH IMPOUNDMENT BERMS AROUND CULVER SPRING PONDS.
- 3) ROCK RIFFLES.
- 4) ROCK STREAM BARBS.
- 5) FISH HABITAT STRUCTURES KNOWN AS LUNKERS (LITTLE UNDERWATER NEIGHBORHOOD KEEPERS ENCOMPASSING RHEOTACTIC SALMONIDS).
- 6) RECREATION TRAIL, UNPAVED.

**B. INSTALL TEMPORARY WATER CONTROL STRUCTURES. .**

**C. PLANT EMERGENT VEGETATION..**

**D. PLACE GRAVEL AND ROCK FOR STREAM BED AND BANK STABILIZATION.**

**E. SEED AND PLACE GEOTEXTILE ALONG BANKLINES AND DISTURBED GROUND COVER.**

**F. CUT AND CLEAR WOODY VEGETATION AND FALLEN TREES ALONG RIPARIAN ZONES AND WITHIN STREAM COURSES..**

2. EXCAVATION OF NEW STREAM ALIGNMENTS MAY USE:

- A. HYDRAULIC DREDGE (8 INCH).
- B. MECHANICAL EXCAVATORS; MAY INCLUDE AMPHIBIOUS EQUIPMENT.

3. DREDGED MATERIAL DISPOSAL MAY USE THE HARBISON CARP POND; AND POTENTIALLY, THE PEDESTRIANS PROPERTY.

4. WETLAND AREAS REQUIRE PROTECTION IN THE FORM OF GEOTEXTILE MATS OR BARRIER FENCING DURING CONSTRUCTION ACTIVITIES.

5. EXCAVATED SOIL MATERIAL MAY NOT BE PLACE PERMANENTLY DESIGNATED WETLAND AREAS..

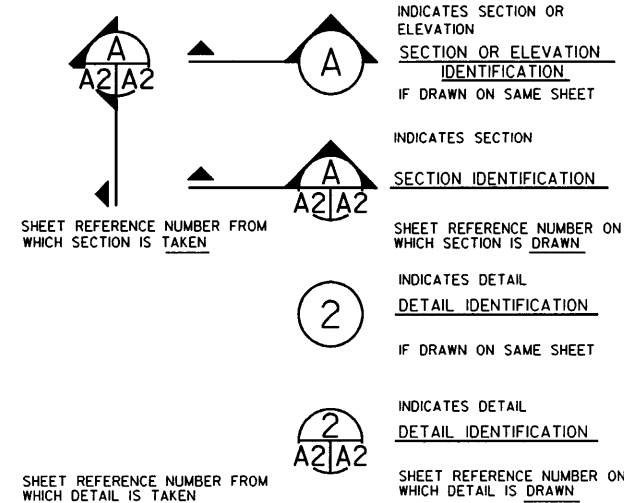
6. ALL SENSITIVE AREAS SHALL HAVE BARRIERS DESIGNATING BOUNDARIES.

7. ALL STAGING AND ACCESS AREAS MUST BE RESTORED TO PRE-PROJECT CONDITIONS.

8. ACTUAL TOPOGRAPHIC CONTOURS MAY VARY.

INDEX	
PLATE NO.	TITLE OF DRAWING
1	INDEX OF DRAWINGS AND GENERAL NOTES
2	LOCATION PLAN AND VICINITY MAP
3	BERTOM LAKE MONITORING PLAN
4	McCARTNEY LAKE MONITORING PLAN
5	TRANSECT AND BANKLINE EROSION LOCATION MAP
6	SEDIMENTATION TRANSECTS I
7	SEDIMENTATION TRANSECTS II
8	SEDIMENTATION TRANSECTS III
9	SEDIMENTATION TRANSECTS IIII
10	SOUNDINGS FOR RIPRAP & CLOSING STRUCTURE ALTERNATIVE
11	BANKLINE PROFILE
12	THALWEG PLAN AND PROFILE
13	TYPICAL SECTIONS I
14	TYPICAL SECTIONS II
15	BANKLINE EROSION SECTIONS I
16	BANKLINE EROSION SECTIONS II
17	BANKLINE EROSION SECTIONS III
18	BANKLINE EROSION SECTIONS IV
19	BANKLINE EROSION SECTIONS V
20	BANKLINE EROSION SECTIONS VI
21	BANKLINE EROSION SECTIONS VII
22	BANKLINE EROSION SECTIONS VIII
23	BANKLINE EROSION BISECTOR SECTIONS A.B.C
24	BANKLINE EROSION BISECTOR SECTIONS D.E.F
25	BANKLINE EROSION BISECTOR SECTIONS G.H.I
26	BANKLINE EROSION BISECTOR SECTIONS J.K

**LEGEND**



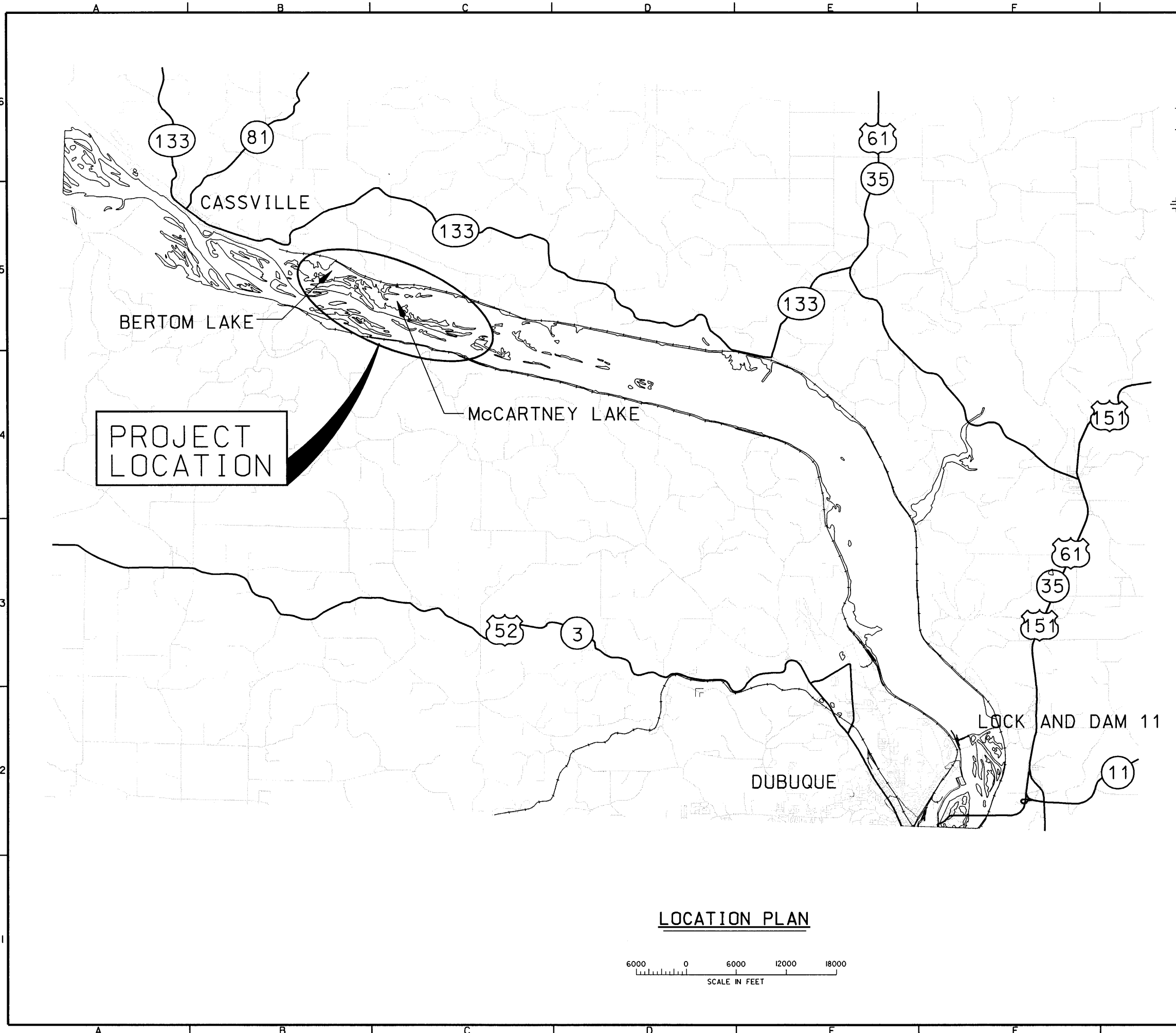
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Drawn By: SOB/JDM	Scale: AS SHOWN
Checked By: DJJ	Project Code: EP59
Reviewed By: DJH	Soil Citation Number: DATES-XX-B-XXXX

U.S. ARMY ENGINEER DISTRICT  
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ROCK ISLAND, ILLINOIS

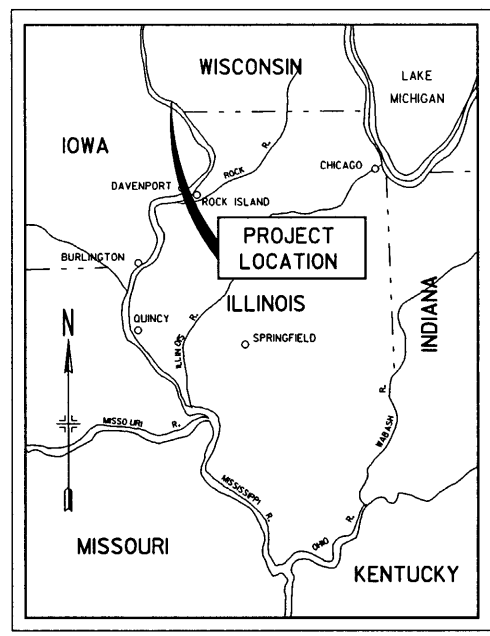
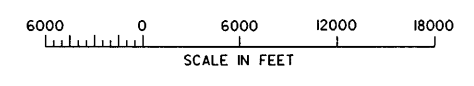
UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & McCARTNEY LAKES  
**INDEX OF DRAWINGS  
AND GENERAL NOTES**

**PLATE 1**



PROJECT  
LOCATION

LOCATION PLAN



VICINITY MAP  
25 0 25 50 75  
SCALE IN MILES

US Army Corps  
of Engineers  
Rock Island  
District

Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Designed By: AAE	Date: XXXXXX
	Drawn By: SOB/JDM	Scale: AS SHOWN
	Checked By: DUJ	Project Code: EPS9
	Reviewed By: DJH	Solicitation Number: DACR05-XX-B-XXXX

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11 - RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**LOCATION PLAN  
AND VICINITY MAP**

**PLATE 2**

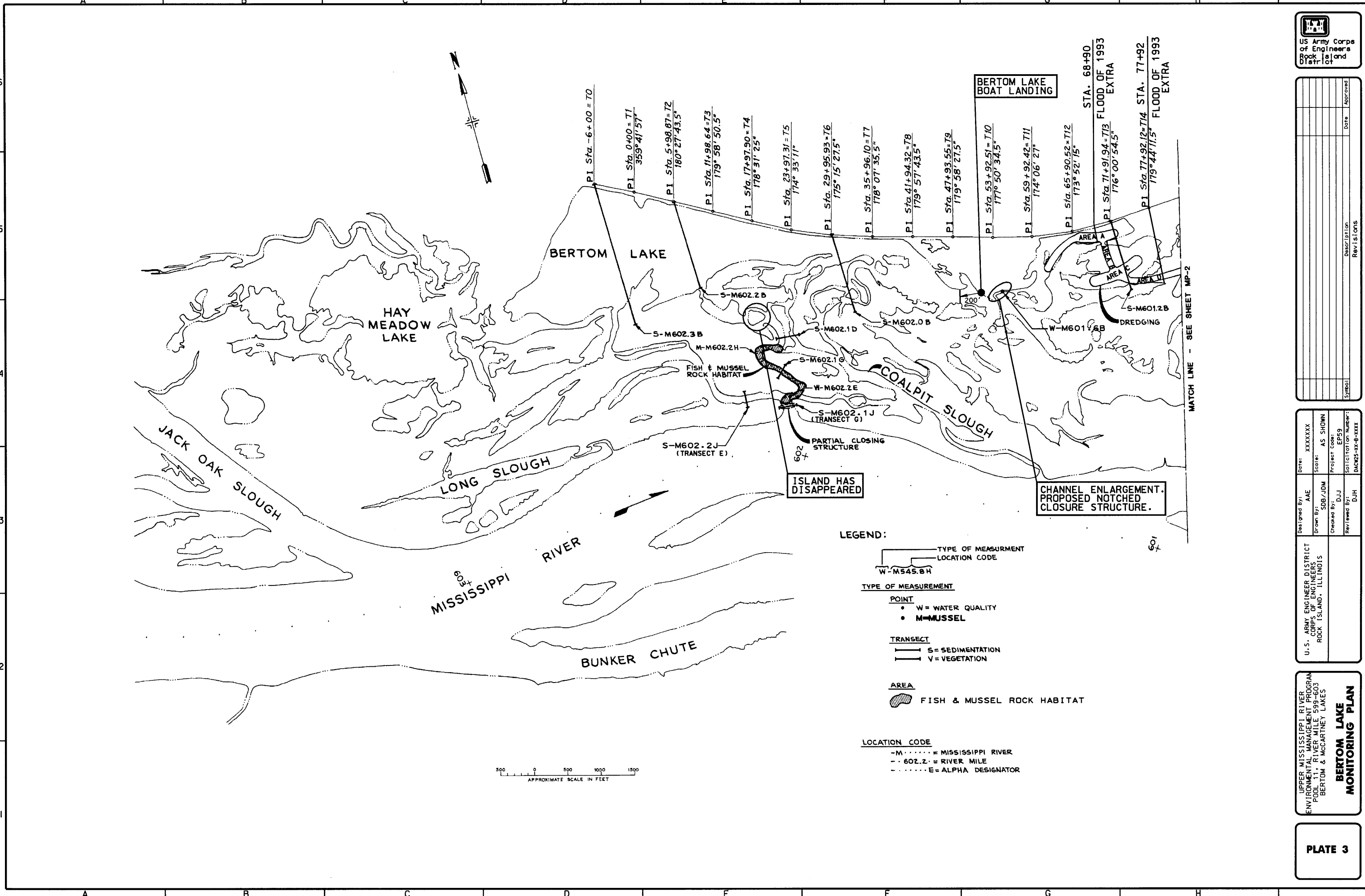
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Designed By:	AJE	Date:	XXXXXX
Drawn By:	SOB/JDM	Scale:	AS SHOWN
Checked By:	DJJ	Project Code:	EP59
Reviewed By:	DJH	Solicitation Number:	DACES-XX-B-XXX

