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PROPOSED SOLUTION FOR DOWNSTREAM FLOODING STOCKTON LAKE
SAC RIVER MISSOURI (DOWNSTREAM CAPLINGER MILLS)(U)
CORPS OF ENGINEERS KANSAS CITY MO KANSAS CITY DISTRICT
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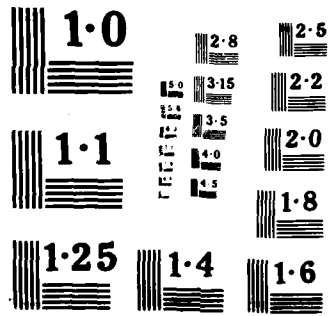
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Supplemental Information Report

Proposed Solution for

**Downstream Flooding
Stockton Lake,
Sac River, Missouri
(Downstream Caplinger Mills)**

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August 1986



**US Army Corps
of Engineers**
Kansas City District

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DEPARTMENT OF THE ARMY
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REPLY TO
 ATTENTION OF

SEP 30 1986

Planning Division

TO WHOM IT MAY CONCERN:

Enclosed is a report titled "Proposed Solution for Downstream Flooding Stockton Lake, Sac River, Missouri (Downstream Caplinger Mills)." This is a Supplemental Environmental Statement for Stockton Lake, Sac River, Missouri, Proposed Solution for Downstream Flooding, which was filed with the Council on Environmental Quality 14 December 1976.

This report has been prepared to inform you of the Federal action proposed to lessen the adverse effects of the Stockton Lake Project on lands adjacent to the Sac River downstream of Caplinger Mills Dam.

This information packet is being distributed to agencies, groups, and other interested parties.

Sincerely,

Robert M. Amrine
 Colonel, Corps of Engineers
 District Engineer



Enclosure

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SUPPLEMENTAL INFORMATION REPORT

PROPOSED SOLUTION FOR DOWNSTREAM
FLOODING STOCKTON LAKE,
SAC RIVER, MISSOURI
(DOWNSTREAM CAPLINGER MILLS)

US ARMY CORPS OF ENGINEERS
KANSAS CITY DISTRICT

AUGUST 1986

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
<p>This document is a Supplemental Information Report which provides detailed information on the effects of hydropower releases on the Sac River downstream from Caplinger Mills Dam. It was designed to provide the landowners, agencies and individuals who commented on the Final Supplemental Environmental Statement (FSES) with additional information. The purchase of sloughing and perpetual flowage easements actions were identified in FSES and they are not changed by this report. The impacts of the hydropower releases occur primarily in reach A (Caplinger Mills to Highway W). However, some impacts occur in the area of the</p>		

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Harry S. Turman Reservoir flood pool influence.

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SUPPLEMENTAL INFORMATION REPORT

Stockton Lake, Sac River, Missouri
(Downstream Caplinger Mills)

1. Introduction

A. Background

The Final Environmental Statement (FES) prepared for Stockton Lake, Sac River, Missouri, and filed with the President's Council on Environmental Quality (CEQ) on August 15, 1975, recognized that detailed information on the effects to the downstream reach would be addressed in a Final Supplemental Environmental Statement (FSES). The FSES filed with CEQ on December 14, 1976, addressed the effects to the downstream reach and proposed alternative modes for hydropower operation and compensation to landowners. While the FSES recognized that a separate report would be prepared for the reach downstream of Caplinger Mills Dam, the FES and ongoing Kansas City District, Corps of Engineers (Corps) studies indicated that effects to that reach would be minimal. Both the FES and FSES were litigated in the US District Court when the State of Missouri and 10 landowners filed suit to enjoin the Corps from implementing the alternatives proposed in the FSES. The plaintiffs contended that the Corps had not complied with the requirements of the National Environmental Policy Act (NEPA), Federal Water Pollution Control Act (Clean Water Act), Fish and Wildlife Coordination Act, and the Missouri Clean Water Law, and had exceeded its authority by installing a 45,200 kW generator at Stockton Dam. The Court entered an order dismissing all counts of the plaintiffs' complaint on December 24, 1980. The State and landowners filed notices of appeal to the Eighth Circuit Court of Appeals on February 17 and 20, 1981, respectively. The Eighth Circuit Court of Appeals upheld the decision of the lower Court dismissing all counts of the plaintiffs' complaint on March 9, 1982.

The Corps prepared a Supplemental Information Report (SIR) for the reach of the Sac River between Stockton Dam and Caplinger Mills Dam and filed it with the Environmental Protection Agency (EPA) on July 2, 1982. The SIR reiterated the proposed Federal action as described in the FSES for the Sac River upstream of Caplinger Mills. That action includes:

1. Hydropower releases of 8,000 cfs for 6-hour durations;
 2. Construction of a channel cut-off and bridge at Horseshoe Bend;
- and
3. Acquisition of 1,337 acres in sloughing easement between Stockton Dam and Caplinger Mills Dam.

The acquisition of the sloughing easements and construction of the channel cutoff and bridge have been initiated. However, the 8,000 cfs hydropower releases will not commence until the Federal action proposed for the areas upstream and downstream of Caplinger Mills Dam are completed.

B. Purpose of This Report

This report was prepared to provide supplemental information to affected landowners, agencies and individuals who commented on the Draft and Final Supplemental EIS and to those who have requested that they be kept informed of events concerning the Sac River downstream of Stockton Dam.

This report provides additional information for the reach of the Sac River downstream of Caplinger Mills Dam (Mile 35.5) to near the mouth of the Sac River (Mile 0.54). The study area contains two reaches (A and B) as shown on Plate 1. The study area was divided at Highway W (Mile 26.9) because of the following factors:

1. Flooding due to hydropower releases was not expected to occur downstream of Highway W;
2. There is a United States Geological Survey (USGS) gauge located at Highway W from which river hydraulic data could be calculated; and
3. Fee and flowage easements were previously acquired from Highway W downstream to the mouth to compensate for the effects of Harry S. Truman Reservoir (HST). Most tracts were acquired to compensate for the combined effects of HST and Stockton Lake operations.

For clarification, Reach A is located upstream from Highway W (Plate 2), while Reach B is located downstream from Highway W (Plates 4 and 5). This division aids in identifying and defining the Federal action adopted to compensate landowners for the effects of Stockton Lake releases downstream of Caplinger Mills Dam.

C. Federal Action Proposed for the Area Downstream of Caplinger Mills Dam

While a continuous strip of land in sloughing easements is currently being acquired upstream of Caplinger Mills, hydrologic studies indicate that impacts to Reaches A and B downstream of Caplinger Mills do not warrant continuous acquisition. Therefore, isolated areas of potential erosion and loss of access due to flood control and hydropower releases were identified. Compensation is proposed by acquiring sloughing and perpetual flowage easements in these isolated areas between Caplinger Mills and the upstream limits of HST fee title acquisition at Sac River Mile 8.6. Plates 2, 3, and 4 indicate the areas proposed for acquisition and list the landowners affected.

Reach A: It has been tentatively determined that 88 acres may be affected by erosion in Reach A. Blocking for real estate purposes increases the land requirement for sloughing easement to approximately 121 acres in this reach. Approximately 8 of the 121 acres to be acquired in sloughing easement overlap areas identified near Cedar Creek which would also be acquired in perpetual flowage easement (see Plate 3). Approximately 46 acres would be acquired in perpetual flowage easement to compensate landowners for isolation and inundation of lands during hydropower releases in conjunction with high HST pool elevations (see Plate 3). Additionally, tributaries and oxbows will be filled with water during hydropower and flood control releases making

existing passage to adjacent lands impossible. The two farm equipment crossings identified on Plate 2 (FE-1 and FE-2) may also be similarly affected. Compensation for damages resulting from impairment of private access will be considered during the appraisal of easement tracts.

Reach B: Approximately 48 acres of sloughing easement are proposed to be acquired in Reach B as identified on Plates 2 and 4. Since Reach B is within the area of flowage easement and fee title acquisition for the HST project, no additional flowage easements are proposed to be acquired.

2. Prior Reports

The following Corps reports address project (Stockton Lake) and study area (Downstream of Caplinger Mills) resources, alternative actions, and impacts.

a. Design Memorandum No. 12, dated October 1975, Supplement I, Real Estate, Subject: Downstream Flooding:

b. Final Environmental Statement, Stockton Lake, Osage River Basin, Missouri, filed with CEQ on August 15, 1975;

c. Final Supplemental Environmental Statement, Stockton Lake, Sac River, Missouri, Proposed Solution for Downstream Flooding, filed with CEQ on December 14, 1976;

d. Supplemental Information Report, Proposed Solution for Downstream Flooding, Stockton Lake, Sac River, Missouri, filed with EPA on July 2, 1982; and

e. Design Memorandum No. 12 dated April 1985, Supplement J, Real Estate, Subject: Downstream Flooding - Caplinger Mills to Highway "W". Highway "W" to Sac River Mouth.

