

ARKANSAS RIVER WATERSHED
DARDANELLE DAM AND LAKE

McCLELLAN - KERR ARKANSAS RIVER
NAVIGATION SYSTEM

DESIGN MEMORANDUM NO. 13-4

**UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
OF LAKE DARDANELLE**



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS
SEPTEMBER 1977

CESWL-OP

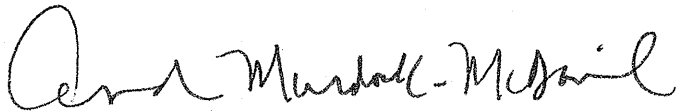
9 September 2010

MEMORANDUM FOR Operations Project Manager, Russellville Project Office

SUBJECT: Master Plan Supplement No.11, Disc Frisbee Course, Old Post Road Park, Lake Dardanelle

1. The purpose of this supplement is to revise the plan to install an 18 hole disc golf course utilizing existing topography, environmental features and support facilities within the day use area of Old Post Road Park. These changes will not interfere with other planned and designed park facilities. An Arc-view map is enclosed which shows the course layout and design.

2. Approved.



Andrea L. Murdock-McDaniel
Chief, Operations Division

Encl

LITTLE ROCK DISTRICT **ENVIRONMENTAL REVIEW FOR PROPOSED ACTIONS**

(This is a form document; push Tab to move from one field to another)

PURPOSE

TO PROVIDE A DECISION-MAKING TOOL FOR INITIATING A PROPOSED ACTION.

APPLICABILITY

ALL PROPOSED ACTIONS (PROJECTS AND PROGRAMS) WITH THE POTENTIAL TO IMPACT THE ENVIRONMENT.

TIMING

TO BE CARRIED OUT FROM THE EARLIEST OF PLANNING STUDIES OR INITIATION FOR THE ACTION IN QUESTION.

PROJECT NAME:

Old Post Road Park Disc Golf Course (Max. 95 spaces)

PURPOSE AND NEED FOR ACTION.

The Challenge Cost-Share Agreement between the US Army Corps of Engineers and River Valley DISC Golf Association will provide 18 hole disc golf course for public use. (Max. 180 spaces)

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES.

Install an 18 hole Disc Golf course utilizing existing topography, environmental feature and support facilities within the day use area of Old Post Road Park. The proposed fairways are to be established without modification of the existing landscape therefore no removal of mature trees is required. Minor excavation of topsoil is required to level and install the tee pads which are approximately five feet in width and ten feet in length. All necessary equipment and labor will be provided by the partner. Long term maintenance of the equipment will be the responsibility of the partner and regularly inspected for serviceability and safety issues. (Max. 700 spaces)

PART A (SCREENING FOR CATEGORICAL EXCLUSIONS)

THE FOLLOWING ENVIRONMENTAL AGENCIES HAVE BEEN COORDINATED WITH BY EMAIL, TELEPHONE, FAX, OR OTHER MEANS TO DETERMINE IF ANY EXTRAORDINARY CIRCUMSTANCES EXISTS WITHIN THE SCOPE OF THE PROPOSED ACTION (Copies Of The Coordination Will Be Attached To This Document):

e The Russellville Project Office personnel reviewed their environmental resources files. It has been determined that the project area contained no resources of environmental significance (Max. 700 spaces)

A "FALSE" ANSWER TO ANY OF THE FOLLOWING INDICATES THAT AN ENVIRONMENTAL ASSESSMENT (EA) WILL NORMALLY BE PREPARED. IF THE ANSWER IS UNCERTAIN, PLEASE ATTACH AN EXPLANATION.

SCREENING CRITERIA FOR CATEGORICAL EXCLUSIONS

<u>True</u>	<u>False</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This action is not a major Federal action which has the potential to significantly affect the quality of the human environment.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	There are minimal or no individual or cumulative effects on the environment as a result of this action.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is no environmentally controversial change to existing environmental conditions.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	There are no extraordinary conditions associated with this project.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This project does not involve the use of unproven technology.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This project involves no greater scope or size than is normal for this category of action.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is no potential of an already poor environment being further degraded.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This action does not degrade an environment that remains close to its natural pristine condition.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	There are no threatened or endangered species (or critical habitat), significant archaeological resources, National Registered or National Register eligible historical sites, or other statutorily protected resources.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This action will not adversely affect prime or unique agricultural lands, wetlands, coastal zones, wilderness areas, aquifers, floodplains, wild and scenic rivers, fish and wildlife management lands, wildlife refuges, or other areas of critical environmental concern.

FINDINGS: IT HAS BEEN DETERMINED THAT THE ACTION:

☐ a. DOES NOT meet the Screening Criteria and DOES NOT qualify for a Categorical Exclusion in accordance with ER 200-2-2 dated 4 March 1988 (CX 230.9 (b)). **PROCEED TO PART C (**).**

☒ b. Meets the Screening Criteria and qualifies for a Categorical Exclusion in accordance with ER 200-2-2 dated 4 March 1988 (CX 230.9(b)).

NOTE: A CX DOES NOT EXEMPT AN ACTION FROM CONSIDERATION UNDER OTHER FEDERAL LAWS, REGULATIONS, AND PERMIT REQUIREMENTS (i.e. 404 permits, NPDES permits, etc.). REVIEW PART B FOR REQUIRED PERMITS FOR THE PROPOSED ACTION.

PLEASE CHECK THE APPROPRIATE CX:

- ☐ a. Activities at completed Corps projects which carry out the authorized project purposes. Examples include routine operation and maintenance actions, general administration, equipment purchases, custodial actions, erosion control, painting, repair, rehabilitation, replacement of existing structures and facilities such as buildings, roads, levees, groins and utilities, and installation of new buildings utilities, or roadways in developed areas.
- ☐ b. Minor maintenance dredging using existing disposal sites.
- ☐ c. Planning and technical studies which do not contain recommendations for authorization or funding for construction, but may recommend further study. This does not exclude consideration of environmental matters in the studies.
- ☒ d. All Operations and Maintenance grants, general plans, agreements, etc. necessary to carry out land use, development and other measures proposed in project authorization documents, project design memoranda, master plans, or reflected in the project NEPA documents.
- ☐ e. Real estate grants for use of excess or surplus real property.
- ☐ f. Real estate grants for Government-owned housing.
- ☐ g. Exchanges of excess real property and interests therein for property required for project purposes.
- ☐ h. Real estate grants for rights-of-way which involve only minor disturbances to earth, air, or water:
 - ☐ (1) Minor access roads, streets and boat ramps.
 - ☐ (2) Minor utility distribution and collection lines, including irrigation.
 - ☐ (3) Removal of sand, gravel, rock, and other material from existing borrow areas.
 - ☐ (4) Oil and gas seismic and gravity meter survey for exploration purposes.
- ☐ i. Real estate grants of consent to use Government-owned easement areas.
- ☐ j. Real estate grants for archeological and historical investigations compatible with the Corps Historic Preservation Act responsibilities.
- ☐ k. Renewal and minor amendments of existing real estate grants evidencing authority to use Government-owned real property.
- ☐ l. Reporting excess real property to the General Services Administration for disposal.
- ☐ m. Boundary line agreements and disposal of lands or release of deed restrictions to cure encroachments.
- ☐ n. Disposal of excess easement interest to the underlying fee owner.
- ☐ o. Disposal of existing buildings and improvements for off-site removal.
- ☐ p. Sale of existing cottage site areas.
- ☐ q. Return of public domain lands to the Department of the Interior.
- ☐ r. Transfer and grants of lands to other Federal agencies.

PART B (REQUIRED PERMITS)

ALTHOUGH CATEGORICALLY EXCLUDED UNDER NEPA, THE FOLLOWING PERMITS ARE REQUIRED FOR THE PROPOSED ACTION (check all that apply):

- ☐ Section 404 (CWA) permit ☐ NPDES permit (incl SWPPP)
☐ Section 10 (R&HA) permit ☐ (other) _____

Signed: _____

Prepared by: _____

Title: _____

Date: _____

CONCUR

Signed: _____

Date: _____

Title: NEPA Specialist, Planning and Environmental Office

PART C (DETERMINATION OF APPROPRIATE NEPA DOCUMENTATION)

*A REVIEW OF THE PROPOSED ACTION ALONG WITH EXISTING NEPA DOCUMENTS COVERING SIMILAR ACTIONS INDICATES THAT: (Check all that apply)

☒ This document constitutes a Record of Environmental Consideration (REC) due to the fact that:

☒ The action qualifies as a categorical exclusion under ER 200-2-2 or AR 200-2-2. Appropriate permits may still be required.

☐ The proposed action is adequately covered in an existing EA and FONSI. Appropriate permits may still be required.

☐ The proposed action is adequately covered in a an existing EIS; or Supplement to an existing EIS. Appropriate permits may still be required.

EA or EIS title and date

_____ (if applicable)

(**))IF THE PROPOSED ACTION DOES NOT QUALIFY AS A CATEGORICAL EXCLUSION (CX) THEN CHECK ONE OF THE FOLLOWING:

☐ The proposed action requires the preparation of an EA.

☐ The proposed action requires the preparation of an EIS.

Signed: _____

Prepared by: _____

Title: _____

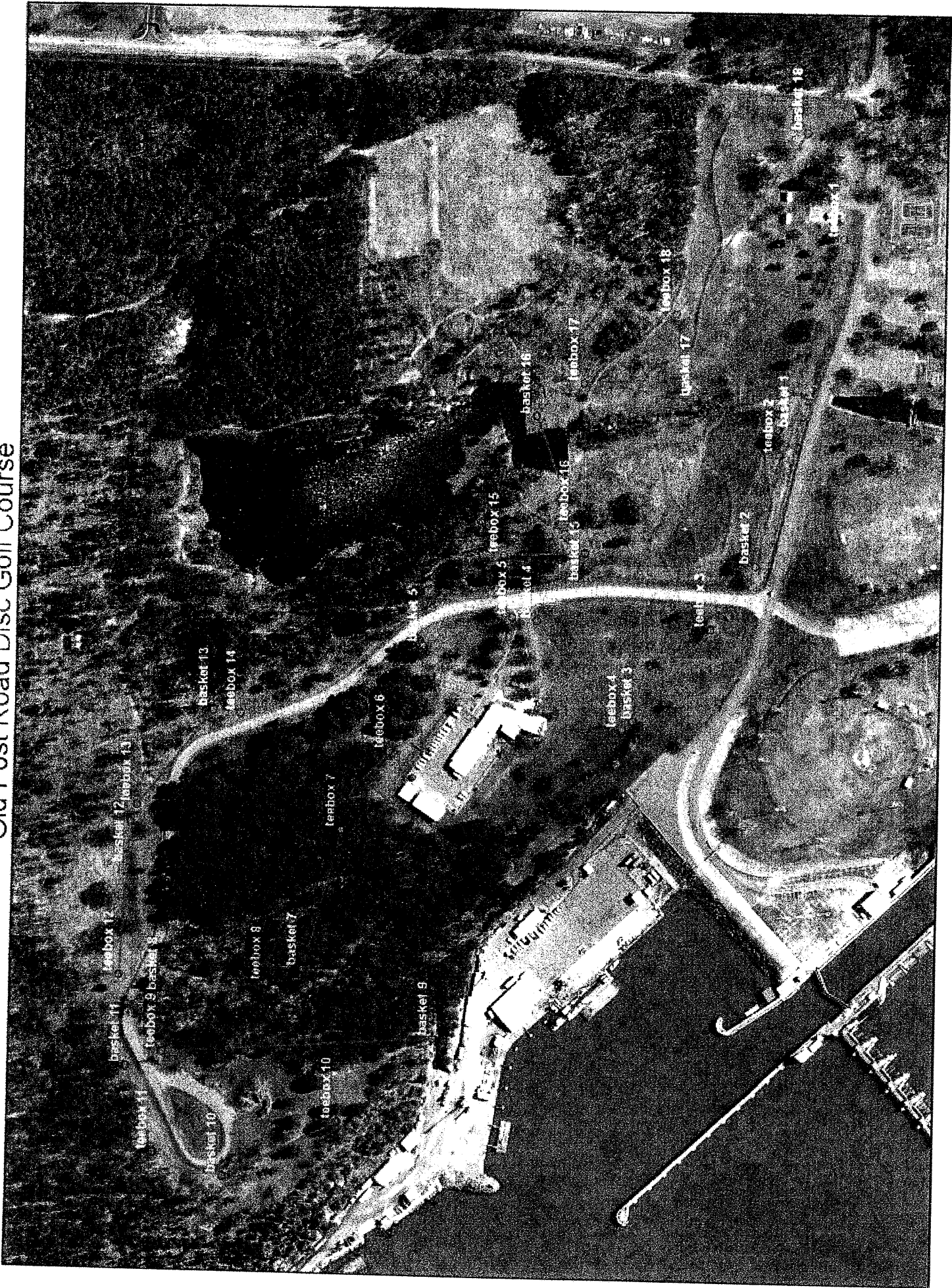
Date: _____

CONCUR

Signed: _____

Date: _____

Title: NEPA Specialist, Planning and Environmental Office

An aerial photograph of the Old Post Road Disc Golf Course. The course is marked with 18 numbered teepoints and baskets. The layout is as follows:
- Teepoint 1: Located at the top right, near a building.
- Teepoint 2: Located below Teepoint 1.
- Teepoint 3: Located to the left of Teepoint 2.
- Teepoint 4: Located to the left of Teepoint 3.
- Teepoint 5: Located to the left of Teepoint 4.
- Teepoint 6: Located to the left of Teepoint 5.
- Teepoint 7: Located to the left of Teepoint 6.
- Teepoint 8: Located to the left of Teepoint 7.
- Teepoint 9: Located to the left of Teepoint 8.
- Teepoint 10: Located to the left of Teepoint 9.
- Teepoint 11: Located to the left of Teepoint 10.
- Teepoint 12: Located to the left of Teepoint 11.
- Teepoint 13: Located to the left of Teepoint 12.
- Teepoint 14: Located to the left of Teepoint 13.
- Teepoint 15: Located to the left of Teepoint 14.
- Teepoint 16: Located to the left of Teepoint 15.
- Teepoint 17: Located to the left of Teepoint 16.
- Teepoint 18: Located to the left of Teepoint 17.
The course is surrounded by trees and a road. A building is visible in the upper right corner. The image is oriented horizontally on the page.

NRM
R

CESWD-ETO-R (CESWL-CO-ON/30 May 96) (1130) 1st End Mr.
McCauley/jj/7-2434

R6/18

SUBJECT: Supplement No. 10, Design Memorandum No.13-4, Dardanelle
Lake and Dam

CDR, U.S. Army Corps of Engineers, Southwestern Division, ATTN:

CESWD-ETO-R, 1114 Commerce Street, Dallas, TX 75242-0216 11 JUN 1996

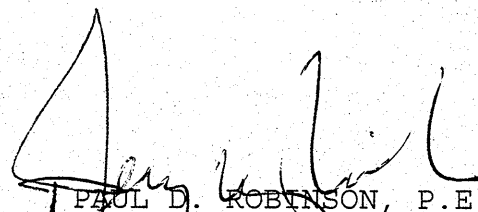
FOR Commander, Little Rock District, ATTN: CESWL-CO-ON

The subject supplement is approved subject to the following:

a. Revision of the site plan in the master plan to reflect
this change.

b. Revision of NRMS data. In this regard, contact Mike
Owen, national coordinator for the NRMS, CESWF-OD-M, (817) 334-
4637, for procedural guidance.

FOR THE COMMANDER:



PAUL D. ROBINSON, P.E.

Director, Engineering and
Technical Services Directorate

RECEIVED

JUN 17 1996

JOIV-OPS.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-ON (1130)

30 May 1996

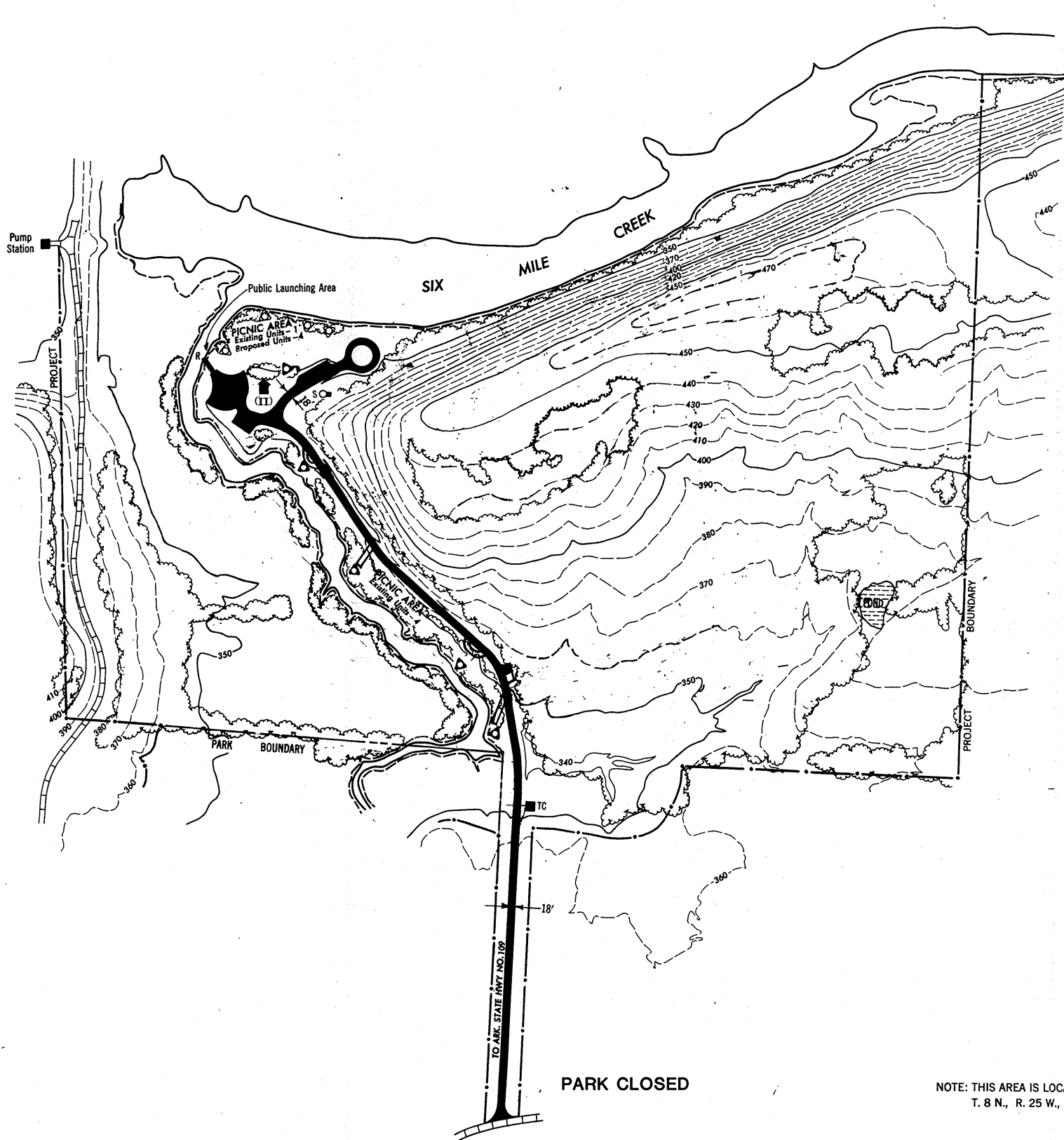
MEMORANDUM FOR Commander, Southwestern Division
ATTN: CESWD-R

SUBJECT: Supplement No. 10, Design Memorandum No. 13-4,
Dardanelle Lake and Dam

1. The purpose of this supplement is to rename a portion of Ouita Park as the Cephas Washburn Memorial Park.
2. The name change was requested by City of Russellville officials. It was the Rev. Cephas Washburn who established the Dwight Mission on the bank of the Illinois Bayou near the site of Ouita Park. The new name will pertain to the park area south of Dikeview road, with the island and boat launch area to retain the name Ouita Park.
3. Approval of this supplement is recommended.

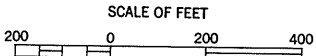
FOR THE COMMANDER:

Keith Thonen
KEITH THONEN, P.E.
Chief, Construction-Operations
Division



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SIX MILE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985

CESWD-CO-RP (CESWL-CO-L/7 May 94) 1st End Mr. McCauley/jw/
7-2434

SUBJECT: Supplement No. 9, Design Memorandum No. 13-14, Dardanelle Lake and Dam

CDR, U.S. Army Corps of Engineers, Southwestern Division,
1114 Commerce St., Dallas, TX 75242

FOR Commander, Little Rock District, ATTN: CESWL-CO-L **28 JUN 1994**

Approved.

FOR THE COMMANDER:

Encl
wd

Vicki G. Dixon
VICKI G. DIXON
Acting Chief, Recreation-
Resources and Regulatory
Division
Directorate of Construction-
Operations

CF (w/basic and encl):
CECW-ON



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (1130)

7 May 1994

MEMORANDUM FOR Commander, Southwestern Division
ATTN: CESWD-CO-R

SUBJECT: Supplement No. 9, Design Memorandum No. 13-4,
Dardanelle Lake and Dam

1. The purpose of this supplement is to revise the concession lease area of the Russellville Marina, located in Lake Dardanelle State Park, Lake Dardanelle.
2. The marina concessionaire is requesting an expansion to the present lease to utilize an area previously leased as a restaurant. The restaurant burned in the early 1980's. The concessionaire wants to use the area for boat and trailer storage and locating the marina's above-ground fuel storage tanks. The configuration of the leased area as shown on the enclosed master plan sheet is a consolidation of the area deleted from the restaurant concession lease and adjusted to comply with an agreement with Arkansas State Parks for the management of the area.
3. Approval of this supplement is recommended.

FOR THE COMMANDER:

Encl (4 cys)

for *Keith Thonen*
KEITH THONEN, P.E.
Chief, Construction-Operations
Division

CESWD-CO-RP (CESWL-CO-L/24 Aug 90) 1st End
Mr. McCauley/plvd/7-2434
SUBJECT: Supplement No. 8, Master Plan Design Memorandum
No. 13-4, Lake Dardanelle

DA, Southwestern Division, Corps of Engineers, 1114 Commerce
St., Dallas, TX 75242-0216

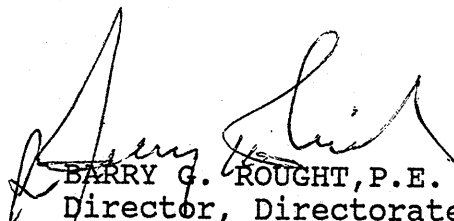
18 SEP 1990

FOR Commander, Little Rock District ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl
wd


BARRY G. ROUGHT, P.E.
Director, Directorate of
Constructions-Operations

CF (w/basic & encl):
CECW-ON
CESWD-PL-R
CESWD-RE-M



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (1130)

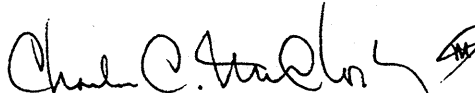
24 August 1990

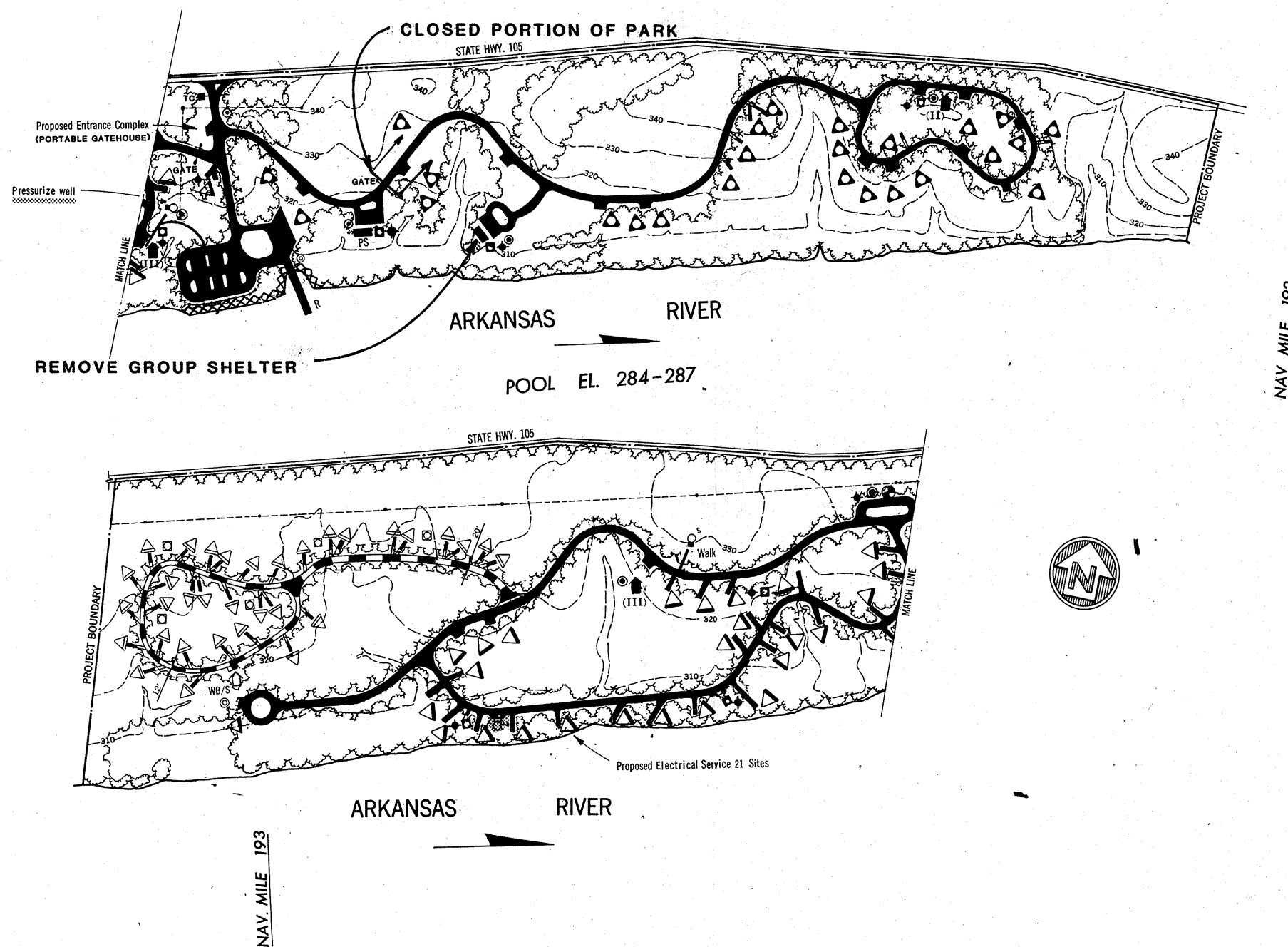
MEMORANDUM FOR Commander, Southwestern Division,
ATTN: CESWD-CO-RR

SUBJECT: Supplement No. 8, Master Plan Design Memorandum No.
13-4, Lake Dardanelle

1. The purpose of this supplement is to indicate the relocation of a group shelter from Sweeden Island Park on Rockefeller Lake (L&D 9) to Old Post Road Park on Lake Dardanelle.
2. The downstream day-use portion of Sweeden Island Park was closed several years ago in an effort to reduce the operation and maintenance costs of facilities receiving little use. While one of the group shelters is presently utilized and produces some revenue, there is still insufficient demand from the public to reopen the other group shelter shown on Plate No. 17.
3. There is heavy demand for another group shelter at Old Post Road Park to supplement the existing four group shelters. All of the existing group shelters are reserved for every weekend during the recreation season and for a major part of the week days during the summer. It is estimated that the cost of relocating the group shelter from Sweeden Island Park will be less than \$5,000, including \$800 for a house moving firm to physically move the structure. Based on present reservation fee collections for Old Post Road Park, annual revenues for the relocated shelter should be approximately \$2,000 per year. The relocation not only will benefit users, but it will be economically advantageous. The location is shown on the enclosed Plate No. 16.
4. Approval of this supplement is recommended.

Encl (4 cys)


CHARLES C. McCLOSKEY III
Colonel, Corps of Engineers
Commanding



RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, WOODEN		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
PICNIC SHELTER		
OTHER BUILDINGS (NAMED)		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
OTHER FEATURES		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		

NOTE: THIS AREA IS LOCATED IN SECTIONS 15 AND 16, T. 6 N.
R. 19 W., POPE CO.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

ARKANSAS RIVER POOL 9

SWEEDEN ISLAND

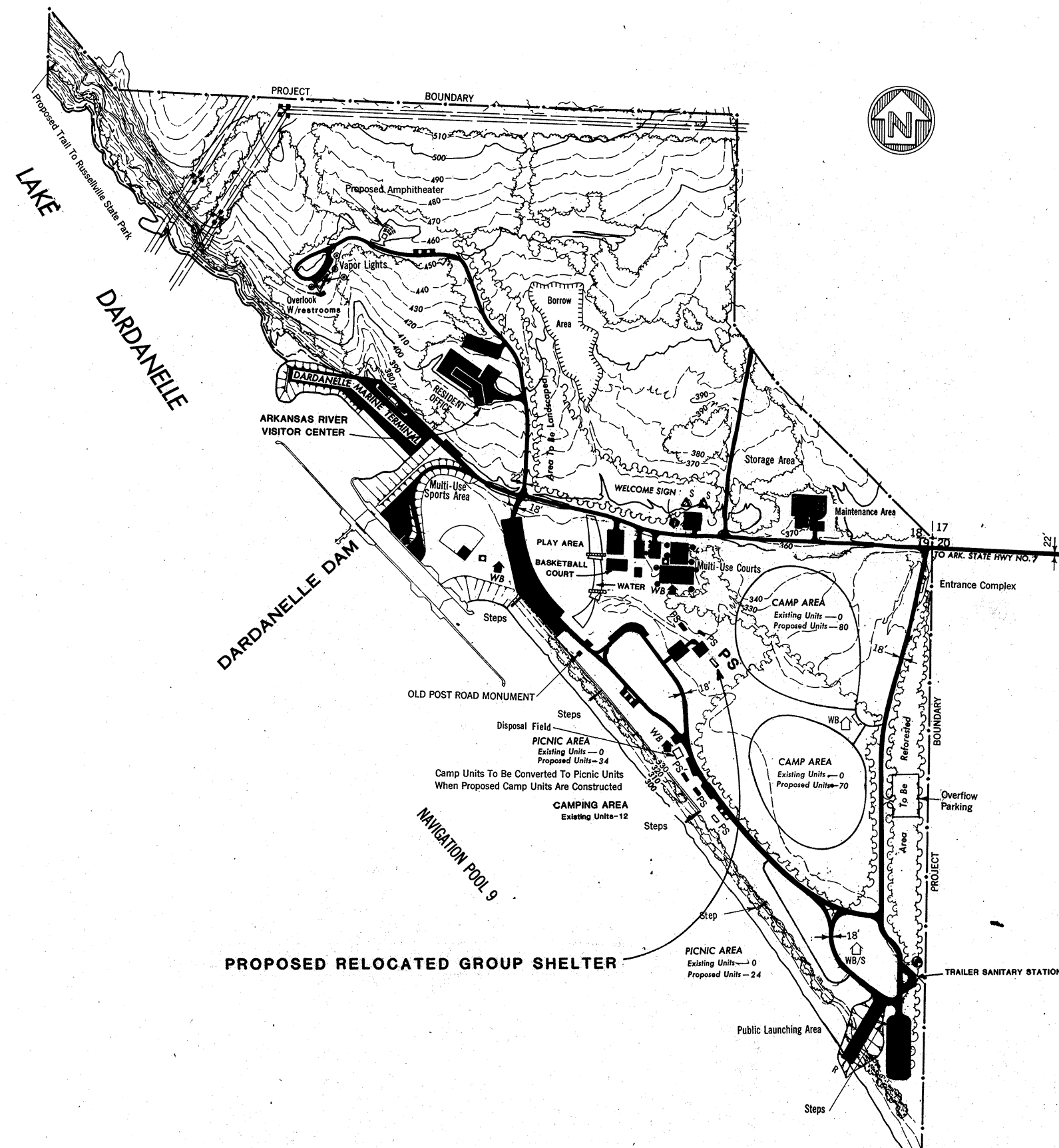
PARK

SCALE OF FEET
200 0 200 400
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, MAY 1976

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, MAY 1976

REVISED AUGUST 1990

REVISED AUGUST 1990



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
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WATER HYDRANT		
DRINKING FOUNTAIN		
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COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
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WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTIONS 18 AND 19,
T. 7 N., R. 20 W., POPE CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
DARDANELLE LAKE
OLD POST ROAD PARK

SCALE OF FEET
 300 0 300 600

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
 LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED AUGUST 1990

CESWD-CO-RP (CESWL-CO-L/26 Feb 88) (1130) 1st End McCauley/da/72434
SUBJECT: Supplement No. 7, Updated Master Plan Design Memorandum
No. 13-4, Lake Dardanelle

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce
Street, Dallas, TX 75242-0216 14 MAR 1988

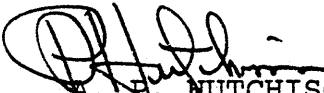
FOR: Commander, Little Rock District, ATTN: CESWL-CO-L

Approved, subject to the following comment:

In order to expedite the conversion of the two vault restrooms
to waterborne, consideration should be given to increasing the
availability of SRUF funds through transfer from another/other
project(s).