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CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11 - RIVER MILE 593-603  
BERTOM & MCCARTNEY LAKES  
**BERTOM LAKE  
MONITORING PLAN**

**PLATE 3**



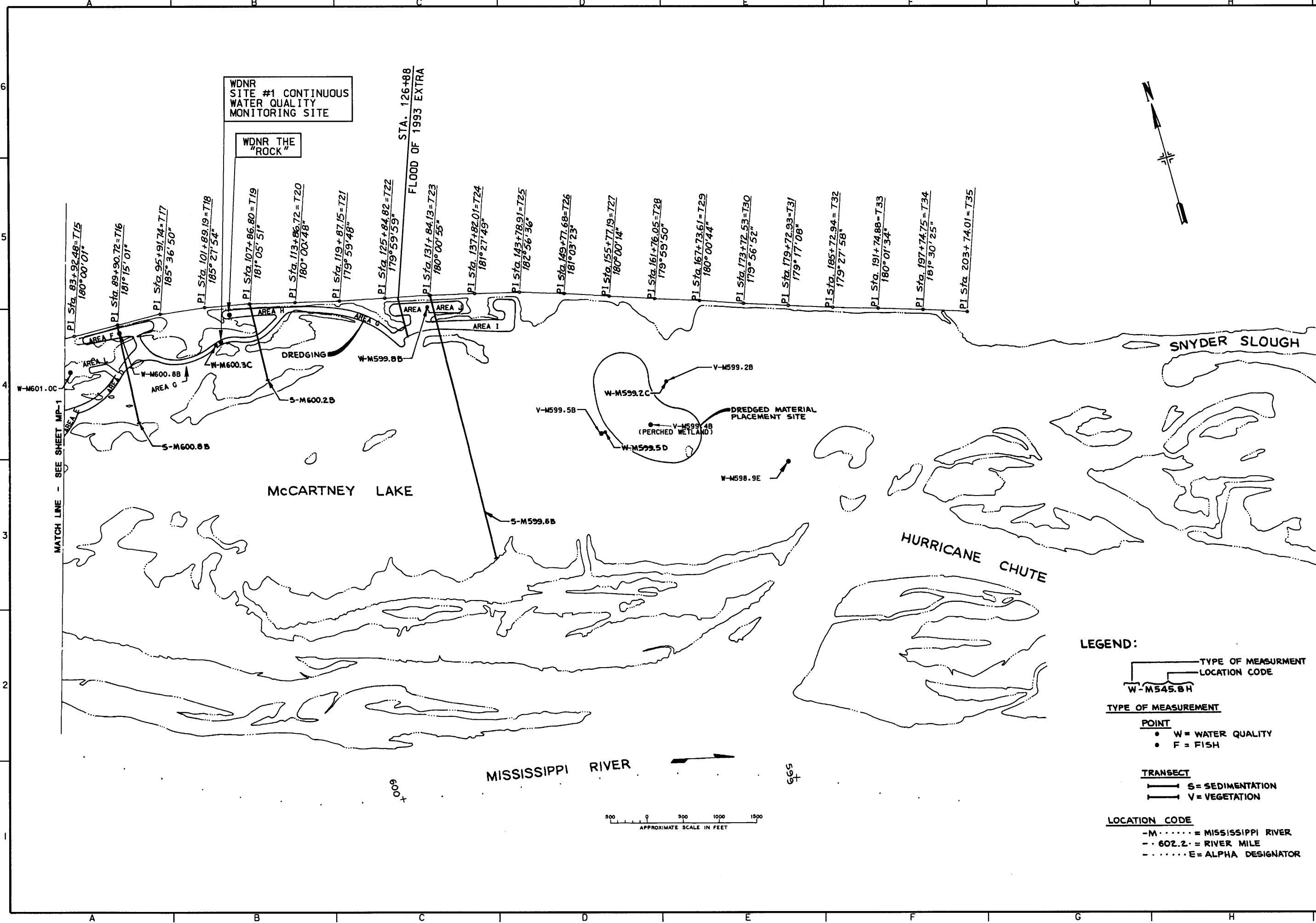
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SOI Station Number:	MAC25-XA-B-XXX
Designed By:	AJE
Drawn By:	SOB/JDM
Checked By:	DJJ
Reviewed By:	DUH

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CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**MCCARTNEY LAKE  
MONITORING PLAN**

**PLATE 4**



**LEGEND:**

**TYPE OF MEASUREMENT LOCATION CODE**

W-M545.8H

**TYPE OF MEASUREMENT**

POINT

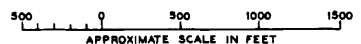
- W = WATER QUALITY
- F = FISH

TRANSECT

- || S = SEDIMENTATION
- || V = VEGETATION

**LOCATION CODE**

- M..... = MISSISSIPPI RIVER
- 602.2 - = RIVER MILE
- ..... E = ALPHA DESIGNATOR

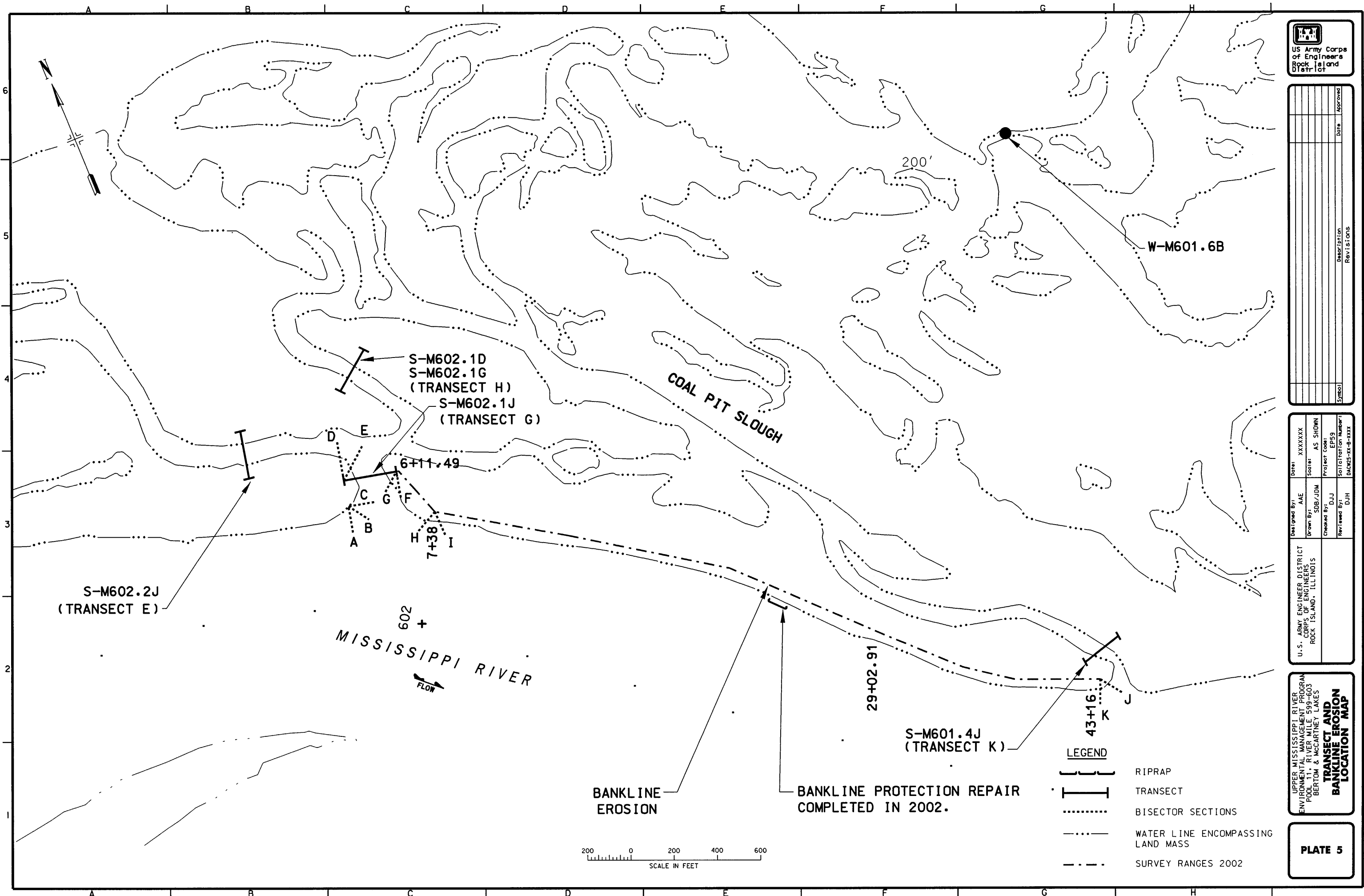


MATCH LINE - SEE SHEET MP-1

Symbol	Description	Date	Approved

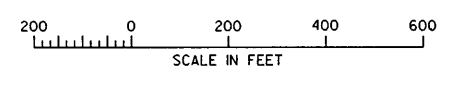
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UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**TRANSECT AND BANKLINE EROSION LOCATION MAP**

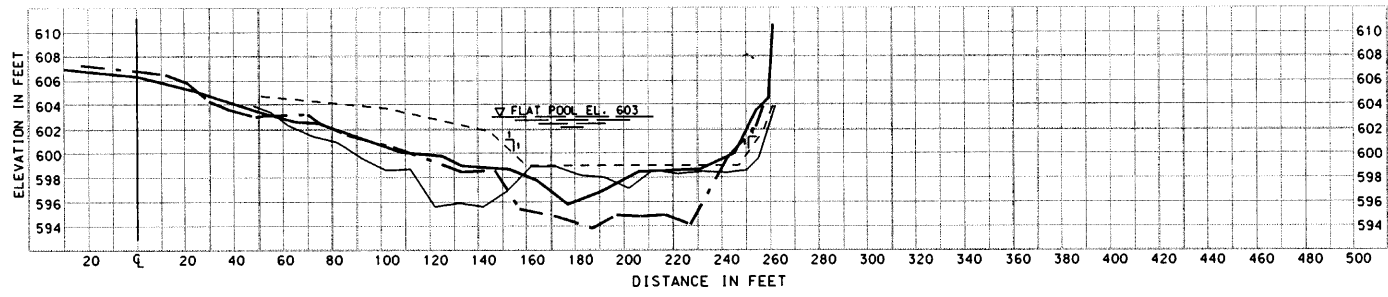


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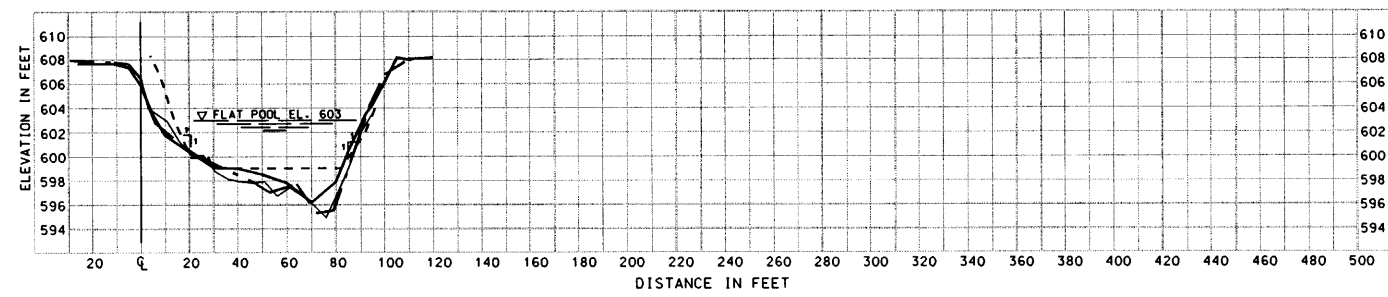
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	TRANSECT
	BISECTOR SECTIONS
	WATER LINE ENCOMPASSING LAND MASS
	SURVEY RANGES 2002



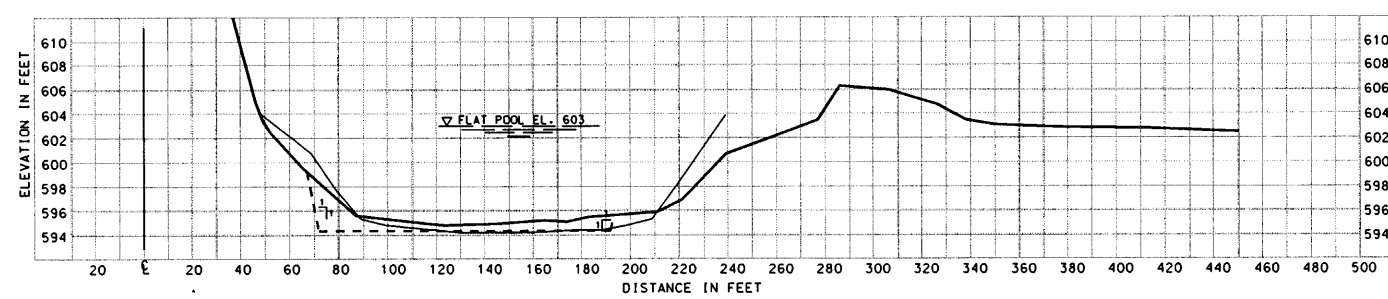
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**STATION -10+01**  
SUBMERGED ROCK PARTIAL CLOSURE STRUCTURE  
RANGE ACROSS MOUTH, S-M602.1J, TRANSECT G



**STATION -10+00**  
RANGE ACROSS ROCK HABITAT CHANNEL, S-M602.1G, TRANSECT H



**STATION 68+90**  
DREDGE AREA A - TRANSECT ADDED AFTER FLOOD OF 1993

**DATA SOURCES:**  
1993 Field book SWEATT11-01 pages 6/17 & dredging plans  
1998 Field book FC-98-10 pages 2/25  
2002 Field Book FC-02-2