3. Study Area Resources

A. Physical

The Sac River valley downstream of Caplinger Mills is located in Cedar and St. Clair Counties, Missouri. The study area encompasses approximately 35 miles between Caplinger Mills at the upstream limit of the study area (Mile 35.5) to the mouth of the Sac River (Mile 0.54). Resources in this reach of the Sac River are similar to resources upstream of Caplinger Mills; however, they are not impacted by hydropower releases to the same extent as those in upstream areas.

1. Land Resources

Land use in the study area is primarily agricultural with crop and pasture land extending to the riverbank in many locations. In some areas narrow bands of timber occupy sites near the river or occur in wooded tracts away from the watercourse. Major riparian overstory species include sycamore,

cottonwood, elm, hackberry, willow, soft maple and ash. Osage orange, hickory, and oak are also present in those higher elevations isolated from frequent inundation. Some riparian timber located on lands along the outside bends of the river has been lost as a result of bank sloughing and erosion.

Riverbank stability in the study corridor is affected by various factors, those occurring naturally and those induced. These factors include flowing water, freeze and thaw cycles, drying and chemical changes in the soil and water and farming practices. Studies of the rate of bankline movement from 1973 to date have shown that the average rate of erosion is equivalent to the rate of bankline movement for the period between 1938 and 1967. The earlier period was prior to streamflow regulation and hydropower releases from the Stockton project. Hydropower releases from Stockton Dam have contributed to the denuding of some river banks and a change in the appearance of the Sac River channel in isolated locations. However, because of the many variables involved, it is impossible to differentiate the induced from natural influences on this process.

2. Water Resources

Discharge and water quality in the study area are determined primarily by releases from Stockton Dam. However, from the Sac River confluence with the Osage River upstream to Highway W, HST floodpool elevations also combine with Stockton releases to influence water resource characteristics. During the 10-year period of record (1974-1984), the average discharge of the Sac River was 1,342 cfs at the USGS gauging station (Caplinger Mills Station) located at Highway W. The maximum discharge for the period of record was 17,900 cfs which occurred on November 4, 1974 and corresponds to a gauge height of 25.99 feet. The minimum daily discharge of 48 cfs occurred on September 13, 1976.

Cedar Creek, a major tributary of the Sac River (Mile 29) within the study area, has been identified by the National Park Service in the Nationwide Rivers Inventory (NPS 1982) as a significant free flowing river. Values included under this designation are scenery, recreation, and fishing. Cedar Creek is further described as a highly scenic Ozark/Prairie transitional stream. The USGS gauging station on Cedar Creek (Pleasant View Station) located approximately 5.8 miles upstream from the confluence of Cedar Creek and the Sac River indicates an average discharge of 300 cfs for a 39-year period of record (1948 to 1984). The maximum discharge for this period of record was 33,900 cfs which occurred on July 17, 1958. No flow conditions were observed many times during the period of record. The Missouri Department of Natural Resources (DNR) has designated both the Sac and Cedar Rivers as Class P streams. These streams are to be protected for livestock and wildlife (watering), boating and body contact recreational uses (DNR 1981).

During early operation of Stockton Dam (1970 to 1973), it was determined that dissolved oxygen levels in lake releases were low. In 1973, a skimming weir was installed in Stockton Lake to correct this problem. The operation of this weir resulted in the taking of oxygenated surface water for release to downstream areas. To monitor impacts on the downstream reach during releases, the Corps established water quality stations on the Sac River at Highway W and Highway 54. Results of the study indicate that releases low

in oxygen would not have been a problem downstream from Caplinger Mills Dam. Releases did result in an increase in turbidity and suspended solids over non-release conditions, but the degree of increase was not as great as that upstream from Caplinger Mills. Other downstream chemical conditions were not substantially different from those observed upstream of Caplinger Mills Dam.

B. Biological

1. Terrestrial

The bottomlands along the Sac River downstream of Caplinger Mills Dam provide habitat for numerous species of songbirds and some resident game birds (wild turkey, northern bobwhite, and wood duck). Riparian timber and cropfields within the floodplain along with adjacent upland hardwoods provide habitat requirements for wild turkey and northern bobwhites. Wood ducks prefer slow moving permanent water containing aquatic invertebrates and emergent vegetation. Hardwood timber is also an important component of the wood duck habitat both for mast production (especially acorns) and for nesting. The tributaries and oxbows of the Sac River provide these types of habitat and are more important to the wood duck than the main Sac River channel. Small mammals found in bottomland habitats in this area include raccoon, skunk, opossum, cottontail, and various rodents. White-tailed deer are the principal large game species found in the area. Reptiles and amphibians occurring within the area include the common snapping turtle, northern water snake, green frog, southern leopard frog, and bullfrog.

2. Aquatic

The aquatic ecosystem in the river reach downstream of Caplinger Mills Dam is influenced by the hydraulic regime governed by Stockton Dam releases and HST flood pool elevations. Caplinger Mills Dam is 16 river miles downstream of Stockton Dam, consequently the impact of Stockton Dam releases is not as pronounced in the area downstream of Caplinger Mills Dam as for the reach of the Sac River upstream of Caplinger Mills Dam. Additionally, Cedar Creek appears to influence the aquatic resources of the study area. Data from benthic sampling conducted in 1975 indicated that pollution sensitive mayflies (Hexagenia sp.), riffle beetles (Stenelmis sp.), and caddisflies (Cheumatopsyche sp.), were represented in Reach A, upstream of Cedar Creek, while species diversity was reduced downstream of the confluence, presumably by an increased sediment load from Cedar Creek. In Reach B, aquatic diversity improved, but density was reduced by influences stemming from HST backwater conditions. Prevalent fish species in the Sac River downstream of Caplinger Mills Dam include spotted bass, black redhorse, golden redhorse, longear sunfish, green sunfish, bluegill, gizzard shad, paddlefish, flathead catfish, channel catfish, walleye, and numerous minnows. The spotted sucker, (identified by the National Park Service in the Nationwide Rivers Inventory as a unique fish species inhabiting Cedar Creek) is not prevalent in other area streams, but is common throughout the low lands of Southeast Missouri and in scattered locations in the Ozarks and Prairie Regions (Pflieger, 1975). The spotted sucker is not a Federal or state listed endangered or threatened species.

The U.S. Fish and Wildlife Service recently added the Niangua darter (*Etheostoma nianguae*) to its threatened species list, under the authority contained in the Endangered Species Act of 1973, as amended. (See Federal Register Vol. 50, No. 113, pages 24649-54, June 12, 1985). A portion of Brush Creek, a tributary to the Sac River, was designated as critical habitat for the Niangua darter. However, neither the Government acquisition of the real estate interests along the Sac River between the Stockton Lake Dam and the upper reaches of the Harry S. Truman Reservoir nor the operation of these two Corps projects will affect this species or its critical habitat.

C. Cultural Resources

The Sac River Valley has been inhabited at least since the Dalton period (ca 8,500 to 10,500 years ago). Occupation of the area has been more or less continuous since this time. Dalton, Middle Archaic, Late Archaic and Woodland periods are all represented as evidenced by materials collected from past surveys. In the 10,000 years of prehistoric use, the manner in which the river bottoms were occupied has varied. Not much is known about occupation in the Dalton period, but in the Middle Archaic period, camps were established in the bottoms. During the Late Archaic period, sites were located near the river or at the bases of bluffs. In the Woodland period, large base camps or hamlets were established. In prehistoric times, this area was widely used primarily for food procurement and hunting activities.

Reach A: There has been no systematic cultural resource survey performed along the Sac River between Caplinger Mills and Highway W. A survey will be initiated when funds become available and rights-of-entry are obtained. If surveys indicate that a cultural resource is being impacted or threatened as a result of hydropower releases from Stockton Dam, the resource will be evaluated for significance and impacts mitigated as required. All efforts will be coordinated with the Missouri State Historic Preservation Officer and in the case of a National Register site, with the Advisory Council on Historic Preservation.

Reach B: Portions of Reach B were investigated for cultural resources as part of a survey conducted on the flowage easement and fee lands for the HST project. A literature search was performed to identify known archeological sites within the HST fee and easement lands. A field reconnaissance was conducted on 10 percent of the HST easement areas and an archeological survey was performed on 36 percent of the HST fee lands. A total of nineteen archeological sites were identified in the vicinity of the Sac River in Reach B by these investigations. These sites are located on the floodplain, terraces and high bluffs adjacent to the river but in areas which are outside of the proposed sloughing easements. A cultural resources survey has not yet been performed in the proposed sloughing easement areas, but survey and testing will be accomplished as soon as funds become available and rights-of-entry are obtained. Impacts to significant sites will be mitigated as required.