FOR THE COMMANDER

2 Encls
wd all encls


A. E. MUTCHISON
Chief, Construction-
Operations Division

CF (w/basic & encls):
CECW-ON



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

REPLY TO
ATTENTION OF

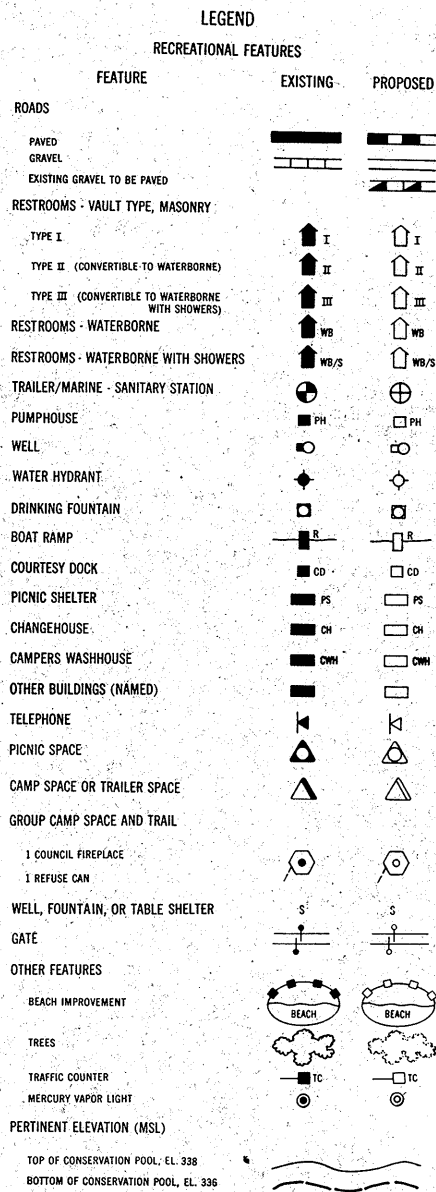
FEB 26 1988

CESWL-CO-L

MEMORANDUM FOR: Commander, Southwestern Division, ATTN: CESWD-CO-R

SUBJECT: Supplement No. 7, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

1. The purpose of this supplement is to revise the plan of development for Piney Bay Park as shown on the enclosed Plate 20. These revisions are proposed for the purposes of improving park management, increasing fee collections, and consolidating project facilities. The proposed work consists of converting two vault restrooms to waterborne restrooms with showers, relocating 13 campsites from other parks, constructing 15 campsites, constructing 0.2 mile of road, realigning and leveling 12 campsites, and adding turnouts to campsites with inadequate access.
2. Piney Bay Park is one of the more popular parks on Lake Dardanelle. Camping and day use have steadily increased. The annual visitation varied between 133,000 and 174,000 from 1982 to 1987. Fee collections have increased from \$14,000 in FY 82 to \$23,000 in FY 86. The park has 39 campsites, 2 vault toilets, 2 boat launching lanes, and 1 group shelter located on 111 acres.
3. It is proposed that each of the 15- to 20-year-old vault toilets be converted to waterborne restrooms with showers. Many visitors have requested showers in the park and often complain about the offensive odors generated by each of the vault toilets. The conversion of the vault toilets to waterborne restrooms with showers will reduce annual maintenance costs, increase fee revenues by upgrading the park to Class A status, and will increase visitation by providing more pleasing and useful facilities. The conversion work will be accomplished using the SRUF funds for FY 88 to FY 90.
4. The camping area east of the launching ramps is one of the most popular camping areas within the park due to its relatively level terrain and proximity to the water. The area is often congested with vehicles and camping trailers because of its popularity. This, when coupled with a narrow two-way loop road, often makes it difficult or impossible to drive through. Vehicles and camping equipment often encroach onto the road and the area adjacent to each site, compacting the soil which kills the turf and trees making the soil vulnerable to erosion. It is proposed that the existing 12 campsites be realigned, and that the narrow roadway be converted into a one-way road. Thirteen campsites would be relocated onto the loop from the following parks on Lake Dardanelle: (5) West Creek Park; (5) Six Mile Park; and (3) Horsehead Park. The realignment and relocation activities will be accomplished utilizing O&M, General, funds.



NOTE: THIS AREA IS LOCATED IN SECTIONS 26, 27,
34 AND 35 T. 9 N., R. 22 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
 UPDATED MASTER RECREATION PLAN
 LAKE DARDANELLE
 PINEY BAY PARK

SCALE OF FEET

200 0 200 400

A horizontal scale bar with markings at 200, 0, 200, and 400 feet. The bar is divided into four equal segments by vertical lines. The first segment is labeled '200', the second '0', the third '200', and the fourth '400'. The segments are shaded with horizontal lines.

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED FEBRUARY 1988

CESWL-CO-L

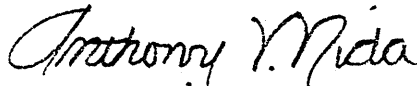
SUBJECT: Supplement No. 7, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

5. Three camping sites within the camping area west of the launching ramps lack the necessary turnouts to accommodate modern RVs. Several other sites in this area are very steep and unlevel. Campers frequently complain about this problem but do compensate for it by blocking the wheels of their trailer or RV with boards, rocks, or other home-made devices. It is not uncommon to see trailers or RVs raised to heights in excess of 18 inches more than their jacks will reach. In their efforts to level their campers they create potentially unsafe circumstances for themselves and others as well. It is recommended that these sites be realigned to accommodate modern camping trailers and RVs in a safe manner utilizing O&M, General, funds.

6. Three camping sites in the camping loop south of the launching ramp lack the necessary turnouts to accommodate camping trailers and RVs. Campers try to move small "pop up" trailers onto the sites or use the adjacent boat parking lot for turnouts. It is proposed that these three sites be realigned to accommodate modern campers using O&M, General, funds as they become available. It is also proposed that 15 camping sites be constructed in the area utilizing SRUF funds in FY 91. This will provide a much needed increase in camping capacity and will generate additional fee revenue as well.

7. Approval of this supplement is recommended. A schedule of development is enclosed.

2 Encls (4 cys)



ANTHONY V. NIDA
Colonel, Corps of Engineers
Commanding

CAPITAL INVESTMENT

	<u>SRUF</u>	<u>Funds</u>	<u>O&M, General</u>
1. Convert two vault restrooms to waterborne restrooms with showers	\$220,000		
2. Realign and construct 0.2-mile paved road			\$8,000
3. Realign 12 campsites			24,000
4. Relocate 13 campsites from other parks			32,000
5. Add turnouts to 3 campsites			6,000
6. Construct 15 campsites	45,000		
7. Add turnouts to 3 campsites			6,000
8. Level campsites			<u>18,000</u>
Subtotal	<u>265,000</u>		<u>94,000</u>
Total		\$359,000	

EXPENDITURE SCHEDULE

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>Total</u>
SRUF Funds	\$76,000	\$54,000	\$90,000	\$45,000	\$265,000
O&M, General, Funds		32,000	38,000	24,000	94,000



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L

7 October 1987

MEMORANDUM FOR: COMMANDER, SOUTHWESTERN DIVISION, ATTN: CESWD-CO-R

SUBJECT: Supplement No. 6, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

1. The purpose of this supplement is to reallocate approximately 40 acres of land from Operations: Recreation-Low Density, to Operations: Recreation-Intensive Use. The Logan County Judge has made a request to lease the land for recreational purposes. The Johnson Logan Sports and Recreation Development Association proposes to construct four ball fields, and courts for volleyball, shuffleboard, tennis and basketball. Also, a miniature golf course, horseshoe and football facilities, picnic tables, playgrounds, concession stands, gymnasium, bandstand, lights, and parking lots are planned. These facilities will be built over a 5-year period between 1987 and 1991 contingent upon the availability of funds. The park will be located in Section 10, T8N, R24W, Logan County, Arkansas, as shown on the enclosed exhibit. Access is provided by Highway 109. Approval of the financial, development, and management plans for the area will be required prior to leasing the land.

2. Recreational use is considered the best use of this land. A portion of this land is currently included in an agricultural grazing lease with about 10 acres currently being grazed and used for hay production. This lease will not expire until 31 December 1991; however, the requested area will be deleted from the lease effective 31 December 1987.

3. Approval of this supplement is recommended.

Encl (9 cys)

ANTHONY V. NIDA
Colonel, Corps of Engineers
Commanding

CESWD-CO-RP (CESWL-CO-L/7 Oct 87) (1130) 1st End McCauley/da/72434
SUBJECT: Supplement No. 6, Updated Master Plan Design Memorandum
No. 13-4, Lake Dardanelle

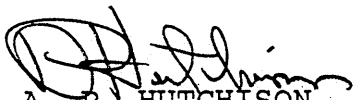
Commander, Southwestern Division, Corps of Engineers, 1114 Commerce St.,
Dallas, TX 75242-0216 28 OCT 1987

FOR: Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl wd


A. P. HUTCHISON
Chief, Construction-
Operations Division

CF (w/basic & encl):
CECW-ON



SWDCO-RP (SWLCO-L/24 Mar 87) 1st End
SUBJECT: Supplement No. 5, Updated Master Plan Design
Memorandum No. 13-4, Lake Dardanelle

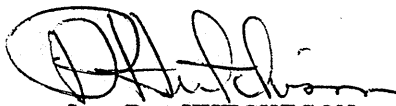
DA, Southwestern Division, Corps of Engineers, 1114 Commerce
Street, Dallas, TX 75242-0216 14 APR 1987

TO: Commander, Little Rock District, ATTN: SWLCO-L

Approved.

FOR THE COMMANDER:

Encl wd


A. P. HUTCHISON
Chief, Construction-
Operations Division

CF (w/basic & encl):
DAEN-CWO-R (5 cys)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

SWLCO-L

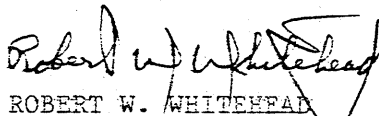
24 March 1987

SUBJECT: Supplement No. 5, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

Commander, Southwestern Division
ATTN: SWDCO-RR

1. The purpose of this supplement is to relocate two group picnic shelters to an area within Shoal Bay Park. The group picnic shelters will be placed near the park entrance on a primary circulation road as noted on the enclosed Plate 22. Existing gravel surfaced overflow parking will be utilized for shelter visitors' vehicle parking. One group picnic shelter will be removed from a closed portion of Horsehead Park (Plate 26) and relocated to Shoal Bay Park. The existing group picnic shelter in Shoal Bay Park will be relocated in an effort to reduce traffic and parking congestion in the shoreline activity area and the boat launching ramp area of the park. The existing picnic shelter concrete slab will be left in place and a basketball goal installed. Relocation of the group picnic shelters will be performed in FY 87 utilizing O&M funds at an estimated cost of \$8,000.
2. The picnic shelter relocation and playground installation in Shoal Bay Park were approved in Supplement No. 3 to the master plan. After further deliberation the relocation site for the picnic shelters was revised due to parking considerations. Also, the proposed playground equipment site had to be revised since the original proposed site for the play area is required for a leaching field for the adjacent restroom. The playground equipment has been purchased but not installed.
3. Approval of this supplement is recommended.

Encl (9 cys)


ROBERT W. WHITEHEAD
Colonel, Corps of Engineers
Commanding

SWDCO-RP (SWLCO-L/25 Jul 85) 1st End
SUBJECT: Supplement No. 4, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle


DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street,
Dallas, TX 75242-0216

6 AUGUST 1985

TO: Commander, Little Rock District, ATTN: SWLCO-L

Approved.

FOR THE COMMANDER:



A. P. HUTCHISON
Chief, Construction-
Operations Division

15 Encls
wd all encls

CF (w/basic & encls):
DAEN-CWO-R (5 cys)



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

REPLY TO
ATTENTION OF

SWLCO-L

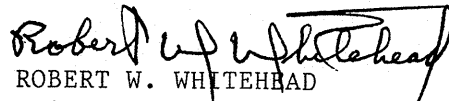
25 JUL 1985

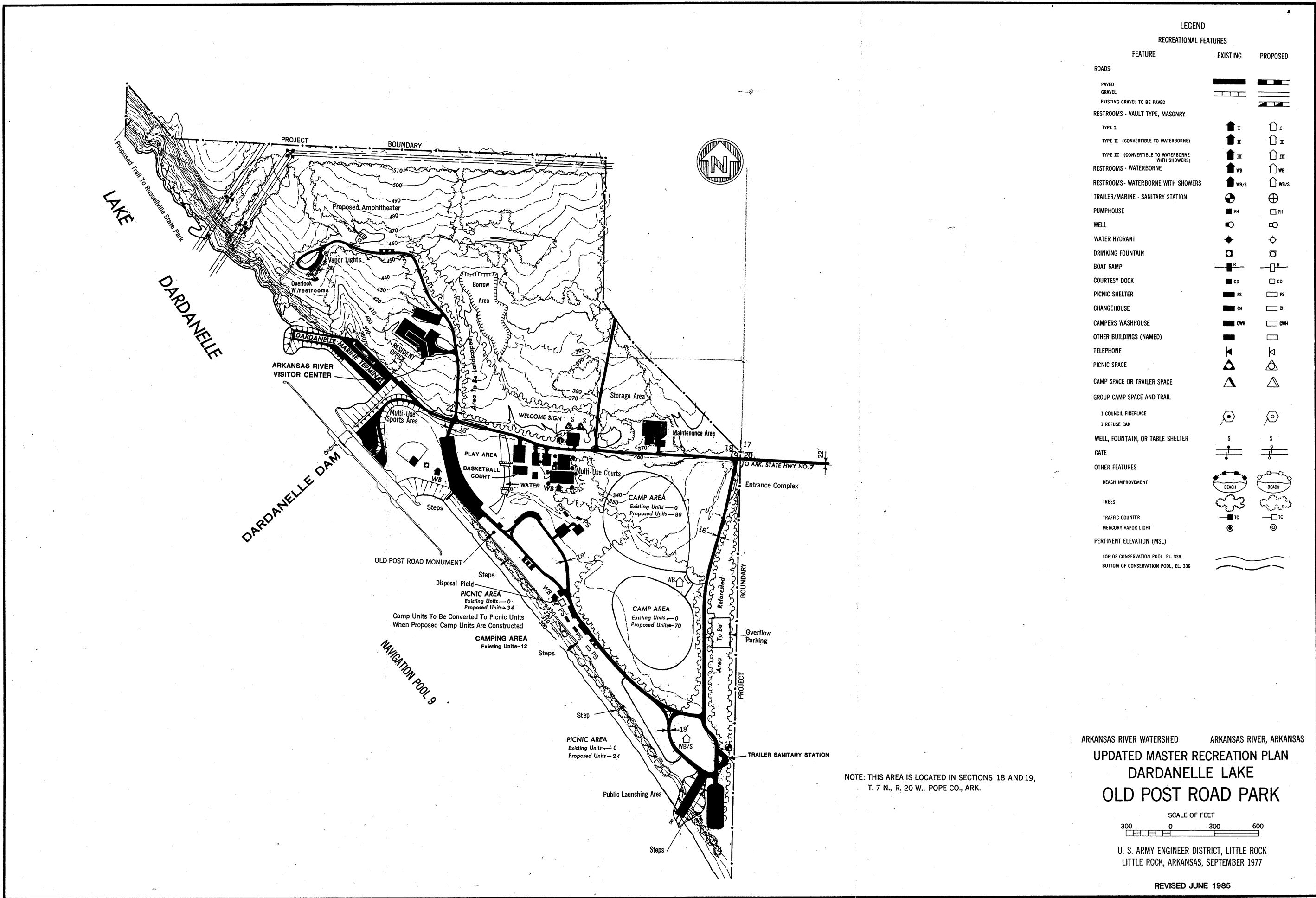
SUBJECT: Supplement No. 4, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

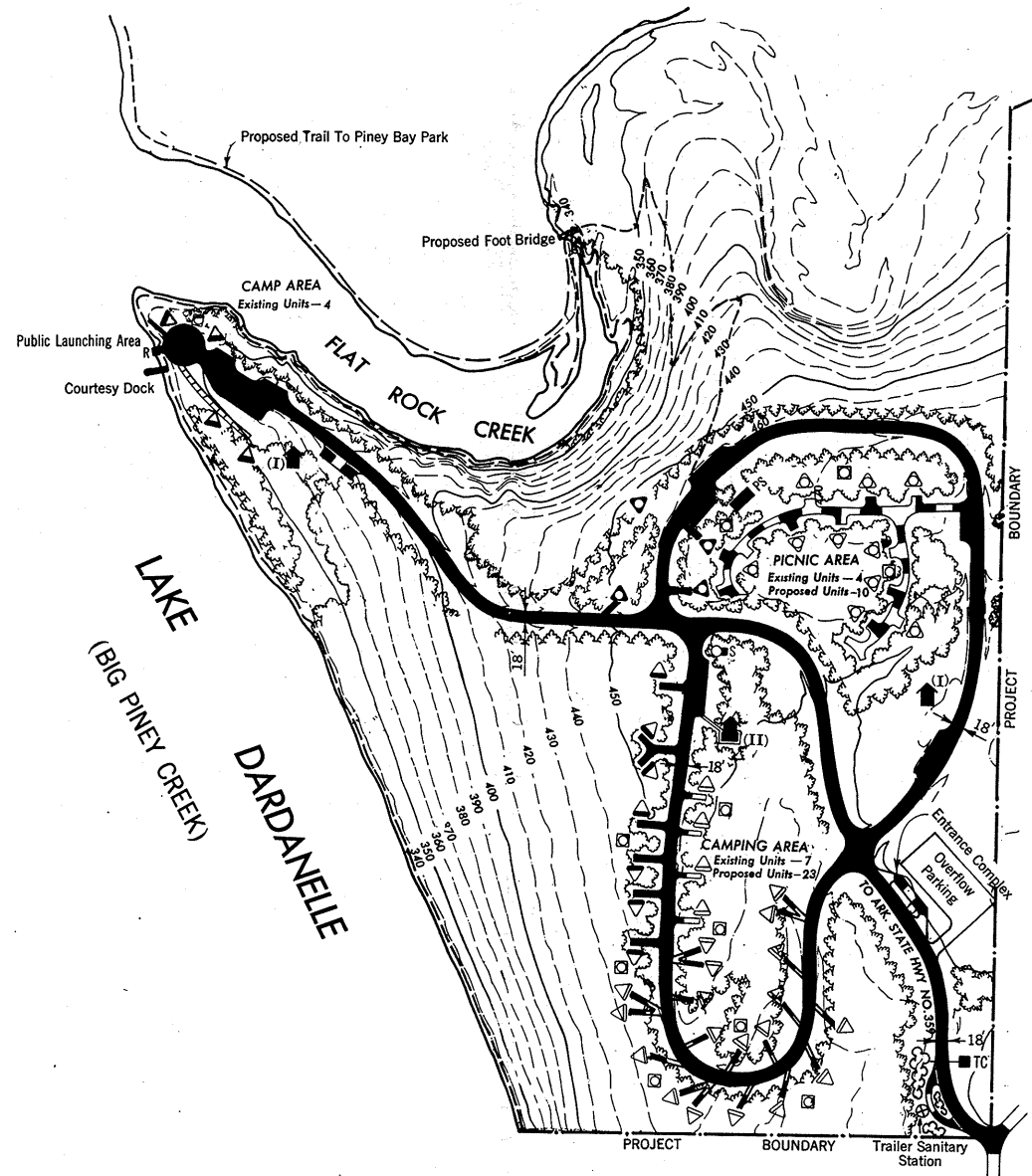
Commander, Southwestern Division
ATTN: SWDCO-RR

1. The purpose of this supplement is to update the park site plans to reflect existing recreational facilities and minor site plan revisions. The site plans were last revised in 1977 when the master plan was completely updated.
2. Approval of this supplement is recommended.

15 Encls (9 cys)
As stated


ROBERT W. WHITEHEAD
Colonel, Corps of Engineers
Commanding





LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTIONS 10 AND 15,
T. 8 N., R. 22 W., JOHNSON CO., ARK.

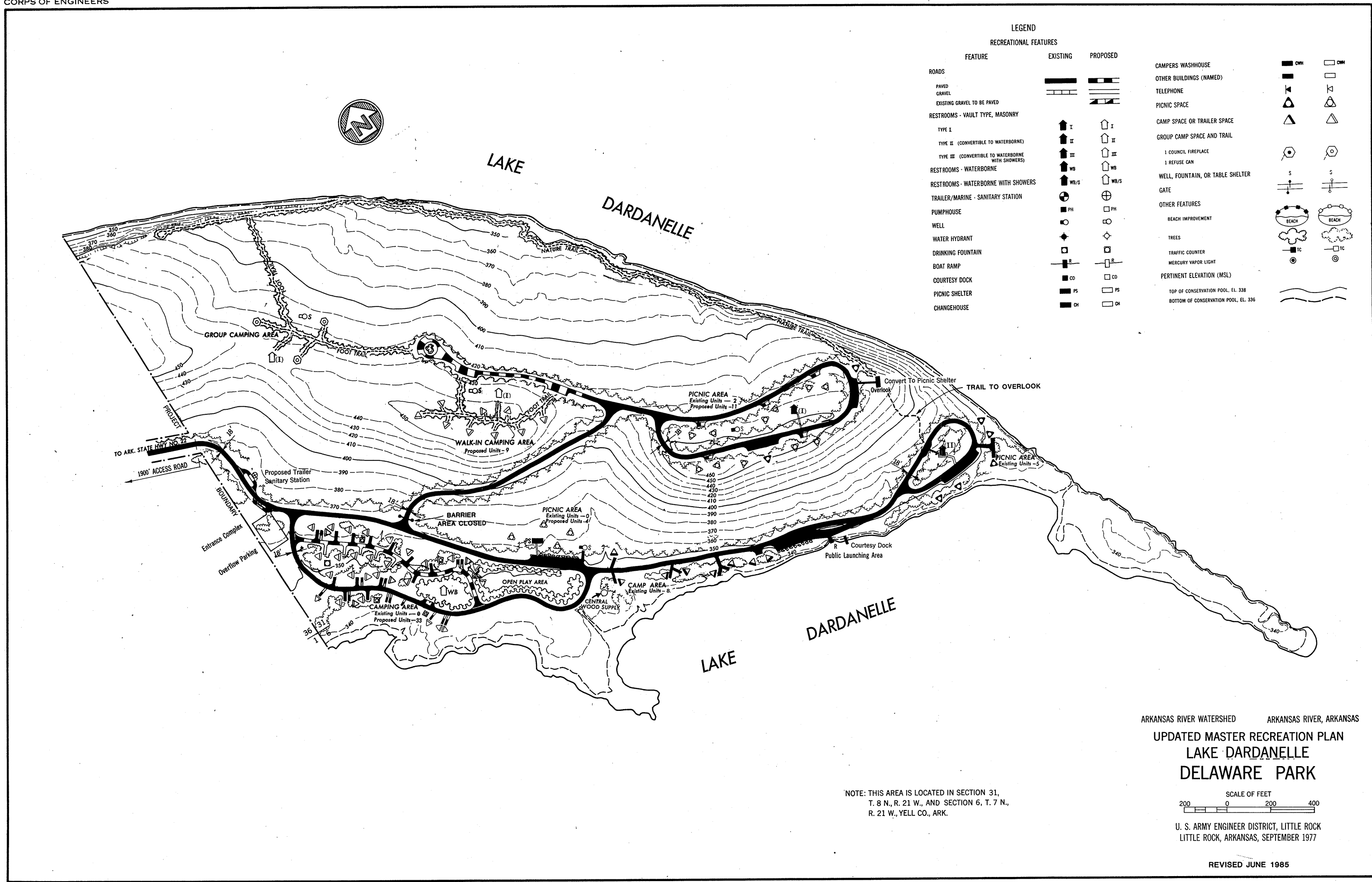
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

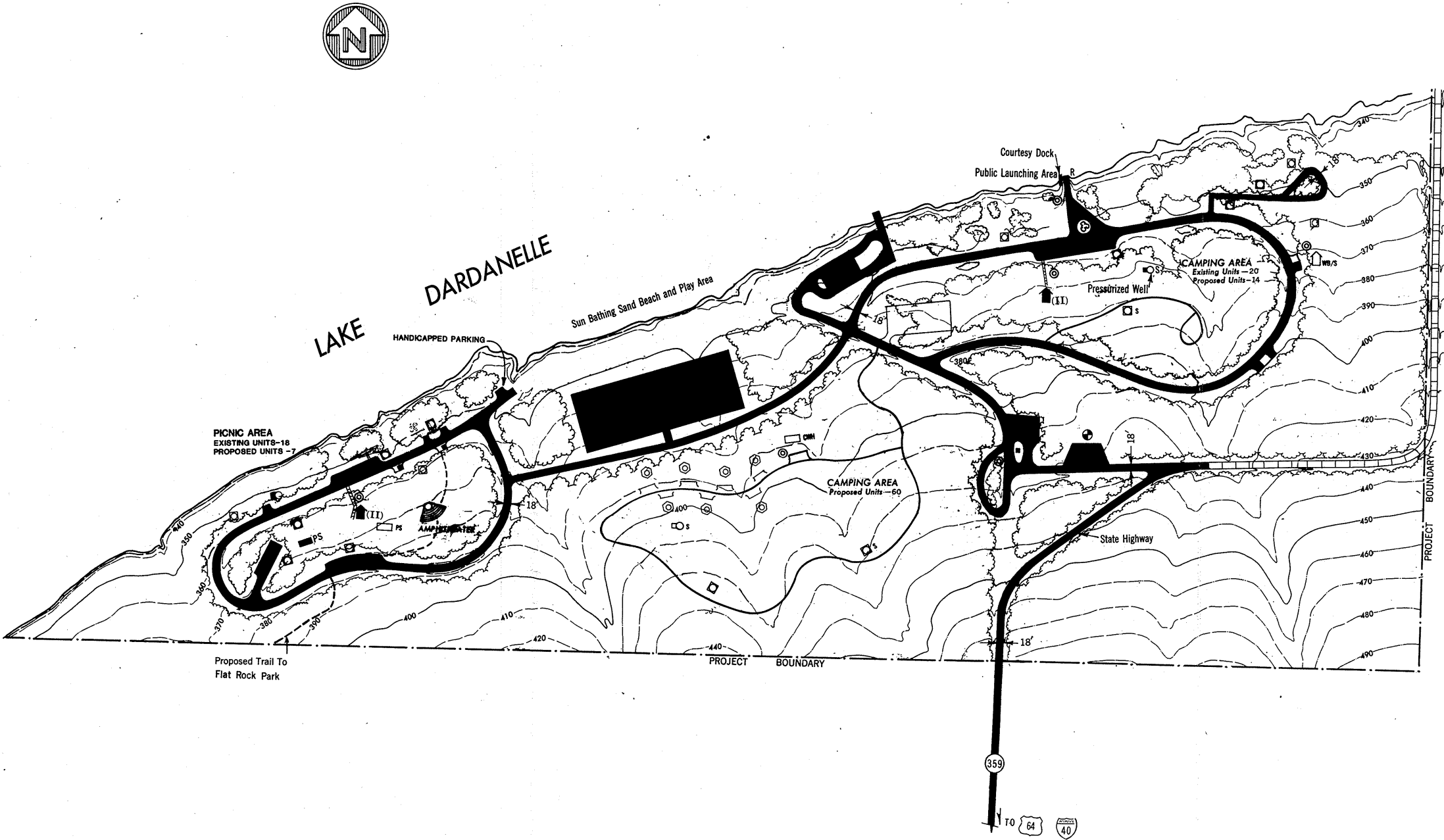
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
FLAT ROCK PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985

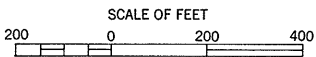




LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
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CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

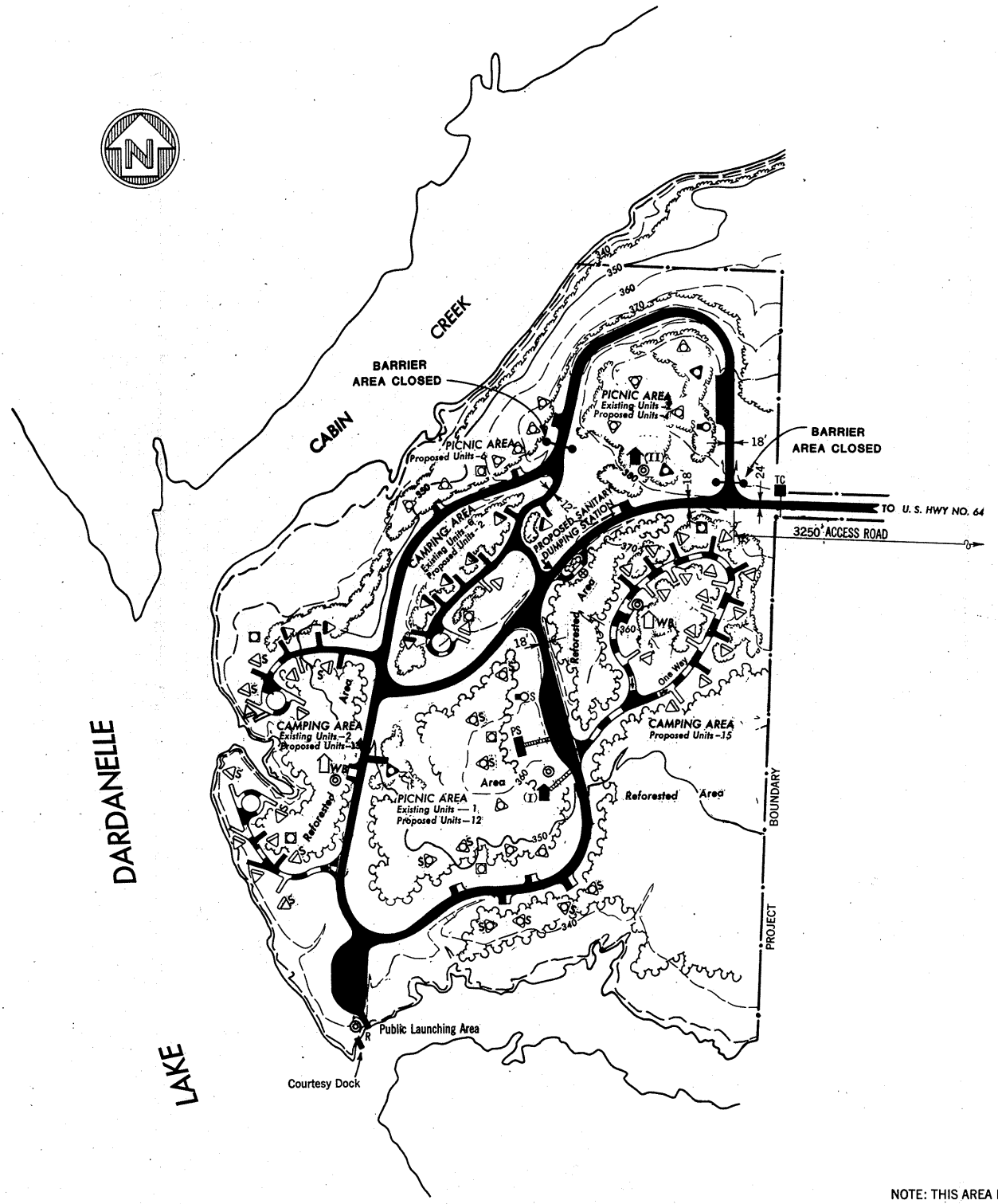
NOTE: THIS AREA IS LOCATED IN SECTIONS 26, 27,
34 AND 35 T. 9 N., R. 22 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
PINEY BAY PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985



NOTE: THIS AREA IS LOCATED IN SECTION 1,
T. 8 N., R. 23 W., JOHNSON CO., ARK.