**NOTE:**  
FLAT POOL ELEVATION 603.0.

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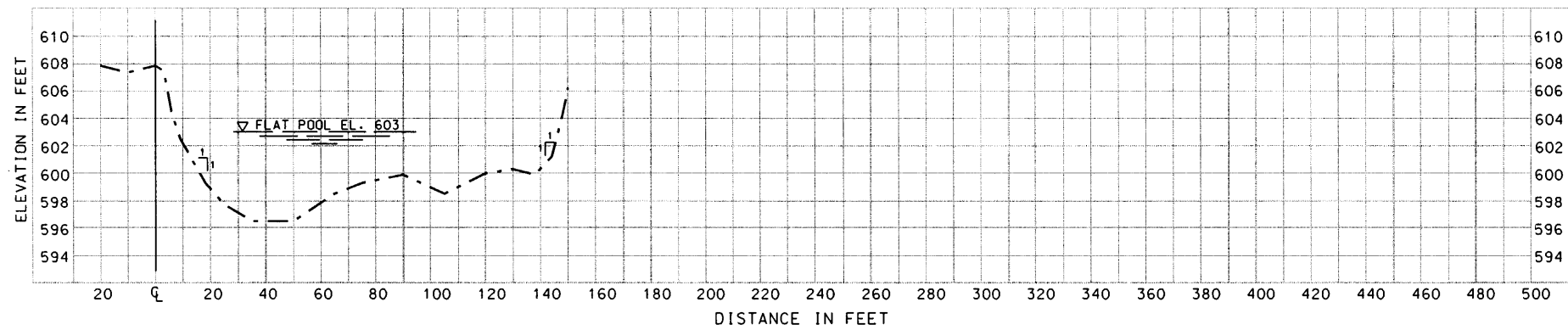
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- RANGES 1993
- RANGES 1998
- - - - STRUCTURE AS-BUILT 1991

Symbol	Description	Date	Approved

Designed By: AAE	Date: XXXXXX
Drawn By: SDB/JDM	Scale: AS SHOWN
Checked By: DUJ	Project Code: EP59
Reviewed By: DUJ	Soil Report Number: DUL025-21-d-111X

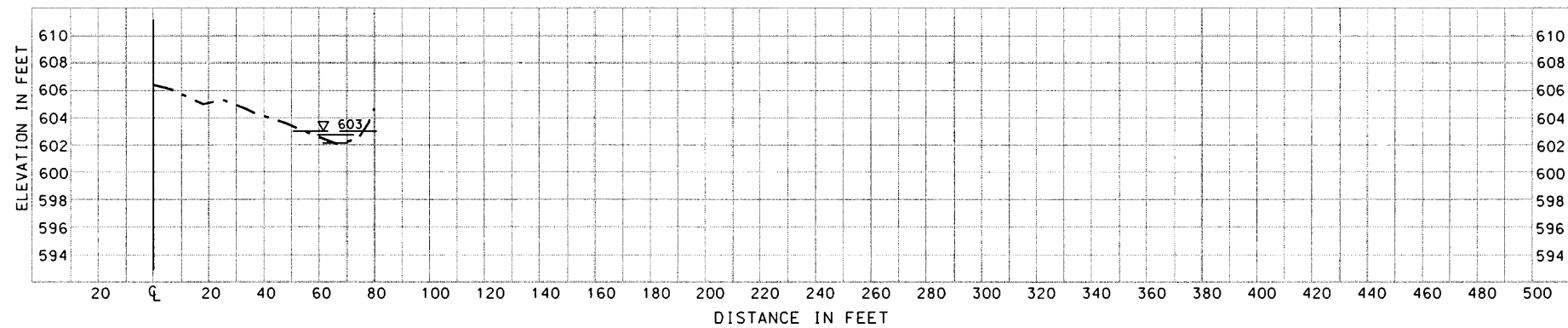
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**SEDIMENTATION  
TRANSECTS I**



**STATION 17.97**

RANGE ABOVE PARTIAL CLOSURE STRUCTURE, S-M602.2J, TRANSECT E  
FIRST TIME SURVEYED SINCE AS BUILT.



**STATION 59+92**

RANGE AT ENTRANCE OF COAL PIT SLOUGH, S-M601.4J, TRANSECT K

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

- - - - - RANGES 2002
- - - - - STRUCTURE AS-BUILT 1991

DATA SOURCES:  
2002 Field Book FC-02-2

Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Designated By: AAE	Date: XXXXXX
	Drawn By: SDB/JDM	Scale: AS SHOWN
	Checked By: DJJ	Project Code: EP59
	Reviewed By: DJH	Soil Station Number: D005-XX-B-XXX

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & MCCARTNEY LAKES  
**SEDIMENTATION  
TRANSECTS II**

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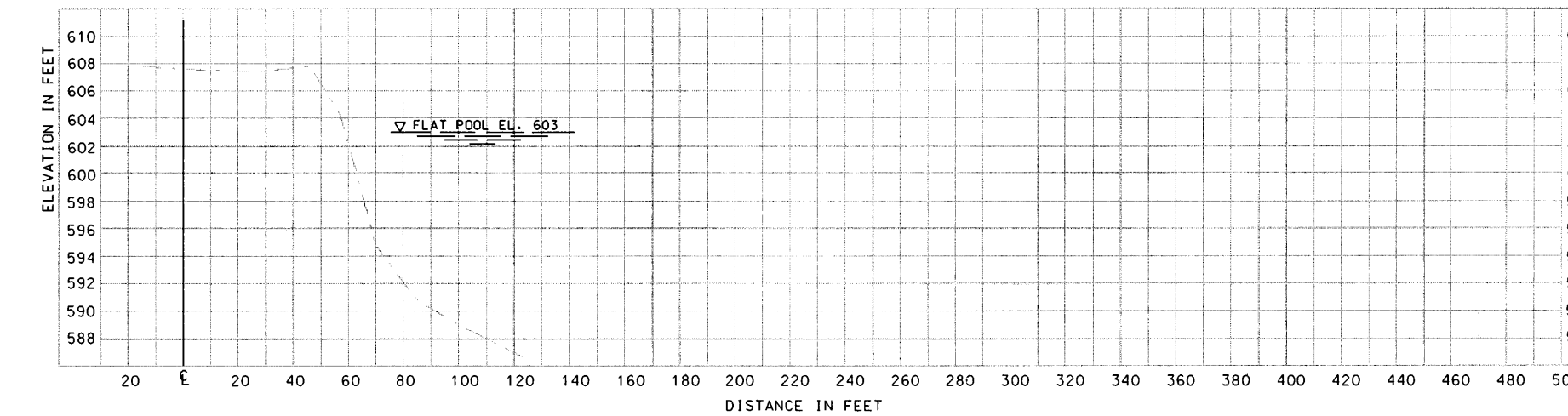
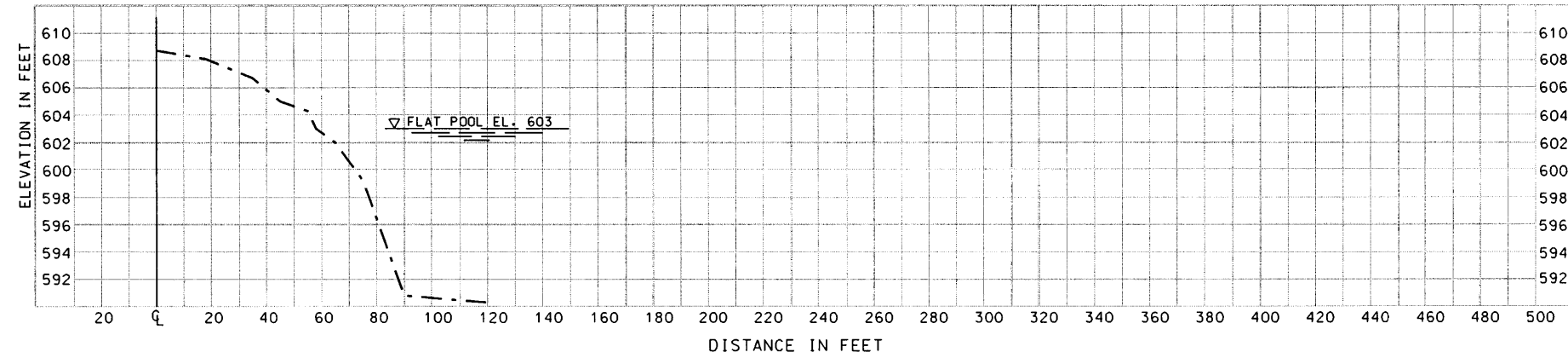
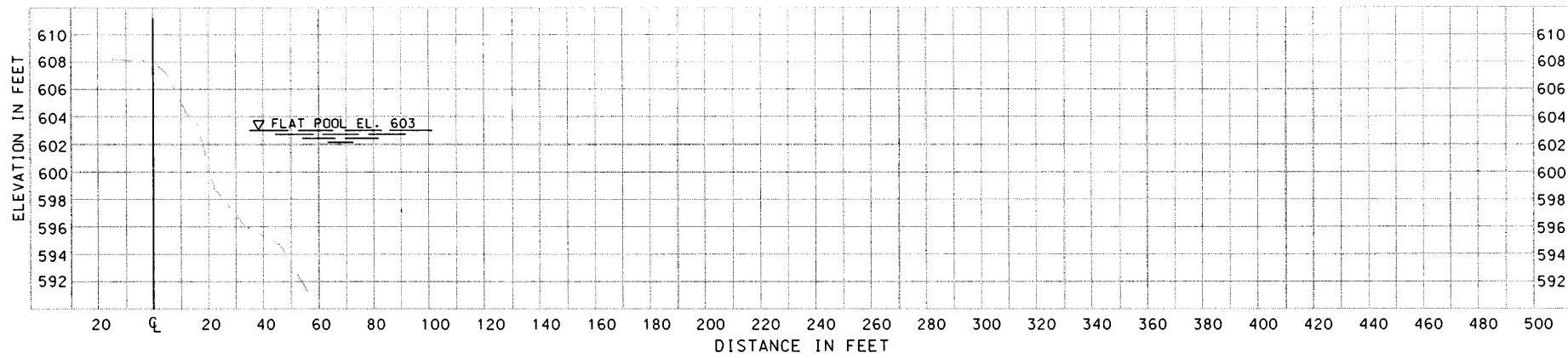
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Drawn By:	SDB/JDM	Scale:	AS SHOWN
Checked By:	DJJ	Project Code:	EP59
Reviewed By:	DJH	Solicitation Number:	DADES-XX-B-XXX

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ROCK ISLAND, ILLINOIS

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ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES

**BANKLINE EROSION  
SECTIONS I**

**PLATE 15**



NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**  
- - - - - RANGES 2002



Symbol	Description	Date	Approved

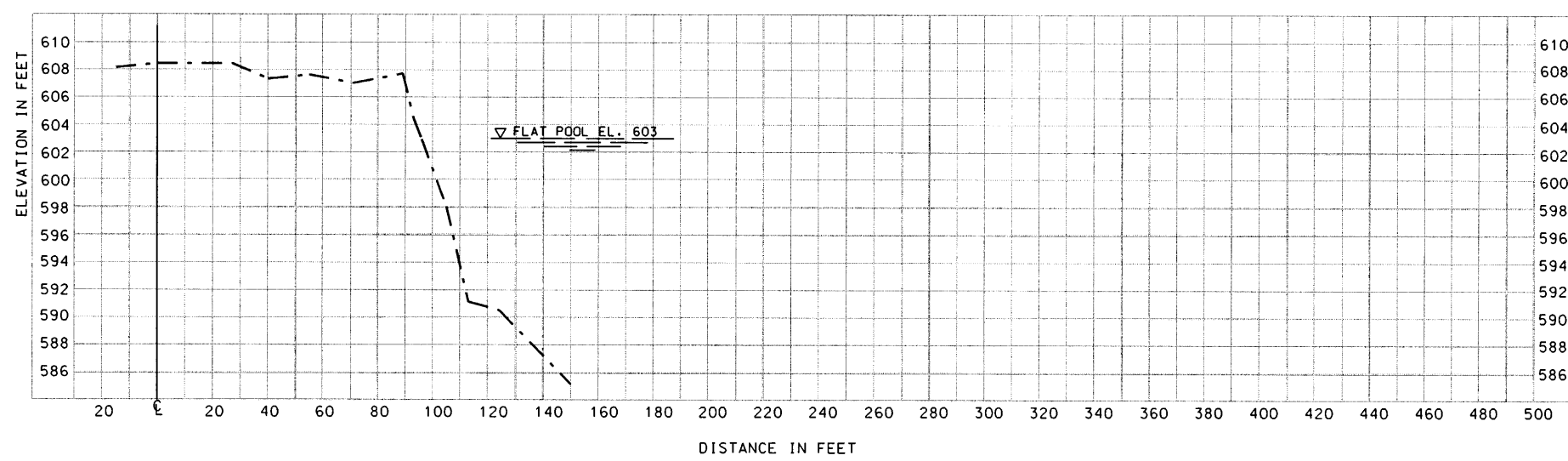
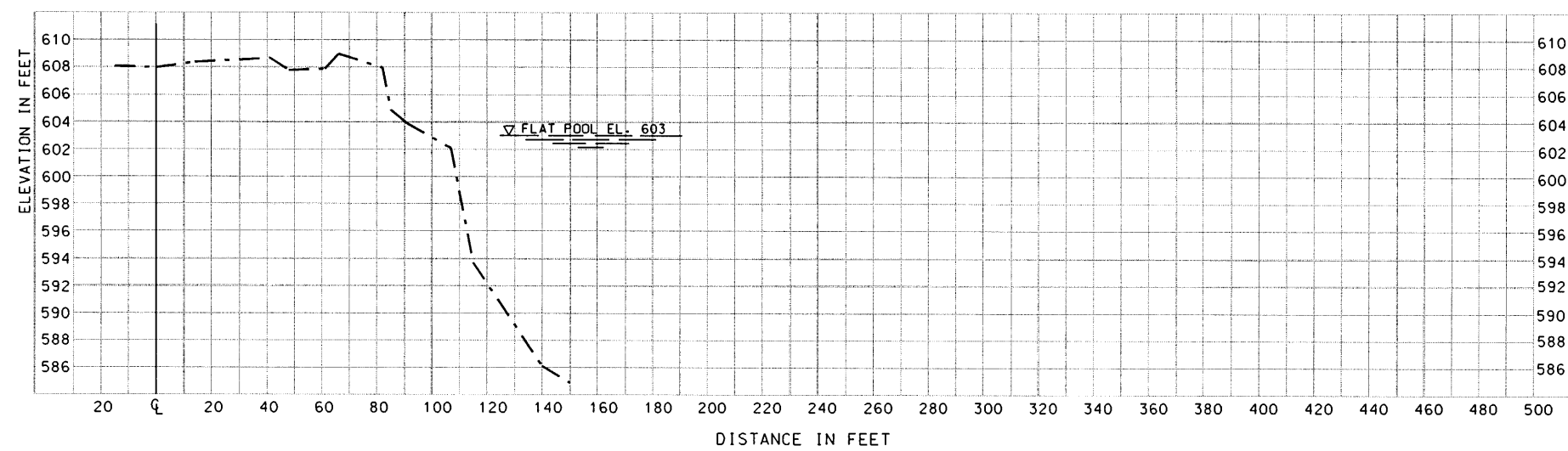
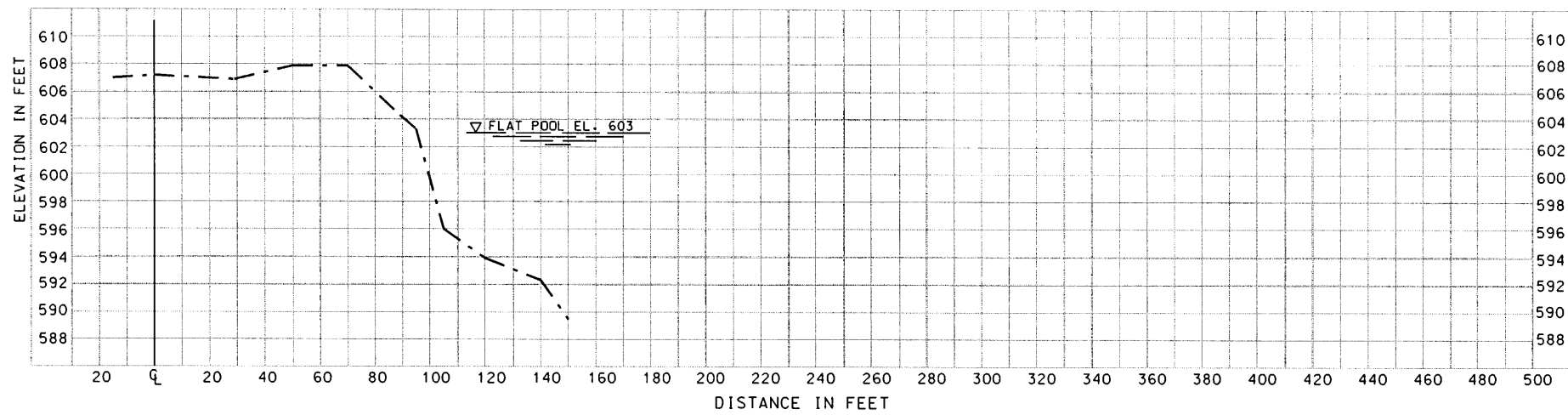
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Checked By: DJJ	Project Code: EPS9
Reviewed By: DJH	Soil Section Number: DACMS-XX-B-XXXX