4. Environmental Effects

A. General

Environmental effects of Stockton releases primarily occur in Reach A of the study area but will also have a minor impact in the area of HST floodpool influence (Reach B). Federal actions in Reach B (acquisition of 48 acres in sloughing easement) will expand the existing government interests acquired for the HST project on the Sac River. Stockton releases will result in the following study reach impacts.

Increased level and frequency of high water in the Sac River, tributaries, and oxbows;

Increased erosion in isolated areas; and

Increased groundwater table height.

B. Physical

Average water velocity in the Sac River will increase as the level and frequency of high water increases. The increased velocities and water level fluctuation will result in isolated areas of riverbank erosion. This erosion will result in additional suspended matter in the water column and increase sedimentation in slackwater areas.

Agricultural uses of land in the Sac River valley will be impacted by the erosion and periodic flooding in the tributaries and oxbows. Erosion could potentially impact the land within tracts identified on Plates 2 and 4 for sloughing easement acquisition. Additionally, tracts identified on Plate 2 will be isolated and partially inundated, necessitating acquisition of 46 acres in perpetual flowage easement. Hydropower releases will increase the water surface in those tributaries and oxbows, requiring alternative measures for landowner access. If raising or relocating accesses are undertaken by landowners independent of the Federal government, the action could require a Department of the Army Permit and should be coordinated with the Regulatory Functions personnel in the Kansas City District office.

C. Biological

The Stockton Lake releases will contribute to losses of riparian vegetation and induce minor changes in aquatic species composition. Localized impacts to terrestrial and aquatic resources could result if landowners build or raise farm equipment crossings.

1. Terrestrial

Frequent inundation by hydropower releases in the tributaries and oxbows will result in the eventual loss of riparian overstory and understory vegetation. Loss of this riparian cover will reduce available wildlife habitat and tend to increase the rate of erosion along the bankline. In addition to the direct effects of inundation, an increase in the water table

height of bordering areas will result in changes in the vegetation species composition. Vegetation less tolerant to root collar inundation (oak, hickory, elm, osage orange, and hackberry) will be replaced by the more water tolerant willow, ash, soft maple, and cottonwood species in those areas where the water table is at or near the land surface. In sites where changes to the water table are less pronounced, ash, soft maple, and sycamore will succeed the less tolerant species. If construction is required to relocate, establish or raise farm equipment accesses, localized impacts to vegetation could also occur.

2. Aquatic

Increased suspended particulates in the Sac River will reduce success of those sight feeding fish that inhabit the river (spotted bass, longear and green sunfish, walleye, and bluegill) while particulate deposition could adversely affect both benthic fauna and fish spawning by smothering organisms and covering the gravel rock substrate with fine particles. However, the action proposed in this report will not adversely affect the Niangua darter or its critical habitat. Additional impacts to the aquatic resources could occur if landowners need to construct accesses over tributaries and oxbows. These impacts could consist of loss of vegetation and an increase in suspended particulates in the water column. Such impacts will be minor and short term.

D. Cultural Resources

1. Reach A

It is known that there are archeological sites located on the floodplains and low terraces of the Sac River, however, not all of these sites are likely to be significant. Significance can only be determined by the testing of each site. Releases could adversely impact archeological sites subject to frequent inundation and erosion. Sites located on banks could be lost as a result of bank sloughing. If upon completion of survey and testing, archeological sites are found which are determined significant, appropriate coordination will be undertaken with the Missouri State Historic Preservation Officer and Advisory Council on Historic Preservation for the mitigation and/or protection of the sites. If located archeological sites are not significant, mitigation will not be required.

2. Reach B

There have been no known archeological sites (see paragraph 3C) within the proposed sloughing easement areas, but there are two sites identified in the vicinity. Due to the high frequency of sites located within the small area surveyed during HST investigations, it is predicted that sites will be located within the proposed easement acquisition areas and could be subjected to impact by sloughing. Adverse impacts could occur to the sites if they are subject to inundation, erosion or undercutting. All proposed sloughing easement areas will be surveyed to identify potential sites and determine significance prior to implementation of the proposed action. Coordination will be undertaken with appropriate state and Federal agencies for this action.

5. Coordination

The project and its operational alternatives have been extensively coordinated during previous NEPA documentation and through litigation. An information packet was prepared and distributed to all affected landowners within Reaches A and B of the study area on October 9, 1984. In addition its availability to any interested party was made known by placing public notices in local newspapers. Concerns and issues identified during this public involvement effort are included in Appendix A to this report.

6. Conclusions

The environmental effects of operating Stockton Lake and alternatives to ameliorate these effects were considered in the FES and FSES prepared for the project in 1975 and 1976. The FES and FSES were subsequently litigated in the US District Court (State of Missouri vs Department of the Army, Corps of Engineers, 526 F Supp. 660 (W. D. Mo 1980)) and in the US Court of Appeals, Eighth Circuit.

The District Court held that the Environmental Impact Statements (FES and FSES) adequately assessed the effects of the proposed compromise operation on the portion of the river downstream of Stockton Dam and properly evaluated alternative solutions. Further, it was the District Court's view that these environmental impact statements were sufficient to advise the District Engineer of adverse effects downstream of Caplinger Mills and were adequate with respect to this study area.

On March 9, 1982, the US Court of Appeals affirmed the District Court's decision. This SIR should be attached to the FES, FSES and SIR previously prepared for Stockton Lake, Sac River, Missouri. No administrative waiting period is required for this report and the actions proposed will be implemented immediately upon approval by higher authority and appropriation of funds.

LITERATURE CITED

Pflieger, W. L., 1975. The Fishes of Missouri. Missouri Department of Conservation. 336 pp.

Department of Natural Resources. 1981. Water Quality Standards. 10 CSR 20-7.031.

National Park Service, US Department of Interior. 1982. The Nationwide Rivers Inventory.

US Geological Survey, US Department of Interior. 1985. Water Resources Data, Missouri, Water Year 1984.

Appendix A
(Public Involvement)

On October 9, 1984, over 125 copies of an information packet was distributed to all identified landowners in the study area as well as Federal and state agencies and other interested persons. This information packet described the Corps' proposed plan for the properties along the Sac River between Caplinger Mills Dam and HST project lands which are affected by Stockton Lake hydropower releases. The Corps requested comments on the proposed action. Three letters were received from area landowners. Two Congressional inquiries on behalf of one of those landowners were also received. One individual provided his comments on the proposed action to the Corps via the telephone. A summary of the comments received follows.

One landowner complained that lands were being eroded in excess of the acreages identified in the information packet. The Corps conducted a field survey of this property on January 30, 1985. It was determined that additional easements were required and the proposed plan has been changed to include this new area.

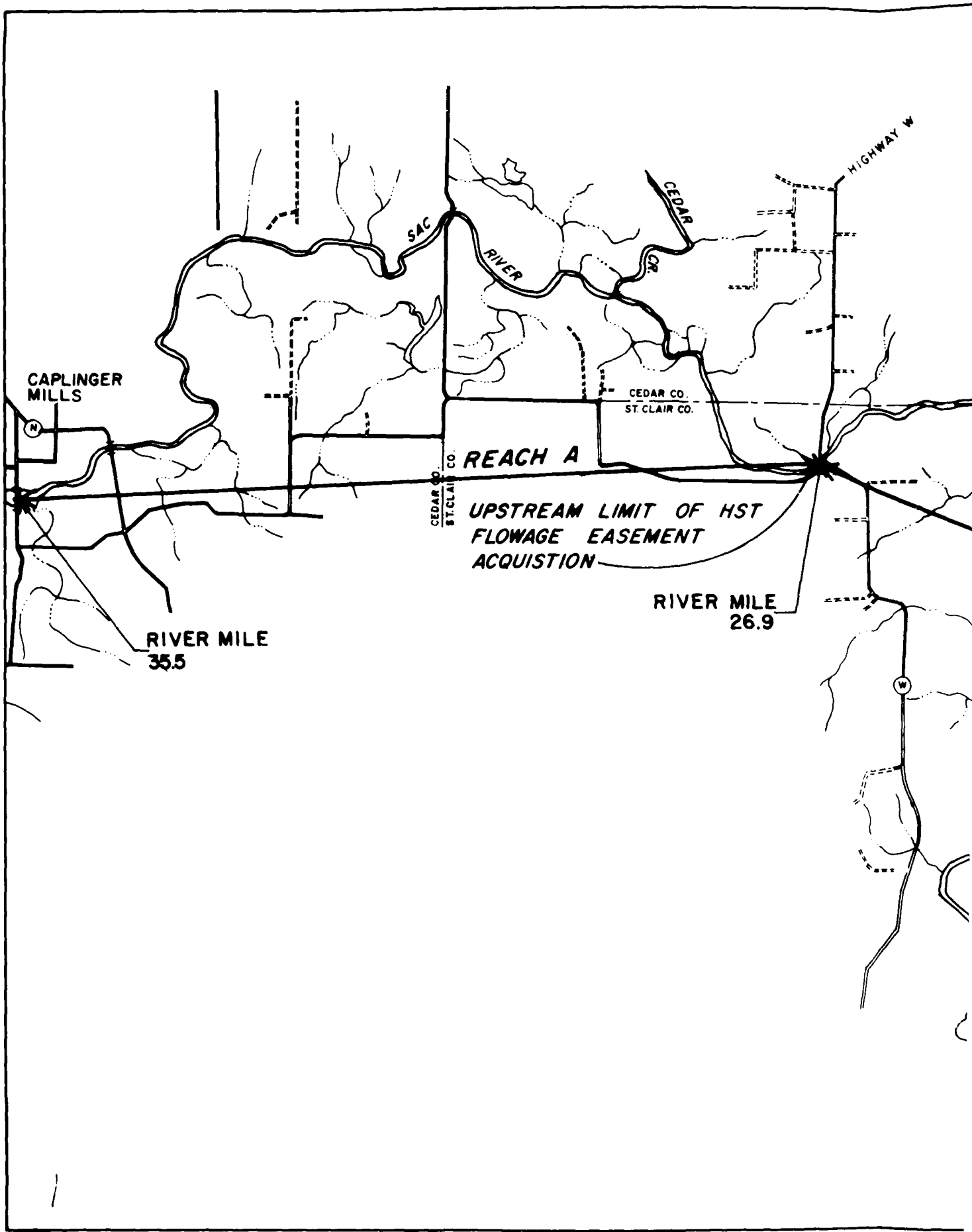
A second landowner wanted more detailed information concerning the boundaries of the proposed acquisition area. The Corps provided the requested information to the landowner.