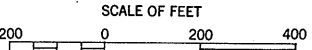
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
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BOAT RAMP		
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1 COUNCIL FIREPLACE		
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WELL, FOUNTAIN, OR TABLE SHELTER		
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OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

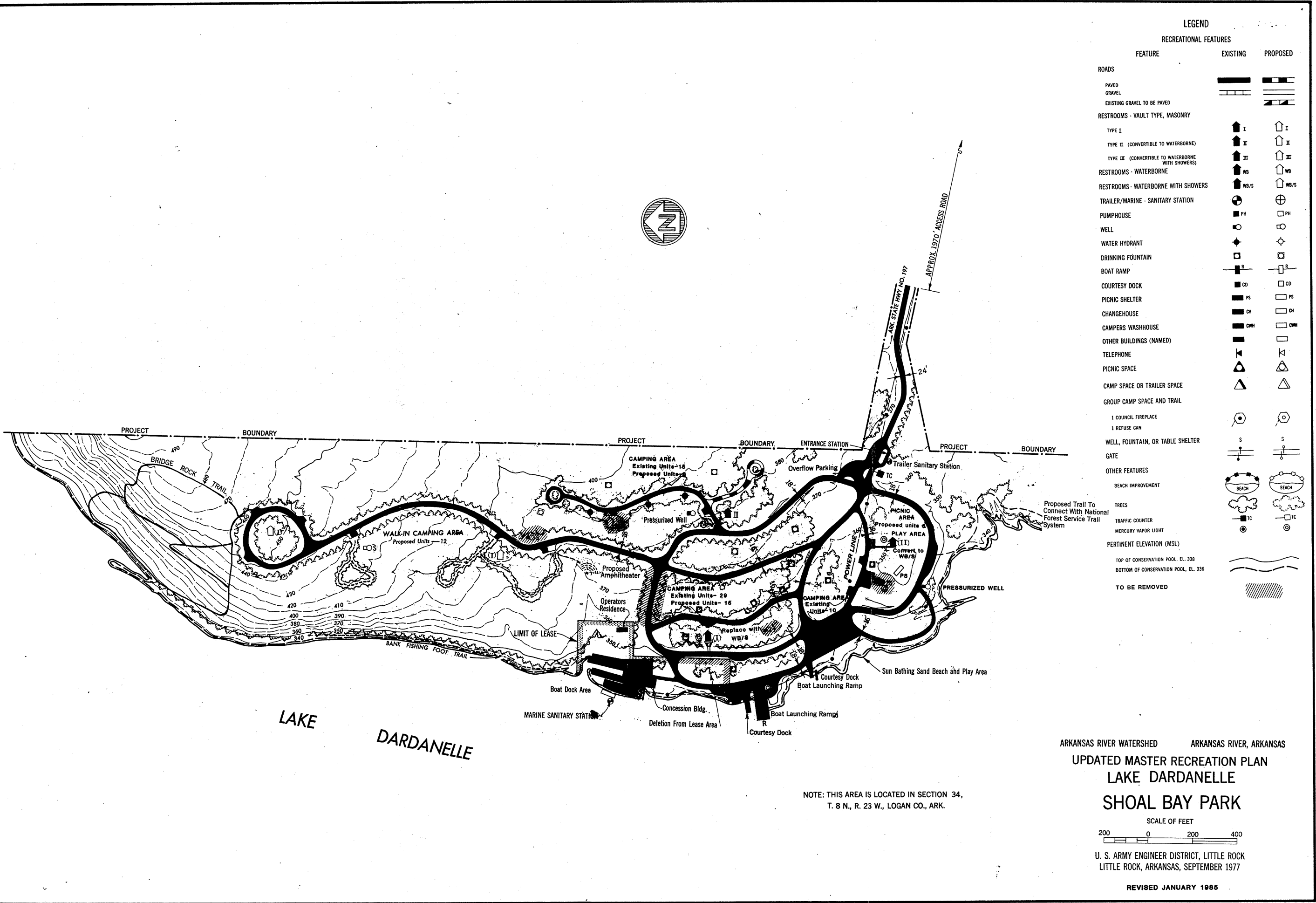
LAKE DARDANELLE

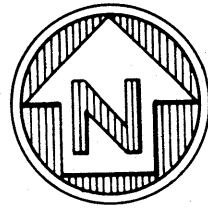
CABIN CREEK PARK



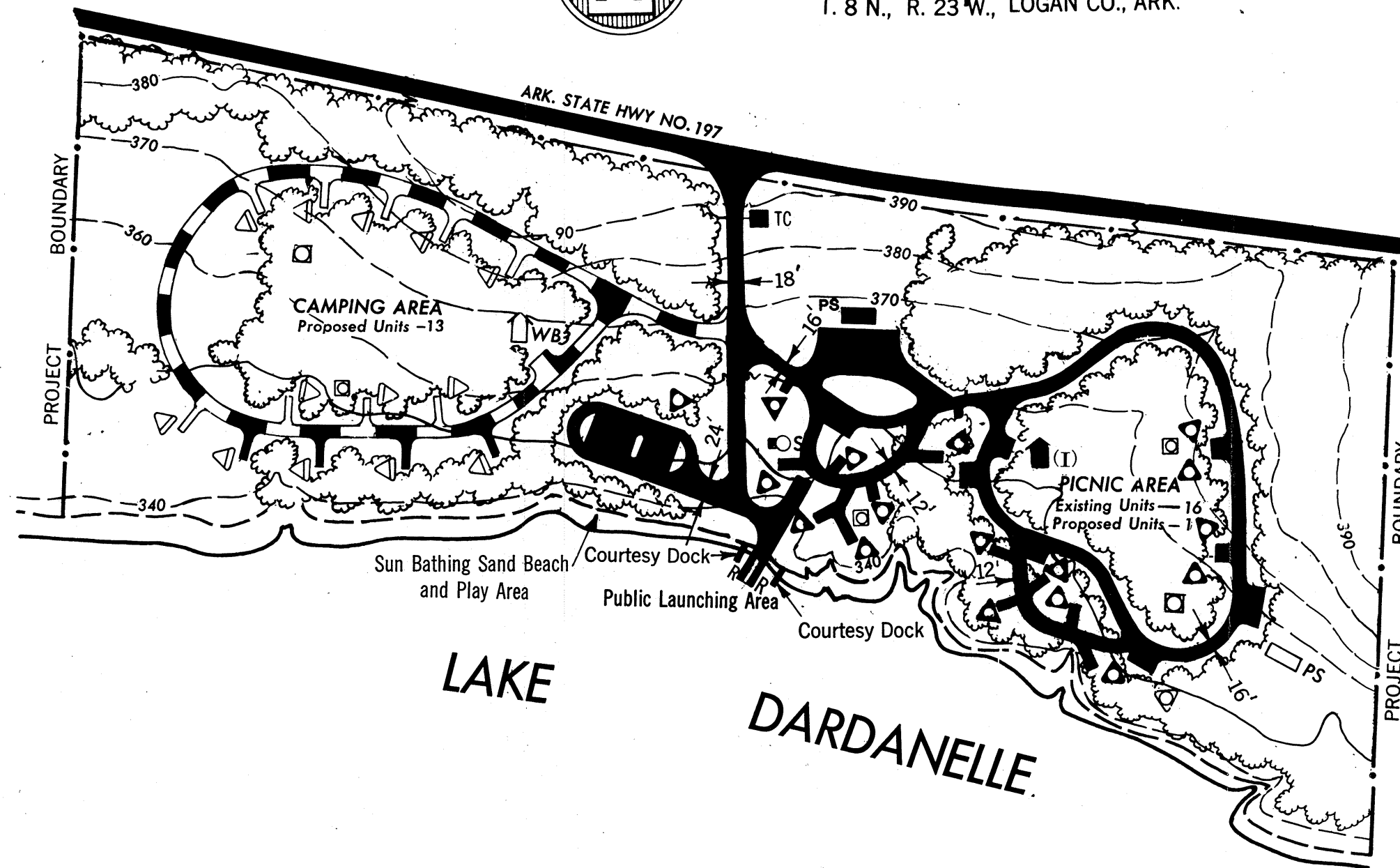
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985



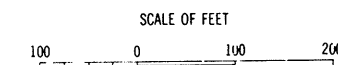


NOTE: THIS AREA IS LOCATED IN SECTION 21,
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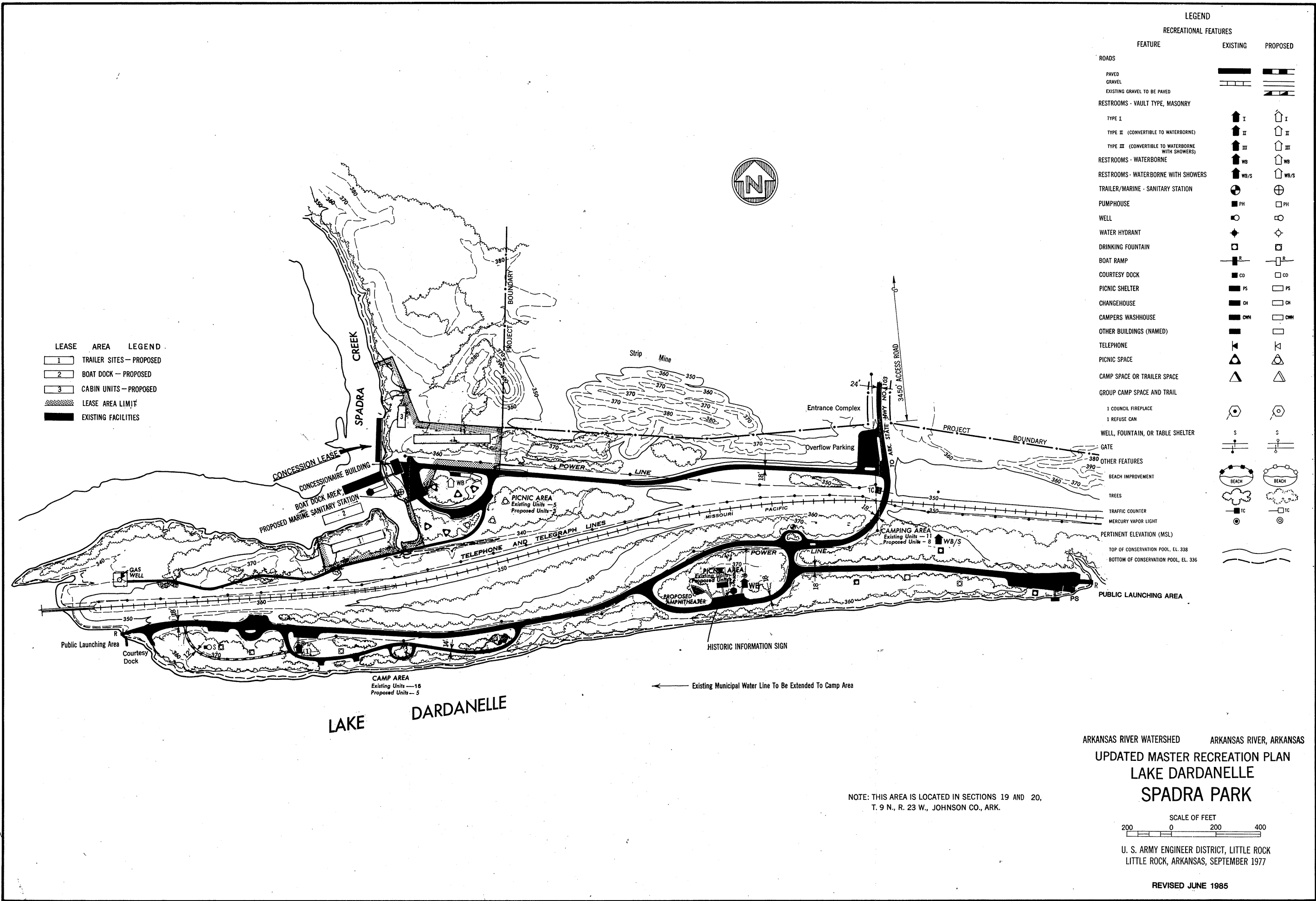
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
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WATER HYDRANT		
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BOAT RAMP		
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WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 328		
BOTTOM OF CONSERVATION POOL, EL. 336		

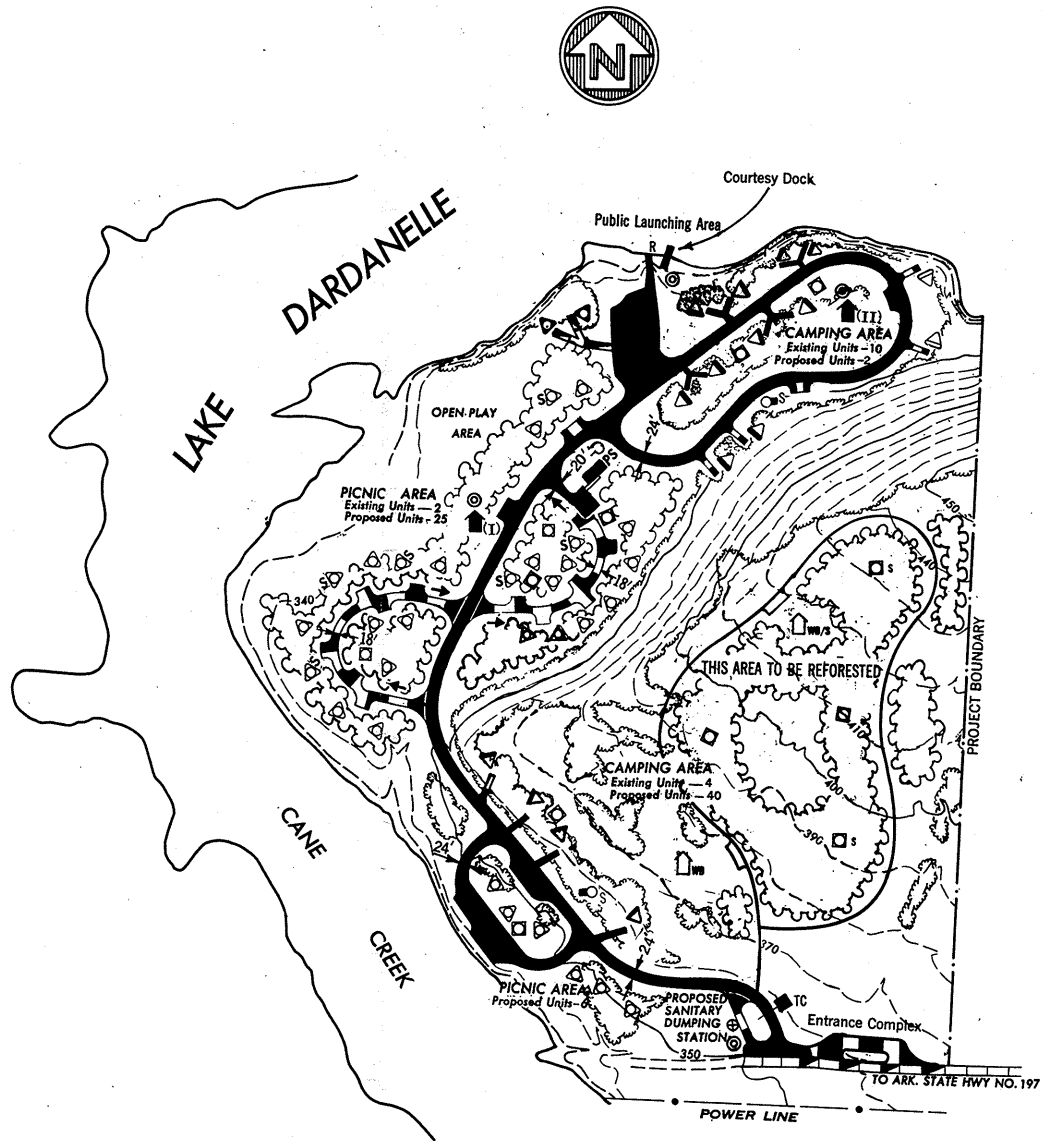
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
 UPDATED MASTER RECREATION PLAN
 LAKE DARDANELLE
 DUBLIN
 PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
 LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985

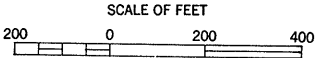




NOTE: THIS AREA IS LOCATED IN SECTION 1,
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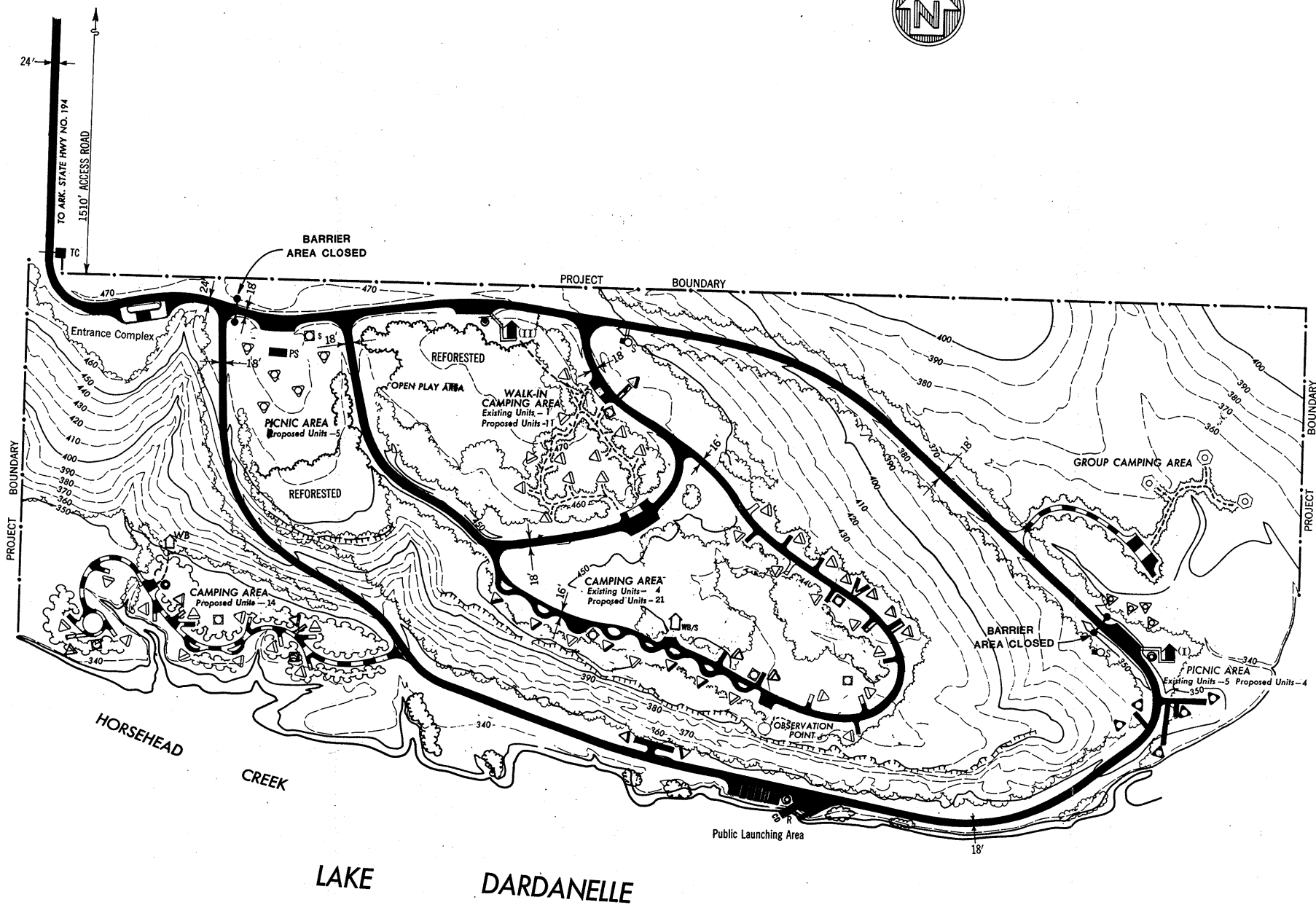
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
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OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
CANE CREEK PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

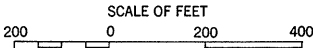
REVISED JUNE 1985



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
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RESTROOMS - WATERBORNE WITH SHOWERS		
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TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

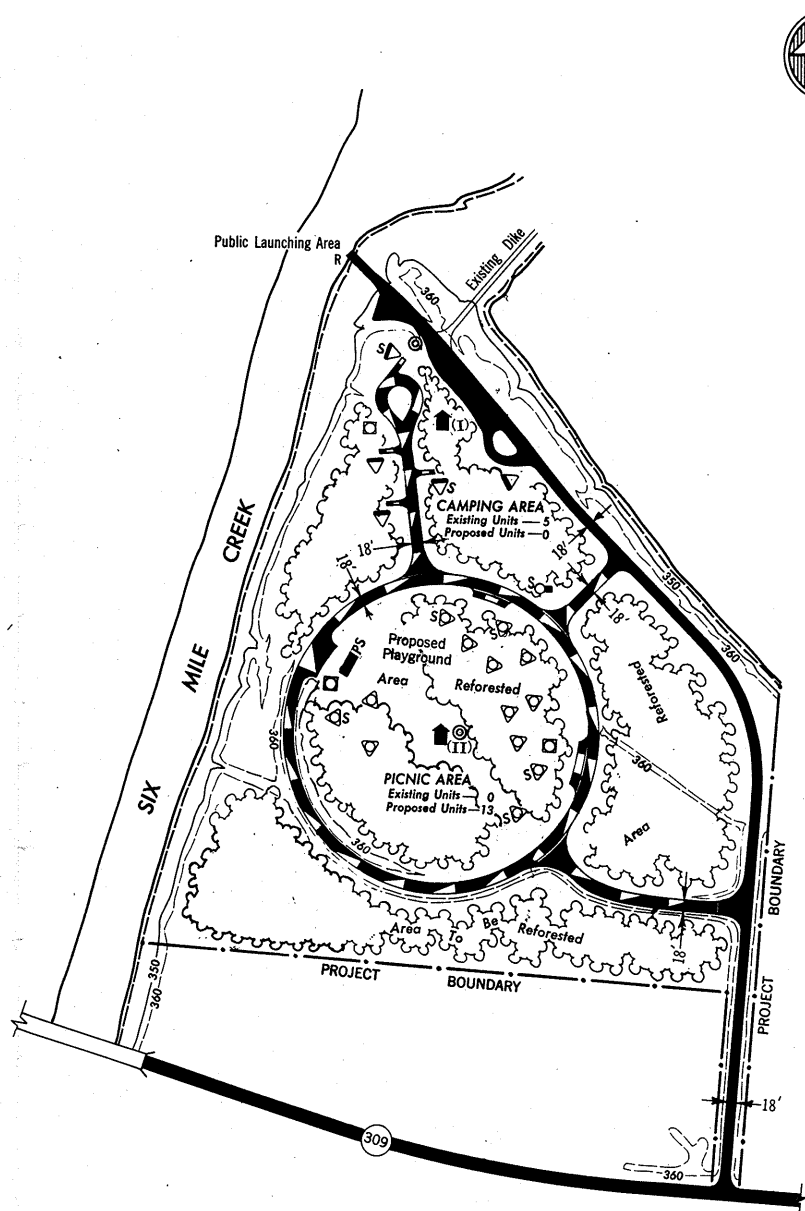
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
HORSEHEAD PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

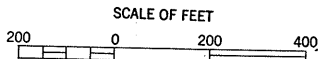
REVISED JUNE 1985



NOTE: THIS AREA IS LOCATED IN SECTION 16,
T. 8 N., R. 26 W., LOGAN CO., ARK.