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ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & MCCARTNEY LAKES

**BANKLINE EROSION  
SECTIONS II**

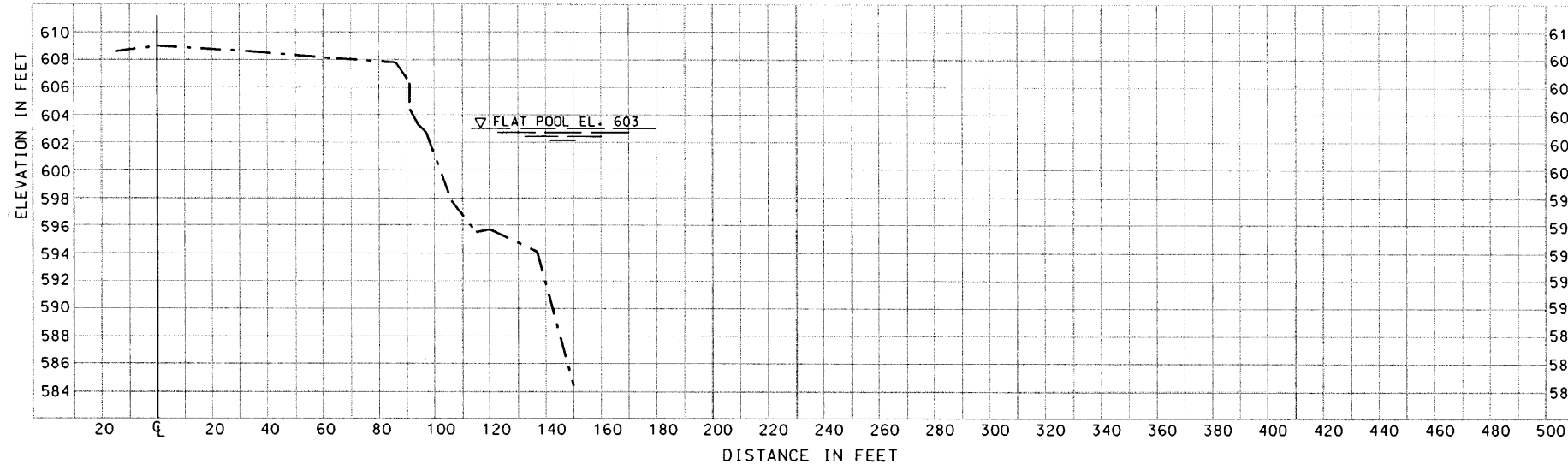
**PLATE 16**



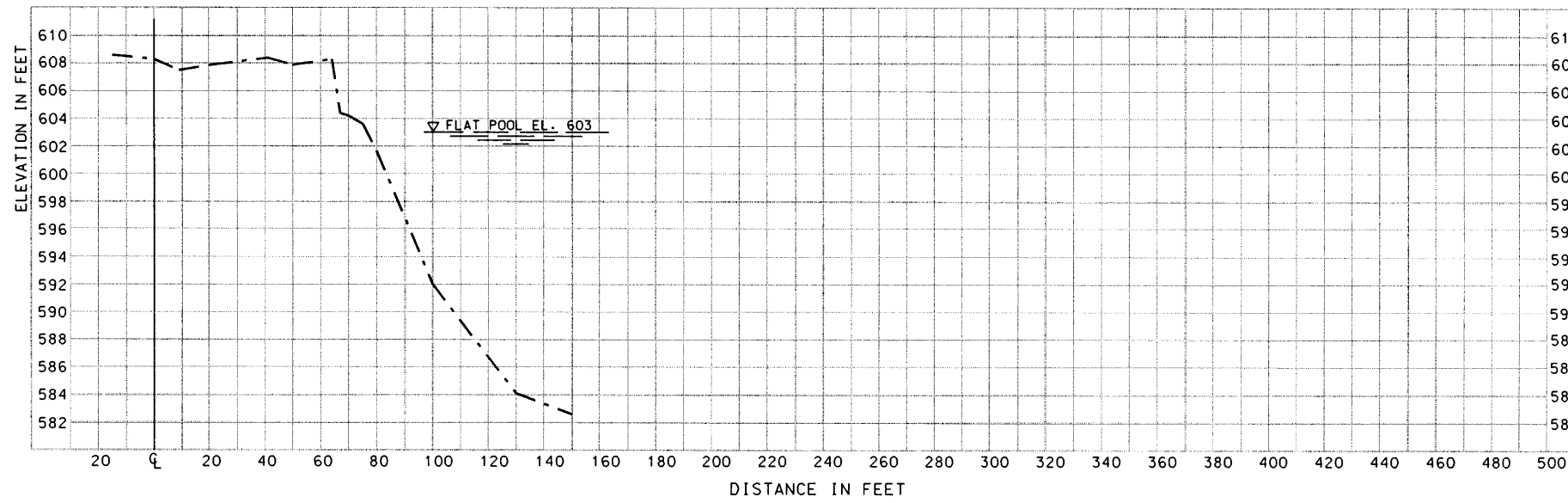
NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**  
- - - - - RANGES 2002

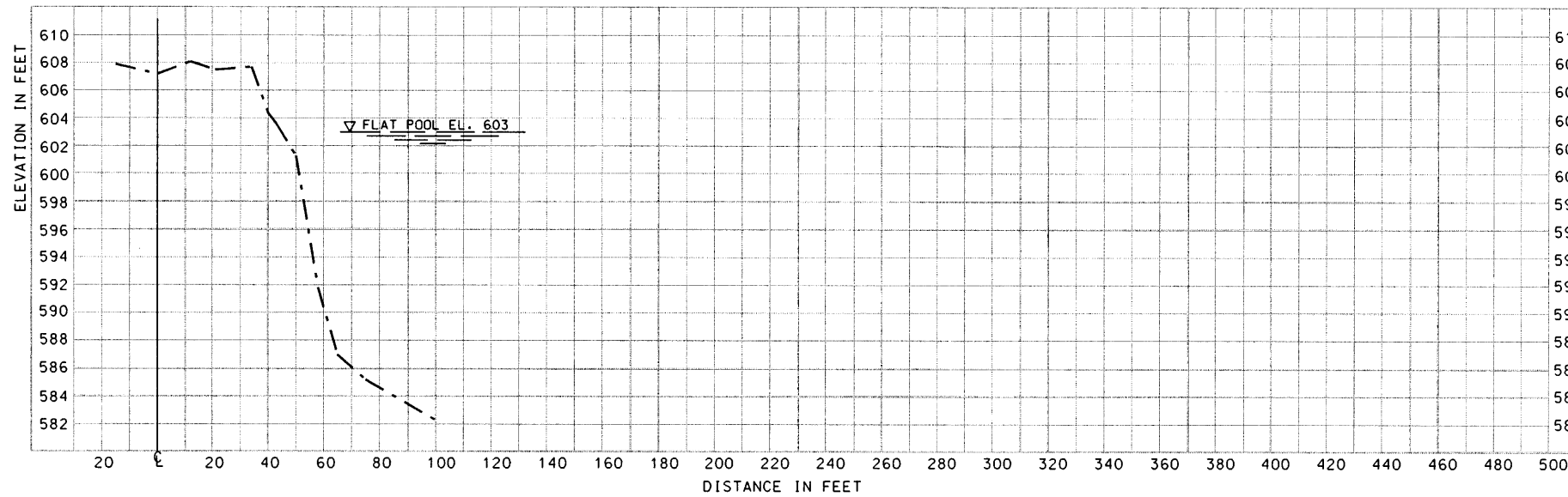
DATA SOURCES:  
2002 Field Book FC-02-2



**BANKLINE EROSION STA. 16+25**



**BANKLINE EROSION STA. 18+51**



**BANKLINE EROSION STA. 20+00**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002



Symbol	Description	Date	Approved

Designed By: AAE	Date: XXXXXX
Drawn By: SDB/JDM	Scale: AS SHOWN
Checked By: DJJ	Project Code: EPS9
Reviewed By: DJH	Station Number: 16+25-18-51

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ROCK ISLAND, ILLINOIS

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BERTOM & MCCARTNEY LAKES  
**BANKLINE EROSION  
SECTIONS III**

**PLATE 17**

DATA SOURCES:  
2002 Field Book FC-02-2

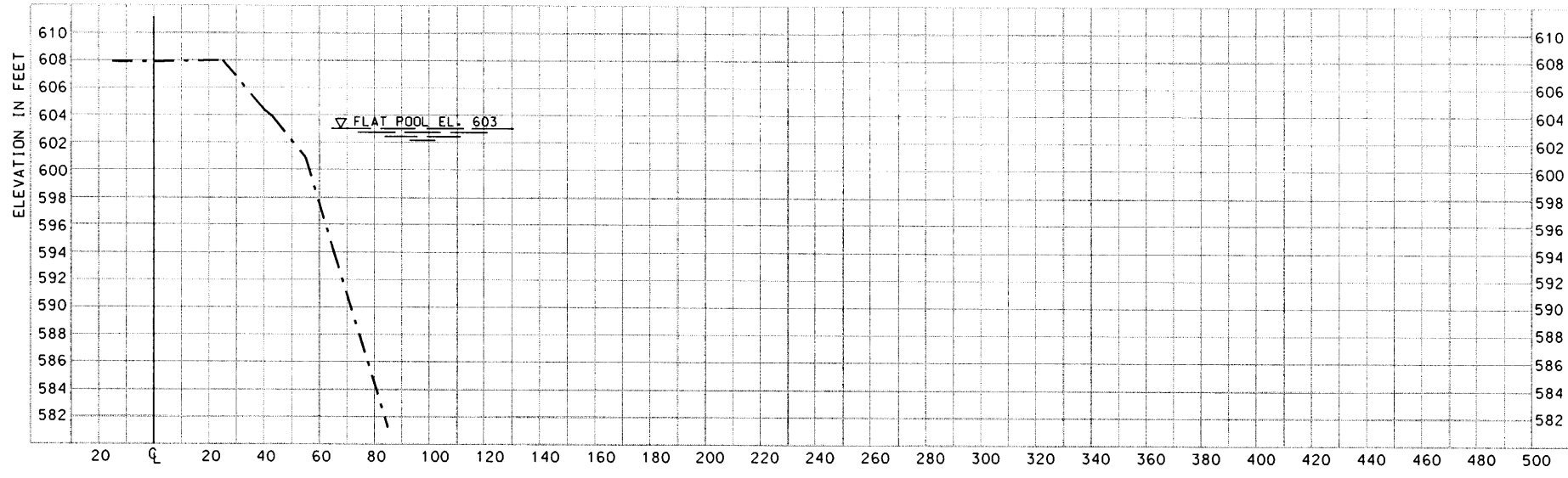


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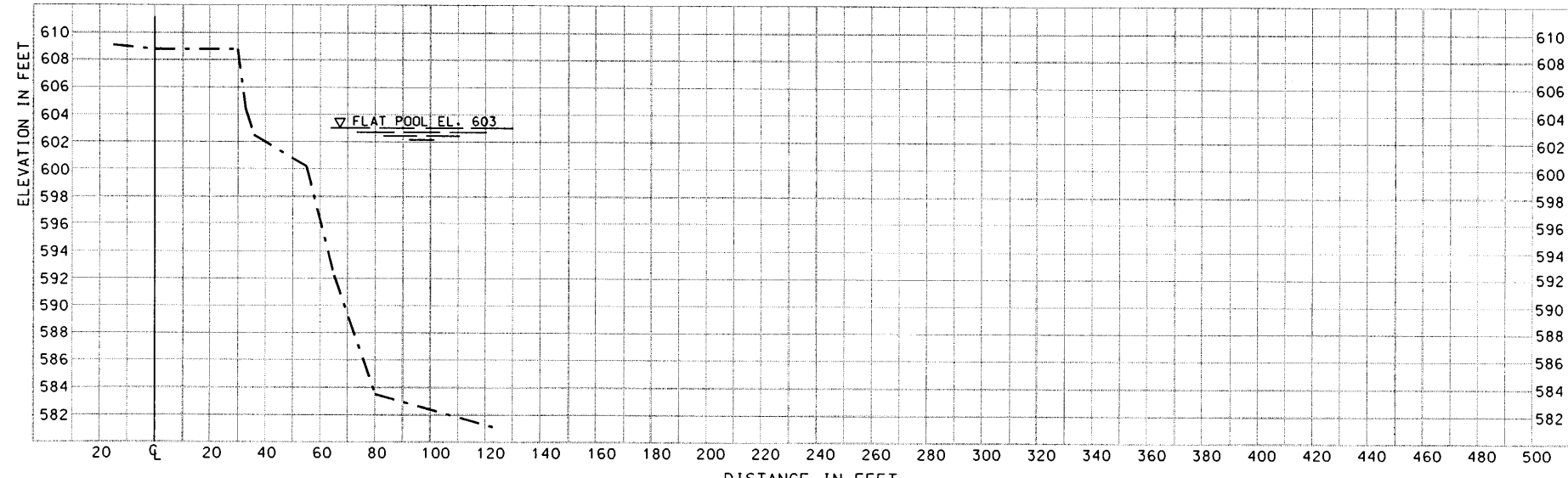
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	Reviewed By: DJH	Solicitation Number: DACW2-02-P-XXX