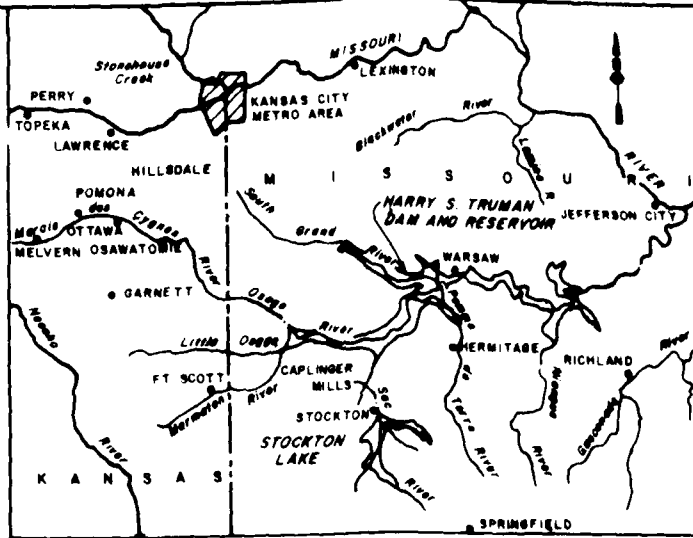
The third landowner, who has land in Reach B, was concerned that flooding on his lands is currently more frequent than originally anticipated due to HST Reservoir and that the increased flows from Stockton Lake, i.e., 8,000 cfs for a 6-hour duration, will prevent further farming operations on these easement lands. A field trip to the farm was taken by Corps personnel on January 10, 1985. Four out of the 5 years since Harry S. Truman Reservoir reached multipurpose pool elevation in November 1979, have been somewhat wetter than normal. The estimates of flood frequency and duration used by the Corps of Engineers for acquisition of easements from the landowner were based on a 38-year period of record beginning in 1940. This long period of record provides a more accurate description of the average frequency and duration of inundations in the Harry S. Truman flood pool area. Flood frequencies and durations based only on the brief period since 1978 would not be expected to coincide with those based on the total period of record. The Kansas City District continues to record the flow of the Osage and Sac Rivers and, periodically, uses the additional years of record to update the expected inflow to Harry S. Truman Reservoir in order to improve the accuracy of flood control and hydropower operating plans. This was last accomplished in 1984. The additional 5 years of record since 1977, even though 4 of these years were somewhat wetter than normal, did not materially change the estimated frequency and duration of flooding which was current at the time the hearing was held in 1982. Also the lands impacted were acquired in easement by condemnation for the HST project. Flowage easements were taken on those lands for impacts resulting from both HST and Stockton Lake projects.

A fourth landowner made his objections known to the Corps by telephone. He owns land in Reach A and stated that his land is actively eroding with the current Stockton Lake releases policy. He believes that increasing the discharges to 8,000 cfs for 6 hour durations will further impair his lands. A field trip to the area on January 9, 1985 revealed that additional easements on his property should be added to the proposed plan.

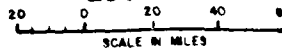
In summary, two of the landowners questioned whether the Corps would adequately compensate landowners for the potential damages that would occur to their land. One landowner requested additional information concerning the proposed acquisition boundaries while another objected that his land was not listed in the packet as property for which compensation for potential damages would be paid to the landowner.

Field surveys of these properties were conducted on January 9, 10, and January 30, 1985, to further investigate these claims.

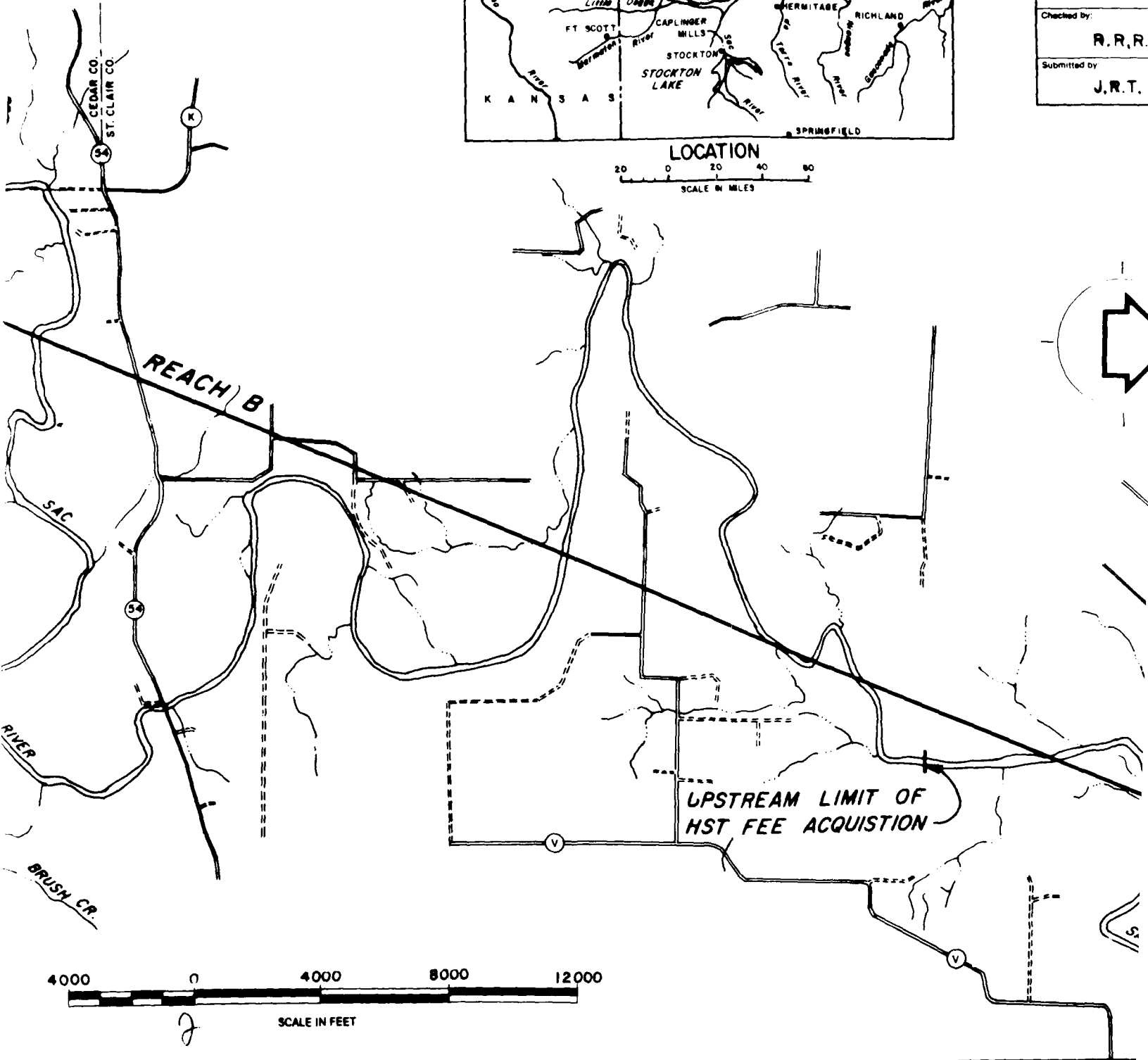


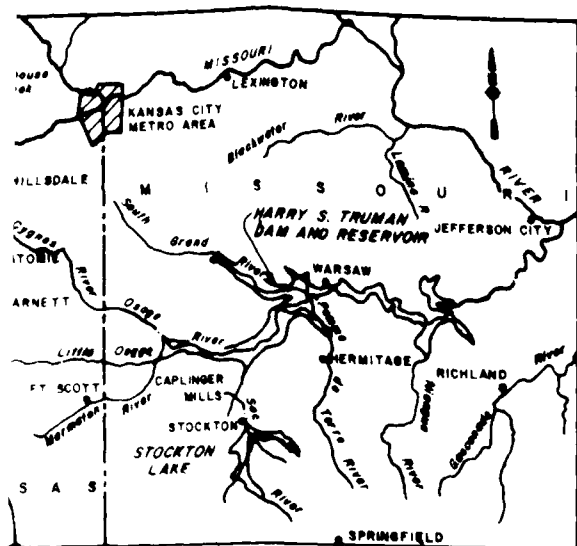


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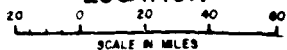