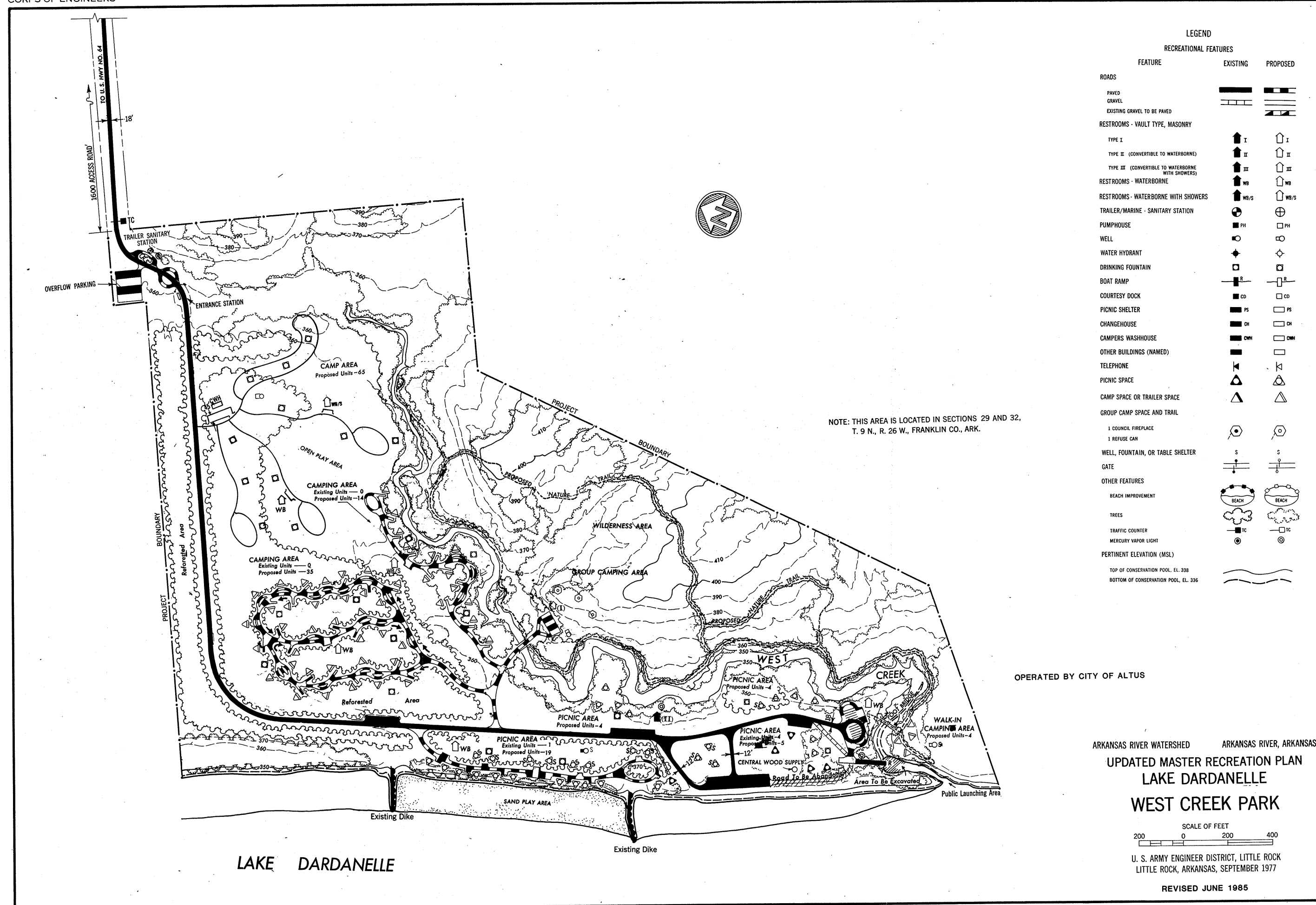
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
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RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
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WATER HYDRANT		
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BOAT RAMP		
COURTESY DOCK		
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CHANGEHOUSE		
CAMPERS WASHHOUSE		
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WELL, FOUNTAIN, OR TABLE SHELTER		
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OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

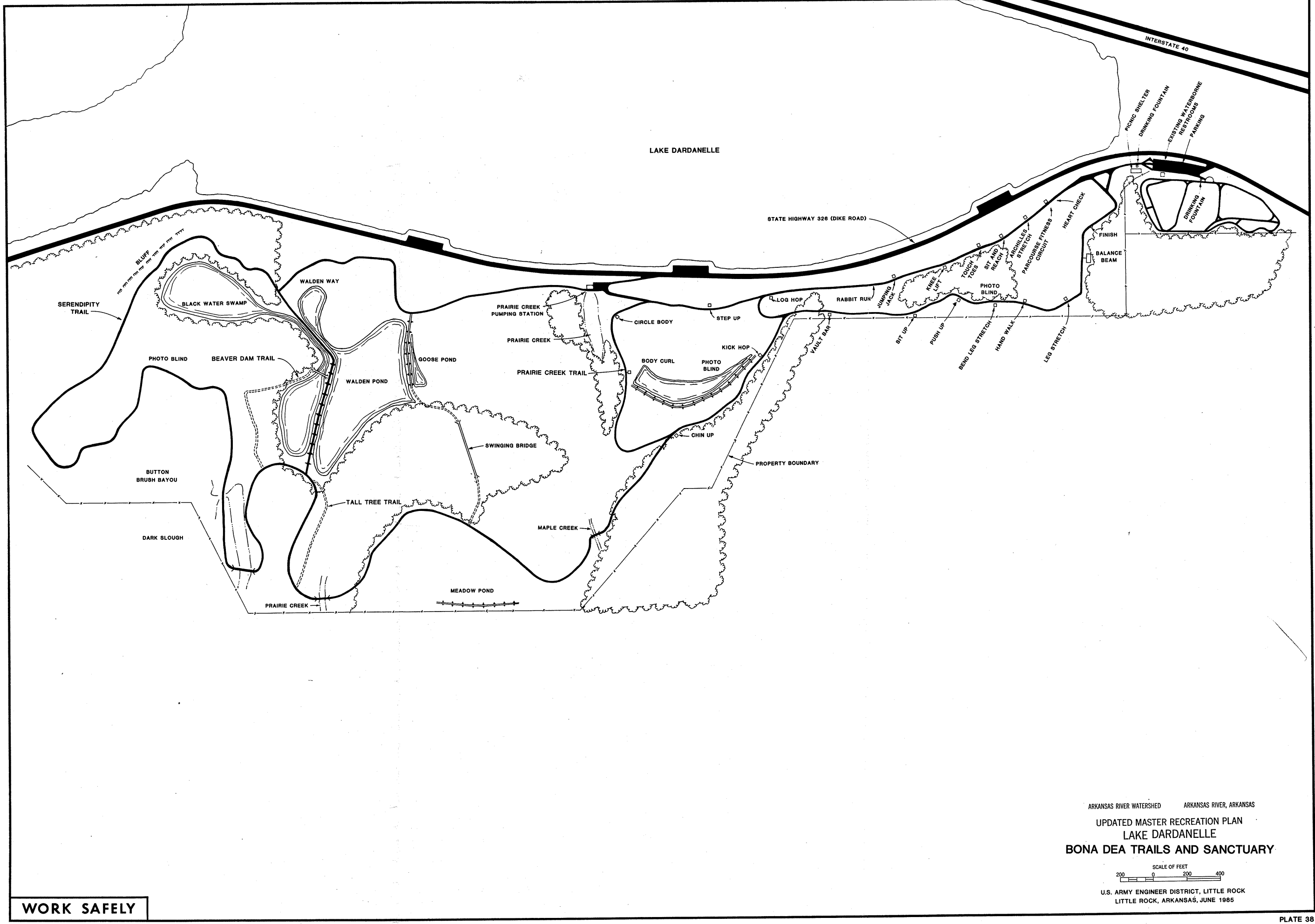
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
O'KANE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985





WORK SAFELY

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
BONA DEA TRAILS AND SANCTUARY
SCALE OF FEET
0 200 400
U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1985

SWDCO-RP (SWLCO-L 21 Jan 85) 1st End

SUBJECT: Supplement No. 3, Updated Master Plan Design Memorandum
No. 13-4, Lake Dardanelle

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street,
Dallas, TX 75242-0216 21 FEBRUARY 1985

TO: Commander, Little Rock District, ATTN: SWLCO-L

Approved subject to the following comment:

The addition of 6 picnic sites for individual day use cannot be accomplished without cost-sharing. However, if the 6 picnic units were developed as part of the picnic shelter complex rehabilitation to be used by groups on a reservation basis for a fee, addition of the units would be justifiable.

FOR THE COMMANDER:

wd all encl

A. P. Hutchison
A. P. HUTCHISON
for Chief, Construction-
Operations Division

CF: w/basic & encl
DAEN-CWO-R (5 cys)



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

REPLY TO
ATTENTION OF:

SWLCO-L

21 January 1985

SUBJECT: Supplement No. 3, Updated Master Plan Design Memorandum No. 13-4,
Lake Dardanelle

Commander, Southwestern Division
ATTN: SWDCO-RR

1. The purpose of this supplement is to illustrate planned development of Shoal Bay Park that would increase user fees and improve the overall conditions of the park. The proposed work consists of developing 23 campsites, renovating 29 existing campsites, installing electrical service at 35 campsites, adding 6 picnic sites, developing a playground, relocating a group picnic shelter, replacing a masonry vault restroom (that is not convertible) with a waterborne restroom with showers, and converting a masonry vault restroom to a waterborne restroom with showers. Code 711 funds will be requested to replace the nonconvertible restroom, and operation and maintenance funds would be used to relocate the group picnic shelter. All other work would be accomplished with SRUF funds. The inclosed Plate 22 indicates the proposed changes and improvements.

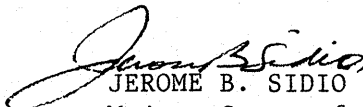
2. Shoal Bay Park presently has 54 campsites, 3 vault restrooms, a group picnic shelter, a marina, and 2 boat launching lanes. The annual visitation for 1981 through 1984 varied between 91,000 and 143,000, while the number of campers per year varied between 50,000 and 78,000. The park is located approximately 11 miles from Dardanelle, Arkansas, and approximately 60 miles from Fort Smith, Arkansas. Fee collections increased from \$10,800 in FY 81 to \$17,300 in FY 84. Replacement/conversion of the vault restrooms would eliminate offensive odors in the camping area which reduces use of some of the campsites. Attempts to correct this problem included agitation and aeration of the vaults to accelerate aerobic decomposition, but none of the efforts were successful. The subject restrooms have been in service 15 to 20 years. The installation of waterborne restrooms with showers would enhance visitation and increase revenues, because the park would be upgraded from Class B to Class A. Relocation and modification of the group picnic shelter would increase its appeal and would also improve parking conditions. Rehabilitation of the shelter could increase its use by 50 percent and increase reservation fees \$500 per year (30-year average). The proposed work in Shoal Bay Park could double fee collections during future years due to increased visitation and increased fees. Visitation would be enhanced

by addition of electrical hookups, addition of 23 campsites, and by the installation of waterborne restrooms with showers. Camping rates would be increased with the addition of electrical hookups and upgrade in park class. The estimated cost of the proposed work is \$293,000, and it is itemized on the enclosed economic analysis which demonstrates that this proposal is cost effective.

4. Approval of this supplement is recommended.

FOR THE COMMANDER:

2 Incl (9 cys)
as


JEROME B. SIDIO
Major, Corps of Engineers
Deputy Commander

ECONOMIC ANALYSIS

CAPITAL INVESTMENT

1. Develop campsites and pave parking pads	\$37,400
2. Install camping furniture at 23 sites	15,400
3. Install electrical service at 35 campsites	27,650
4. Install picnic furniture and develop sites	5,520
5. Develop playground	7,500
6. Relocate group picnic shelter and enlarge parking lot	10,000
7. Replace vault restroom with waterborne restroom with showers (disposal field, lift station, etc., included)	135,000
8. Convert vault restroom to waterborne restroom with showers	45,000
9. Install water distribution system	10,000
TOTAL =	\$293,470

ANNUAL COSTS RESULTING FROM DEVELOPMENT

1. Amortized cost of capital investment for 30 years at 8 3/8 percent interest (First cost X .09199)	\$27,000
2. Increased O&M of added facilities	6,200
TOTAL =	\$33,200

ADDED ANNUAL REVENUES ANTICIPATED (30-year average)

1. Income from added electrical outlets	\$6,000
2. Income from increased visitation	13,900
3. Income from upgrade in park class	13,500
4. Group shelter reservation fees	500
TOTAL =	\$33,900

Net annual benefits = \$33,900 - \$33,200 = \$700

EXPENDITURE SCHEDULE

<u>Type Funds</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>TOTAL</u>
SRUF	\$53,950	\$51,520	\$45,000	\$150,470
O&M	0	8,000	0	8,000
Code 711	0	0	135,000	135,000



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

REPLY TO
ATTENTION OF:

SWLCO-L

20 July 1978

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake, Design Memorandum No. 13-4, Updated Master Plan for Development and Management of Lake Dardanelle, Supplement No. 2

Division Engineer, Southwestern
ATTN: SWDCO-R

1. The purpose of this supplement is to reallocate approximately 315 acres of recreation low density use lands to a dual allocation for recreation low density use and wildlife management. The Arkansas Game and Fish Commission has requested permission to construct and manage a "green-tree reservoir" in the vicinity of Spadra Creek. A refuge for migratory waterfowl will be created by inundating 146 acres from the last of October through February.
2. The plan of development of the "green-tree reservoir" is being sponsored by the Johnson County Conservation District and the Arkansas Game and Fish Commission (AG&FC). Planning, design, and construction contract administration assistance is being provided by the United States Department of Agriculture, Soil Conservation Service (SCS). The inclosed drawing of the reservoir was prepared by SCS as part of the Johnson County Fish and Wildlife Development RC & D Measure Plan. Developmental costs will be shared by AG&FC and SCS; the current estimated installation cost is \$46,250. This project involves the construction of 4,500 linear feet of earth fill dikes built to elevation 345 feet MSL, a 500-foot natural spillway at elevation 343 feet MSL, 2 water control structures, and a 3,000 gpm pump and pumphouse. The normal pool level of the reservoir will be 342 feet MSL, and it will have an average depth of 1½ feet. Approximately 104 acres of bottom-land hardwood will be enhanced and preserved by utilization as a green-tree reservoir. An additional 34 acres of open land will be planted in brown top millet, soybeans, or other plants suitable for waterfowl food and flooded as part of the reservoir. The remaining 177 acres will be used as a buffer zone. The reservoir will serve as a feeding and resting area where waterfowl can escape the shooting pressure while remaining in the area.

104
34
177

315

SWLCO-L

20 July 1978

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake, Design
Memorandum No. 13-4, Updated Master Plan for Development
and Management of Lake Dardanelle, Supplement No. 2

3. Plate 9 has been revised to include the green-tree reservoir as recreation low density/wildlife management lands. The area is labeled AG&FC No. 4 since it will be the fourth area on Lake Dardanelle to be actively managed by the Arkansas Game and Fish Commission.

4. Approval of this supplement is recommended.

2 Incl (9 cys)
As stated



DALE K. RANDELS

Colonel, Corps of Engineers
District Engineer

SWDCO-RR (SWLCO-L 20 Jul 78) 1st Ind
SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake, Design
Memorandum No. 13-4, Updated Master Plan for Development and
Management of Lake Dardanelle, Supplement No. 2

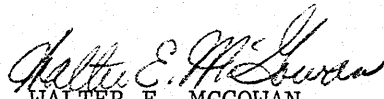
DA, Southwestern Division, Corps of Engineers, Main Tower Building,
1200 Main Street, Dallas, TX 75202 12 SEPTEMBER 1978

TO: District Engineer, Little Rock, ATTN: SWLCO-L

Supplement No. 2, Dardanelle Dam and Lake, Arkansas River, Arkansas, Design
Memorandum No. 13-4, Updated Master Plan for Development and Management of
Lake Dardanelle is approved.

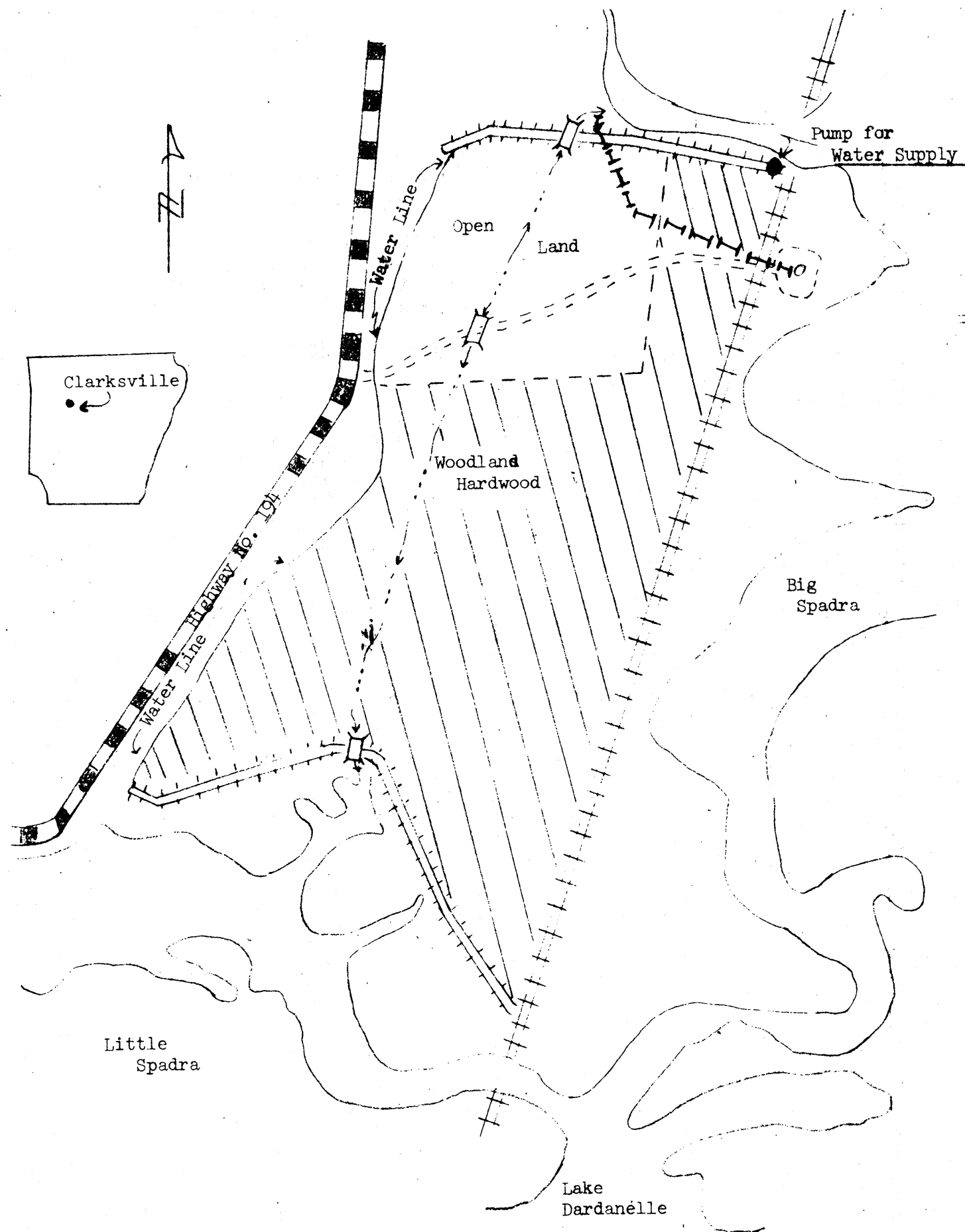
FOR THE DIVISION ENGINEER:

wd all incl



WALTER E. MCGOWAN
Acting Chief, Construction-
Operations Division

CF: w/incl
HQDA (DAEN-CWO-R) (5 cy)



LEGEND

- Abandoned Railroad Dump
- Access Road
- Gas Well
- Proposed Water Control Structures
- Proposed Dikes
- Gas Line

MEASURE SITE MAP

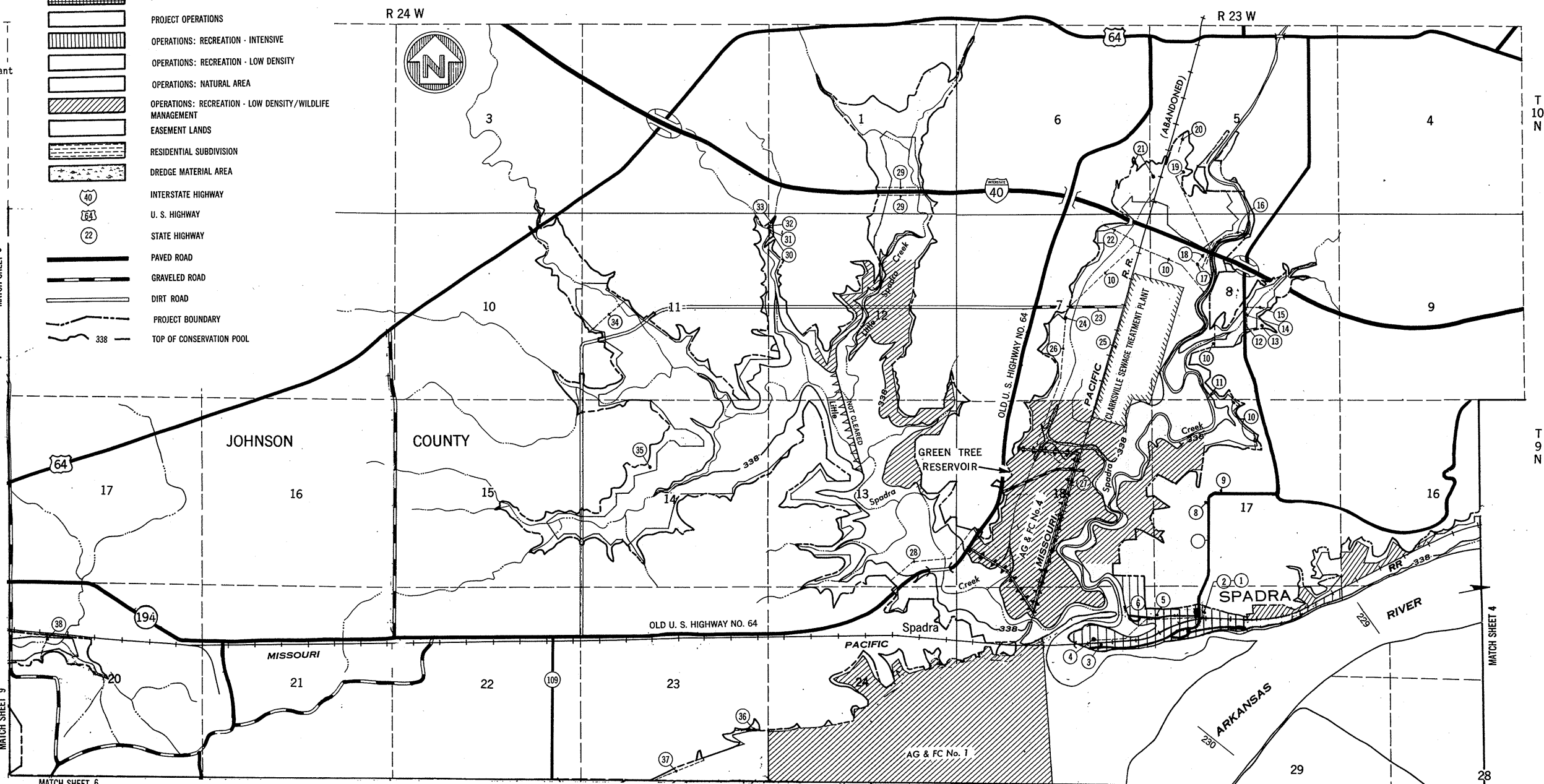
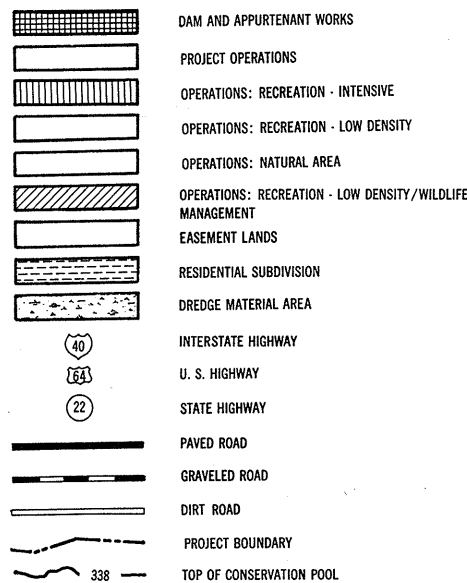
JOHNSON COUNTY WILDLIFE DEVELOPMENT RC&D MEASURE

JOHNSON COUNTY, ARKANSAS

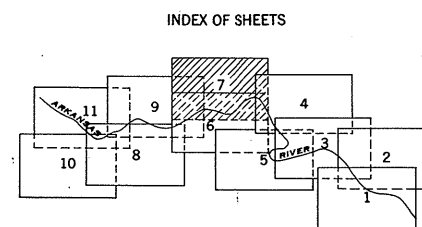
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCALE: 1 inch = 660 feet

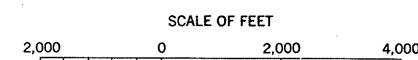
- ### LEGEND



- | | | | |
|---|--|---|---|
| 16. Easement No. 71-409
Clarksville Light & Water Co.
7.2 - k.v. electric powerline
Expires 9 Dec 1995 | 11. License No. 75-237
Harold Love
Water pipeline
Expires 17 April 1980 | 6. Lease No. 70-883
Mr. Holger Peterson
Spadra Boat Dock
Expires 31 December 1989 | 1. Easement 66-422
Western Ark. Telephone Co.
ROW for telephone line |
| 17. Letter Permit
Ark. La. Gas
4" gas line | 12. Easement No. 68-806
Ark. State Hwy Dept.
Road (Reloc. Cont. 65-65) | 7. License No. 76-278
Lloyd E. Yarbrough
Use and maintenance of the
Spadra Park access road
Expires 19 April 1977 | 2. Letter Permit
Ark. La. Gas
2" gas line |
| 18. Easement No. 70-576
Hanford Produce Co.
Sewerline
Expires 11 Feb 1995 | 13. Consent to easement
Ulus Jones
Livestock pond | 8. Consent to easement
Lloyd Yarbrough
Turnoff road and 6" water pipeline | 3. Easement 66-309
Okla. Gas & Elec.
ROW for power line
Expires 11 July 1990 |
| 19. Letter Permit
Diamond Shamrock Corp.
Drill oil or gas well | 14. Easement No. 69-904
Whitney Johnson
ROW for water line
Expires 17 Mar 1989 | 9. Consent to easement
Larry Crutchfield
Driveway to private prop. | 4. Letter Permit
Gulf Oil Co.
Drill well |
| 20. Consent to easement
Walter Looper
4" Sewerline, 300' long | 15. Easement No. 69-398
Clarksville Light & Water Co.
ROW for water line
Expires 1 Oct 2018 | 10. Letter Permit
Ark. La. Gas
4" gas line | 5. Easement No. 66-308
Okla. Gas & Elec.
ROW for power line
Expires 11 July 1990 |



ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
 UPDATED MASTER RECREATION PLAN
 DARDANELLE LAKE
 LAND USE MAP



IN 11 SHEETS

SHEET NO. 7

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977
REVISED JULY 1978

SWDPL-R (SWLED-PV 27 Jan 78) 1st Ind

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake Design
Memorandum 13-4, Updated Master Plan for Development and
Management of Lake Dardanelle, Supplement No. 1

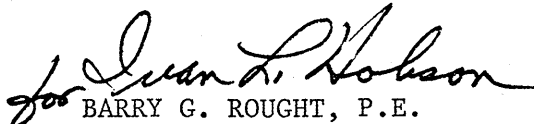
DA, Southwestern Division, Corps of Engineers, Main Tower Building,
1200 Main Street, Dallas, TX 75202 22 FEB '78

TO: District Engineer, Little Rock

Supplement No. 1 to the Dardanelle Lake Master Plan is approved.

FOR THE DIVISION ENGINEER:

wd incl


BARRY G. ROUGHT, P.E.
Chief, Planning Division

CF:

HQDA (DAEN-CWO-R) w/cy basic &
incl (quint)



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

REPLY TO
ATTENTION OF:

SWLED-PV

27 January 1978

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake Design
Memorandum 13-4, Updated Master Plan for Development and
Management of Lake Dardanelle, Supplement No. 1

Division Engineer, Southwestern

1. The purpose of this supplement is to make approximately 15 acres of Government land available for the development of a community park by the city of London, Arkansas, under a 25-year lease. The location of the lease area is identified on the inclosed exhibit. Leasing of this land will be contingent upon approval of the city's application for land and water conservation funds and submission of a complete plan of development and management for the area.
2. Recreational use is considered the best use of this land; therefore, expeditious approval of this supplement is recommended.

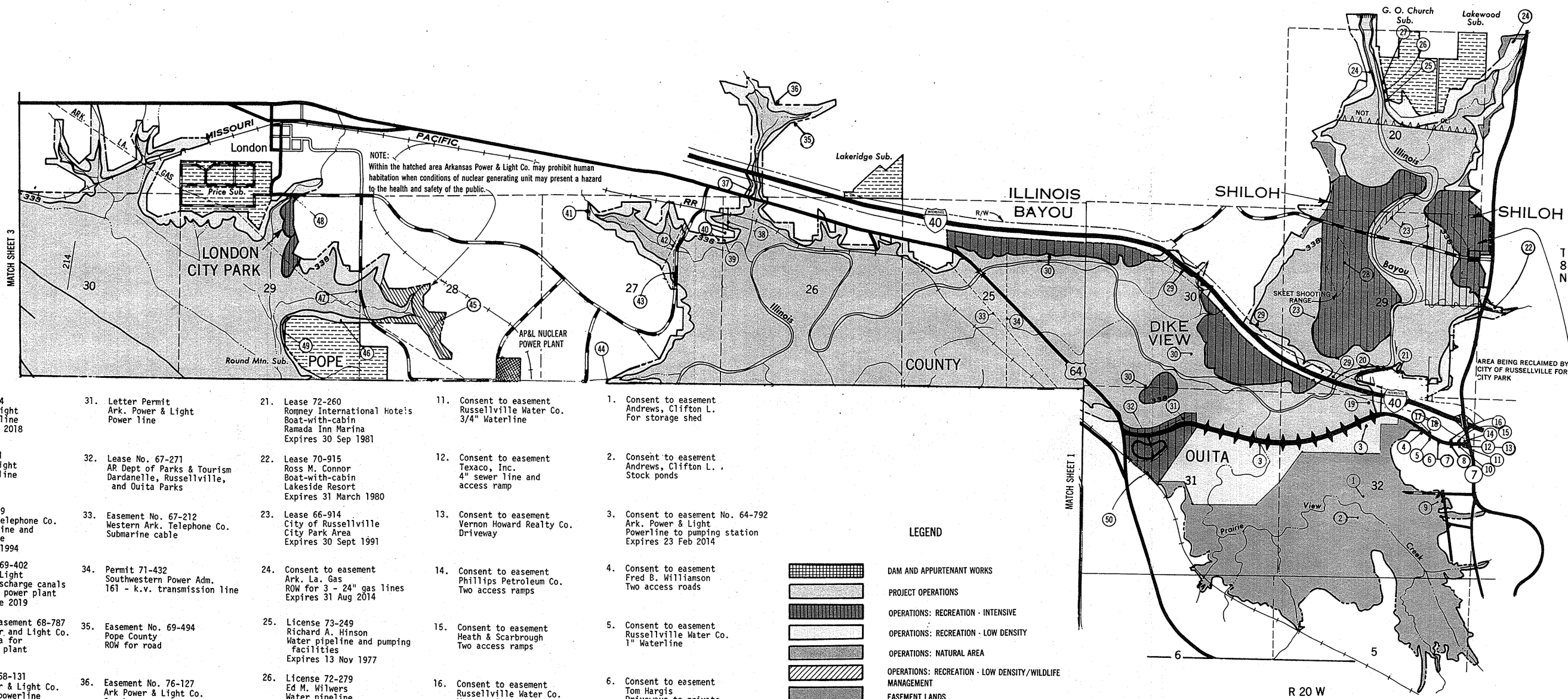
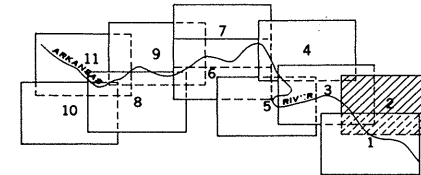
1 Incl (9 cys)
as

A handwritten signature in dark ink, appearing to read "C. E. Edgar III", is written over the typed name.