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & MCCARTNEY LAKES  
**BANKLINE EROSION  
SECTIONS IV**

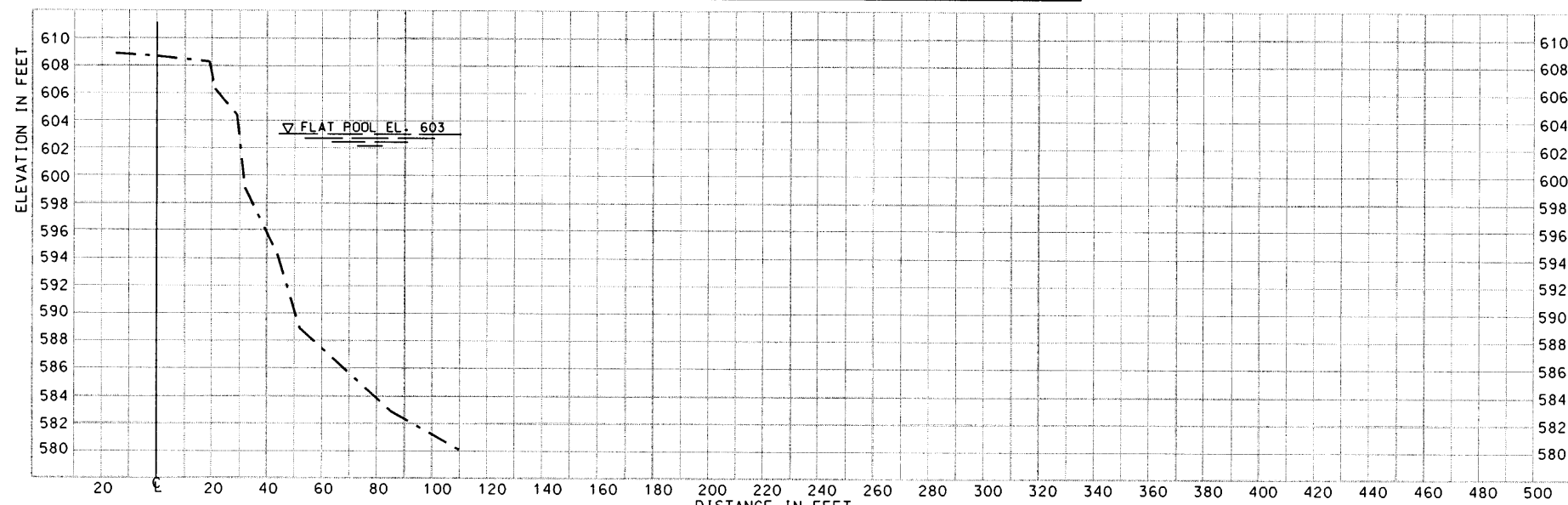
**PLATE 18**



**BANKLINE EROSION STA. 21+50**



**BANKLINE EROSION STA. 23+6.21**



**BANKLINE EROSION STA. 24+11**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002

DATA SOURCES:  
2002 Field Book FC-02-2



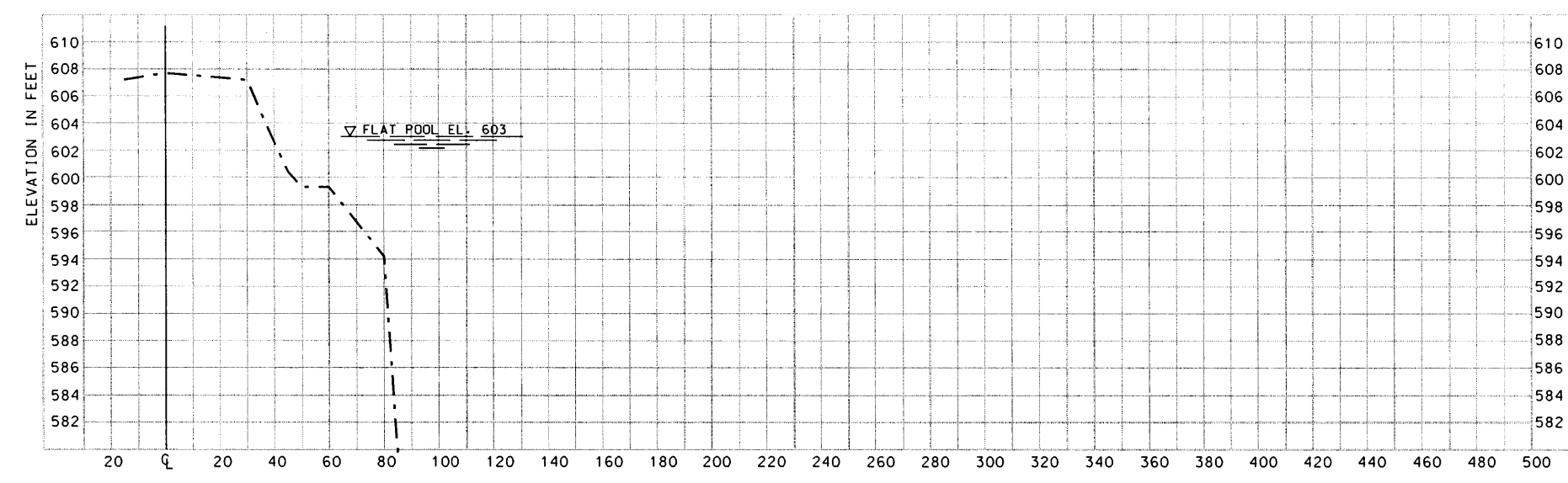
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	Checked By: DJJ	Project Code: EP59
	Reviewed By: DJH	Soil/Stratification Number: DACR25-XX-B-XXX

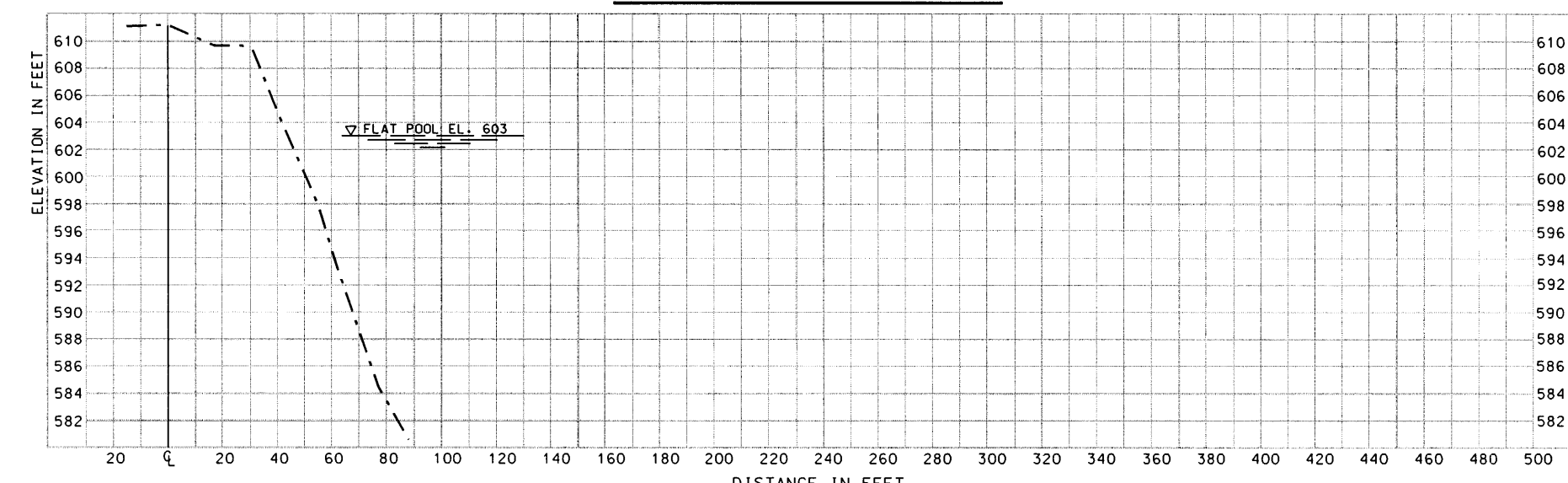
UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES