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Checked by	R.R.R.
Submitted by	J.R.T.

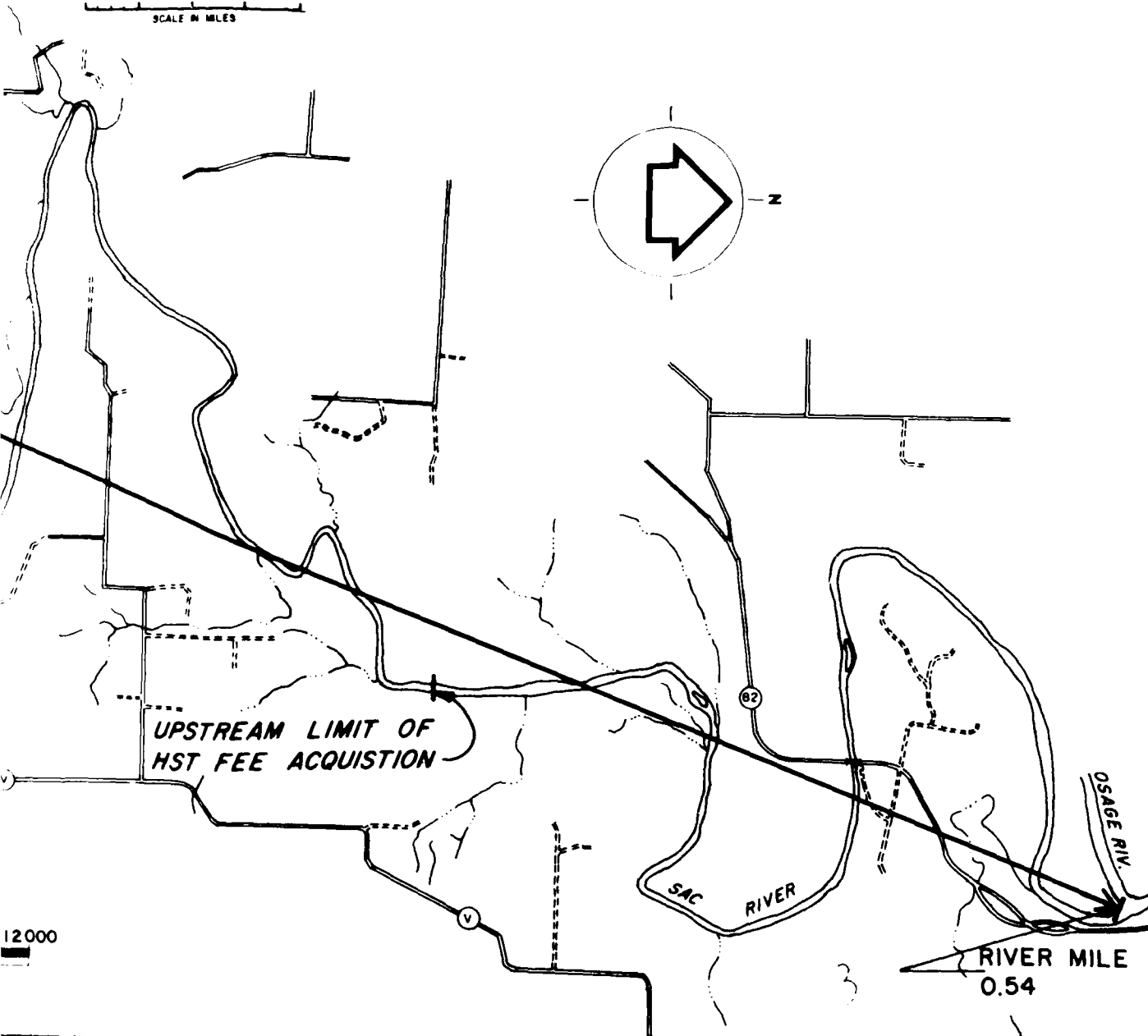




LOCATION



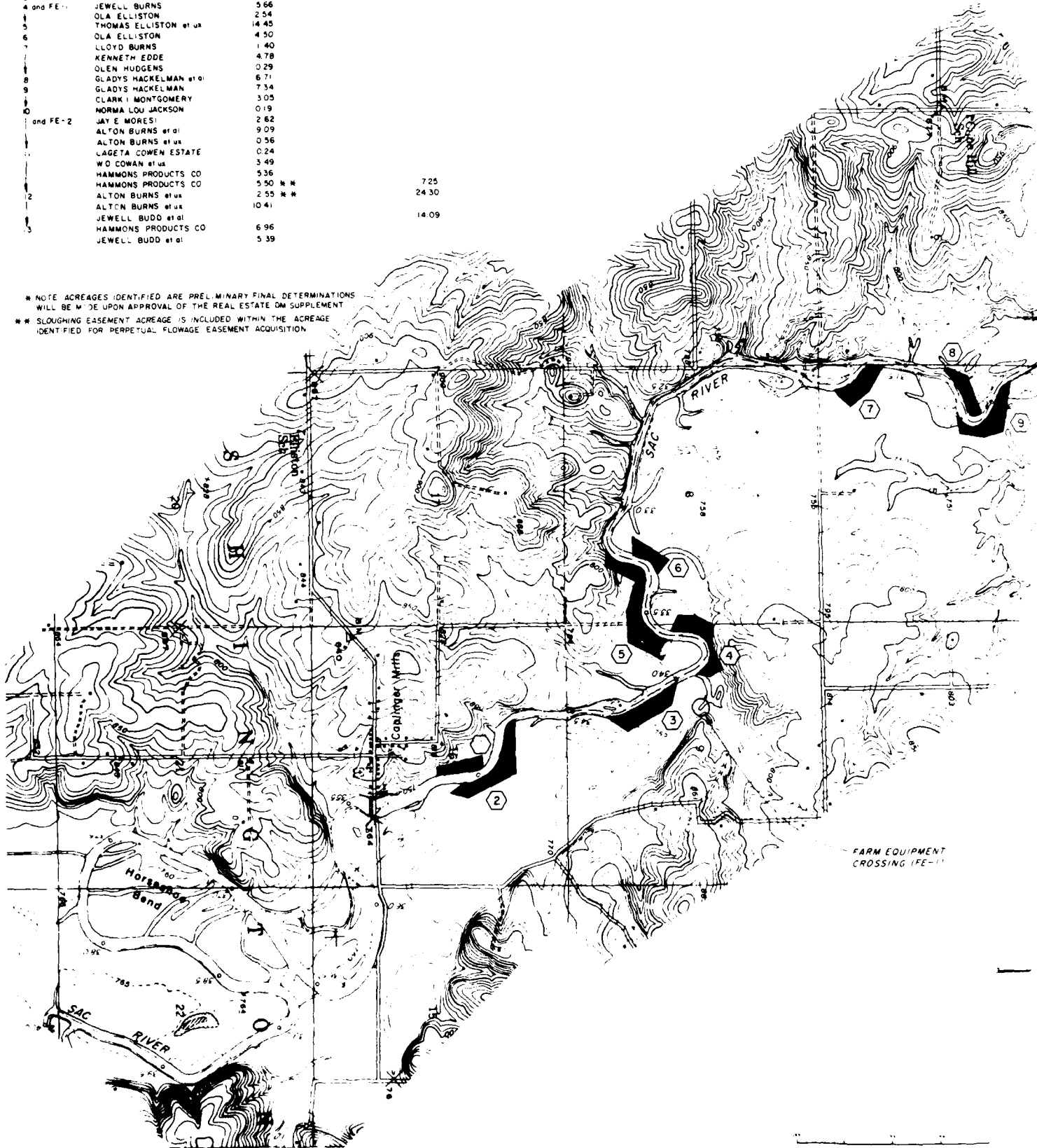
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	N.T.	 SAC RIVER, MISSOURI STOCKTON LAKE	
Drawn by:	M.L.K.	DOWNSTREAM CAPLINGER MILLS STUDY REACH OVERVIEW	
Checked by:	R.R.R.	Scale:	AS SHOWN
Submitted by:	J.R.T.	Date:	AUG. 1986
		Dwg. No.:	1
		File No.:	0-13-3212