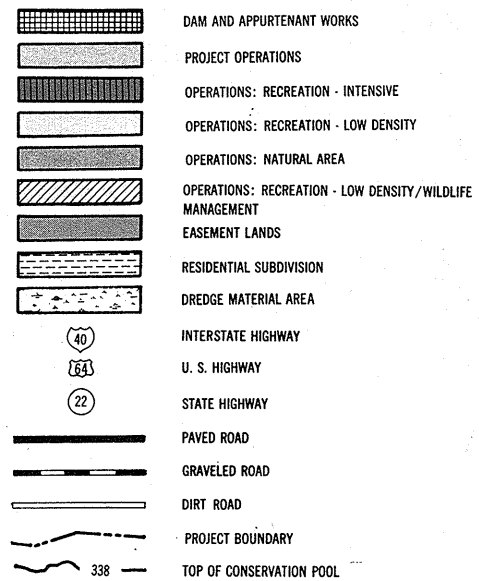
C. E. EDGAR III
Colonel, Corps of Engineers
District Engineer



INDEX OF SHEETS

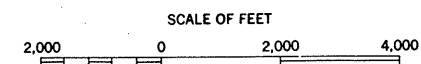


LEGEND

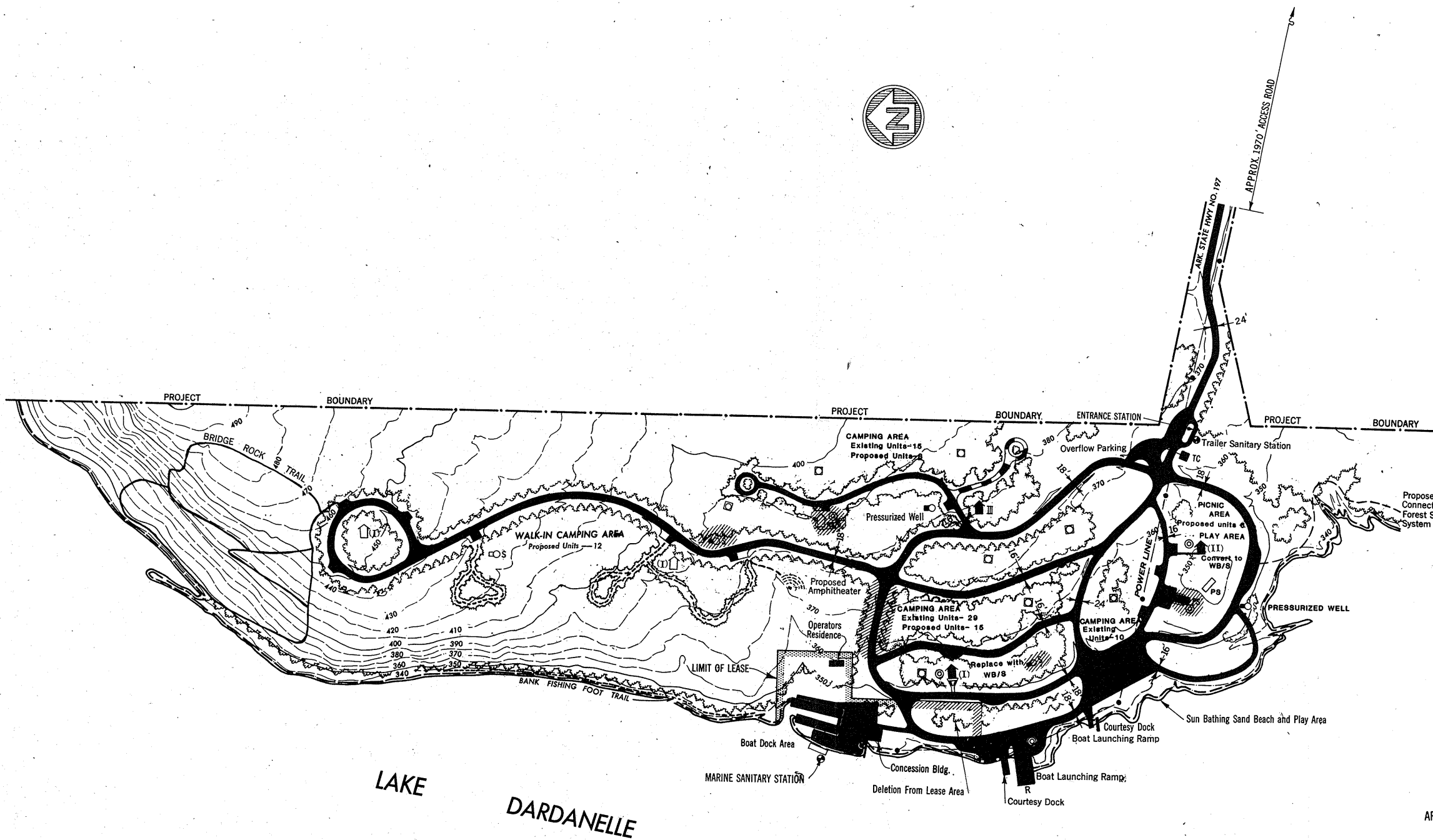


- | | | | | |
|--|--|--|--|--|
| 41. Easement 69-404
Ark. Power & Light
ROW for power line
Expires 10 Oct 2018 | 31. Letter Permit
Ark. Power & Light
Power line | 21. Lease 72-260
Romney International Hotels
Boat-with-cabin
Ramada Inn Marina
Expires 30 Sep 1981 | 11. Consent to easement
Russellville Water Co.
3/4" Waterline | 1. Consent to easement
Andrews, Clifton L.
For storage shed |
| 42. Easement 67-331
Ark. Power & Light
ROW for power line | 32. Lease No. 67-271
AR Dept of Parks & Tourism
Dardanelle, Russellville,
and Ouita Parks | 22. Lease 70-915
Ross M. Connor
Boat-with-cabin
Lakeside Resort
Expires 31 March 1980 | 12. Consent to easement
Texaco, Inc.
4" sewer line and
access ramp | 2. Consent to easement
Andrews, Clifton L.
Stock ponds |
| 43. Easement 69-879
Western Ark. Telephone Co.
ROW for pole line and
submarine cable
Expires 4 Feb 1994 | 33. Easement No. 67-212
Western Ark. Telephone Co.
Submarine cable | 23. Lease 66-914
City of Russellville
City Park Area
Expires 30 Sept 1991 | 13. Consent to easement
Vernon Howard Realty Co.
Driveway | 3. Consent to easement No. 64-792
Ark. Power & Light
Powerline to pumping station
Expires 23 Feb 2014 |
| 44. Easement No. 69-402
Ark. Power & Light
Intake and discharge canals
for Nuclear 1 power plant
Expires 4 June 2019 | 34. Permit 71-432
Southwestern Power Adm.
161 - k.v. transmission line | 24. Consent to easement
Ark. La. Gas
ROW for 3 - 24" gas lines
Expires 31 Aug 2014 | 14. Consent to easement
Phillips Petroleum Co.
Two access ramps | 4. Consent to easement
Fred B. Williamson
Two access roads |
| 45. Restrictive Easement 68-787
Arkansas Power and Light Co.
Exclusion area for
Atomic Energy plant | 35. Easement No. 69-494
Pope County
ROW for road | 25. License 73-249
Richard A. Hinson
Water pipeline and pumping
facilities
Expires 13 Nov 1977 | 15. Consent to easement
Heath & Scarbrough
Two access ramps | 5. Consent to easement
Russellville Water Co.
1" Waterline |
| 46. Easement No. 68-131
Arkansas Power & Light Co.
120-240 Volt powerline
Expires 7 Sep 92 | 36. Easement No. 76-127
Ark Power & Light Co.
8 - k.v. powerline
Expires 15 Oct 2000 | 26. License 72-279
Ed M. Wilkerson
Water pipeline
Expires 6 Dec 1976 | 16. Consent to easement
Russellville Water Co.
Water main | 6. Consent to easement
Tom Hargis
Driveways to private
property |
| 47. Easement 70-338
Western AR Tel Co.
Telephone line
Expires 11 Sept 94 | 37. Easement No. 69-403
Town of London
ROW for water line
Expires 10 Oct 2018 | 27. Easement No. 65-788
A. A. Kennedy
ROW for gas pipe line
Expires 19 Nov 1989 | 17. Consent to easement
Ark. La. Gas
1" gas line under Russellville
Dike road | 7. Consent to easement
R. W. Braselton
Private driveway |
| 48. Easement No. 70-569
J. C. Hess
1" Gas pipeline
Expires 5 Feb 1995 | 38. Easement No. 64-462
Pope County
Road ROW | 28. Letter Permit
Cameron Energy, Inc.
Drill test holes | 18. Consent to easement
Ark. La. Gas
2" gas line under Russellville
Dike road | 8. Consent to easement
Buster Leavell
Access road |
| 49. Easement No. 69-909
Pope County
ROW for road
Expires 20 March 1999 | 39. License 69-493
Boyce Tidwell & Richard Mobley
ROW for water line
Expires 6 Nov 1978 | 29. Easement No. 63-797
Ark. Hwy. Dept.
ROW for 1-40 | 19. License 67-298
Chas. W. Mize
Water line & pump | 9. Consent to easement
Ark. St. Hwy. Dept.
Segment of St. Hwy. 872 |
| 50. Easement No. 70-357
Ark. Power and Light
8-ky powerline
31 Oct 1984 | 40. License 69-317
W. S. Newton
ROW for water line
Expires 31 July 78 | 30. Lease No. 69-319
AR Polytechnic Coll
Rec parks Dike View, Ill Bayou
(future parks) & Ouita Island
Expires 30 June 1993 | 20. License 74-256
Romney International Hotels
Curb and gutter
Expires 9 Feb 1979 | 10. Consent to easement
Holiday Inns, Edward G. Sims,
City Real Estate Co., Inc.
and Phillips Petroleum Co.
Sewer pipeline |

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
DARDANELLE LAKE
LAND USE PLAN



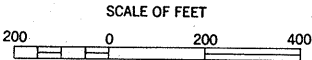
IN 11 SHEETS SHEET NO. 2
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977
REVISED JANUARY 1978



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		
TO BE REMOVED		

NOTE: THIS AREA IS LOCATED IN SECTION 34,
T. 8 N., R. 23 W., LOGAN CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SHOAL BAY PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JANUARY 1985



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

REPLY TO
ATTENTION OF:

SWLED-PV

27 September 1977

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake, Design
Memorandum No. 13-4, Updated Master Plan for Development and
Management of Lake Dardanelle

Division Engineer, Southwestern

Design Memorandum No. 13-4, Updated Master Plan for Development and Manage-
ment of Lake Dardanelle is submitted for approval.

1 Incl (9 cys)
as

for *Robert W Glenn LTC CE*
C. E. EDGAR III
Colonel, Corps of Engineers
District Engineer

SWDPL-R (SWLED-PV 27 Sep 77) 1st Ind

SUBJECT: Arkansas River, Arkansas, Dardanelle Dam and Lake, Design
Memorandum No. 13-4, Updated Master Plan for Development
and Management of Lake Dardanelle

DA, Southwestern Division, Corps of Engineers, Main Tower Building,
1200 Main Street, Dallas, TX 75202 19 DEC 77

TO: District Engineer, Little Rock

The updated master plan for Lake Dardanelle is approved, subject to the following comments which should be considered and incorporated in the plan as appropriate, prior to implementing the development or action involved:

a. Para 1-05h. The Safe Drinking Water Act is PL 93-523 rather than 92-523 as indicated.

b. Para 2-04h. There is a discrepancy between this paragraph and paragraph 2-04g concerning water quality. This should be reconciled. This comment also applies to a similar discrepancy involving health conditions discussed in paragraphs 2-09a and b.

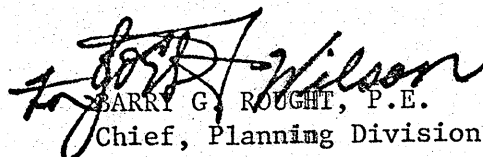
c. Para 4-01i(1). Any developments, such as trails, to increase awareness and enjoyment of the unique natural features must be carefully designed and installed to avoid detracting from or even destroying the feature.

d. Para 5-06b and 5-06d. Restrooms and picnic facilities should be constructed using Little Rock standard designs but revised to incorporate current criteria and regulations; i.e., physically handicapped requirements.

e. Section XI. The management plan (Appendix B) should be checked to determine whether the management practices prescribed adequately satisfy the requirements of the revised master plan. If not, a concept plan should be provided in the master plan and the management plan revised as required to meet the objectives.

FOR THE DIVISION ENGINEER:

wd incl


BARRY G. ROUGHT, P.E.
Chief, Planning Division

CF:

HQDA (DAEN-CWO-R) w/5 cy basic
& incl

ARKANSAS RIVER WATERSHED
ARKANSAS

ARKANSAS RIVER
DARDANELLE LAKE

DESIGN MEMORANDUM NO. 13-4

UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
OF DARDANELLE LAKE

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1-03	Project purposes	1-1
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1-05	Application of public laws and executive orders	1-2
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2-02	Project structure	2-1
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ARKANSAS RIVER WATERSHED
ARKANSAS

ARKANSAS RIVER
LAKE DARDANELLE

DESIGN MEMORANDUM NO. 13-4

UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
OF LAKE DARDANELLE

PREVIOUSLY ISSUED AND CURRENTLY SCHEDULED DESIGN MEMORANDUMS

<u>Memo No.</u>	<u>Subject</u>	<u>Date submitted or scheduled</u>	<u>Date approved</u>
Hydrology and Hydraulic Analysis:			
1-1	Design Discharges	21 Jun 56	1 Nov 56
(1)	Sedimentation and Degradation	17 Oct 57	22 Jun 59
Real Estate Requirements:			
2-1	Dam Site and Work Area, Proposed Quarry Area, and Access Road	12 Apr 56	21 Nov 56
2-2	Water Supply Line	26 May 58	7 Aug 58
2-3A	Portion of Reservoir Area (Mile 258.3-268.0)	2 Mar 59	10 Apr 59
2-3B	Portion of Reservoir Area (Mile 268.0-301.8)	23 Dec 59	29 Feb 60
	Supplement	10 Oct 62	30 Nov 62
Letter Report	Land on Left Bank (Mile 288.7-302.4)	30 Jul 62	3 Dec 62
Letter Report	Hartman Bottom Levee, Lower Section	3 Jan 64	30 Jan 64
3	Site Selection	29 Jun 56	13 Sep 56
4	Access Roads and Service Facilities	12 Oct 56	10 Oct 57
5	General Design Memorandum	28 Feb 57	21 May 57
6	Diversion Plan	30 Apr 58	8 Oct 58
7-1	Hydroelectric Power	30 Mar 59	6 Aug 59
	Supplemental Data	24 Sep 59	17 Nov 59
	Revision	13 May 60	14 Jul 60
7-2	Preliminary Design Report - Powerhouse and Switchyard	21 Aug 59	16 Oct 59
7-3	Power Plant	Sep 62	20 Sep 63
	Supplement No. 1-Line Bay No. 5	19 Feb 70	15 Apr 70
8	Geology and Soils	15 Nov 57	14 Feb 58
9-1	Concrete Materials	3 Oct 57	12 Dec 57
9-2	Concrete Characteristics	29 Apr 59	26 May 59

<u>Memo No.</u>	<u>Subject</u>	<u>Date submitted or scheduled</u>	<u>Date approved</u>
10	Navigation Lock	21 Mar 58	11 Aug 58
	Revision	15 Jul 59	2 Nov 59
10-2	Lock Testing Facilities	29 Jun 59	11 Aug 59
10-3	Navigation Lock, Completion	22 Jun 62	23 Oct 62
11-1	Dam, Embankment Section	16 May 58	2 Sep 58
	Revision	20 Jan 59	19 Feb 59
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12-1	Arkansas State Highway 22	7 Mar 58	8 May 58
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	Supplement Data	24 Oct 61	16 Nov 61
	Additional Data	14 Dec 61	5 Jan 62
	Additional Data	15 Jan 62	17 Jan 62
12-2	U.S. Highway 64 and Arkansas State Highway 7	14 Mar 61	8 Jun 61
	Supplement No. 1	31 Aug 61	8 Dec 61
	Supplement No. 2	24 Oct 61	20 Nov 61
12-3A	Pope County Roads	25 Sep 59	
	Revision	22 Jan 60	24 Jun 60
	Supplement No. 1	5 Jan 61	17 Feb 61
	Supplement No. 2	12 May 61	8 Jun 61
12-3B	Logan County Roads	20 Apr 60	30 Jun 60
	Supplemental Data	31 Aug 62	13 Sep 62
12-3B1	Logan County Roads (McLean Bottom)	28 Mar 62	29 May 62
	Supplemental Data	13 Jun 62	10 Jul 62
	Supplement No. 1	20 May 63	6 Sep 63
	Supplement No. 2 (Portion of Hwy 309)	31 Jan 64	
12-3C	Johnson County Roads	4 May 61	13 Jul 61
	Revised Data	28 Sep 61	3 Nov 61
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	Supplement	22 Oct 62	25 Oct 62
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	Pipe Lines:		
12-5A	Arkansas Louisiana Gas Company	24 Sep 59	
	Revision	23 Oct 59	14 Dec 59
	Supplement	2 Nov 60	17 Nov 60
12-5B	Oklahoma Mississippi River Products Pipe Line, Inc.	23 Dec 59	17 May 60

<u>Memo No.</u>	<u>Subject</u>	<u>Date submitted or scheduled</u>	<u>Date approved</u>
12-5C	Russellville Water Co., Inc.	4 Feb 60	13 Apr 60
	Supplement	14 Dec 60	23 Feb 61
	Electric Power Lines:		
12-5D	Arkansas Power and Light Co.	7 Apr 60	
	Revision	23 Jun 60	26 Aug 60
12-5E	Oklahoma Gas and Electric Co.	8 Jul 60	11 Aug 60
	Supplement No. 1	26 Sep 61	9 Oct 61
	Telephone Lines:		
12-5F	Southwestern Bell Telephone Co.	8 Nov 60	9 Jan 61
	Supplement No. 1	28 Jun 61	10 Jul 61
12-5G	Western Arkansas Telephone Co.	13 Sep 60	6 Dec 60
	Supplement No. 1	24 Nov 61	15 Dec 61
12-5H	Arkansas Valley Electric Coop. Corp.	18 Oct 60	3 Nov 60
12-5I	Gulf Oil Corporation, Alteration of Gas Wells	14 Jun 62	17 Aug 62
13-1	Preliminary Master Plan	23 Sep 58	23 Jan 59
	Revision	3 Apr 59	15 Jun 59
	Revision	6 Nov 59	19 Apr 60
	Supplement No. 1	7 Aug 61	27 Sep 61
	Supplement No. 2	13 Jul 62	30 Oct 62
	Additional Data	20 Sep 62	30 Oct 62
	Supplement No. 3	29 Aug 62	17 Sep 62
	Supplement No. 4	8 Feb 63	25 Mar 63
13-2	Master Plan	12 Oct 62	9 Jul 63
	Letter Report	Aug 64	
	Supplement No. 1	10 Mar 67	18 Oct 67
	Supplement No. 2	18 Dec 67	29 Jan 68
	Supplement No. 3	7 Mar 68	10 Sep 68
13-3	Updated Master Plan	30 Nov 70	27 Apr 71
	Supplement No. 1	23 Feb 71	24 Apr 71
	Supplement No. 2	26 Feb 75	4 Aug 75
	Supplement No. 3	21 Sep 76	30 Sep 76
13-4	Updated Master Plan	Sep 77	
14	Reservoir Clearing	31 Aug 61	27 Dec 61
15	Protection of Russellville	18 Dec 61	20 Jul 62
	Supplement No. 1	9 Oct 62	3 Dec 62
16	Protection of McLean Bottom	13 Feb 62	15 Nov 62
	Supplemental Data	31 Aug 62	15 Nov 62
	Supplement	17 Jan 63	15 Apr 63
17	Sediment Ranges	27 Jul 61	11 Sep 61
18	Operational Facilities	14 Aug 64	29 Sep 64
19	Corrosion Mitigation for Powerhouse		
	Gates	30 Jun 61	
	Revision	6 Dec 61	5 Feb 62
20	Enhancement of Public Areas of the Powerhouse	Jul 68	

(1) Submitted as Project Design Memorandum No. 6-4
Arkansas River and Tributaries, Sedimentation,
Dardanelle Reservoir.

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3-13	Land Use Plans
14-15	Road Details
16	Old Post Road Park
16A	Old Post Road Park Photo Map
17	Dam Site West Park
17A	Dam Site West Park Photo Map
18	Delaware Park
18A	Delaware Park Photo Map
19	Flat Rock Park
19A	Flat Rock Park Photo Map
20	Piney Bay Park
20A	Piney Bay Park Photo Map
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36A	Dike View Park Photo Map
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ARKANSAS RIVER WATERSHED
ARKANSAS

ARKANSAS RIVER
DARDANELLE DAM AND LAKE

DESIGN MEMORANDUM NO. 13-4

UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
OF LAKE DARDANELLE

SECTION I

INTRODUCTION

1-01. Purpose and scope. This report updates Design Memorandum No. 13-3 on Lake Dardanelle approved 27 April 1971. The plan presented in this report provides for an orderly and progressive development of the project and reflects the necessary changes in planning and land use which result from a reappraisal of conditions after approximately 6½ years of development under the guidance and direction of Design Memorandum No. 13-3. Major changes included in this updating are the addition of a land use plan and the establishment of resource use objectives for management of the project.

1-02. Project authorization. The Dardanelle Dam and Lake was authorized by the River and Harbor Act of 24 July 1946 for navigation and production of hydroelectric power. This act approved the multiple-purpose plan recommended in the report to the Chief of Engineers dated 20 September 1945 and letter of the Chief of Engineers dated 19 March 1946. The report and letter are contained in House Document No. 758, 79th Congress, 2d Session.

1-03. Project purposes. Dardanelle is a major unit in the multiple-purpose plan of development for the Arkansas River and tributaries, Arkansas and Oklahoma, now named the McClellan-Kerr Arkansas River Navigation System. Hydroelectric power generation, navigation, recreation, bank stabilization, and enhancement of fish and wildlife resources are authorized project purposes.

1-04. Status of the project. Overall construction of the project was initiated in June 1957. The dam was completed in August 1964, the power-plant was completed in June 1966, and the navigation lock was completed in December 1969. The reservoir was declared navigable in December 1969. Initial recreational facilities were constructed during the period from 1964 to 1972. Additional recreational facilities have been constructed under the Code 710 program since that time.

1-05. Application of public laws and executive orders.

a. Flood Control Act of 1944 (Public Law 78-534). The Department of the Army is authorized to provide for recreational use of the projects under its control by Section 4 of the Flood Control Act approved 22 December 1944, as amended by Section 4 of the Flood Control Act approved 24 July 1946, as amended by Section 209 of the Flood Control Act approved 3 September 1954, and as amended by Section 207 of the Flood Control Act of 1962, as amended by Section 2 of the Land and Water Conservation Fund Act of 1965, and as further amended by Section 210 of the Rivers and Harbors Flood Control Act of 1968.

b. Fish and Wildlife Coordination Act of 1958 (Public Law 85-624). Section 3 of this act provided for the use of Corps of Engineers Civil Works projects for the conservation, maintenance, and management of fish and wildlife resources. The land and water areas under the jurisdiction of the Department of the Army may be made available to State wildlife agencies by license agreement or by cooperative agreement with the Secretary of the Interior under the terms of a general plan approved jointly by the Secretary of the Army, the Secretary of the Interior, and the head of the State wildlife agency.

c. Federal Water Project Recreation Act (Public Law 89-72). While initial recreational development was accomplished at 100 percent Federal cost, further development requires implementation of the policy established by the Secretary of the Army in coordination with the Office of Management and Budget as outlined in EC 11-2-127 dated 15 April 1977, Recreational Development at Completed Projects. The policy states that a non-Federal body must agree to furnish not less than 50 percent of the cost of future development and further agree to operate, maintain, and provide replacement of the park development. Also it provides for 100 percent Federal expenditures only for urgently needed sanitary facilities. Section 8.02 of this master plan outlines the present cost sharing program.

d. Public Law 93-303, Fee Collection System. On 7 June 1974, Public Law 93-303 was enacted. This law provides for the collection of fees at family camping and group camping areas having various classes of facilities.

e. Executive Order of the President 11752 - Prevention, Control and Abatement of Environmental Pollution at Federal Facilities. This order directs that the Federal Government shall provide leadership in the nationwide effort to protect and enhance the quality of our air, water, and land resources, and in the prevention of environmental pollution.

f. Executive Order of the President 11593 - Protection and Enhancement of the Cultural Environment. This order sets out a policy for the Federal Government to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation.

g. Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). The objective of this act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

h. Safe Drinking Water Act (Public Law 92-523). This act amends the Public Health Service Act to assure that the public is provided with safe drinking water.

i. Federal Environmental Pesticide Control Act of 1972 (Public Law 92-516). This act regulates the use of pesticides to protect man and his environment.

j. The Clean Air Act As Amended, June 1974. This act includes control of pollution from Federal facilities and emissions from motor vehicles.

k. Resource Conservation and Recovery Act of 1976 (Public Law 94-580). The objectives of this act are to promote the protection of health and the environment and to conserve valuable material and energy resources. This act is formerly known as the Solid Waste Disposal Act.

l. Noise Control Act of 1972 (Public Law 92-574). This act provides for effective coordination of research, establishment of noise emission standards for commercial products, and dissemination of information to the public on such products.

m. Archeological Preservation Act (Public Law 93-291). This law authorized Federal agencies to submit a separate line item on budget requests for cultural resources considerations. Up to one percent of project funds can be allocated for identification and management of cultural resources.

SECTION II

PROJECT AREA RESOURCES

2-01. Location of project. Dardanelle Dam is located at Arkansas River navigation mile 205.5 (river mile 257.8, 1940 survey) in Pope and Yell Counties, Arkansas, at the north edge of the city of Dardanelle, Arkansas, and 2 miles southwest of Russellville, Arkansas. The lake extends 51 miles westerly along the Arkansas River into Pope, Yell, Johnson, Logan, and Franklin Counties, Arkansas, to Ozark Lock and Dam. The lake area is located in the Arkansas River Valley which is bounded on the north by the Boston "Mountains" and on the south by the Ouachita Mountains. Numerous clear-water streams enter the Arkansas River within the lake reach. Vacationists are attracted to this area principally to enjoy the panorama of the Ozark forests and the lake formed by Dardanelle Lock and Dam. Other visitors and local residents spend their leisure time pursuing the many other varied recreational activities which are provided for by the Corps-operated project and the nearby State parks and national forests. The size and location of Lake Dardanelle make it ideal as a principal base for pleasure boats and boating clubs along the navigation route from Catoosa, Oklahoma, to the Mississippi River. The lake is ideally suited as a base for sightseeing navigation trips along the Arkansas River. The portion of Illinois Bayou arm of the lake south of the Missouri Pacific Railroad crossing is of sufficient size and proximity to Russellville, Arkansas, to make it an ideal harbor for large pleasure boats. The location of the project is shown on Plate 1.

2-02. Project Structure. A summary of pertinent data relative to the dam and lake is shown in Table 2-1.

2-03. Description of project area. The river valley in the vicinity of the lake varies in width from 1/2 to 6 miles across. The lower one-third of the project is surrounded by tree-covered, rocky slopes of the Ozark Mountains which are occasionally notched by clear water tributary streams. The upper two-thirds of the project is bordered by a broad, flat, fertile alluvial valley. The waters of Lake Dardanelle have become clearer because of the retention of sediment in the upstream lakes. A relatively clear pool and accessible scenic shoreline have attracted an increasing number of vacationers.

2-04. Water characteristics.

a. The surface water of the Arkansas River Basin is affected by several sources of pollution located along its pathway which starts in the Rocky Mountains of Colorado and winds through the States of Kansas, Oklahoma, and Arkansas. Nearly all of the cities located adjacent to the Arkansas River and its tributaries discharge sewage plant effluents

TABLE 2-1

PERTINENT DATA OF THE DAM AND LAKE

Item	Design Data
<u>General information:</u>	
Purpose	N, P (1)
Stream	Arkansas River
State	Arkansas
Navigation mile	205.5
Average annual precipitation over the lake inches	48.6
Uncontrolled drainage area, sq. mi.	11,386
Total drainage area, sq. mi.	153,703
<u>Spillway:</u>	
Total length, feet	1,200
Crest elevation, feet above mean sea level	300
Crest gates, (20) radial type, feet	50 x 39
<u>Embankment section:</u>	
Length, feet	605
Top of roadway elevation, feet above mean sea level	348
Maximum height, feet	85
<u>Concrete gravity section:</u>	
Length, feet	282
Top of roadway, feet above mean sea level	355
Maximum height, feet	90
<u>Powerplant:</u>	
Number of power units	4
Capacity of each unit, k.w.	31,000
Plant installation, k.w.	124,000
<u>Navigation lock:</u>	
Length, feet	600
Width, feet	110
Maximum lift, feet	54
Top of lock wall, feet above mean sea level	348
<u>Lake:</u>	
Top of conservation pool elevation, feet above mean sea level	338
Capacity at top of conservation pool, acre-feet	486,200
Area at top of conservation pool, acres	34,300
Length of shoreline at top of conservation pool, miles	315

(1) N-Navigation P-Power production

into these waters. In addition, two major sources of pollution to the Arkansas River are located in Oklahoma. These are the heavy sediment load discharged by the Upper Arkansas, Cimarron, and Canadian Rivers and the massive chloride concentration discharged by the Cimarron, Salt Fork, and Canadian Rivers into the main stream of the Arkansas River. Corps projects located in Oklahoma have reduced the volume of sedimentation. The Tulsa District Corps of Engineers is conducting an advanced engineering and design study on means of further reducing the chloride concentration.

b. The surface water of tributary streams emptying into Lake Dardanelle is generally of good quality. These streams are usually clear except during periods of high runoff. Except for a few isolated instances the tributary streams are virtually free from chemical or organic pollutants. These streams receive runoff from an area of typical forested Ozark Mountains and are short in length with streambeds of sand and gravel. Very little silt is carried by the tributary streams and this results in clear water embayments at their confluence with the lake.

c. The Water Pollution Control Survey of Lake Dardanelle conducted by the Arkansas Pollution Control Commission during 1969 revealed the effluent from overloaded municipal waste treatment facilities, storm runoff from urban areas, and agricultural runoff are causing localized pollution and are contributing to the high coliform counts experienced in samples of the lake water. The report pointed out that the city of Ozark discharged partially treated sewage into the Arkansas River such that "the effects of this discharge were noted approximately 20 miles downstream." However, upgraded sewage treatment facilities are presently being constructed for Ozark and should be fully operational before the end of 1977. These facilities are expected to improve the quality of the effluent to the point where it will not significantly affect the water quality in Lake Dardanelle. The report also pointed out that "the water quality in the streams of the area was good except for Six Mile Creek which received the effluent from the Paris STP (sewage treatment plant) * * *." The city of Paris is scheduled to begin construction on a tertiary treatment plant in 1978. Upon completion of that plant the effluent discharged into Six Mile Creek should have no adverse effects on the water quality.

d. The quality of the impounded water can be expected to improve as the adjacent municipal sewage treatment plants improve the quality of their effluent and the chloride sources in upstream areas are effectively prevented from contributing dissolved salts to the Arkansas River.

e. Ground water in the area is satisfactory for most purposes. However, quantities may not be sufficient to meet manufacturing and industrial requirements.

f. The Arkansas Department of Pollution Control and Ecology conducted additional surveys of the Arkansas River, excluding Lake Dardanelle, in 1972 and 1973. The results of their survey are published in "Water Pollution Control Survey of the Arkansas River Basin, July 1974, Volume II - Stream Survey." These results conclude that the water quality has vastly improved with respect to dissolved oxygen content, lower levels of organic waste, and biochemical oxygen demands, clarity, and salinity. The following statement is quoted from page 647 of the report, "In the 150 mile distance between N.M. 275 below Fort Smith and N.M. 125 just above Little Rock, only two short stretches of river are polluted so that they do not meet the Department of Pollution Control and Ecology's criteria for Class A waters (that is, suitable for all beneficial uses including primary contact recreation). These are below the city of Ozark at N.M. 257 and below the discharges from the cities of Russellville and Dardanelle, which affect approximately a 20-mile reach from N.M. 201 to N.M. 181." Thus the upper reach of Lake Dardanelle is considered unsuitable for body contact sport.

g. The Arkansas Department of Pollution Control and Ecology is required by PL 92-500 to annually prepare a Water Quality Inventory Report. An indication of the improved water quality in Lake Dardanelle is given by the following quote from page 63 of their latest report, dated May 1976. "Recreational activities, such as swimming and other water sports, are quite common in the vicinity of Russellville and Dardanelle. Water quality in this stretch of the river is extremely good. Fecal coliform monitoring indicates that this stretch of the Arkansas is suitable as a swimming water."

h. Swimming facilities are not proposed on Lake Dardanelle at this time and will not be proposed until the water quality meets the Arkansas State Department of Health standards, which are based on total (rather than fecal) coliform bacteria as published in their "Rules and Regulations Pertaining to Outdoor Bathing Places, dated July 1964."