**BANKLINE EROSION  
SECTIONS V**

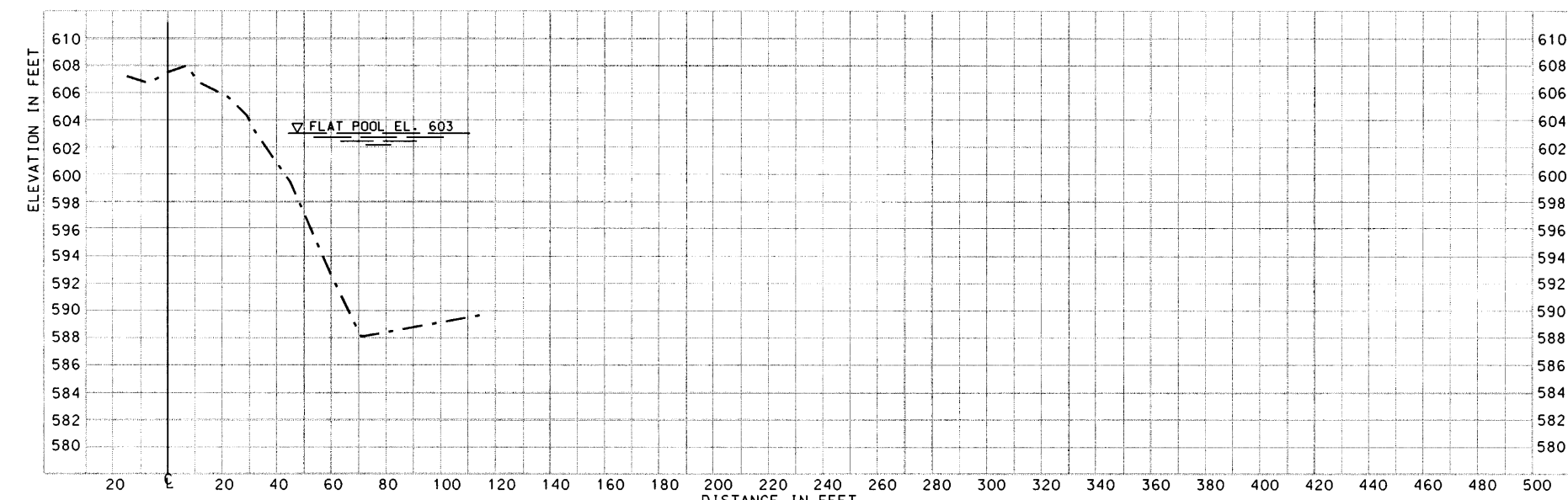
**PLATE 19**



**BANKLINE EROSION STA. 25+05**



**BANKLINE EROSION STA. 26+12**



**BANKLINE EROSION STA. 27+60**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**  
- - - - - RANGES 2002

DATA SOURCES:  
2002 Field Book FC-02-2



Symbol	Description	Date	Approved

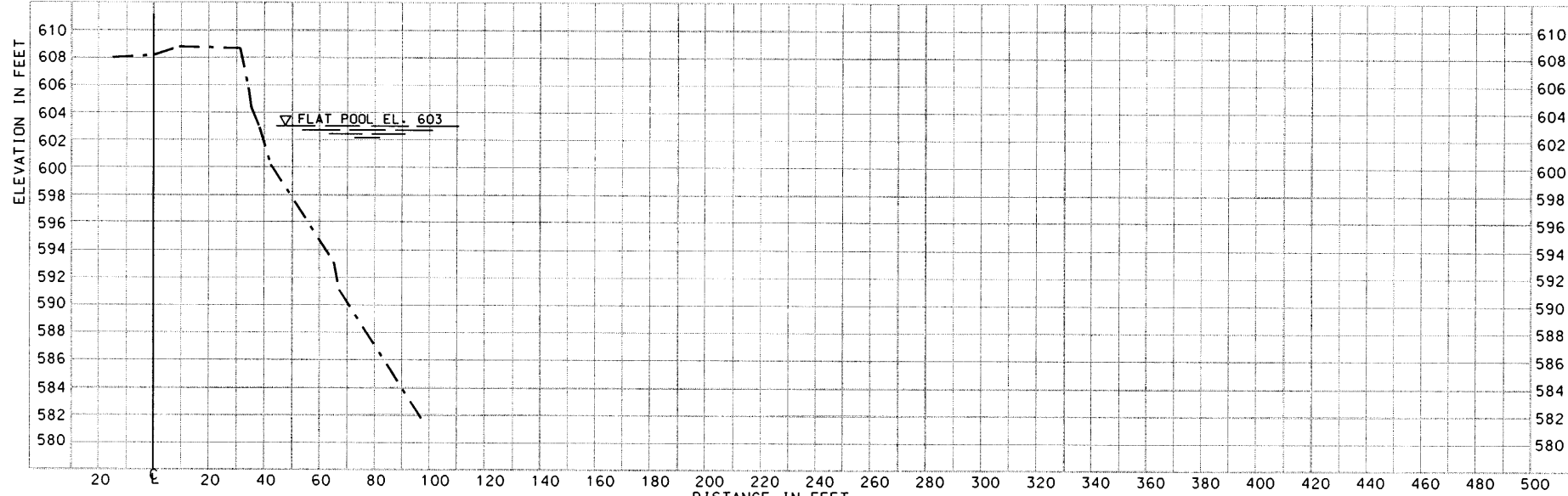
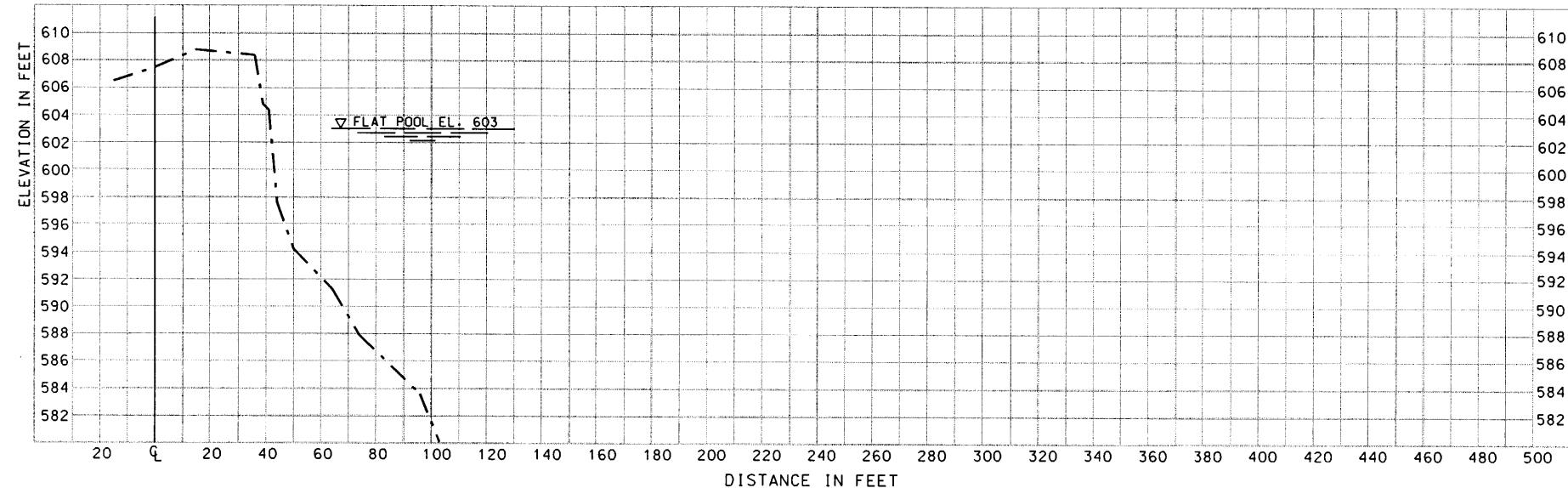
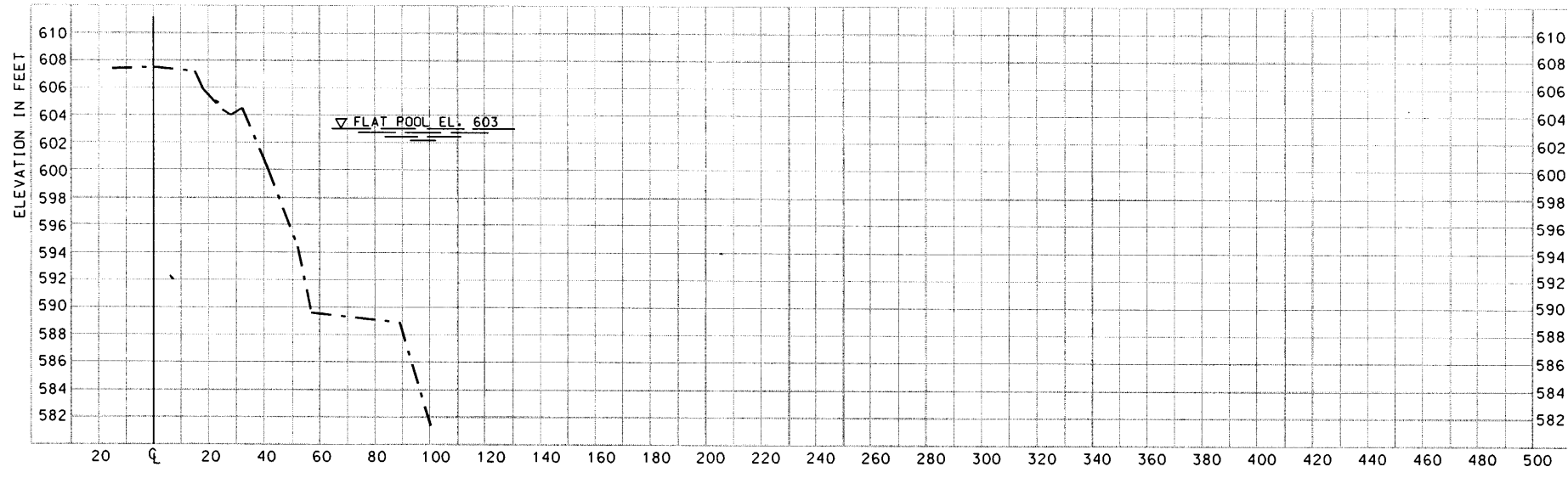
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Checked By: DJJ	Project Code: EP59
Reviewed By: DJH	Salutation Number: DAC25-XX-P-XXX

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & MCCARTNEY LAKES

**BANKLINE EROSION  
SECTIONS VI**

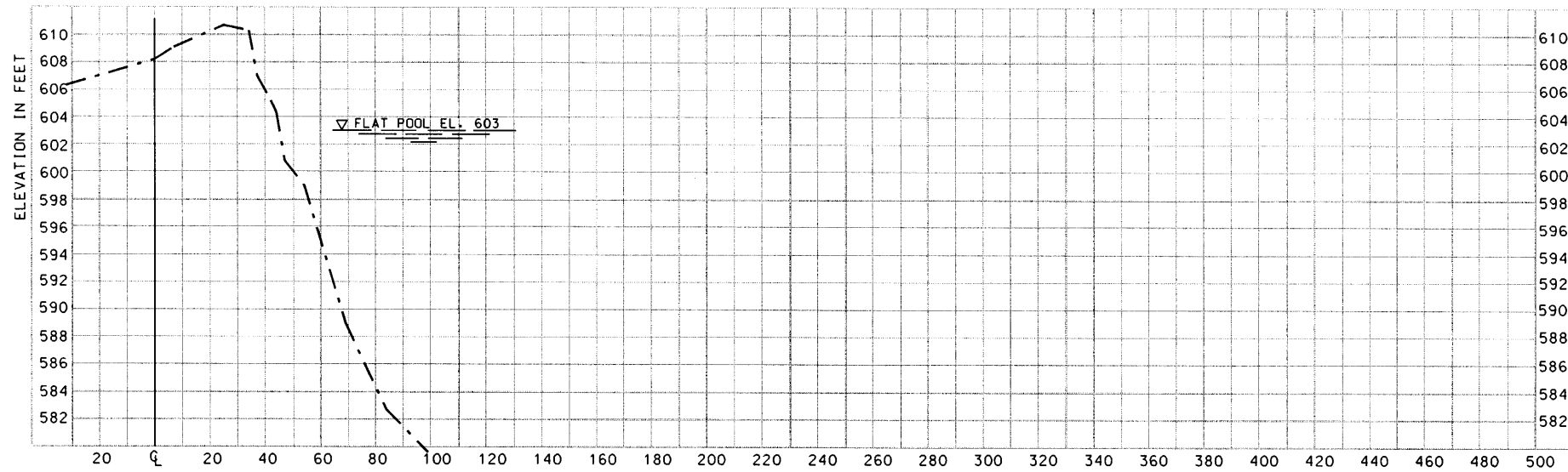
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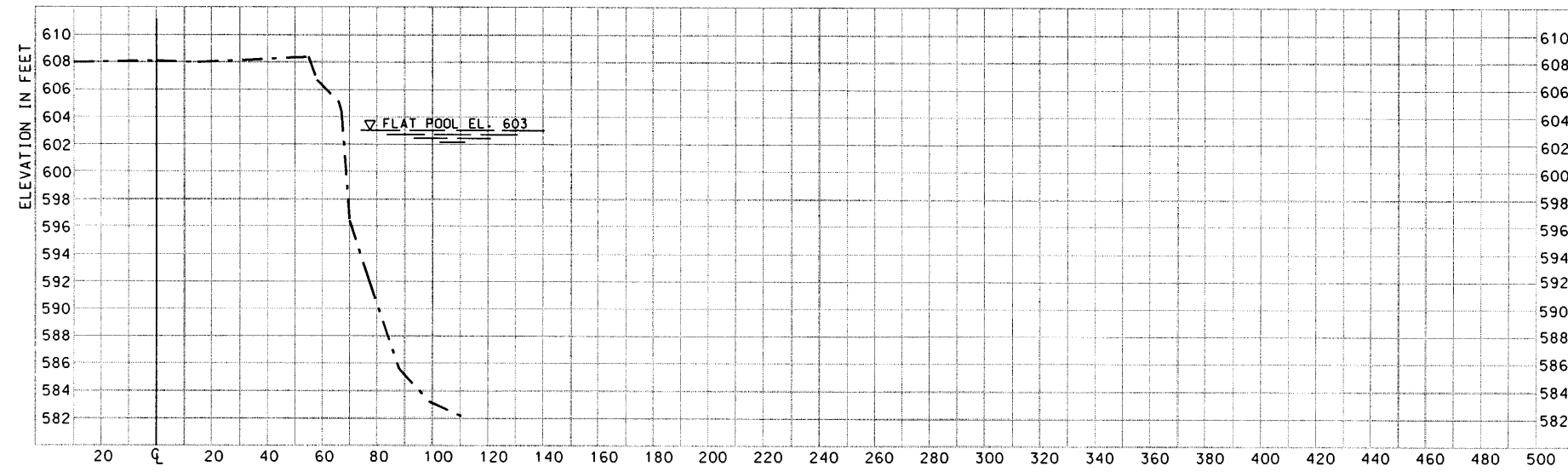
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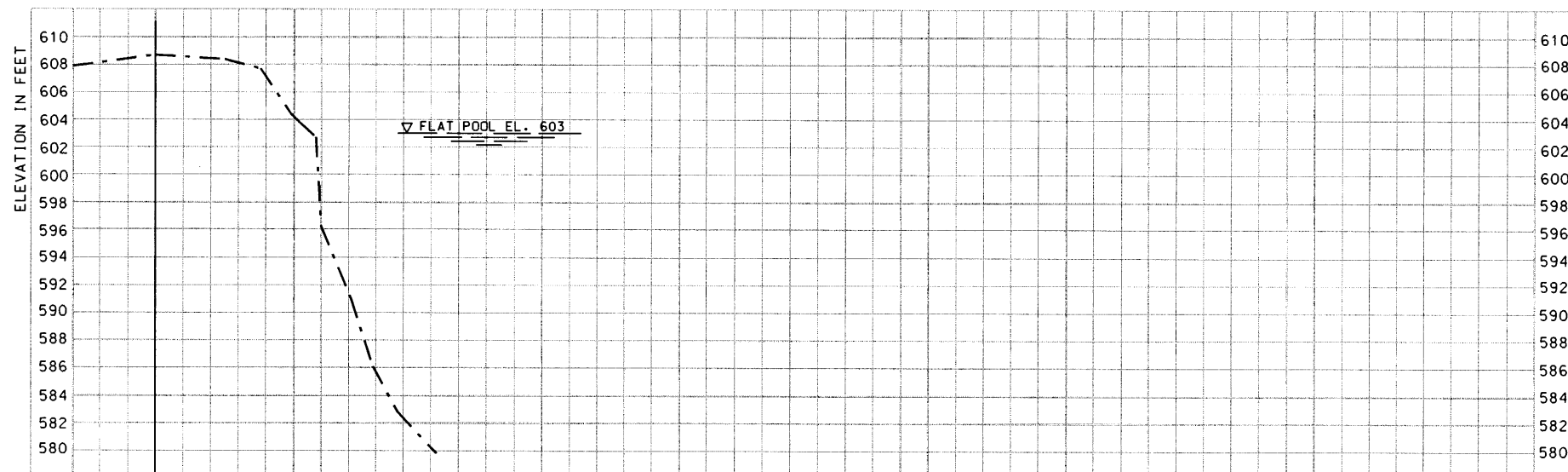
DATA SOURCES:  
2002 Field Book FC-02-2



**BANKLINE EROSION STA. 32+25**



**BANKLINE EROSION STA. 33+54**



**BANKLINE EROSION STA. 34+85**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002



Symbol	Description	Date	Approved

Designed By: AAE	Date: XXXXXX
Drawn By: SOB/JDM	Scale: AS SHOWN
Checked By: DJJ	Project Code: EP59
Reviewed By: DJH	Specification Number: DACW25-XX-B-XXXX