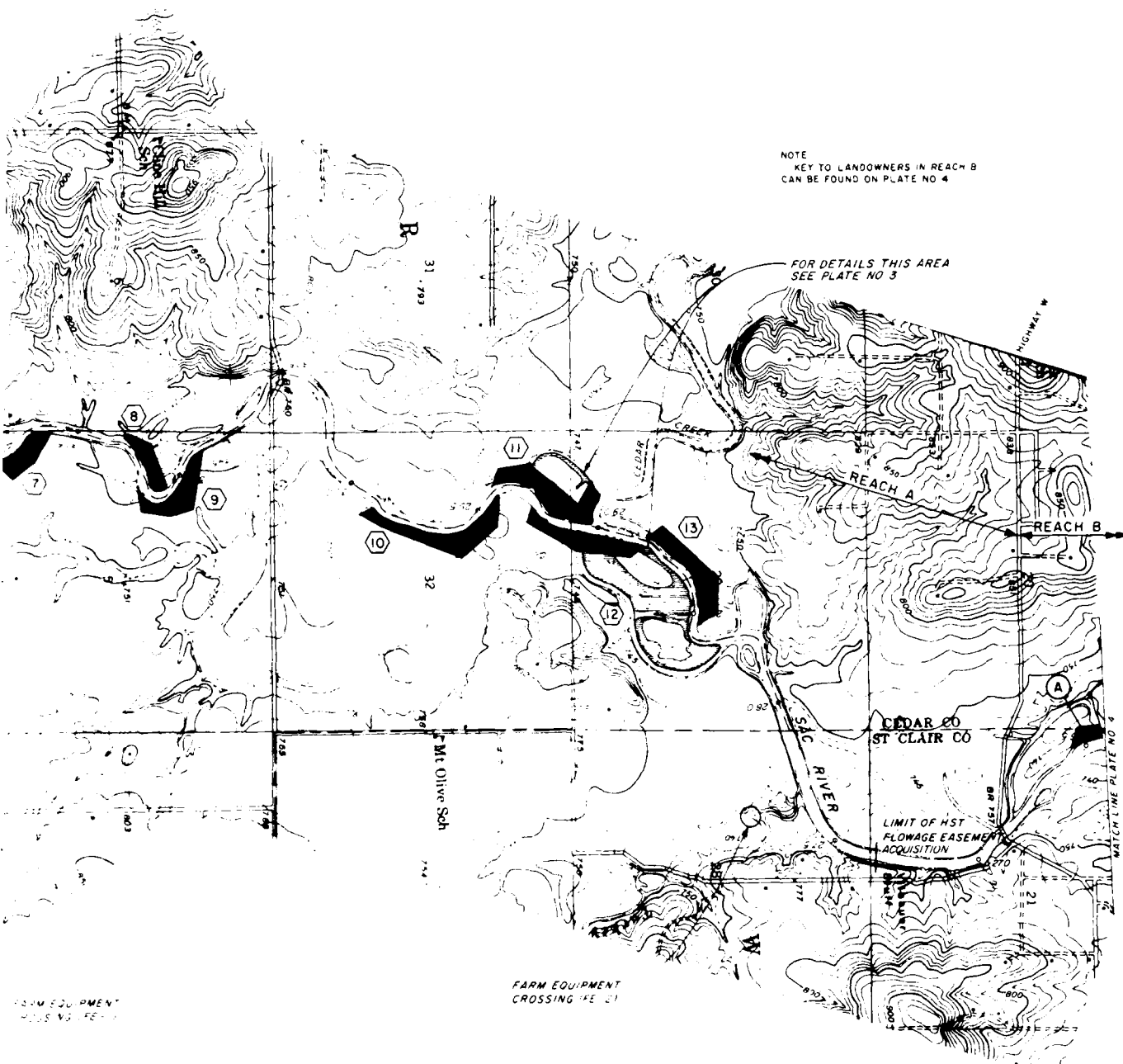


KEY TO LANDOWNERS IN REACH A

LOCATION	LANDOWNER	SLOUGHING EASEMENT (IN ACRES) *	PERPETUAL FLOWAGE EASEMENT (IN ACRES) *
1	JOHN HUBBARD	5.06	
2	SMITH FARMS	12.27	
3	SMITH FARMS	8.78	
4 and FE-1	JEWELL BURNS	5.66	
5	OLA ELLISTON	2.54	
6	THOMAS ELLISTON et ux	14.45	
7	OLA ELLISTON	4.50	
8	LLOYD BURNS	1.40	
9	KENNETH EDDE	4.78	
10	OLEN HUDGENS	0.29	
11	GLADYS HACKELMAN et al	6.71	
12	GLADYS HACKELMAN	7.54	
13	CLARK I. MONTGOMERY	3.05	
14	NORMA LOU JACKSON	0.19	
15 and FE-2	JAY E. MORES	2.62	
16	ALTON BURNS et al	9.09	
17	ALTON BURNS et ux	0.56	
18	LAGETA COWEN ESTATE	0.24	
19	W.D. COWAN et ux	3.49	
20	HAMMONS PRODUCTS CO	5.36	
21	HAMMONS PRODUCTS CO	5.50 **	7.25
22	ALTON BURNS et ux	2.55 **	24.30
23	ALTON BURNS et ux	10.41	
24	JEWELL BUDD et al		14.09
25	HAMMONS PRODUCTS CO	6.96	
26	JEWELL BUDD et al	5.39	

* NOTE: ACRES IDENTIFIED ARE PRELIMINARY FINAL DETERMINATIONS WILL BE MADE UPON APPROVAL OF THE REAL ESTATE COMMISSION
 ** SLOUGHING EASEMENT ACRES IS INCLUDED WITHIN THE ACRES IDENTIFIED FOR PERPETUAL FLOWAGE EASEMENT ACQUISITION