2-05. Soils.

a. Lake Dardanelle is located within the Arkansas Valley physiographic province. The Arkansas River has developed a channel in bedrock within the Arkansas Valley province that varies from 1/2 to 6 miles in width. The tributary streams are narrow and usually confined by narrow ridges. The rocks exposed in the lake area are of sedimentary origin and consist predominately of shale and sandstone of Pennsylvanian Age. The formations include the Atoka, which is the oldest formation in the area, and consist of sandstone and shale; the Hartshorne sandstone which was deposited upon the Atoka and is the resistant strong ridgemaker; and the Spadra shale which lies on the Hartshorne and is widely exposed in the project area.

b. Both alluvial and residual soils occur in the area. The alluvial soils were deposited by the streams in the valley and reach a maximum thickness of 75 feet, usually grading upward from coarse sand and gravel to fine sand and silt. The residual soils are the result of in-place weathering of underlying rock strata. In the areas where the bedrock is sandstone, the soil mantle generally consists of sandy silt containing fragments of sandstone. These deposits vary in thickness from 0 to 5 feet. The shale strata being less resistant to weathering will have soil overburden of clayey material containing fewer rock fragments and reaching thicknesses up to 15 feet. Soils in some of the upland areas contain varying amounts of detrital or washed-in material controlled by the drainage and topography of the area.

c. The alluvial soils are typically fertile and the residual soils are typically poor. Both of these soil types as well as different degrees of mixture can be found in the various recreational areas. By selecting plant materials which are adapted to the different soil types there should be little hindrance to reforestation or landscaping activities. The necessity of rock excavation in some areas and the presence of expansive clays in others should be considered when siting facilities and roadways. The various soil associations and their limitations for recreational development are described in Section 4-05.

d. A soils association legend and map for the lake areas are shown on pages 2-6 through 2-9.

SOILS ASSOCIATION LEGEND

LINKER-MOUNTAINBURG ASSOCIATION: Moderately deep and shallow, loamy, moderately and rapidly permeable, well drained, acid soils on gently to moderately sloping hilltops and ridges. Linker 45 percent, Mountainburg 35 percent (inclusions of Allen, Cane, Enders, Hartsells, Montevallo, 20 percent). Linker soils are about 24 to 50 inches thick over sandstone bedrock. They have grayish-brown fine sandy loam surface soil over yellowish-red or red sandy clay loam or clay loam subsoil. Mountainburg soils are less than 20 inches thick over sandstone bedrock. They have brown or grayish-brown sandy loam surface soil over yellowish-red or reddish-brown sandy loam subsoil.

ALLEN-MOUNTAINBURG-ENDERS ASSOCIATION: Deep and shallow, loamy, rapidly to very slowly permeable, well drained, gravelly or stony, acid soils on steep mountainsides, moderately sloping benches and ridgetops. Allen 40 percent, Mountainburg 20 percent, Enders 20 percent (inclusions of Cane, Cleora, Holston, Linker, Montevallo, and Rockland, 20 percent). Allen soils have dark brown or grayish-brown sandy loam surface soil over yellowish-red or red sandy clay loam subsoil. Mountainburg soils are less than 20 inches thick over sandstone bedrock. They have brown or grayish-brown sandy loam surface soil over yellowish-red or reddish-brown sandy loam subsoil. Enders soils have grayish-brown sandy loam surface soil over yellowish-red or red plastic clay subsoil that is mottled gray in the lower part.

BRUNO ASSOCIATION: Deep, excessively drained, rapidly permeable, acid to neutral, sandy soils on level and undulating bottom lands, chiefly near Arkansas River channels. Bruno 85 percent (inclusions of Iberia, Morganfield, Caspiana, and Moreland, 15 percent). Bruno soils have brown loamy sand surface soil overlying brown or yellowish-brown loamy sand.

ENDERS-MOUNTAINBURG ASSOCIATION: Deep and shallow, well drained, very slowly and rapidly permeable, acid, gravelly or stony, loamy soils on moderately sloping hilltops and ridges and steep mountainsides. Enders 40 percent, Mountainburg 30 percent (inclusions of Rockland, Allen, Ora, Linker, Montevallo, 30 percent). Enders soils have grayish-brown or brown sandy loam surface soil over yellowish-red or red clay subsoil that is mottled gray in the lower part. Mountainburg soils are less than 20 inches thick over sandstone bedrock. They have brown or grayish-brown sandy loam surface soil over yellowish-red or reddish-brown sandy loam subsoil.

LEADVALE-TAFT ASSOCIATION: Deep, moderately well and somewhat poorly drained, moderately slowly and slowly permeable, acid, loamy soils in level to gently sloping valleys. Leadvale 65 percent, Taft 20 percent (inclusions of Cane and Guthrie, 15 percent). The moderately well drained Leadvale soils have grayish-brown or brown silt loam surface soil

over yellowish-brown silty clay loam upper subsoil. Beginning at a depth of 18 to 26 inches the subsoil is a brown and gray, mottled, compact and brittle silty clay loam fragipan. The somewhat poorly drained Taft soils have grayish-brown silt loam surface soil and grayish-brown, mottled silt loam upper subsoil. Beginning at a depth of 20 to 36 inches the subsoil is a grayish-brown and gray, mottled, compact and brittle silty clay loam fragipan.

MORGANFIELD-IBERIA ASSOCIATION: Deep, well and poorly drained, moderately and very slowly permeable, neutral to acid, loamy and clayey soils on level and nearly level Arkansas River bottom land. Morganfield 40 percent, Iberia 30 percent (inclusions of Gallion, Caspiana, Moreland, and Bruno, 30 percent). The well drained Morganfield soils have brown or reddish-brown very fine sandy loam surface soil over brown or reddish-brown silt loam or very fine sandy loam subsoil. The poorly drained Iberia soils have very dark gray or black clay surface soil over gray or dark gray, mottled clay subsoil.

MORGANFIELD-CASPIANA-IBERIA ASSOCIATION: Deep, well to poorly drained, moderately and very slowly permeable, acid to neutral, loamy and clayey soils on level and nearly level Arkansas River bottom land. Morganfield 35 percent, Caspiana 25 percent, Iberia 20 percent (inclusions of Moreland, Muldrow, and Bruno, 20 percent). The well drained Morganfield soils have brown or reddish-brown very fine sandy loam surface soil over dark brown to reddish-brown silt loam or very fine sandy loam subsoil. The well drained Caspiana soils have very dark grayish-brown to dark brown silt loam surface soil over very dark brown to dark reddish-brown sandy clay loam or clay loam subsoil. The poorly drained Iberia soils have very dark gray or black clay surface soil over gray or dark gray, mottled clay subsoil.

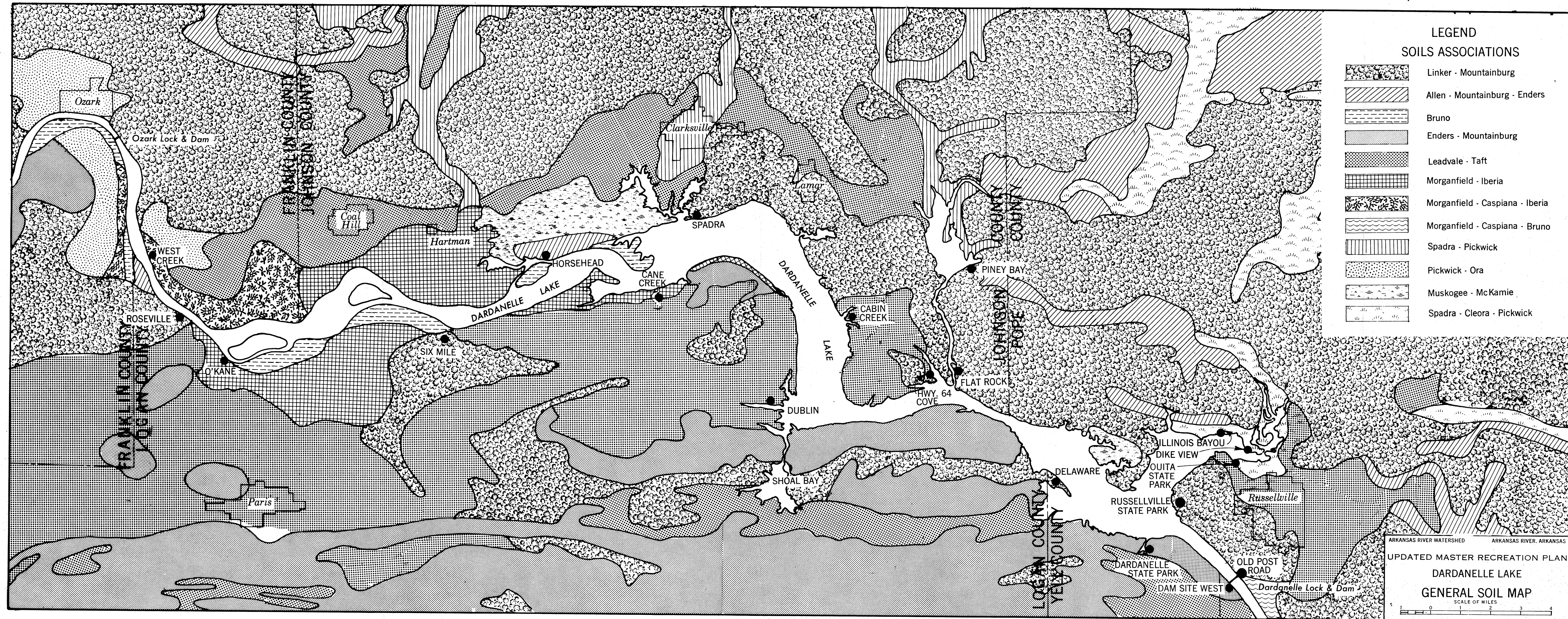
MORGANFIELD-CASPIANA-BRUNO ASSOCIATION: Deep, loamy, and sandy, moderately and rapidly permeable, well and excessively drained soils on level and nearly level Arkansas River bottom land. Morganfield 30 percent, Caspiana 30 percent, Bruno 15 percent (inclusions of Gallion, Hebert, and Moreland, 25 percent). Morganfield soils have dark brown or dark reddish-brown fine sandy loam surface soil overlying reddish-brown fine sandy loam. Caspiana soils have dark brown silt loam surface soil over dark brown or dark reddish-brown silty clay loam subsoil. Bruno soils have brown loamy sand surface soil overlying brown or yellowish-brown loamy sand.

SPADRA-PICKWICK ASSOCIATION: Deep, well drained, moderately permeable, acid, loamy soils on flood plains and terraces of local streams. Spadra 45 percent, Pickwick 35 percent (inclusions of Cane, Guthrie, Leadvale, and Taft, 20 percent). Spadra soils have dark brown sandy loam surface soil over brown to yellowish-red loam subsoil. Pickwick soils have brown silt loam surface soil over yellowish-red or red silty clay loam subsoil.

PICKWICK-ORA ASSOCIATION: Deep, well and moderately well drained, moderately and moderately slowly permeable, acid, loamy soils on nearly level to gently sloping stream terraces. Pickwick 65 percent, Ora 20 percent (inclusions of Leadvale, Muskogee, McKamie, Taft, Linker, and Mountainburg, 15 percent). Pickwick soils have brown or dark brown silt loam surface soil over yellowish-red or red silty clay loam subsoil. Ora soils have dark grayish-brown to dark yellowish-brown silt loam surface soil over strong brown or yellowish-red silty clay loam upper subsoil. Beginning at a depth of 18 to 26 inches the subsoil is a brown and gray, mottled, compact and brittle silty clay loam fragipan.

MUSKOGEE-McKAMIE ASSOCIATION: Deep, moderately well and well drained, slowly and very slowly permeable, acid, loamy soils on nearly level and gently sloping terraces adjacent to the Arkansas River flood plain. Muskogee 40 percent, McKamie 30 percent (inclusions of Leadvale, Cane, and Guthrie, 30 percent). The moderately well drained Muskogee soils have brown silt loam surface soil over yellowish-brown silty clay loam upper subsoil. Beginning at a depth of 20 to 38 inches is brown, yellowish-red and gray, mottled clay. The well drained McKamie soils have brown silt loam surface soil over red or reddish-brown clay subsoil.

SPADRA-CLEORA-PICKWICK ASSOCIATION: Deep, loamy, moderately permeable, well drained, acid soils on flood plains and terraces of local streams. Spadra 40 percent, Cleora 20 percent, Pickwick 20 percent (inclusions of Cane, Guthrie, Taft, 20 percent). Spadra soils have dark brown sandy loam surface soil over brown to yellowish-red loam subsoil. Cleora soils have dark brown sandy loam surface soil over brown or dark brown sandy loam. Pickwick soils have brown silt loam surface soil over yellowish-red or red silty clay loam subsoil.



2-06. Vegetation. Much of the surrounding shoreline has moderate to heavy tree cover. A wide variety of trees native to Arkansas are found in the varying habitats in this area. The predominant trees are of the oak genus with 14 species found in the immediate lake area. Other species of trees to be found are hickory, red cedar, short leaf pine, persimmon, gum, elm, maple, ash, chinquapin, birch, sycamore, and cottonwood. This diversified tree cover, with its accompanying under-story plants, creates a spectrum of color in the area during the spring and autumn.

2-07. Arkansas Nuclear One.

a. The Arkansas Power and Light Company has constructed a nuclear powerplant northwest of Russellville and southeast of London, Arkansas. It is the only nuclear powerplant in the State of Arkansas. The plant requires 1,700 c.f.s. of lake water for cooling purposes. The cooling water is heated to an allowable maximum of 15 degrees Fahrenheit above ambient lake water temperature. Thermal plume mapping by the Arkansas Power and Light Company indicates that the heated effluent complies with the State water quality standards. The heated water spreads over the surface of a portion of the lake adjacent to the cove receiving the effluent. Because the heated effluent has a lower density than the cooler lake water, it is found only near the surface. There was concern among conservation groups that the warm water entering the lake would have a detrimental effect on aquatic life. However, some groups supported the idea that a higher surface temperature would have no effect and others contend that water life will be enhanced. To date, extensive environmental surveillance by the Arkansas Power and Light Company has failed to detect any significant negative effects.

b. The Arkansas Department of Pollution Control and Ecology has issued a permit which allows Arkansas Power and Light Company to discharge heated cooling water into the lake. Two provisions were added to those normally found in these permits: (1) Arkansas Power and Light to provide an aquatic ecological study of the lake conducted by a qualified scientist before and after generation operations begin to determine the change in the lake environment caused by the heated effluent. The study must continue for 5 years after initiation of generation or as long as the commission feels it is necessary to continue. (Arkansas Power and Light Company entered into a contract with the University of Arkansas at Little Rock and others to run pre- and post-operation surveys of the ecology of the lake.) (2) Arkansas Power and Light will take the necessary remedial measures to cool the heated effluent prior to discharging it into the lake if the heated effluent causes ecological degradation. In response to provision (1) above, Arkansas Power and Light Company entered into a contract with the University of Arkansas at Little Rock which has been in progress since June 1968. Data collected during the course of this study

are contained in the Environmental Report-OL Stage for the period January 1970 to June 1974; Semi-Annual Operating Report for Unit One, submitted 21 March 1975; and Water Pollution Control Survey of Dardanelle Reservoir prepared by Arkansas Pollution Control Commission.

c. As required by ER 1145-2-303, a permit for work in and adjacent to navigable waters was granted by the Corps of Engineers.

d. A contract to supply consumptive cooling water requirements was negotiated between the Corps of Engineers and Arkansas Power and Light Company.

2-08. Climate. The climate in general is moderate with an average annual temperature of 64 degrees Fahrenheit. Severe cold weather during the winter months and high temperatures in the summer months are experienced over short periods of time. The average annual precipitation is about 48.6 inches. Snowfall is light and remains on the ground for short durations.

2-09. Health.

a. The general health conditions in the lake area are excellent. Timber clearing in the pool was performed essentially in accordance with the recommendations of the U.S. Public Health Service. The normal pool fluctuation of 2 feet is beneficial from a mosquito control standpoint. The Arkansas State Department of Health reports no cases of malaria in the area since 1952. Additional mosquito control measures will include larviciding in critical areas should the need develop.

b. The Corps of Engineers will continue to discourage body contact recreational use of the lake until water quality meets the minimum requirements of the Arkansas State Department of Health.

2-10. Fish and wildlife.

a. In 1957, the U.S. Bureau of Sport Fisheries and Wildlife and the Arkansas Game and Fish Commission completed an interim report on the fish and wildlife aspects of the lake area. This report is attached to Design Memorandum No. 13-1 as an appendix. The report concluded that a loss to wildlife would be realized, but an increase to the fishery should more than offset the wildlife loss. This report also made several recommendations which would improve fish and wildlife resources production and facilitate the management of the resources. All recommendations which could be executed within the existing authority of the Corps were implemented.

b. As pointed out in the interim report, the original sport fishery in the vicinity of Lake Dardanelle was composed of largemouth and white bass, bream, and other sunfishes found mainly on the tributary streams. The primary sport fish to be found in the mainstream of the Arkansas River was catfish. The commercial fishery consisted of catfish, buffalo, drum, and carp. Game resources found in the vicinity of the project included an abundance of bobwhite quail, dove, and squirrel. Fur bearers such as raccoons, opossums, and foxes were hunted more for recreation than for pelt value. The area provided wintering grounds for large flocks of waterfowl.

c. Damming of the river and the subsequent clearing of the quietened water has created an aquatic environment which is hospitable to additional sport fish such as crappie, green sunfish, redear sunfish, walleye, and striped bass. These additional fishes were introduced through the stocking program of the Arkansas Game and Fish Commission. From 1 July 1964, over 2.6 million fish have been stocked in the lake waters from State fish hatcheries. In addition a sizeable commercial fish industry has been developed to utilize the catfish and buffalo fish produced.

d. In 1976 a contract was completed entitled "An Evaluation of the Effects of Dredging Within the Arkansas River Navigation System" prepared by the University of Arkansas. The effects upon the fish population were included in Volume V, which was prepared by Thomas M. Buchanan, Principal Investigator, Department of Biology, Westark Community College, Fort Smith, Arkansas. A survey was conducted from 15 June 1974 through 15 December 1974 from Fort Smith to the mouth of the White River. Sampling sites included numerous dredge disposal areas, as well as other habitats.

Two features were observed to be of the utmost importance for providing good game fish habitat: (1) The presence of deep backwater areas with little or no current, and (2) the presence of adequate cover. These insure a varied environment necessary for maintaining stable, permanent populations of black bass, crappie, catfish, and other game species. Any removal of dead trees, logs, stumps, and other objects, or filling in of backwater areas with dredge disposal material invariably reduce the amount of suitable game fish habitat.

In the areas where dredge material was placed between stonefill dikes and/or behind stone revetments, leaving an expanse of quiet water and good cover, there were good game fish populations and these places were suitable spawning and nursery areas. An example of this situation is along the left bank downstream from O'Kane Island. As dredge material continues to be deposited, and the backwater and cover is reduced, ideal habitat for fishes is also reduced.

Fish samples were taken during both 1973 and 1974, and a greater biomass of fishes was taken from nondredged material areas in 1974 than the previous year. The dredged material areas produced about the same amount both years. There was a significant reduction in the weight of game fish taken from the dredged material sites in 1974.

Samples taken from Lake Dardanelle contained a higher number of game and commercial fishes than those taken in other areas of the navigation system. This indicated very successful spawns of these fishes in the lake as a whole.

Results of the study produced six general recommendations for minimizing the effects of dredging and dredged material disposal areas on the fishes of the navigation system. These recommendations are intended to improve fish habitat in existing dredged material disposal areas and to influence locations of future disposal areas. These recommendations will be considered where they are compatible with engineering and channel maintenance requirements.

- (1) Dredged material should be located as far from the mouths of tributary streams as possible.

- (2) Dredged material should not be deposited in old river cutoffs or existing bends.

- (3) Dredged material disposal areas should be constructed with extensive areas of deep and shallow backwaters wherever possible.

- (4) The available fish cover should not be removed from dredged material deposit backwaters; it should also not be covered with dredged material.

- (5) Maintain permanent passageways for fishes between dredged materials deposit backwaters and the main lake.

- (6) Improve dredged material deposits for spawning habitat. These deposits are used as spawning sites during periods of high waters, but the materials are unstable at these times and do not provide good spawning habitat for game fishes. The planting of fast-growing cover crops on dredged material during low-water periods would stabilize the material to provide more suitable spawning habitat during high waters in the spring season.

Dredged material disposal areas were highly variable in their construction, physical features, and suitability for fish populations. No two disposal areas were alike with respect to all of these features, and it was not possible to make generalizations about the fish populations of dredged

material disposal sites as compared with nondredged material disposal areas. Just as in the nondredged material disposal areas, some disposal sites supported diverse fish populations with many desirable game fish, whereas other disposal sites exhibited very poor fish habitat and few desirable game fish. All species which were common throughout the navigation system, including the important game and commercial fishes, were well-represented in both dredged material disposal and nondredged material disposal samples.

e. By letter dated 9 October 1964, the Corps of Engineers authorized the Arkansas Game and Fish Commission to place fish attractors along the Russellville Dike. These attractors were composed of old car bodies and piles of tire carcasses with auto hoods propped on them. The attractors were placed before the area was inundated. Since impoundment, cedar trees have been submerged in the same area yearly.

f. The Arkansas Game and Fish Commission has a license covering approximately 42,500 acres of project lands, islands, and waters for the management of fish and wildlife resources. This license which became effective 10 June 1968 covers all fee-owned lands except the park areas and the area needed for the lock and dam operations.

g. Roads in the park areas are situated so that fishermen have ready access to the shore of the lake. Construction of a fishing walkway is proposed on the right bank immediately downstream from the dam to provide safe access to this area of high fish concentration.

h. Close and continued coordination will be carried out with the Fish and Wildlife Service and the Arkansas Game and Fish Commission. These agencies are responsible for developing and managing the fishery and waterfowl potentials of the project.

2-11. Cultural resources.

a. Historical Sites. Many of the notable historical events in the vicinity of Lake Dardanelle occurred during the early 1800's. Most of these early events centered around river traffic and Indians. Interpretive presentations of significant historical and archeological sites on project lands will be undertaken as practicable. Five of the more notable historical sites are as follows:

(1) Dardanelle Rock. This early-day landmark for pioneers and river boat captains is located less than 1 mile upstream from the Arkansas State Highway 7 bridge on the right bank and a half mile downstream from the dam. The Arkansas Natural Heritage Commission has purchased 12 acres of the rock to insure its protection.

(2) Dwight Mission. This site of the Protestant Mission to the Cherokees from 1820 to 1829 has been inundated. A marker and cemetery remain on the west bank of the Illinois Bayou at Russellville.

(3) William L. Lovely Marker. A marker on the north shore of the lake near Russellville commemorates the U.S. agent to the western Cherokees from 1813 to 1817.

(4) Spadra. This area was the site of an early trading post (Federal Trading Factory) and the first coal mines in Arkansas (1840). The site has been nominated and declared eligible for inclusion on the National Register of Historic Places and is expected to be placed on that register during 1977. If it is placed on the register, all plans for alterations of the site must be coordinated with the State Historic Preservation Officer and the President's Advisory Council. The historic significance of the site should be interpreted for visitors in future development.

(5) Powersite Dam on Illinois Bayou. In about 1905 Mr. Alphonse Brewer of Pine Bluff, Arkansas, constructed a hydroelectric plant on Illinois Bayou about 2.5 miles north of Russellville. The dam was an earthen structure with a concrete sluiceway to carry water down through two water wheels. Two small 270 hp generators produced the electric current. The dam proved faulty and failed by 1915. In 1923 Arkansas Power and Light Company restored the dam and incorporated it into its system of power generation and distribution for the Russellville area. In 1946 the old hydroplant was sold to the Russellville Water Company and the impoundment is used for a municipal water supply reservoir.

b. Archeological Sites. The Smithsonian Institution undertook the original archeological survey of the region before construction of the project, but limited investigation primarily to the areas to be inundated. Most of the 53 sites identified in the survey were from the archaic stage with a few sites representing later pottery-using cultures. A detailed description of the findings is contained in a report, "Appraisal of the Archeological Resources of the Dardanelle Reservoir, Arkansas," published by River Basin Surveys, Smithsonian Institution, 1957. The only work done since that time is the excavation of the Federal Trading Factory at Spadra Park, done in 1969. As funds are available, a survey of the Government lands above the conservation pool will be conducted.

2-12. Visual Resources. Lake Dardanelle is located in an area of outstanding scenic quality. Flatlands in the Arkansas River Valley surrounding the lake contrast sharply with the steep bluffs and surrounding heavily wooded Ozark Mountains. The flat surface of Lake Dardanelle is a unique feature in the area landscape, providing open views of both the

lake surface and the surrounding landscape. Seasonal changes in vegetation add variety and interest to the area in a predominantly wooded visual setting. The lake's close proximity to major highways such as Interstate 40 and State Highway 22 makes it highly visible to a large number of travelers through the area. Scenic values of Lake Dardanelle are protected through zoning provisions contained in the project Land Use Plan and Lakeshore Management Plan.

2-13. Recreational resources.

a. Recreational development by the Corps of Engineers. There are 14 parks existing (excluding three parks leased to the State, and two being developed by Arkansas Tech University), and two reserved for future development, which provide water access, picnicking, camping, and related activities. See list on page 6-7. At the upper end of Lake Dardanelle, the Dam Site Park at Ozark-Jeta Taylor Dam also provides similar facilities. Table 2-2 lists other Corps projects in the zone of influence, which offer similar recreational opportunities.

TABLE 2-2
DATA ON COMPLETED PROJECTS WITHIN THE
LAKE DARDANELLE ZONE OF INFLUENCE

<u>PROJECT</u>	<u>YEAR COMPLETED</u>	<u>VISITATION</u>	
		<u>1975</u>	<u>1976</u>
Lock and Dam 13 (in Ark.)	1969	504,800	599,000
Ozark Lake	L&D 1969		
	P.H. 1975	620,300	860,000
Lock and Dam 9	1969	176,600	353,800
Toad Suck Ferry Lock and Dam	1969	264,100	530,000
Murray Lock and Dam	1969	615,600	811,100
David D. Terry Lock and Dam	1968	641,200	823,500
Blue Mountain Lake	1947	245,800	223,300
Nimrod Lake	1942	494,400	494,800

On Lake Dardanelle there are three developed parks leased to the Arkansas Department of Parks and Tourism for operation as State parks developed for intensive recreation use (Dardanelle, Russellville, and Ouita).

b. Related recreation areas by others.

(1) Hartman City Park. The city of Hartman leased about 9 acres of land from the Corps of Engineers for use as a city park. The city and the Corps have provided facilities for picnicking, softball, boat launching, and an all purpose court under a cost sharing contract.

(2) Shiloh Park. The city of Russellville leased 333 acres of land which had previously been strip mined for coal. A portion of the area has been leveled and improvements include a concession building, restrooms, a picnic shelter, a boat launching ramp with parking area, as well as facilities for softball, baseball, and tennis. In an area removed from the recreation park a range has been developed for skeet and trap shooting.

c. Lakes

(1) U.S. Forest Service.

(a) Shores Lake. This lake is located in northern Franklin County and the dam was built in the 1930's by the Civilian Conservation Corps. There are facilities for picnicking, camping, swimming, boating, and fishing. The lake is about 20 miles north of Lake Dardanelle.

(b) Cove Lake. The lake is located in Logan County near Paris, Arkansas, and is about 10 miles south of Lake Dardanelle. There are facilities for picnicking, camping, swimming, boat launching, and fishing. This small lake has a surface area of 105 acres.

(c) Spring Lake. Located in Yell County about 10 miles south of New Blaine, Arkansas, this lake has a surface area of only 82 acres. There are adequate facilities for picnicking, camping, swimming, boat launching, and fishing.

(2) Arkansas Game and Fish Commission.

(a) Horsehead Lake. This 100-acre lake is in west-central Johnson County about 15 miles northwest of Clarksville, Arkansas. The lake was formed in 1950 and has an ample supply of bream and bass. A recreational area which was constructed by the U.S. Forest Service include a swimming beach, camping, and picnicking sites.

(b) Sugar Loaf Lake. Located in the southwest corner of Sebastian County, 18 miles south of Fort Smith, Arkansas, this 334-acre lake offers especially good fishing. There are two boat docks and a heated fishing dock as well as picnic facilities. The lake was completed in 1955.

(c) Lake Conway. In 1948 this 6,700-acre lake was constructed in Faulkner County 23 miles north of Little Rock, and has a nationwide reputation for excellent bass and bream fishing. There are 20 commercial boat docks and 3 public boat launching ramps. There are no other recreation facilities.

(d) Harris Brake Lake. This lake was completed in 1955 with a surface area of 1,300 acres. It is located in Perry County 45 miles northwest of Little Rock, Arkansas. There are two boat docks, three points of public access, and picnic areas.

(e) Lake Overcup. In Conway County about 3 miles north of Morrilton, Arkansas, this 1,025-acre lake was completed in 1963. Fishing has been good ever since. There are two commercial boat docks, each having a boat launching ramp with free public access.

(3) Municipal Lakes.

(a) Lakes Fort Smith and Shepherd Springs. In northeast Crawford County these two lakes supply water for the city of Fort Smith. Facilities offer swimming, fishing, and camping on a small scale.

(b) Lake Winona and Lake Maumelle. Lake Winona is in northwest Saline County and Lake Maumelle is in western Pulaski County. These lakes are the source of municipal water for Little Rock-North Little Rock and they offer limited recreation.

2-14. Navigation. With the completion of the locks and dams of the McClellan-Kerr Arkansas River Navigation System, navigation is now possible from Catoosa, Oklahoma, to the Mississippi River. Industrial development is occurring on Lake Dardanelle and other portions of the riverway as a direct result of navigation. The Port of Dardanelle, located 2 miles downstream of Dardanelle Dam, was one of the first ports to be opened on the river and is the only privately-owned public port. Grains and aggregates are the primary commodities moved through the port. Mobley Construction Company operates a dock adjacent to the Port of Dardanelle for removal of sand and gravel from the river. The Arkansas Power and Light Nuclear One Powerplant located at navigation mile 211 utilized the waterway during construction for transporting several large pieces of equipment. The Fitzhugh Powerplant located at navigation mile 256 has a small docking facility for unloading fuel oil. This plant has a capacity of 57,400 kilowatts and utilizes fuel oil or natural gas. Barge traffic on Lake Dardanelle is growing. In 1976 there were 408,700 tons of commodities moved upstream through Dardanelle Lock and 1,246,500 tons moved downstream, a significant increase over 1975. Major commodities moved were iron and steel, chemicals, petroleum products, soybeans, wheat, and coal.