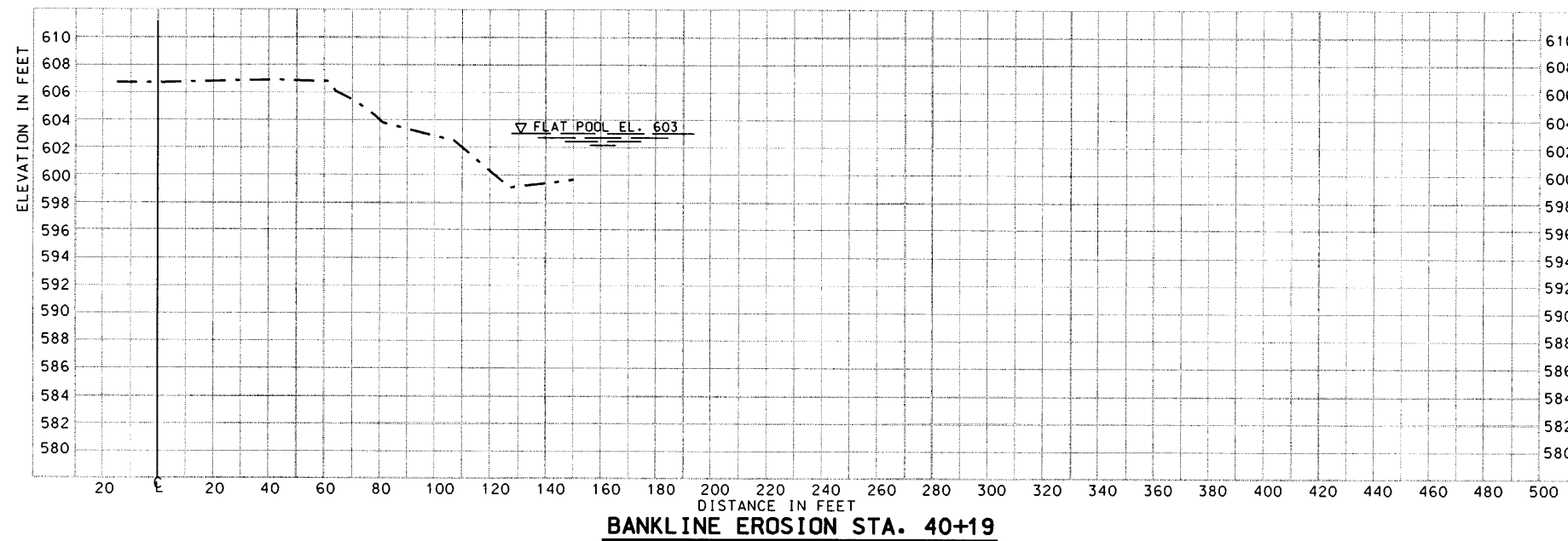
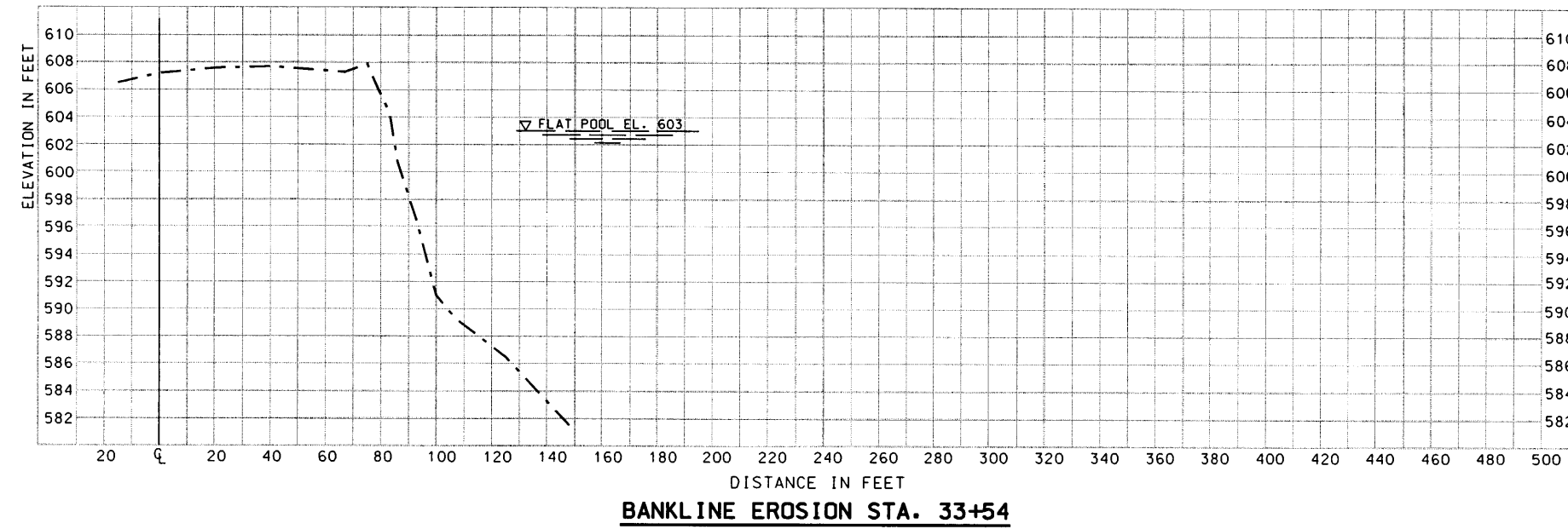
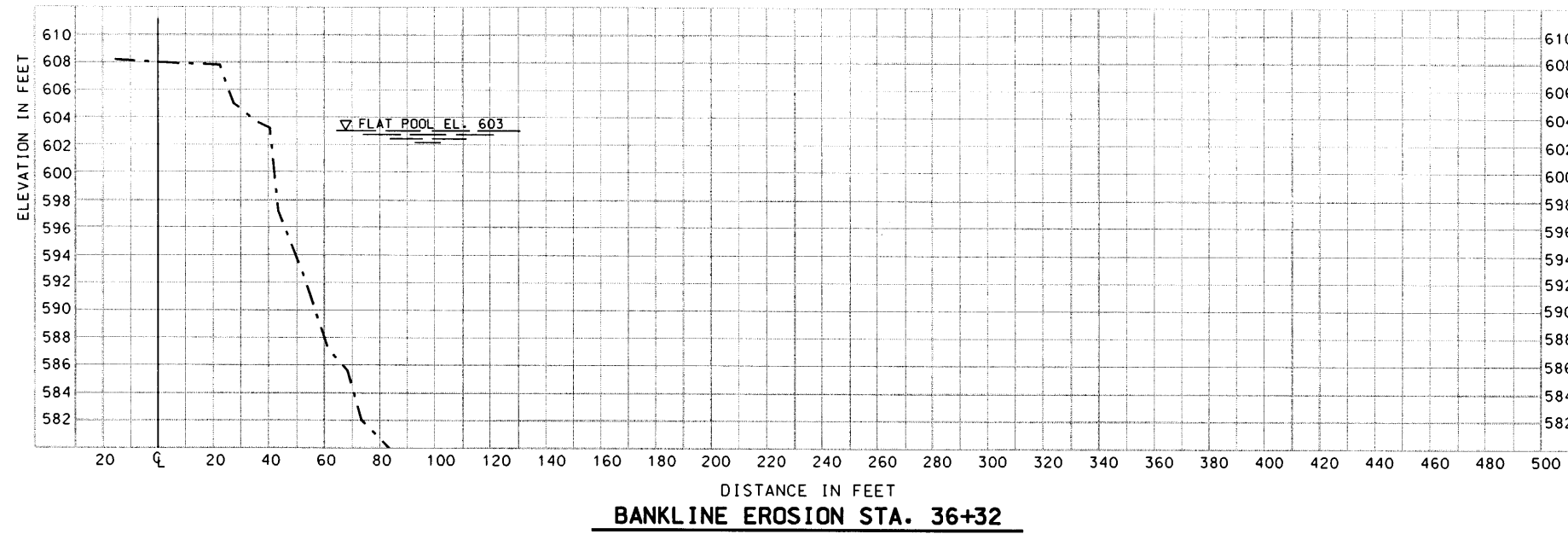
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL RESTORATION PROGRAM  
POD RIVER MILE 598+00J  
BERTOM & MCCARTNEY LAKES  
**BANKLINE EROSION  
SECTIONS VII**

**PLATE 21**

DATA SOURCES:  
2002 Field Book FC-02-2

28 APR 2003 09:15  
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NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002



Symbol	Description	Date	Approved

Designed By:	AAE	Date:	XXXXXX
Drawn By:	SDB/JDM	Scale:	AS SHOWN
Checked By:	DJJ	Project Code:	EP59
Reviewed By:	DJH	Specification Number:	DAC25-XX-9-XXX

U. S. ARMY ENGINEER DISTRICT  
ROCK ISLAND, ILLINOIS

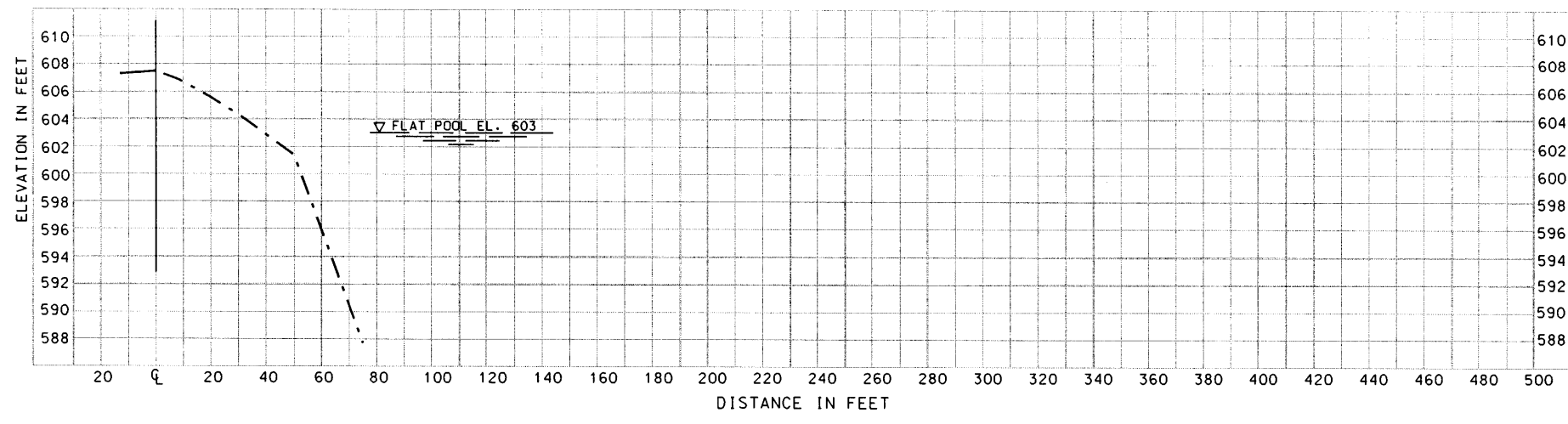
UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTOM & MCCARTNEY LAKES