NOTE
KEY TO LANDOWNERS IN REACH B
CAN BE FOUND ON PLATE NO 4

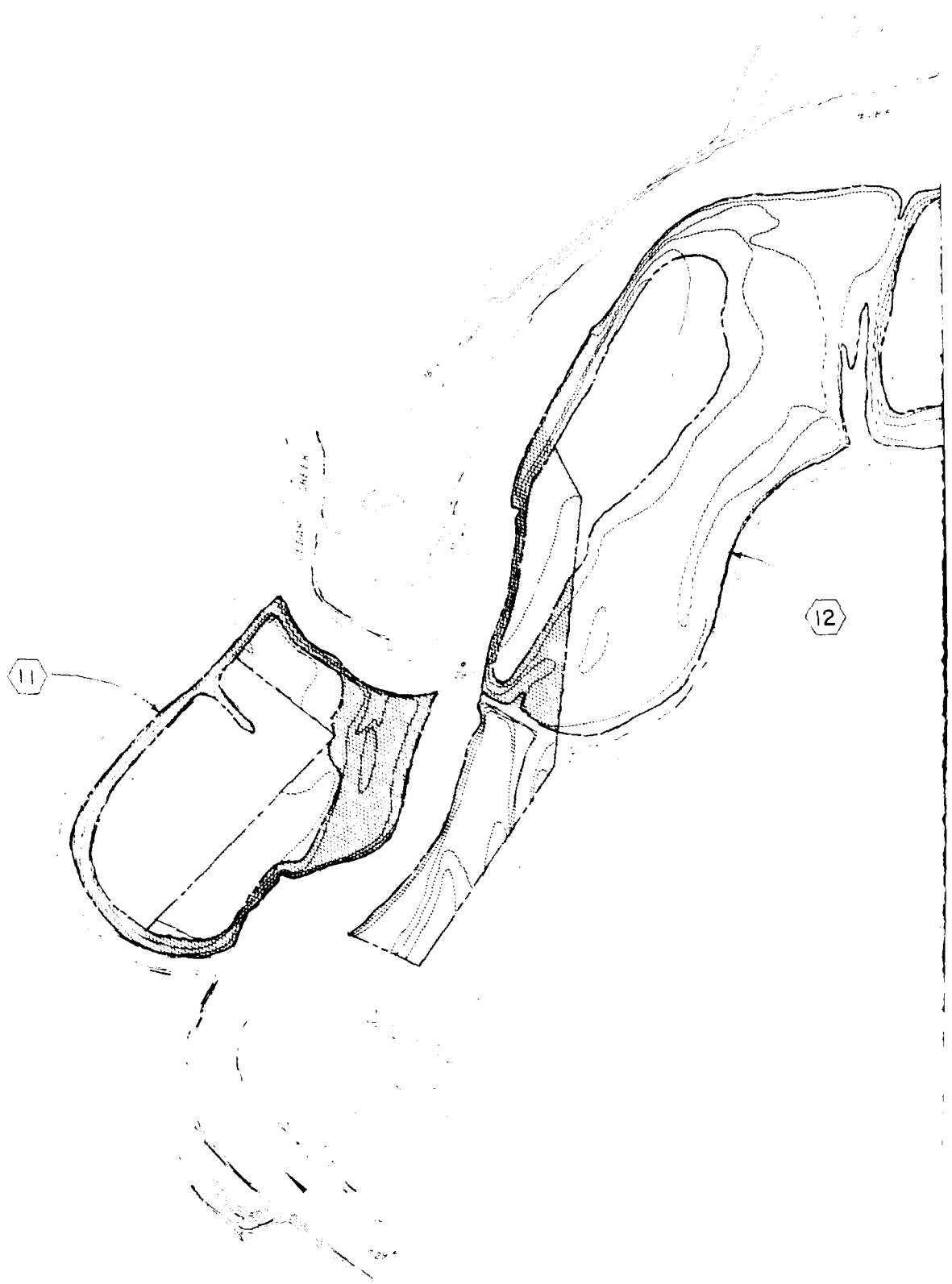
FOR DETAILS THIS AREA
SEE PLATE NO 3

FARM EQUIPMENT
CROSSING IFE 21

LEGEND

- KEY NUMBER TO LANDOWNER
- SLOUGHING EASEMENT ACQUISITION
- PERPETUAL FLOWAGE EASEMENT ACQUISITION

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by		SAC RIVER, MISSOURI STOCKTON LAKE	
Drawn by		DOWNSTREAM CAPLINGER MILLS REACH A - PROPOSED FEDERAL ACTION	
Checked by		Scale	AS SHOWN
Submitted by		Date	AUGUST 1985
		No.	2
			0-13-3214






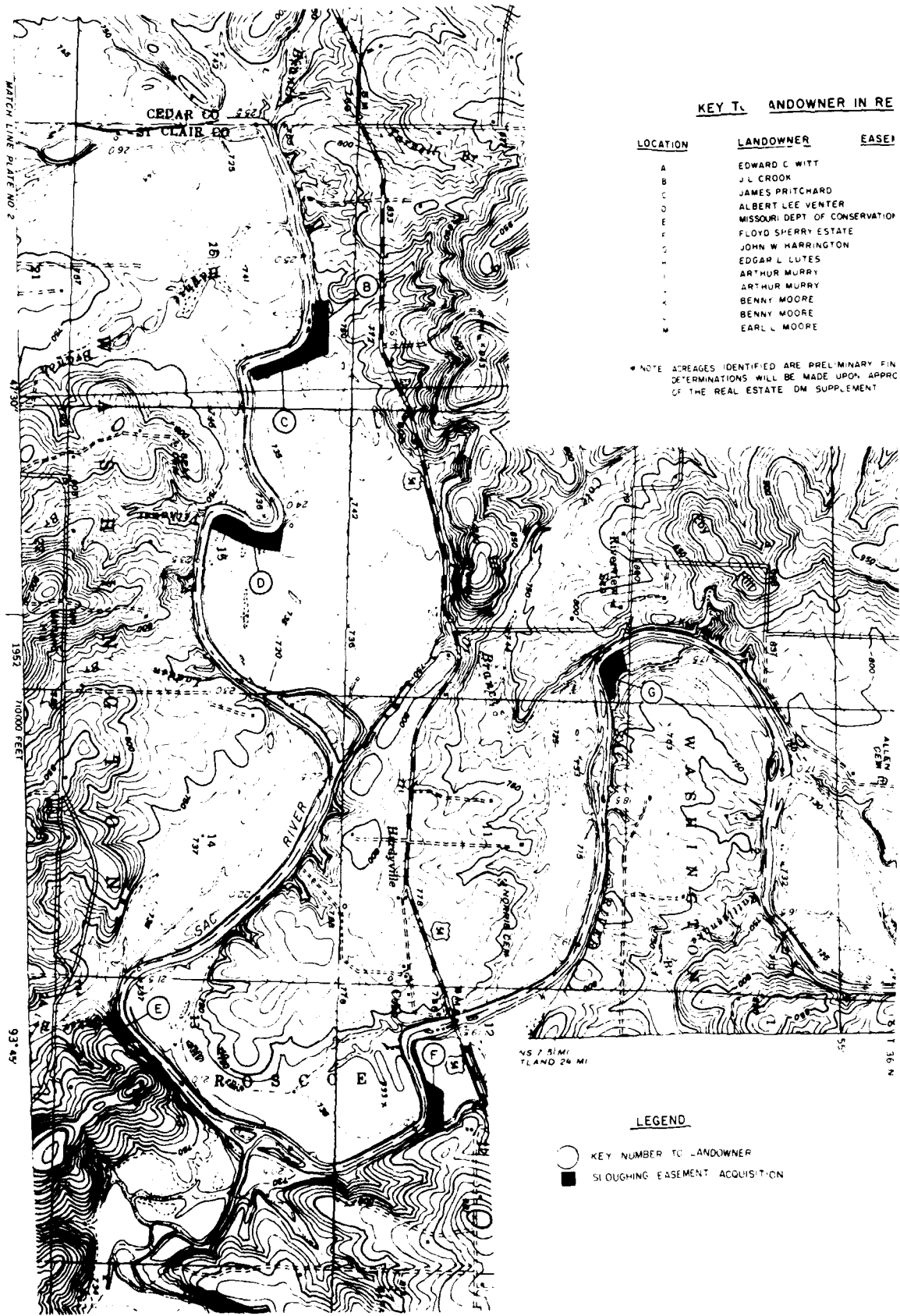
12

NOTE
FOR LOCATION, SEE PLATE NO. 2

LEGEND
 HATCHED AREA - EXISTING
 DASHED LINE - PROPOSED
 SOLID LINE - EXISTING
 DOTTED LINE - PROPOSED



Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
PROJECT:	SAC RIVER, MISSOURI STOCKTON LAKE		
TITLE:	 DOWNSTREAM CAPLINGER MILLS REACH A - ENLARGEMENT OF AREAS 10 AND 11 TO SHOW DETAIL		
SCALE:	AS SHOWN		
DATE:	AUGUST 1986		
BY:	3		
			O-13-3215



KEY TO LANDOWNER IN RE

LOCATION	LANDOWNER	EASE
A	EDWARD C WITT	
B	J L CROOK	
C	JAMES PRITCHARD	
D	ALBERT LEE VENTER	
E	MISSOURI DEPT OF CONSERVATION	
F	FLOYD SHERRY ESTATE	
G	JOHN W HARRINGTON	
H	EDGAR L LUTES	
I	ARTHUR MURRY	
J	ARTHUR MURRY	
K	BENNY MOORE	
L	BENNY MOORE	
M	EARL L MOORE	