Although port development on Lake Dardanelle has been rather limited, there has been considerable interest in development of coal loading facilities in the upstream one-half of the lake. Other industrial expansion of the lake area is anticipated. Expansion of industry creates new jobs and attracts additional people into the area. Additional recreational facilities will be needed to accommodate these increases to the population base of the area, particularly in the vicinity of Russellville, Clarksville, and Ozark.

SECTION III
PROJECT STATUS

3-01. Project development and operation chronology.

a. Lock and dam. Initial construction of the lock and dam was begun in June 1957. The dam was completed in August 1964, the powerhouse was completed in June 1966, and the navigation lock was completed in December 1969.

b. Recreational facilities. There are 24 areas established for recreational parks on Lake Dardanelle (see Plate 2). Initial development of many of the parks began in 1964 and was essentially completed in 1972. Recreation facilities include group picnic shelters, picnic sites, campsites, boat launching ramps, sanitation facilities, nature trails, and an overlook at Old Post Road Park. These facilities are shown on the park site plans and quantified in the cost estimates in Section VIII.

3-02. Project development underway. At present time there is no project development underway in the Corps operated parks other than improvements to sanitation facilities.

3-03. Scheduled project development. Since the initial park development on Lake Dardanelle is complete, all future development is subject to the restrictions of the current cost sharing policy.

3-04. Future park development. Highway 64 Cove and Roseville are the only areas being held in reserve for future development.

SECTION IV
FACTORS INFLUENCING RECREATIONAL DEVELOPMENT

4.01. Resource use objectives. The use of Lake Dardanelle for its authorized purposes will be based on approved resource use objectives. These objectives are established to provide for enhancement and protection of environmental quality, to wisely use and conserve project resources, and to provide varied opportunities for water-oriented outdoor recreation. The objectives are attainable statements of intended use for project resources. Their development considers the expressed needs of the American public for recreation and the benefits which will accrue from satisfying these needs. Although Lake Dardanelle is a completed project, management, planning, and further development will be to achieve the approved resource use objectives. These objectives were formulated by Little Rock District personnel with the assistance of Arkansas Department of Parks and Tourism, and Arkansas Tech University, Department of Recreation and Park Administration. Resource use objectives for Lake Dardanelle are as follows:

a. Satisfy recreation needs. To satisfy a portion of the water-oriented recreation needs shown in the Arkansas Statewide Comprehensive Outdoor Recreation Plan (SCORP).

Recreation needs in the Lake Dardanelle Zone of Influence are shown in the Arkansas SCORP on a minimum county and minimum additional regional needs basis. These needs are expressed in terms of facilities required to accommodate recreation use using SCORP facility load standards. The Lake Dardanelle project has the potential for satisfying a portion of the water-oriented recreation needs shown in the SCORP as follows:

(1) Trails. To partially satisfy the market area needs for hiking, bicycling, and nature trails, and trail photography.

Needs for trails, as shown in the Arkansas SCORP may be partially satisfied at several areas on the Lake Dardanelle project. "Bridge Rock Trail" has already been developed at Shoal Bay Park. From this park it is slightly more than 2 miles southward to the boundary of the Ozark National Forest. A proposed trail from Shoal Bay Park to connect with trails proposed in the National Forest utilizing the existing abandoned railroad R.O.W. on Government land would help to meet the growing need for trails. Trails are proposed adjacent to the lake between Old Post Road Park and Russellville State Park, and between Flat Rock Park and Piney Bay Park.

Proposed trails may be developed by other agencies on their land, in Corps of Engineers' park areas through cost sharing with non-Federal entities, and by private groups on private lands.

(2) Urban recreation use.

To accommodate the need for high-density day use near urban areas.

Between 1960 and 1970 there was a population increase of nearly 32 percent at the city of Russellville, 57 percent at Dardanelle, and 17 percent at Clarksville. This has produced an increase in public requests for picnic shelter reservations, increased needs for outdoor play areas and trails, and a waiting period has developed. Also, the Arkansas SCORP reveals a need for additional space for games and sports in the project area. A portion of this demand could be met by additional picnic shelters with electrical outlets, individual picnic sites, hard surface multipurpose courts, and space for games in the parks near the more populated areas.

Present Corp policy now requires cost sharing for additional recreation facilities.

(3) Transient recreation use. To accommodate increased needs for transient recreation use at parks near major highways.

Interstate Highway 40 parallels the north shore of Lake Dardanelle giving travelers several prominent views of the lake. Because of this exposure, many transient recreation visitors are attracted to the lake to picnic, camp overnight, or enjoy the view from overlooks. This type of use is of short duration and occurs at areas close to the major highways. Ouita State Park currently receives heavy transient camper use. A portion of this transient recreation need could be satisfied by providing short-term use facilities at existing parks near major highways. Spadra and Flat Rock parks, located near I-40, and Old Post Road Park near State Highway 7 have been planned, and should be further developed, and managed to respond to this need.

This objective may be implemented by reserving a portion of the facilities at the selected parks for short-term use, encouraging local and long-term use at other areas, by adding new facilities under the current cost sharing policy, or by use of revenue from the fee program.

(4) Group use. To accommodate the need for group or multifamily use of recreation facilities.

Multifamily and group use of Corps recreation facilities is a popular form of recreation use at Lake Dardanelle. Approximately 25 percent of recreation facilities such as camp and picnic sites should accommodate group or multifamily use.

This objective may be accomplished by converting existing single family facilities to accommodate groups.

b. Distribute use evenly. To provide for redistribution of recreation use to help relieve crowding at selected parks or during peak periods of use.

Heavy recreation use occurs at certain parks, because of their close proximity to population areas or popularity as good fishing areas. Overuse of recreation facilities at these parks results in a degraded recreation experience for the visitor, and damage to soil, vegetation and water quality. Overuse and subsequent deterioration of natural resources also occurs during peak periods of use, generally the 4-month period, May-August.

This situation could be relieved by eliminating or reducing use fees at underused parks to disperse visitors to these parks.

c. Commercial recreation development. To provide sufficient project land to accommodate commercial recreation use of Lake Dardanelle.

Commercial recreation developments on project lands are operated by private concessionaires. Such developments must serve public water-related recreation needs and must conform to Corps' minimum quality standards. Portions of several parks on Lake Dardanelle have been leased to concessionaires for operating boat docks.

This objective is implemented by encouraging commercial recreation development where the need exists and by providing suitable project land to accommodate such development.

d. Port facilities. To allocate sufficient land along the lakeshore for accommodating water-oriented industrial port development.

Several areas of privately owned land adjacent to the lake have been identified as being suitable for industrial development in anticipation of future expansion of industrialization in the Arkansas River region. Portions of the lake shoreline have features which make them suitable for docks, ports, or mooring facilities. They are adjacent to the navigation channel and have good water depths. These lands have been allocated for low density recreation with minimum corridor access permitted for navigation related industry.

e. Reduce O&M costs. To reduce the cost of operating and maintaining project recreation facilities.

This objective may be accomplished by concentrating high-maintenance facilities at fewer park areas, utilizing available municipal sewage disposal systems, encouraging efforts of private groups interested in helping maintain park areas, interesting local cities or counties in assuming operation and maintenance of nearby parks, or contracting for operation and maintenance work.

The cost of operating and maintaining recreation facilities may be partially offset by maximizing collection of fees, and utilizing fee turnback funds.

Fees may only be charged for use of recreation facilities which meet certain minimum quality standards. Within policy and funding constraints facilities may be upgraded to minimum levels by providing electrical service, drinking water, and sanitary facilities to reduce O&M costs.

f. Visitor control. To control movement and distribution of project visitors more efficiently.

Efficient, safe, and effective visitor control is necessary to adequately collect use fees, distribute recreational use evenly, and dispense information to park visitors.

This may be accomplished by providing control stations at entrances to parks and by displaying and distributing information to park visitors regarding location of recreation facilities. Alternate methods of fee collection may be developed to make this operation more efficient and economical.

g. Handicapped use. To make recreation facilities usable by handicapped persons.

Handicapped persons comprise an important segment of the recreation public. Their recreation needs, along with the recreation needs of other project visitors must be met at Lake Dardanelle. It is not considered desirable to segregate handicapped persons from other visitors by providing separate facilities; therefore, all facilities should be designed so that they may be used by handicapped persons.

This objective may be accomplished during the design phase of initial construction, in the rehabilitation of existing facilities, or through improved management techniques. These techniques may include identifying facilities usable by handicapped persons, providing loading and unloading areas near facilities, and reserved parking spaces usable by handicapped persons.

h. Boat access. Provide trail marking for boat access to project features.

Since many project visitors engage in pleasure boating, it is desirable to provide trail marking for boat access to project features. Boat access is desirable to historic, scenic, geologic, and natural areas located in close proximity to the lakeshore. These areas should be identified on information brochures and should be interpreted for the boater.

This objective could be implemented by marking a boat trail or route, approximately 9 miles long, connecting points of interest at Lake Dardanelle. The trail would begin at the dam and proceed northward to where U.S. Hwy 64 crosses the lake, thence up Illinois Bayou arm to an existing concrete dam. The points of interest would include Dardanelle Rock (geological formation) Dwight Mission (school for Indian education); sites of early coal mining efforts; site of Major William Lovely's Indian agency; and the first hydroelectric plant in that area of the State, constructed in 1905 and rehabilitated in 1923.

i. Identify, preserve, and interpret site resources. Many opportunities are provided by project features to develop interpretative programs.

Development of an interpretative program including continued identification and preservation will be accomplished as operational resources can be made available for this purpose.

(1) Natural areas and features. Areas with unique or significant natural features such as unusual vegetation, scenic bluffs, or rare and endangered plants or animals may exist on project lands. These areas should be protected and interpreted for project visitors to increase their awareness and enjoyment of the project's natural features. This may be accomplished by constructing trails, interpretive displays or establishing themes for the parks emphasizing the significant natural features.

This objective may be implemented by allocating appropriate lands as natural areas on the project Land Use Plan. This precludes intensive use or development of the natural area. Areas having outstanding natural qualities could be identified in project information brochures and explained by exhibits at the entrance to the area.

Two parks on Lake Dardanelle, Dike View and Illinois Bayou, are leased and administered by Arkansas Tech University. Their management of these areas is oriented to interpretation of area natural resources.

(2) Historic areas and features.

Several significant historic sites including Dardanelle Rock, Dwight Mission, and Spadra Trading Post have been identified on project lands. Their historic aspects should be protected and interpreted for project visitors. This may be accomplished by identifying historic sites, conducting interpretive programs at the parks, or orienting the entire theme of a park to its historic resources. The historic area located at Spadra Park could be used as a basis for developing and managing the park as a historic theme park.

This objective may be accomplished by providing or expanding oral interpretive programs and information brochures at the parks; and, when existing structures need repair or replacement, the architectural treatment could be altered to reflect the historic theme.

(3) Visual resources.

Along the shoreline of the lake and some of the tributary streams, there are several reaches where scenic rocky bluffs and interesting geologic outcropping formations are exposed. The land above the bluffs is heavily wooded. The exposed bluffs are of sandstone formed as much as 300 million years ago and represent the original "roots" of the Ozark Mountains. Fossils of ancient marine life are to be found in these areas. Many areas along the shoreline of the lake afford scenic views of the lake and surrounding landscape.

Where the scenic areas occur, they have been allocated as natural areas on the project Land Use Plans. Little or no development is permitted, except for trails. Potential scenic views may be enhanced along the project roads and trails by selective clearing of underbrush.

j. Unify design. Unify the design features of facilities in each park to respond to an established theme.

The established theme for facility design at Lake Dardanelle is natural. Architectural features should conform to this theme by using natural materials such as wood and native stone. Colors and textures used in facilities should blend with those of the surrounding natural landscape. This objective may be accomplished by remodeling existing structures which do not conform to the natural theme, painting with colors similar to those in the surrounding landscape, or planting native trees and shrubs to screen or blend structures with their surroundings.

k. Enhance hunting and fishing. To increase the projects' capacity for satisfying recreational fishing and game hunting.

(1) Game hunting.

Enhancement of game hunting on project lands is accomplished by the Arkansas Game and Fish Commission under provisions of a license for 25 years including 42,500 acres of land and water. Three areas, containing about 1,395 acres, known as O'Kane Island, Logan Farms, and Spadra Bottom are being actively managed. These areas have been leased for agricultural purposes and a portion of the crop will remain unharvested to provide food for wild game. These areas will open to the public for in-season hunting. See Land Use Plans for location of these areas noted as AG and FC No. 1, 2, and 3. Also, open areas should be maintained to provide nesting places for wildlife. Additional areas have been allocated in the Land Use Plan for fish and wildlife management.

A green tree reservoir is planned near Spadra Park for enhancement of duck habitat by the Arkansas Game and Fish Commission.

(2) Fishing. The Lake Dardanelle fishery may be enhanced by introducing non-native species of fish to provide diversity and to provide predator fish large enough to eat large shad.

Northern pike, a fish that fulfills both requirements, should be considered for Lake Dardanelle. Although Arkansas is south of the optimum habitat range of the pike, the Arkansas Game and Fish Commission has stocked the pike in several new lakes in Arkansas with good survival. Reproduction, however, has not been sufficient to maintain their numbers. Pike spawning marshes are utilized in the northern U.S. to aid in spawning and survival of the young fish. If fisheries managers consider the possibilities of success good, then a pike spawning marsh should be considered for Lake Dardanelle.

Several small fish nursery ponds are planned by the Arkansas Game and Fish Commission at Lake Dardanelle.

1. Establish resource carrying capacity. To evaluate site resources and use to establish maximum levels of recreational use.

The use of project land and water areas should be directly related to the capacity of that area to withstand use without degradation (carrying capacity). Present levels of use at Lake Dardanelle have not produced major degradation of soil, air, or water resources. However, with increasing future use, it is probable that recreation sites will be degraded.

Each area should be evaluated in terms of the intensity of use it can withstand, and development should be limited at this point. Areas which have been degraded should be restored to a condition which protects the site's natural resources.

4-02. Population of the counties in which the project lies.

a. Population. The population of the 13 counties comprising the zone of influence of Lake Dardanelle was 593,005 in 1970. This was an 18.4 percent increase over the 1960 population of 500,858. All counties recorded an increase in population during this 10-year period.

b. Minorities. The population of this area during 1970 consisted of 86.73 percent whites, 12.99 percent blacks, and 0.28 percent of all other minorities. The greatest concentration of minorities occurred in Pulaski County, where they were 20.60 percent of the total county population.

c. Age groups. The age distribution of the zone of influence is as follows:

<u>Age group (years)</u>	<u>Percent of total 1970 population</u>
0 to 9	18.07
10 to 19	19.10
20 to 34	20.43
35 to 49	16.68
50 to 64	15.00
65 and over	10.73

Source: 1970 Census of Population, Volume I.

d. Occupations. The people located within the zone of influence are engaged in a multitude of occupations. During 1970, an estimated 217,003 persons were employed in the occupations listed below.

<u>Occupation</u>	<u>Percent of population within the zone of influence</u>
Professional and technical	12.74
Managers and administrators	9.09
Sale workers and clerical	23.37
Craftsmen	14.29
Operatives	19.48
Laborers	4.74
Farmers	3.37
Service workers	11.08
Private household workers	1.85

Source: 1970 Census of Population, Volume I.

e. Major industries. The major manufacturing industries of this region are located at Little Rock in Pulaski County, at Russellville in Pope County, and Fort Smith in Sebastian County. Manufacturing is very important to the economy of the region. Agriculture is also a major industry of the region and especially of the Arkansas River Valley.

4-03. Education.

a. Arkansas Tech University. Arkansas Tech University is located at Russellville, Arkansas. "Tech" was the first university or college in Arkansas to have a Recreation and Parks Department. It currently is one of the largest undergraduate departments in the United States. Among the courses offered at "Tech" are those pertaining to

recreation, park administration, fish and wildlife management, geology, archeology, and history, all of which are pertinent to studying the lake and its environment. Because of its proximity to Lake Dardanelle, Holla Bend National Wildlife Refuge, and the Ozark National Forest the university is continually updating and adding to its sciences curriculum.

The university is currently engaged in the developmental planning of Illinois Bayou and Dike View future parks, as well as an island located immediately north of Ouita State Park. More details about these areas can be found in Section VI. These areas are to be used as "laboratories" for student recreation planners. Additional lands may be made available for future needs of the university program.

The Corps of Engineers has a cooperative education program with the Arkansas Tech University which provides the student with practical work experience. Two Tech students are in the program at this time. They alternate working one semester as a temporary park ranger and attending classes at Tech the next semester. Upon graduation from Tech, the student is eligible for full time employment as a park ranger or manager if a vacancy exists. The cooperative education program is beneficial to the Corps, the student, and the university. Similar programs exist between the Corps, the University of Arkansas at Pine Bluff and the School of the Ozarks at Hollister, Missouri.

b. College of the Ozarks. The College of the Ozarks, located at Clarksville, Arkansas, is an undergraduate liberal arts college owned and operated by the United Presbyterian Church in the United States. It has gone through a succession of name changes since its founding in 1834. Degrees offered include a B.A. in the arts and humanities and a B.S. in the sciences, education, and business administration.

4-04. Accessibility.

a. Major highway access. Interstate Highway 40 is an east-west traffic artery which passes through Memphis, Tennessee; Little Rock, Arkansas; and continues through Van Buren, Arkansas, into Oklahoma. This highway and U.S. Highway 64 parallel Lake Dardanelle on the north side. On both sides of the lake paved State and county roads provide good access. State Highway 7 crosses the Arkansas River about 2 miles downstream from Dardanelle Lock and Dam, and State Highway 23 crosses the river at Ozark, Arkansas, about 1.5 miles upstream of Lake Dardanelle. A bridge is under construction north from the town of Morrison Bluff (see Plate 8) to extend State Highway 109 across the lake. This will provide added convenient access to both sides of the lake.

b. Commercial transportation. Several companies offer bus service for passenger, charter, and package express transport along the major network of highways. Bulk freight service is available on the Missouri Pacific Lines Railroad. There are small airfields at Ozark, Clarksville, and Russellville, none of which offer regular commercial service.

4-05. Physical limitations of soil assoications.

Table 4-1 displays general use limitations for the soils series which make up the soil associations of individual park areas.

TABLE 4-1
SOIL ANALYSIS

LAND SLOPE	SOIL TYPE	DEVELOPMENT			LIMITATIONS		
		Camping	Picnicking	Roads	Absorption Fields	Play Areas	
<u>OLD POST ROAD</u>							
7% North end	1. Linker 45%	Slight	Slight	Moderate	Severe	Severe	
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe	
1.2% South end	2. Morganfield 30%	Slight	Slight	Moderate	Slight	Slight	
	Caspiana 30%	Moderate	Moderate	Moderate	Moderate	Moderate	
	Bruno 15%	Slight	Slight	Slight	Slight	Slight	
<u>DAM SITE WEST</u>							
12% developed area	Enders 40%	Severe	Moderate	Severe	Severe	Severe	
	Mountainburg 30%	Moderate	Moderate	Severe	Severe	Severe	
<u>DELAWARE</u>							
8.3%	Linker 45%	Slight	Slight	Moderate	Severe	Severe	
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe	
<u>ILLINOIS BAYOU</u>							
7.5%	Spadra 40%	Slight	Slight	Slight	Slight	Severe	
	Cleora 20%	Severe	Moderate	Moderate	Severe	Moderate	
	Pickwick 20%	Slight	Slight	Moderate	Slight	Severe	
<u>DIKE VIEW</u>							
5.5%	Spadra 40%	Slight	Slight	Slight	Slight	Slight	
	Cleora 20%	Severe	Moderate	Moderate	Severe	Moderate	
	Pickwick 20%	Slight	Slight	Moderate	Slight	Moderate	

TABLE 4-1
SOIL ANALYSIS

LAND SLOPE	SOIL TYPE	DEVELOPMENT			LIMITATIONS	
		Camping	Picnicking	Roads	Absorption Fields	Play Areas
<u>FLAT ROCK</u>						
5%	Linker 45%	Slight	Slight	Moderate	Severe	Moderate
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
22% undeveloped area						
<u>PINEY BAY</u>						
10%	Linker 45%	Moderate	Moderate	Moderate	Severe	Severe
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
<u>SHOAL BAY</u>						
8%	Linker 45%	Slight	Slight	Moderate	Severe	Severe
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
<u>DUBLIN</u>						
8.3%	Leadvale 65%	Moderate	Slight	Moderate	Severe	Severe
	Taft 20%	Severe	Severe	Severe	Severe	Severe
<u>CABIN CREEK</u>						
2.5%	Leadvale 65%	Moderate	Slight	Moderate	Severe	Moderate
	Taft 20%	Severe	Severe	Severe	Severe	Severe
<u>CANE CREEK</u>						
2.0%	(1) Morganfield 40%	Slight	Slight	Moderate	Slight	Slight
	Iberia 30%	Severe	Severe	Severe	Severe	Severe
7.1%	(2) Leadvale 65%	Moderate	Slight	Moderate	Severe	Severe
	Taft 20%	Severe	Severe	Severe	Severe	Severe

TABLE 4-1
SOIL ANALYSIS

LAND SLOPE	SOIL TYPE	DEVELOPMENT			LIMITATIONS	
		Camping	Picnicking	Roads	Absorption Fields	Play Areas
<u>SPADRA</u>						
5%	Linker 45%	Slight	Slight	Moderate	Severe	Moderate
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
<u>HORSEHEAD</u>						
5%	Allen 40%	Slight	Slight	Slight	Slight	Moderate
	Mountainburg 20%	Moderate	Moderate	Severe	Severe	Severe
	Enders 20%	Severe	Moderate	Severe	Severe	Severe
15% Undeveloped area						
<u>SIX MILE</u>						
2.9%	Linker 45%	Slight	Slight	Moderate	Severe	Moderate
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
9.1% Undeveloped area						
<u>O'KANE</u>						
2.0%	Morganfield 40%	Slight	Slight	Moderate	Slight	Slight
	Iberia 30%	Severe	Severe	Severe	Severe	Severe
<u>ROSEVILLE</u>						
4.5%	Linker 45%	Slight	Slight	Moderate	Severe	Moderate
	Mountainburg 35%	Moderate	Moderate	Severe	Severe	Severe
<u>WEST CREEK</u>						
0.5%	Morganfield 35%	Slight	Slight	Moderate	Slight	Slight
	Caspiana 25%	Moderate	Moderate	Moderate	Moderate	Moderate
	Iberia 20%	Severe	Severe	Severe	Severe	Severe

4-06. Effect of water surface fluctuation on public use.

a. General. Near the upper end of the lake, the stages are similar to those under former natural conditions with maximum fluctuations of about 25 to 30 feet for short periods. Stages of 12 to 15 feet above elevation 338 in the upper end of the lake may exist for several weeks during flood periods. Operating situations develop occasionally which require minor deviation from these guide elevations. Table 4-2 contains the 5-, 10-, and 50-year flood frequency elevations at each of the park sites. The concessionaires have not experienced inconvenience from fluctuating lake levels.

b. Water areas.

(1) Lake. The conditions of the river channel through Lake Dardanelle are generally suitable for recreational use throughout most the year. However, boaters must exercise caution to avoid floating debris, underwater obstructions, and other hazards. The U.S. Coast Guard maintains the system of navigation aids consisting of lights, daymarks, mile boards, and buoys to properly mark the navigation channel. During flows of 70,000 cubic feet per second or above, the Corps of Engineers issues safety warnings to encourage pleasure boaters to stay off the lake. At these flows river currents are swift, floating debris is heavy, and some of the channel marker buoys may be under water.

(2) Downstream of dam. At low flows, fishing immediately downstream of the dam is generally excellent. However, during high flows fishing is generally poor in the swift currents. Boating is dangerous in this area and the Arkansas Game and Fish Commission has established regulations which prohibit boating within 300 feet of the dam.

4-07. Availability of funds for construction of recreation facilities.

The current cost sharing policy will hinder further development of the parks as public bodies in the area do not generally have funds available for cost sharing recreational developments. Details of the requirements of Public Law 89-72, applicable by policy, are given in Section 1-05 and Section 8-02.

TABLE 4-2

LAKE DARDANELLE
THEORETICAL FLOOD FREQUENCY ELEVATIONS - FT. M.S.L.
(With 50-year sediment)

Park Name	5-Year Frequency Elevation	10-Year Frequency Elevation	50-Year Frequency Elevation
Old Post Road	338.0	338.0	338.0
Dardanelle	338.5	338.8	339.5
Russellville	338.5	338.8	339.5
Ouita	338.5	338.8	339.5
Dike View	338.5	338.8	339.5
Illinois Bayou	338.5	338.8	339.5
Delaware	339.2	339.6	340.8
Flat Rock	340.2	341.0	342.6
Piney Bay	340.2	341.0	342.6
Highway 64 Cove	341.0	341.8	343.6
Shoal Bay	343.4	344.6	347.4
Dublin	343.5	344.7	347.7
Cabin Creek	344.2	345.5	348.3
Spadra	346.9	348.3	351.2
Cane Creek	349.4	351.0	354.4
Horsehead	351.4	352.9	356.0
Six Mile	354.7	356.5	360.3
O'Kane	360.2	362.4	366.8
Roseville	361.6	363.7	367.8
West Creek	363.2	365.5	370.4
Dam Site Ozark	365.6	368.1	373.4

SECTION V RECREATION FACILITY REQUIREMENTS

5-01. Zone of influence. During the summer of 1976 visitor surveys were conducted by Corps personnel at Piney Bay, Shoal Bay, and Flat Rock Parks. These parks were chosen as being representative of the recreation parks on Lake Dardanelle. The surveys indicate that slightly more than 54, 64, and 77 percent of the visitors came from within 20-, 50-, and 100-highway miles, respectively, of the project. In 1974, Dr. Daniel D. Badger, Mr. Dean F. Schreiner, and Mr. Ronald W. Presley of Oklahoma State University, Stillwater, Oklahoma, prepared a report entitled "Analysis of the Impacts of Consumption and Investment Expenditures for Outdoor Recreation at the McClellan-Kerr Arkansas River Multiple-Purpose System." This report states that 83 percent of the visitors to the project in Arkansas upstream from Little Rock came from within 100-highway miles in 1975. The zone of influence extends principally in an east-west direction from Fort Smith to Little Rock, Arkansas. Interstate 40 is a major traffic artery which has influenced the zone of influence. Existing water resources projects north and south of Lake Dardanelle have a restraining influence on visitation from these areas. The zone boundary was established along county lines for the convenience of determining population and per capita personal income. The east boundary of the zone was established along the eastern boundary of Lonoke County, and the zone extends westward only to the Arkansas-Oklahoma Stateline, due to the close proximity of several lakes in Oklahoma. The zone of influence is shown on Plate 1 and is comprised of the following 13 Arkansas Counties: Lonoke, Pulaski, Saline, Faulkner, Conway, Perry, Pope, Yell, Logan, Johnson, Franklin, Crawford, and Sebastian.

5-02. Record of visitation. A record of visitation was begun in 1965, just 1 year after the dam was complete in August 1964. This record is shown in Table 5-1 and it includes the recorded visitation to all developed parks, the lock and dam, and all undeveloped access points. The period of decline from 1965 to 1968 was due in a large degree to the statement by the Arkansas Health Department that the water in the lake did not meet the minimum quality required for body contact sports (swimming and skiing).

TABLE 5-1
LAKE DARDANELLE
RECORD OF VISITATION

YEAR	VISITATION	PERCENT ANNUAL CHANGE
1965	1,588,800	-
1966	1,318,100	-17.0
1967	1,216,900	7.7
1968	1,033,600	-15.1
1969	1,276,700	+23.5
1970	1,558,900	+22.1
1971	1,880,000	+20.6
1972	1,759,300	-6.4
1973	2,128,400	+21.0
1974	2,325,700	+9.3
1975	2,217,900	-4.6
1976	2,778,300	+25.3

The decrease in visitation in 1968 and 1975 was caused by a greater than normal rainfall, causing high river stages during the principal recreation season. The lake water was muddy and the sport fishery was poor during these years. More favorable conditions resulted in the abrupt 25 percent increase in visitation during 1976. This is the greatest 1-year increase since the project has been in operation. The following graphical display of the recorded project visitation shows the erratic growth pattern. Also shown is an average straight line visitation record for the last 6 years of project operation. This graph was used to determine the average theoretical value for the 1976 visitation of 2,590,000, which will be the base figure for computing the projected future visitation.