**BANKLINE EROSION  
SECTIONS VIII**

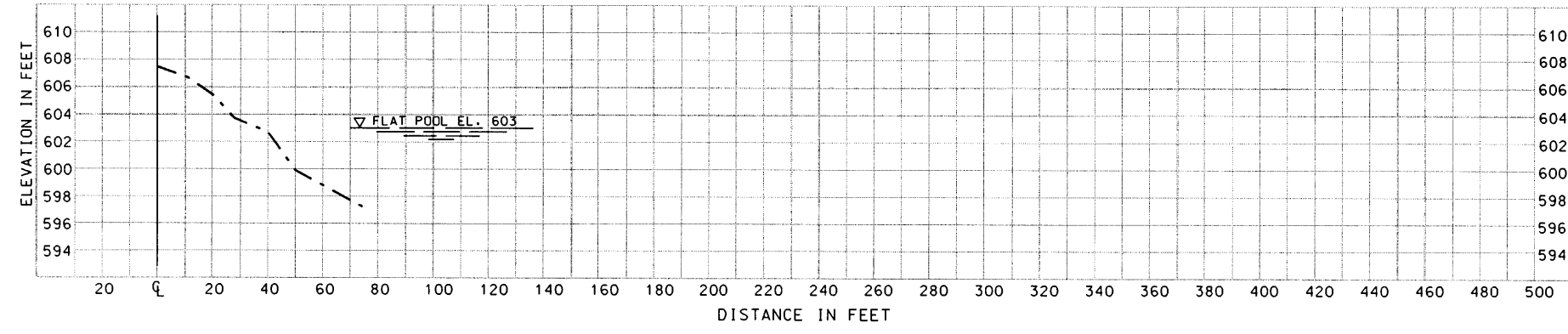
**PLATE 22**

DATA SOURCES:  
2002 Field Book FC-02-2

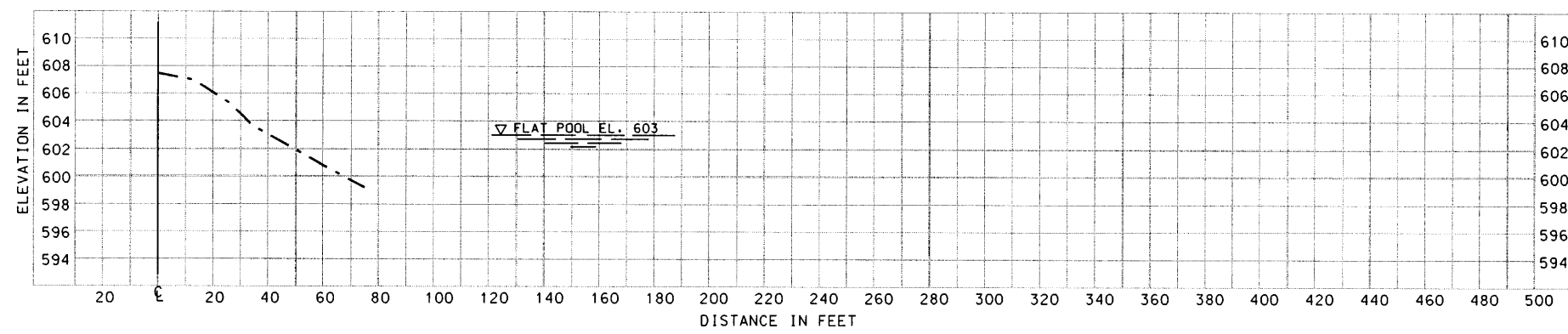




**BISECTOR SECTION A, STA. 2+20**



**BISECTOR SECTION B, STA. 2+20**



**BISECTOR SECTION C, STA. 2+20**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

----- RANGES 2002

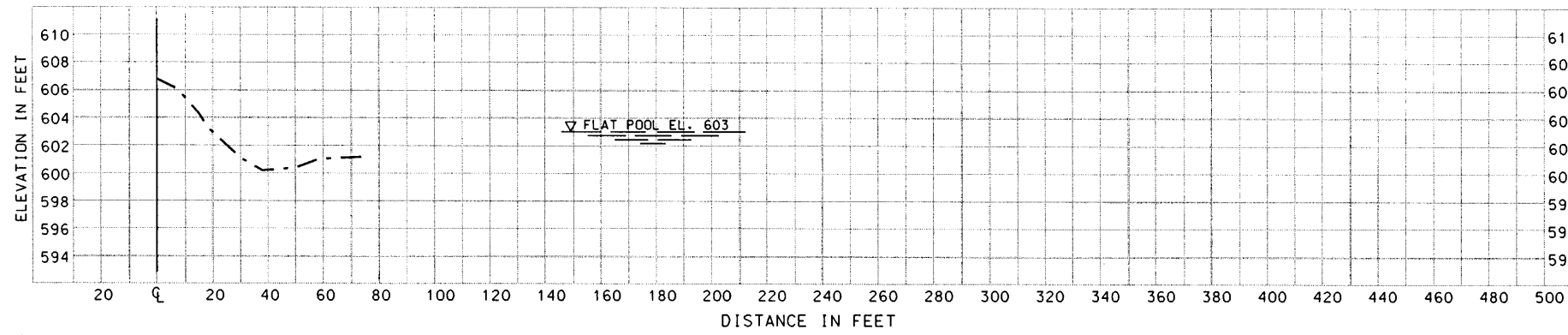
DATA SOURCES:  
2002 Field Book FC-02-2



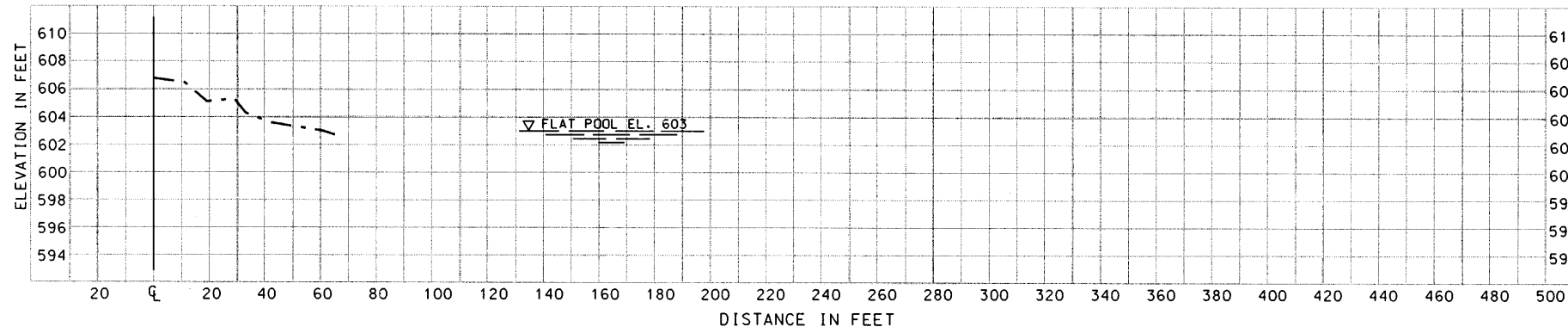
Revisions	
Symbol	Description

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Date: XXXXXX
Designed By: AAE	Scale: AS SHOWN
Drawn By: SDB/JDM	Project Code: EPS9
Checked By: DLJ	Solicitation Number: DACW25-02-B-0000
Reviewed By: DJH	

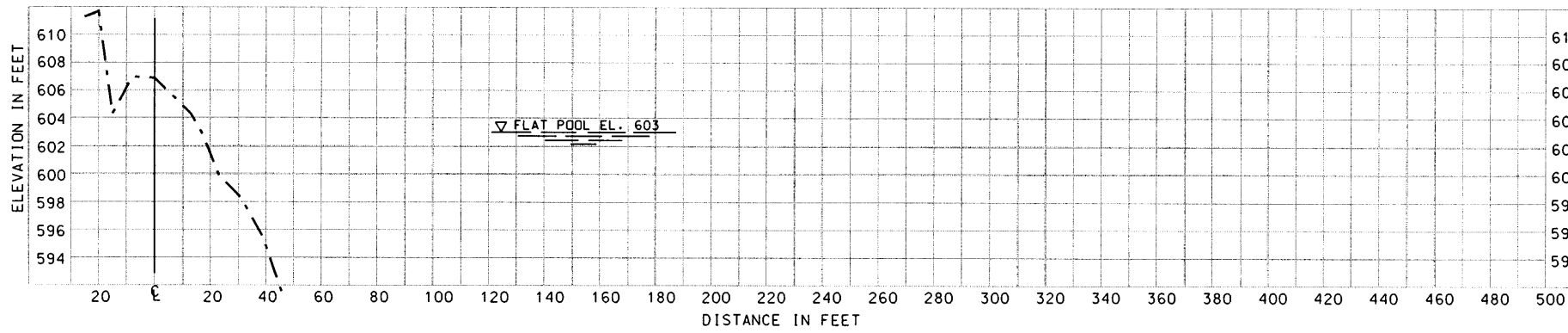
UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**BANKLINE EROSION  
BISECTOR SECTIONS  
A, B, C**



**BISECTOR SECTION D, STA. 3+43**



**BISECTOR SECTION E, STA. 3+43**



**BISECTOR SECTION F, STA. 6+11**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002

DATA SOURCES:  
2002 Field Book FC-02-2



Symbol	Description	Date	Approved

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Designed By: AAE	Date: XXXXXX
	Drawn By: SDB/JDM	Scale: AS SHOWN
	Checked By: DJJ	Project Code: EP59
	Reviewed By: DJH	Solicitation Number: DACW25-XX-B-XXXX

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**BANKLINE EROSION  
BISECTOR SECTIONS  
D,E,F**

**PLATE 24**

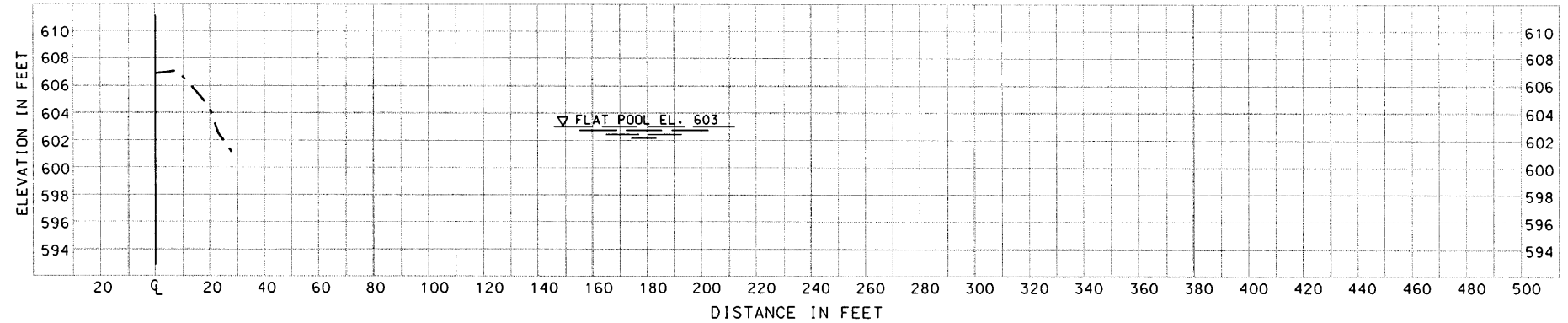


Symbol	Description	Date	Approved

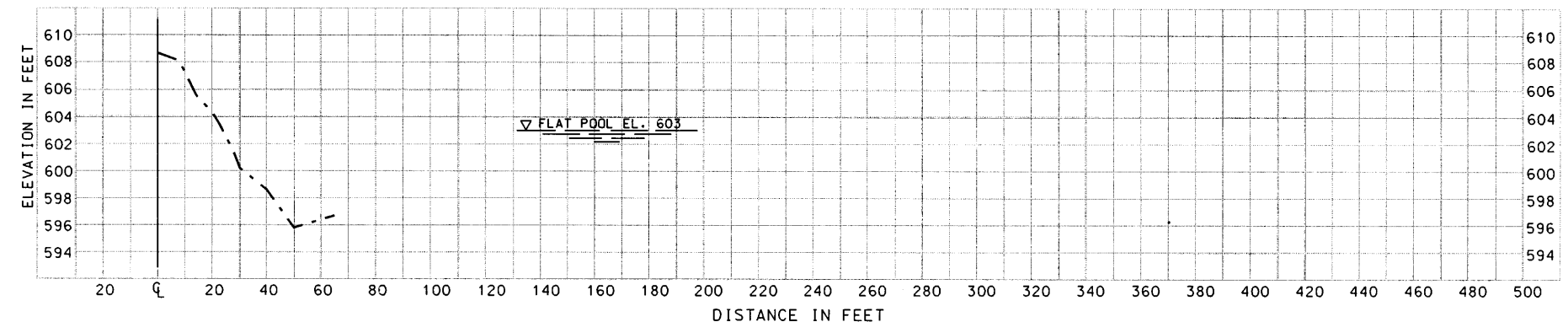
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Designated By: AAE	Date: XXXXXX
	Drawn By: SDB/JDM	Scale: AS SHOWN
	Checked By: DJJ	Project Code: EPS9
	Reviewed By: DJH	Soil Report Number: DACRIS-11-8-1111

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**BANKLINE EROSION  
BISECTOR SECTIONS  
G,H,I**

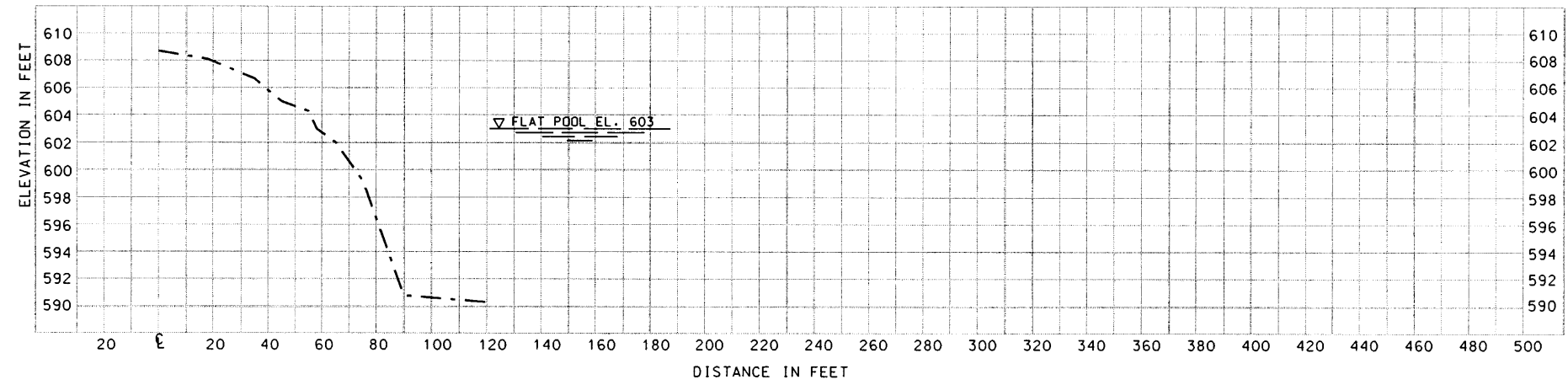
**PLATE 25**



**BISECTOR SECTION G, STA. 6+11**



**BISECTOR SECTION H, STA. 7+38**

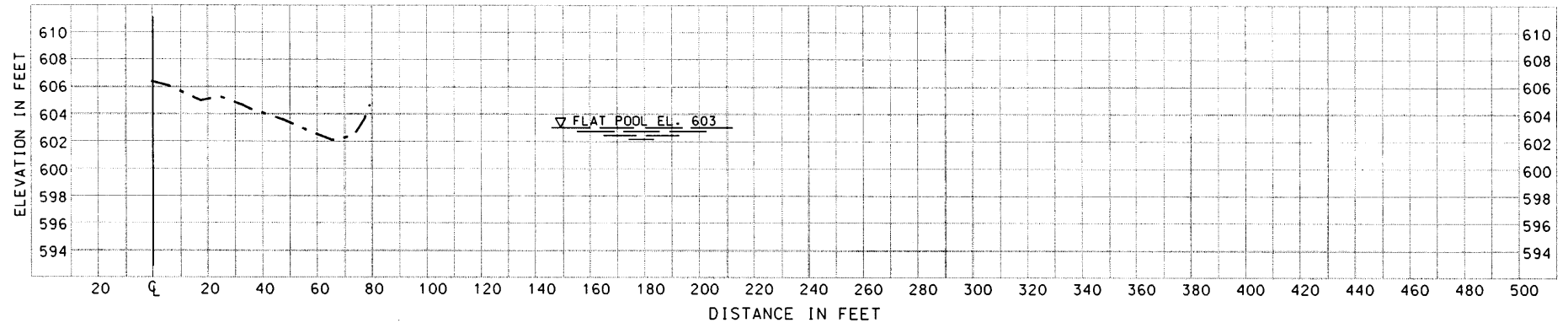


**BISECTOR SECTION I, STA. 7+38**

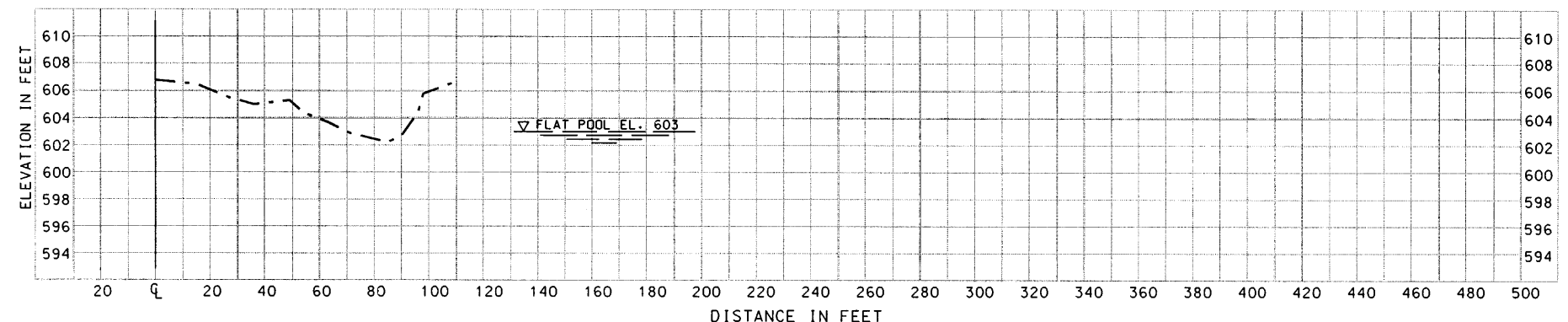
NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**  
- - - - - RANGES 2002

DATA SOURCES:  
2002 Field Book FC-02-2



**BISECTOR SECTION J, STA. 41+75**



**BISECTOR SECTION K, STA. 41+75**

NOTE:  
FLAT POOL ELEVATION 603.0.

**LEGEND:**

--- RANGES 2002

DATA SOURCES:  
2002 Field Book FC-02-2



Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILL.INDIS	Designed By: AAE Drawn By: SDB/JDM Checked By: DJJ Reviewed By: DJH	Date: XXXXXX Scale: AS SHOWN Project Code: EPS9 Solicitation Number: DACW25-XX-B-XXXX
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UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
POOL 11, RIVER MILE 599-603  
BERTON & MCCARTNEY LAKES  
**BANKLINE SECTIONS  
BISECTOR J,K**

**PLATE 26**