* NOTE ACRES IDENTIFIED ARE PRELIMINARY FIN DETERMINATIONS WILL BE MADE UPON APPROX OF THE REAL ESTATE DM SUPPLEMENT

LEGEND

- KEY NUMBER TO LANDOWNER
- SLOUGHING EASEMENT ACQUISITION

MATCH LINE PLATE NO 2

1952 10000 FEET

93 49

NS 7 31 MI.
TLAND 24 MI

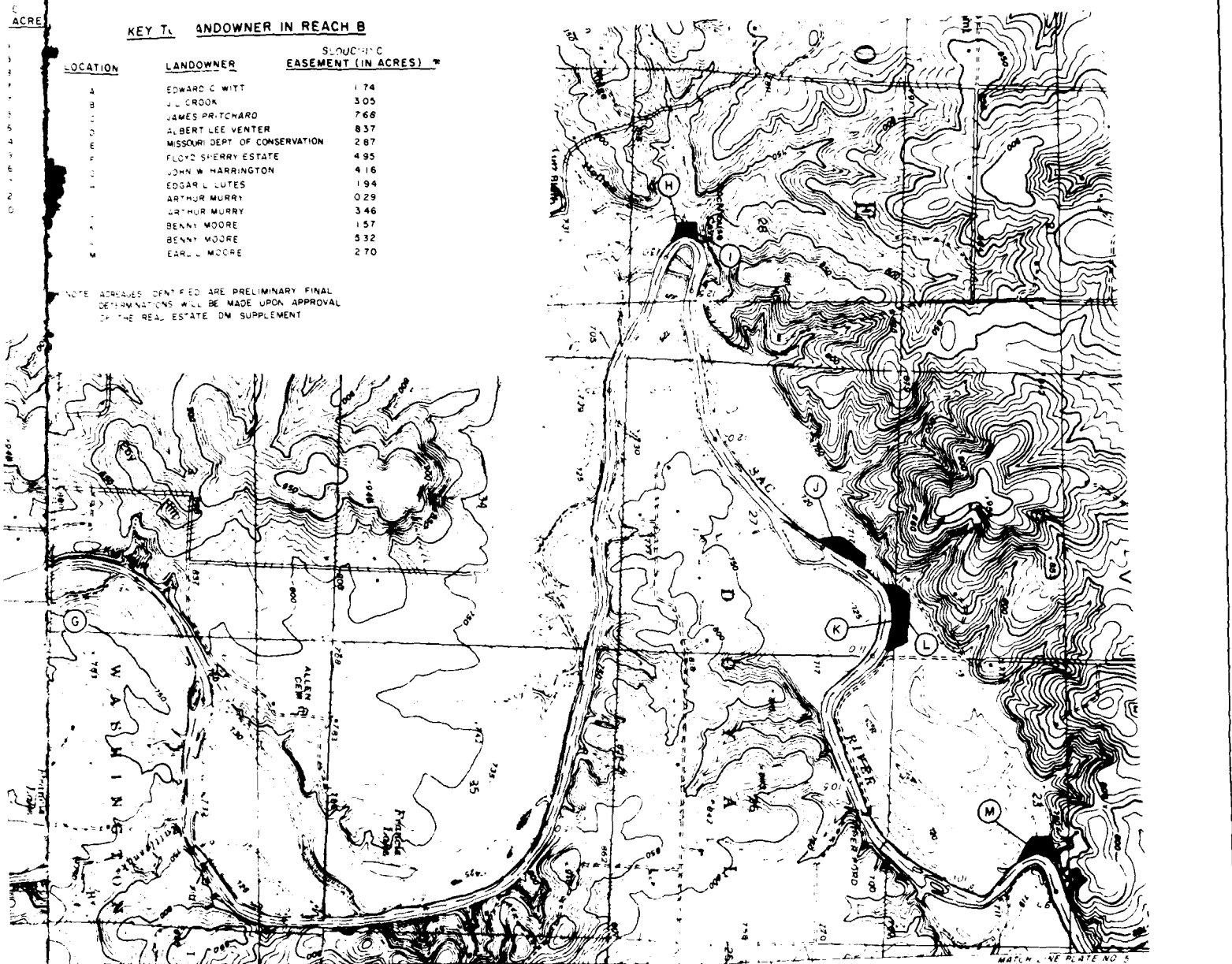
ALLEN CO
CEM
1 36 N

ACRE

KEY TO ANDOWNER IN REACH B

LOCATION	LANDOWNER	SLOUGH/C EASEMENT (IN ACRES)
A	EDWARD C WITT	1.74
B	J. L. CROOK	3.05
C	JAMES PRITCHARD	7.68
D	ALBERT LEE VENTER	8.37
E	MISSOURI DEPT OF CONSERVATION	2.87
F	FLOYD SHERRY ESTATE	4.95
G	JOHN W HARRINGTON	4.16
H	EDGAR C LUTES	1.94
I	ARTHUR MURRY	0.29
J	ARTHUR MURRY	3.46
K	BENNY MOORE	1.57
L	BENNY MOORE	5.32
M	EARL L MOORE	2.70

NOTE: AREAS IDENTIFIED ARE PRELIMINARY FINAL DETERMINATIONS WILL BE MADE UPON APPROVAL OF THE REAL ESTATE DOCUMENT



LEGEND

OWNER
EASEMENT AND SLUICH



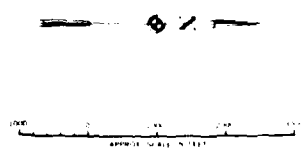
Symbol	Revisions	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY MISSOURI				
Designed by	V. V.	SAC RIVER MISSOURI STOCKTON LAKE		
Drawn by	M. L. P.	DOWNSTREAM CAPLINGER MILLS REACH B-PROPOSED FEDERAL ACTION		
Checked by	R. R. R.	AS SHOWN		
Submitted by	L. H. T.	AUGUST 1986		
Sheet No.	4			O-13 3216




UPSTREAM LIMIT OF HST
FEE ACQUISITION

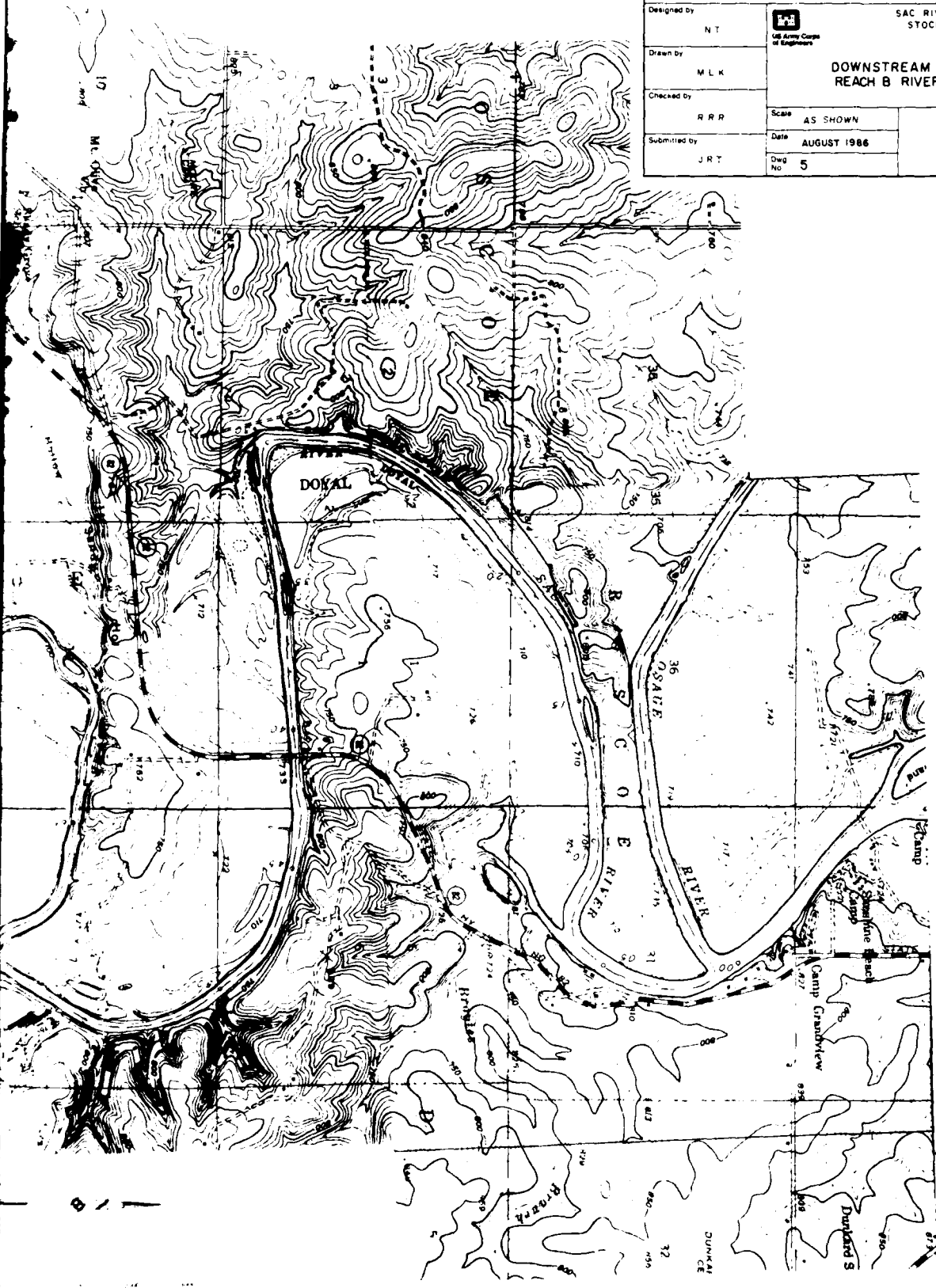
DOVAL

R



APPROXIMATE SCALE

Revisions			
Symbol	Descriptions	Date	Approved
U S ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	NT	 SAC RIVER, MISSOURI STOCKTON LAKE	
Drawn by	MLK	DOWNSTREAM CAPLINGER MILLS REACH B RIVER MILE 9 TO MOUTH	
Checked by	RRR		
Submitted by	JRT	Scale	AS SHOWN
		Date	AUGUST 1986
		Dwg No	5
		File No	O-13-3217



DATE
FILMED
= 8