The project visitation for the period 1971 through 1976 is broken down by parks and other access points in Table 5-2 in order that visitation trends could be analyzed. Of the 14 Corps operated parks only Old Post Road and Shoal Bay have had major gains in visitation in the past few years. These gains can be attributed to recent construction of day use facilities at Old Post Road Park and new camping facilities including electrical outlets at Shoal Bay Park. Without the new construction at these parks, the Corps park visitation would be about stabilized. Russellville, Ouita, and Dardanelle State Parks have experienced a small decline in visitation for the period 1973 through 1976. This decline may be due to a temporary shift of visitors to the new facilities constructed at Old Post Road Park. The estimated visitation to other access points has more than doubled in the 6-year period from 1971 to 1976. Based on 1976

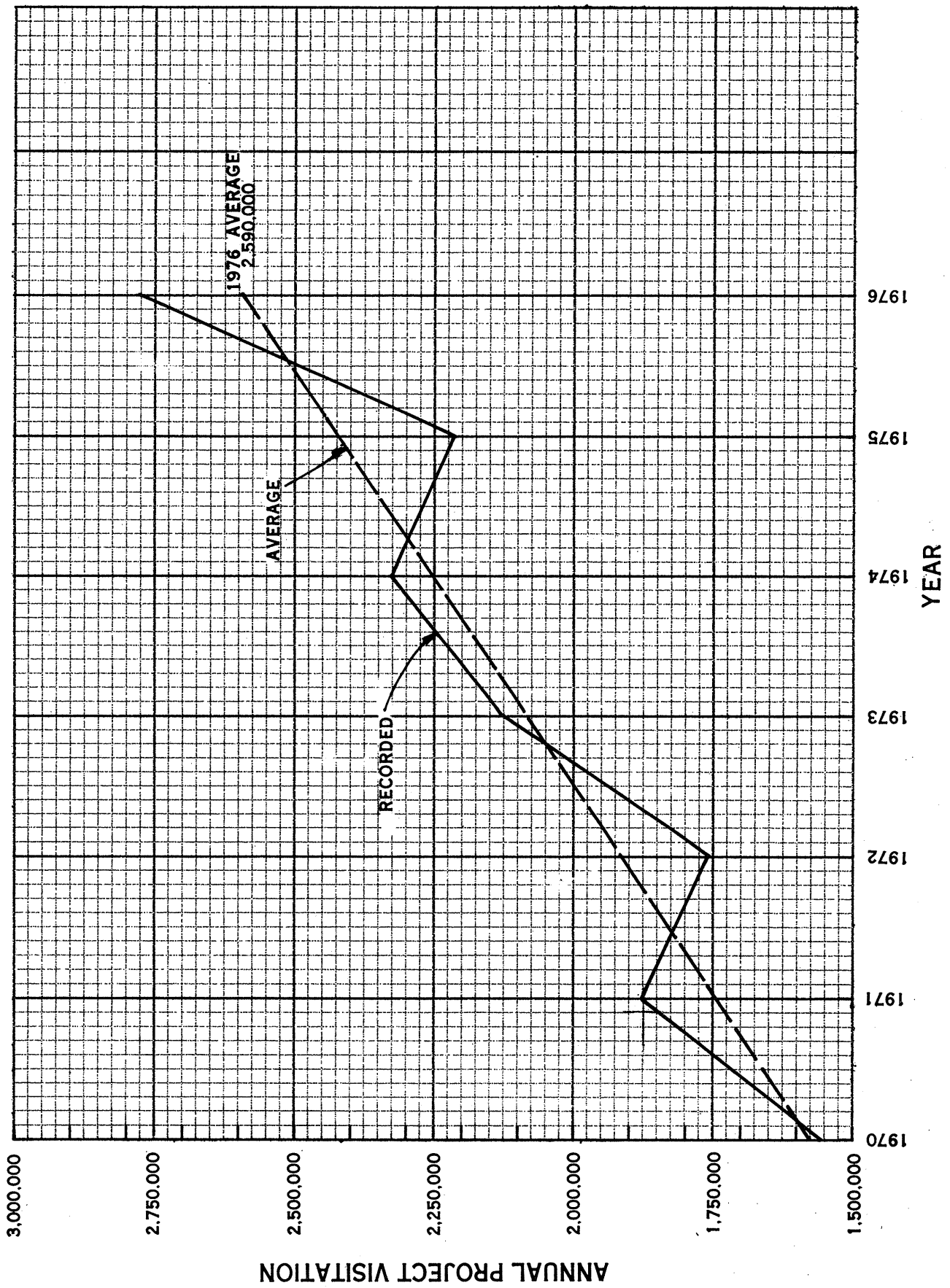


TABLE 5-2
VISITATION ANALYSIS

VISITATION

	1971	1972	1973	1974	1975	1976	Percent of 1976 Park Visitation
CORPS PARKS							
1. Old Post Road	0	0	35,833	322,297	431,459	486,198	25.9
2. Dam Site West	299,320	293,970	278,062	187,527	130,663	217,413	11.6
3. Shoal Bay	60,751	68,128	69,897	70,261	80,461	140,637	7.5
4. Spadra	104,624	122,038	122,641	128,913	127,857	113,290	6.0
5. Piney Bay	52,746	40,351	54,588	50,905	52,178	63,547	3.4
6. Delaware	27,109	28,388	28,437	30,359	41,919	46,779	2.5
7. Flat Rock	26,457	30,709	33,095	30,708	28,768	41,395	2.2
8. Dublin	9,961	25,580	27,184	30,135	30,532	37,074	2.0
9. O'Kane	50,627	51,355	64,743	58,883	48,063	36,134	1.9
10. Horsehead	41,532	36,187	35,881	42,144	39,072	32,076	1.7
11. Cabin Creek	20,362	19,123	23,720	27,724	26,336	27,338	1.5
12. West Creek	28,380	28,834	27,730	22,045	25,742	26,676	1.4
13. Cane Creek	24,278	23,256	20,178	17,328	18,317	24,296	1.3
14. Six Mile	8,012	11,174	7,311	6,790	9,864	18,843	1.0
Subtotal	754,159	779,093	829,300	1,026,019	1,091,231	1,311,696	69.9

STATE PARKS

1. Russellville					307,691	280,746	15.0
2. Ouita	691,792	525,729	625,944	568,043	189,010	187,135	10.0
3. Dardanelle					80,337	69,036	3.7
Subtotal	691,792	525,729	625,944	568,043	577,038	536,917	28.7

CITY PARKS

1. Shiloh	0	0	15,054	61,437	32,010	28,687	1.5
Total Parks	1,445,951	1,304,822	1,470,298	1,655,499	1,700,279	1,877,300	100.0

TABLE 5-2 (con.)
VISITATION ANALYSIS

VISITATION

OTHER	1971	1972	1973	1974	1975	1976	Percent of 1976 Park Visitation
1. Other access areas	280,541	233,926	420,943	533,418	338,431	722,151	-
2. Lock access	54,680	75,516	81,781	54,267	77,120	89,190	-
3. Prairie Creek Jog. Tr.	0	0	0	20,001	27,700	53,338	-
4. Overlook	33,484	53,606	10,702	16,924	18,874	16,940	-
5. Walk-in visitors	63,112	87,965	142,844	43,998	46,002	10,976	-
6. Church camp	2,250	3,515	1,796	1,561	9,494	8,432	-
Subtotal	434,067	454,528	658,066	670,169	517,621	901,027	-
TOTAL (Rounded)	1,880,000	1,759,300	2,128,400	2,325,700	2,217,900	2,778,300	100.0

visitation figures the 14 Corps parks received 47.2 percent of the project visitation. The three State parks received 19.3 percent and Shiloh Park operated by the city of Russellville received 1.0 percent. The remaining 32.4 percent of the project visitation occurred at other access points.

5-03. Determination of recreation demand.

a. Data source. Data used to determine the recreation demand was obtained from the recreational use surveys (see paragraph 5-01) traffic counter readings, observations by project forces, and "Projection Trends, Industrial Research and Extension Service, University of Arkansas".

b. Planning base. One of the objectives of recreational planning is to provide adequate facilities to meet the recreational use desired by the visitors to a project on an average summer weekend day. The average summer weekend day demand is an important concept in recreational planning because it is the basis for estimating land, water, and facilities required to adequately serve the recreational users of the project. Demand is defined as the people who would participate in a recreational activity if facilities were provided for their use. Average summer weekend day use of the project, expressed in activity occasions, was determined by the following procedure.

(1) Monthly traffic counter readings taken at each park during 1976 revealed that May, June, and July are the three highest visitation months. The total visitation to the parks during these months was multiplied by the estimated percentage of visitors to the project on the weekend (45.5 percent). This figure was divided by 26 (weekend days during the summer months) to determine the number of visitors to the parks on an average summer weekend day. It was assumed that visitation was equally distributed between Saturday and Sunday. Table 5-3 contains the recorded park visitation for May, June, and July and the computed average summer weekend day visitation for the year 1976. Since the visitation in 1976 was above average, a theoretical average summer weekend day visitation was computed to be the basis for projecting future visitation.

(2) The estimated monthly activity occasions at each park were added together for the months of May, June, and July. This figure was divided by the recorded visitation for the same period to determine the average summer participation rates for the various recreational activities. The theoretical 1976 average summer weekend day visitation was multiplied by the average summer participation rates to determine the theoretical activity occasion generated in an average summer weekend day.

TABLE 5-3
1976 SUMMER VISITATION

<u>PARK</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>TOTAL</u>
Old Post Road	58,819	56,012	49,782	164,613
Dam Site West	13,654	35,579	38,500	87,733
Delaware	6,258	5,075	3,204	14,537
Piney Bay	8,344	12,688	16,442	37,474
Flat Rock	7,667	7,667	6,018	21,352
Cabin Creek	2,978	3,198	2,563	8,739
Shoal Bay	16,898	14,820	20,766	52,484
Dublin	3,120	6,125	7,179	16,424
Spadra	16,558	16,911	14,322	47,791
Cane Creek	1,883	2,427	2,177	6,487
Six Mile	1,915	1,136	2,176	5,227
O'Kane	2,563	5,033	4,954	12,550
Horsehead	5,490	4,310	4,825	14,625
West Creek	2,910	3,998	3,045	9,953
Subtotal	149,057	174,979	175,953	499,989
Russellville S.P.	30,839	45,639	53,781	130,259
Ouita S.P.	21,968	25,562	25,058	72,588
Dardanelle S.P.	10,410	9,709	9,651	29,770
Shiloh (city park)	3,630	6,982	3,231	13,843
Subtotal	66,847	87,892	91,721	246,460
Total	215,904	262,871	267,674	746,449

Park summer visitation = 746,449
 Summer weekend visitation = $746,449 \times 0.455 = 339,634$
 Summer weekend day visitation = $339,634 \div 26 = 13,063$

Adjustment factor = $\frac{2,590,000}{2,778,300}$ theoretical annual visitation
 recorded annual visitation
 = 0.932

Theoretical summer weekend day visitation for 1976

= $13,063 \times 0.932$
 = 12,175 people

c. Participation rates. The percentage of participants in the various recreational activities varies from park to park. An average summer participation rate for each activity was computed for the 18 parks by dividing the total summer activity occasions by the total visitation. These rates are assumed to be the same for an average summer weekend day. See Table 5-4.

Similarly, annual participation rates were computed by dividing the total project activity occasions by the total project visitation. See Table 5-5.

TABLE 5-4
AVERAGE PARTICIPATION RATES FOR SUMMER 1976
(Visitation at 18 Parks = 746,449)

<u>ACTIVITY</u>	<u>ACTIVITY OCCASIONS (1)</u>	<u>PARTICIPATION RATES</u>
Boating	201,373	0.270
Fishing	287,338	0.385
Skiing	64,913	0.087
Swimming	249,512	0.334
Camping	139,219	0.187
Picnicking	100,751	0.135
Sightseeing	239,619	0.321
TOTAL	1,282,725	1.719

(1) Source: Monthly Recreational Visitation Data - Little Rock District

TABLE 5-5
AVERAGE ANNUAL PARTICIPATION RATES FOR 1976
(Annual Visitation = 2,778,300)

<u>ACTIVITY</u>	<u>ACTIVITY OCCASIONS</u>	<u>PARTICIPATION RATES</u>
Boating	517,000	0.186
Fishing	1,241,900	0.447
Skiing	111,400	0.040
Swimming	475,900	0.171
Camping	331,900	0.119
Picnicking	253,300	0.091
Sightseeing	1,030,600	0.371
Hunting	48,383	0.017
Other	82,258	0.030
TOTAL	4,092,641	1.472

5-04. Projected population and per capita personal income. The data shown in Table 5-6 represents the 13 counties contained in the zone of influence for Lake Dardanelle.

TABLE 5-6
POPULATION AND INCOME PROJECTIONS
FOR ZONE OF INFLUENCE (13 COUNTIES)

YEAR	POPULATION	PER CAPITA PERSONAL INCOME	TOTAL PERSONAL INCOME (1,000,000)	(Proportion) (of base year) MULTIPLIER
1950	470,216	-		
1960	500,858	-		
1965	540,931	-		
1970	593,005	2,486	1,474.2	0.643
1975	685,715	3,193	2,189.5	0.955
1976*	687,574	3,334	*2,292.4	1.000
1980	695,008	3,900	2,710.5	1.182
1990	796,414	5,200	4,141.4	1.807
2000	930,000	7,000	6,510.0	2.840

*Base Year

5-05. Project recreational use. It was assumed that visitation to the project and the recreational activity occasions will increase at the same rate as the total personal income as shown in the last column of Table 5-6. Projected visitation is shown in Table 5-7 and projected activity occasions are shown in Tables 5-8 and 5-9.

TABLE 5-7
PROJECTED VISITATION

YEAR	1976*	1980	1990	2000
Multiplier	1.000	1.182	1.807	2.840
18 Parks	1,749,600	2,068,000	3,162,000	4,969,000
TOTAL PROJECT	2,590,000	3,061,000	4,680,000	7,356,000

*Theoretical values were determined by multiplying 0.932 times the recorded 1976 visitation.

TABLE 5-8
PROJECTED ACTIVITY OCCASIONS
AVERAGE SUMMER WEEKEND DAY AT 18 PARKS

YEAR	1976	1980	1990	2000
Projection Factor	1.000	1.182	1.807	2.840
Average Summer Weekend				
Day Visitation	12,175	14,400	22,000	34,600
Boating *(.270)	3,290	3,890	5,940	9,340
Fishing (.385)	4,690	5,540	8,470	13,300
Skiing (.087)	1,060	1,250	1,910	3,010
Swimming (.334)	4,070	4,810	7,350	11,560
Camping (.187)	2,280	2,690	4,110	6,470
Picnicking (.135)	1,640	1,940	2,970	4,670
Sightseeing (.321)	3,910	4,620	7,060	11,110
TOTAL ACTIVITY OCCASIONS	20,940	24,740	37,810	59,460

*Participation rates, see Table 5-4.

TABLE 5-9
PROJECTED ANNUAL ACTIVITY OCCASIONS
LAKE DARDANELLE PROJECT

YEAR	1976	1980	1990	2000
Projection Factor	1.000	1.182	1.807	2.840
Annual Visitation	2,590,000	3,061,000	4,680,000	7,356,000
Boating *(.186)	482,000	569,000	870,000	1,368,000
Fishing (.447)	1,158,000	1,368,000	2,092,000	3,288,000
Skiing (.040)	104,000	122,000	187,000	294,000
Swimming (.171)	443,000	523,000	800,000	1,258,000
Camping (.119)	308,000	364,000	557,000	875,000
Picnicking (.091)	236,000	279,000	426,000	669,000
Sightseeing (.371)	961,000	1,136,000	1,736,000	2,729,000
Hunting (.017)	44,000	52,000	80,000	125,000
Other (.030)	78,000	92,000	140,000	221,000
TOTAL ACTIVITY OCCASIONS	3,814,000	4,505,000	6,888,000	10,827,000

*Participation rates, see Table 5-5.

5-06. Recreation facilities criteria. Recreation facilities are planned for future construction to meet the projected needs of the park visitors only on an average summer weekend day. The following criteria are applicable to overall facility development planned on Lake Dardanelle.

a. General requirements.

(1) EM 1110-2-400 dated 1 September 1971, Recreation Planning and Design Criteria.

(2) ER 1110-2-400 dated 1 February 1971, Design of Recreation Sites, Areas, and Facilities.

(3) ER 1120-2-400 dated 1 November 1971, Recreation Resources Planning and change 3 dated 12 February 1976.

(4) ER 1130-2-400 dated 28 May 1971, Recreation Resources Management of Civil Works Water Resource Projects.

(5) ER 1165-2-400 dated 3 August 1970, Recreational Planning, Development, and Management Policies.

(6) ER 1130-2-406 dated 13 December 1974, Lakeshore Management at Civil Works Projects.

(7) ER 1110-1-102 dated 15 October 1976, Design for the Physically Handicapped.

(8) ER 1130-2-404 dated 1 June 1976, Recreation Use Fees.

(9) EC 1105-2-65 dated 3 September 1976, Resource Use: Establishment of Objectives.

(10) Park Practice Design Manual of the National Park Service.

b. Picnic units. One picnic unit will be provided for each 10 picnickers on an average summer weekend day. The picnic unit will consist of a concrete picnic table, grill or fireplace, and trash receptacle. Adequate vehicular parking will be provided for each picnic unit. A table canopy may be provided where shade is not available. Wooden picnic tables will be provided during peak summer use such as on national holidays. One group type picnic shelter will be provided for each 225 picnickers per average summer weekend day.

c. Camping units. One camp unit will be provided for each five individual campers on an average summer weekend day. The camp unit will be similar to a picnic unit except paved parking may be provided for one or two vehicles and/or a recreation vehicle.

d. Sanitary facilities. One waterborne restroom will be provided for each 250 camping activity occasions or one vault restroom will be provided for each 50 camping activity occasions per average summer weekend day. Also, one vault or waterborne restroom will be provided for every 2,500 other activity occasions on an average summer weekend day. Restrooms will be constructed using Little Rock District standard designs to reduce construction and maintenance costs. Trailer sanitary disposal stations will be provided at parks having a significant number of campsites. The domestic and solid wastes generated at the parks will be treated and/or disposed of in compliance with Federal or State requirements.

e. Launching ramps. In accordance with EM 1110-2-400, dated 1 September 1971, one launching lane should be provided for each 40,000 annual park visitors or at any one area having 40 boat launchings per summer weekend day. Visitor surveys during the summer of 1976 revealed that approximately 13 percent of the parties visiting the parks required a boat launching ramp. Based on information obtained from these surveys, it is estimated that one launching lane is required for each 930 average summer weekend day visitors.

f. Roads and parking areas. All major park circulation roads and parking areas will be designed to closely follow the existing ground surface, and clearing will be limited to the minimum necessary for safety. They will be surfaced with asphaltic concrete. Park roads and parking areas which are anticipated to be used on a limited or infrequent basis will be gravel surfaced.

g. Photographs. Photographs of selected recreation facilities are included at the end of this section.

5-07. Facility requirements.

a. Facilities required to serve the future use. The facility design load criteria in Section 5-06 were applied to the projected activity occasions shown in Table 5-8 to determine the future facility requirements. Table 5-10 lists the facility requirements for Lake Dardanelle.

b. Determination of optimum use. Optimum use is defined as that level of use which can be accommodated without degradation of the project resources. The development, existing and proposed facilities, shown in this master plan is considered optimum use and should accommodate the recreational uses of the project until approximately the year 1993. At that time additional parks would be required to continue to meet the recreational demand.

TABLE 5-10
RECREATION FACILITY REQUIREMENTS

<u>Facility</u>	<u>1976</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>Planned Development</u>	
					<u>Existing</u>	<u>Proposed</u>
Picnic shelters	7	9	13	21	19	6
Picnic units	164	194	297	467	177	250
Camp units	456	538	822	1,294	268	591
Launching lanes	13	16	24	37	26	2

(1) Restroom requirements are based on site requirements.

(2) Approximately 70 percent of the facilities are required at the Corps operated parks and 30 percent at the parks operated by other agencies. See Table 5-2.

c. Recreational needs shown in Arkansas SCORP. The Arkansas Statewide Comprehensive Outdoor Recreation Plan 1974 shows need (unsupplied demand) by activity in each county and region of the zone of influence. Since the base year for this master plan is 1976, some of the needs shown in the SCORP probably have been met. See Table 5-11.

5-08. Availability of water and project lands to accommodate recreational activities.

a. Water. Lake Dardanelle contains 34,300 acres of water surface at elevation 338. It is estimated that the fishery on the lake will sustain an optimum annual yield of 75 pounds per acre. According to the Arkansas SCORP the average catch is 1.5 pounds per activity occasions. Therefore, with a surface area of 34,300 acres the lake will support 1,715,000 fishing activity occasions per year. Optimum fishing activity occasions is estimated to occur in the year 1985. It is estimated that the lake will support 75 boating (fishing and pleasure boating) activity occasions per year per acre or a total of 2,572,500 activity occasions per year. Optimum boating activity occasions is estimated to occur after the year 2000.

b. Land. There are 2,056 acres of land in the recreation parks available for recreational activities. These lands, with the facilities shown, are adequate to meet the estimated recreational demand through the year 1993. See paragraph 5-07b.

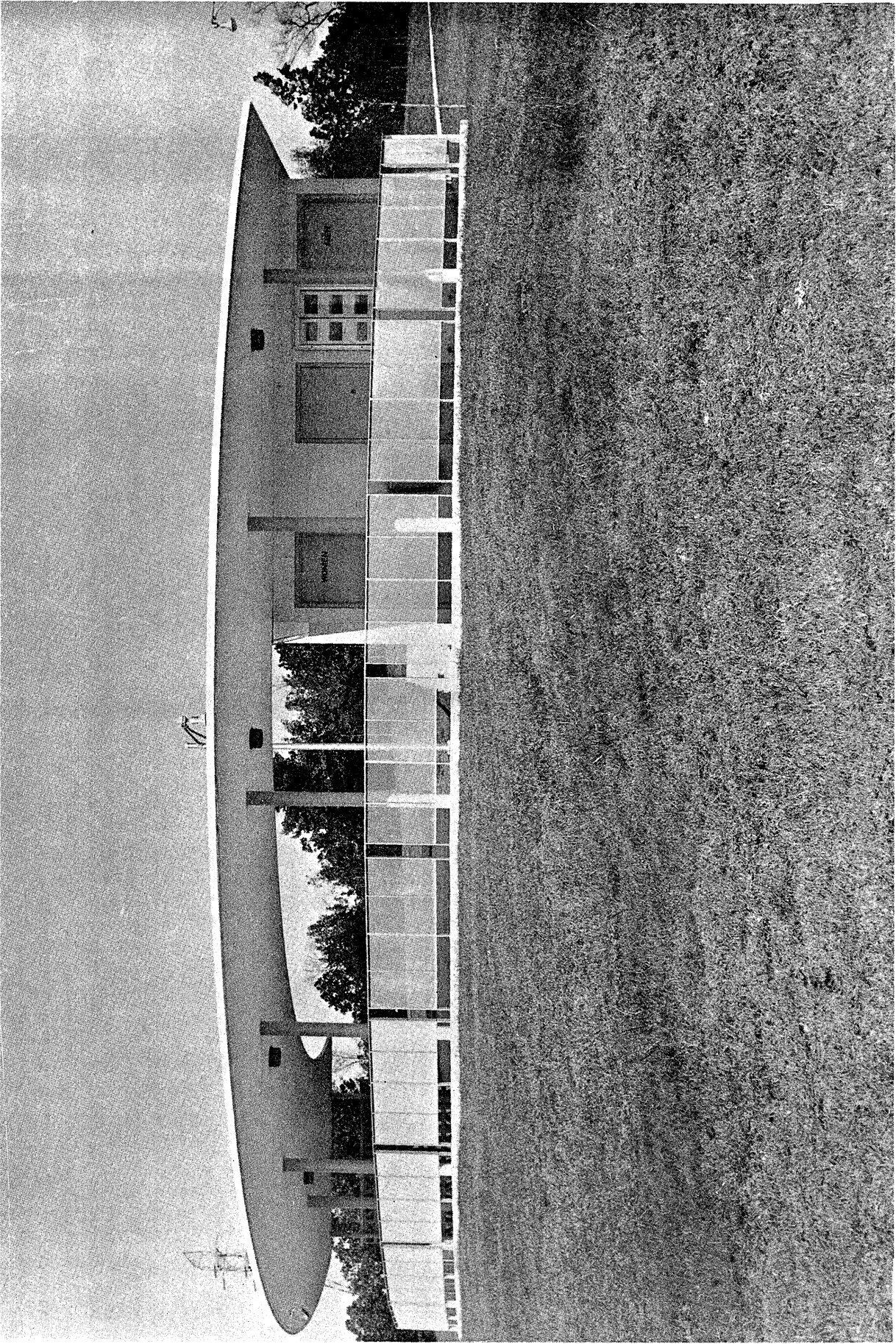
TABLE 5-11
MINIMUM COUNTY NEEDS

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
Fishing (acres)	-	121	388	703
Waterfowl Hunting (acres)	1,866	2,432	3,354	4,366
Trailer Camp (sites)	9	11	13	15
ORV Driving (miles)	33	35	38	42
Hunting (acres)	27,866	29,604	33,461	38,258
Horseback Riding (miles)	14	15	18	23
Picnicking (sites)	205	285	432	601
Swimming (sq ft)	399,620	464,554	562,926	683,364
Tent Camp (sites)	92	107	125	149
Hiking (miles)	101	110	132	162
Sightseeing (activity occasions)	3,154,570	3,429,561	3,921,327	4,471,302
Boating (acres)	-	-	-	-
Bicycling (miles)	236	255	287	335

MINIMUM ADDITIONAL REGIONAL NEEDS
(Regions 4, 5, and 6)

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
Fishing (acres)	27,334	31,009	39,031	50,149
Waterfowl Hunting (acres)	16,226	18,054	20,823	23,389
Trailer Camp (sites)	187	215	252	294
ORV Driving (miles)	116	126	149	174
Hunting (acres)	145,700	156,748	176,049	198,713
Horseback Riding (miles)	93	96	105	121
Picnicking (sites)	2,600	3,021	3,518	4,083
Swimming (sq ft)	25,808	28,018	31,371	35,133
Tent Camp (sites)	1,341	1,522	1,747	2,021
Hiking (miles)	261	267	296	335
Sightseeing (activity occasions)	3,233,477	3,457,033	3,889,618	4,373,998
Boating (acres)	2,721	2,720	2,994	3,314
Bicycling (miles)	14	15	17	19

Source: The Arkansas Statewide Comprehensive Outdoor Recreation Plan, 1974.



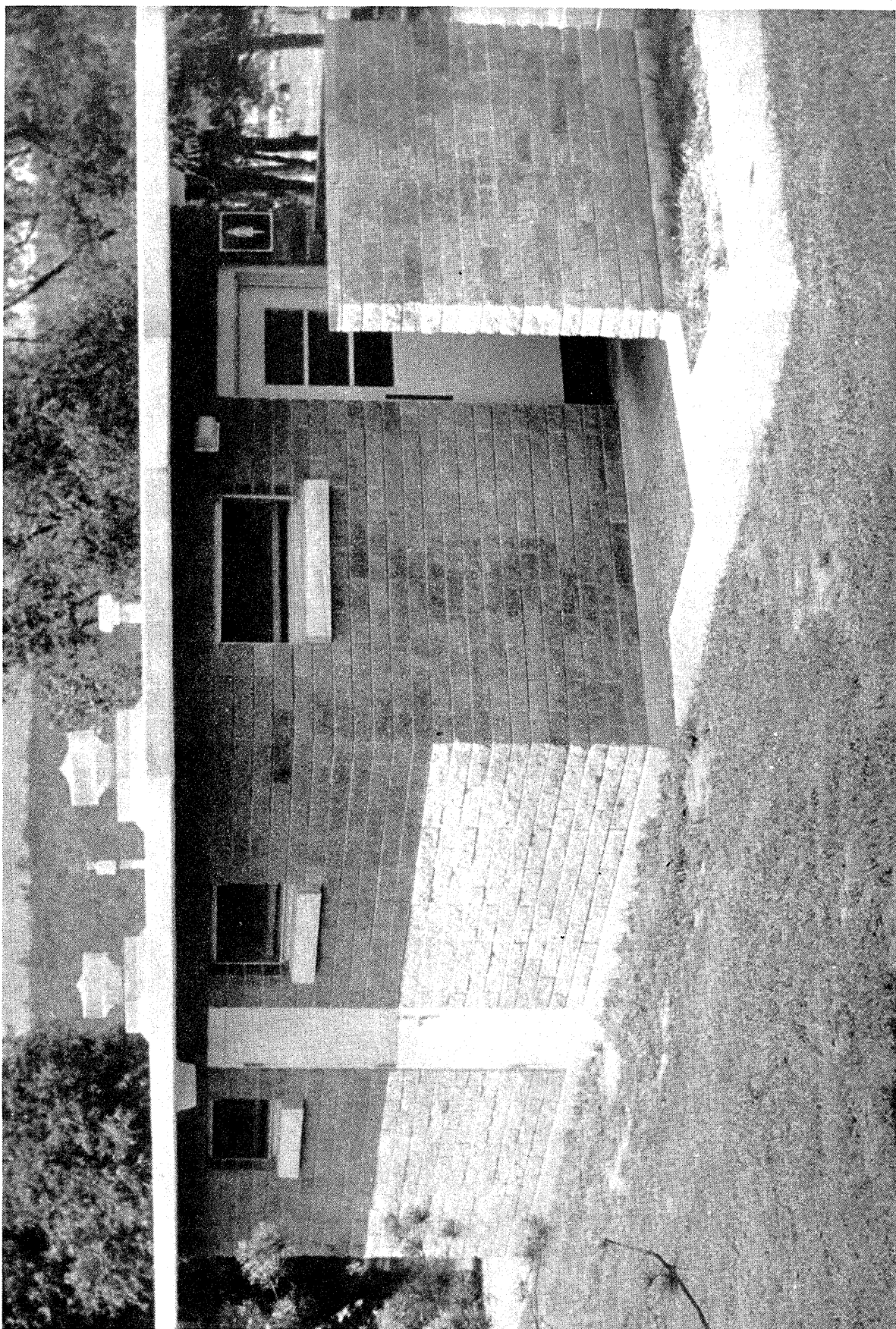
OVERLOOK



BRIDGE ROCK TRAIL ENTRANCE



TYPICAL PICNIC SITE



WATERBORNE RESTROOM

SECTION VI
PHYSICAL PLAN OF DEVELOPMENT

6-01. General description of plan. Development of Lake Dardanelle for use by the general public will be primarily limited to the 24 recreational parks shown on Plate 2, titled, "Land Use Plan Index." Of these 24 areas, 1 (Shiloh) is being developed by the city of Russellville; 2 (Hartman and New Blaine) are being developed by Johnson and Logan Counties; 3 (Dardanelle, Russellville, and Ouita) are leased to the Arkansas Department of Parks and Tourism for operation as State parks; 2 (Illinois Bayou and Dike View, also the island of Ouita) are leased to the Arkansas Tech University at Russellville; 14 are currently operated by the Corps of Engineers and 2 are reserved for future development. Within these 24 parks there are approximately 2,056 acres above elevation 338.0 m.s.l., which is the top of conservation pool. This land was acquired in fee for project operations and is allocated for recreation-intensive use, as shown on Plates 3 through 13, "Land Use Plans." Approximately 7 acres are leased to the New Subiaco Abbey at Subiaco, Arkansas, for recreational purposes. The area is known as Shoal Bay Boy's Camp and is located east of Dublin Park (see Plate 7).

a. Full consideration is given to maintaining the highest standards of public health, safety, and sanitation in the development and management of the lake for public use.

b. Preference will continue to be given to Federal, State, and local governmental agencies for the use of areas suitable for public parks and recreational purposes on Government-owned lands. The plan, as presented herein, is subject to modification at the time any of these agencies desire to participate in the construction, maintenance, management, and operation of recreational facilities to be provided.

c. Commercial boat dock sites that are not located in parks licensed to governmental agencies for development as public parks will be awarded in accordance with ER 405-1-830 and EC 405-2-12.

d. The interest of the general public is paramount and that interest will be safeguarded by adequate control over the use of the Government-owned land adjacent to the lake. Ownership of land adjacent to Government-owned land is not considered sufficient reason to allow the adjacent owner to have private and exclusive access to the lake across Government-owned land.

e. The lake shoreline will be protected on a continuing basis to preserve its natural scenic beauty. No timber will be cut or removed unless removal is required in connection with the project.

f. The advice, assistance, and cooperation of various qualified governmental agencies will be sought periodically in the development, maintenance, and management of the lake area.

g. This plan presents the proposed use of lands acquired for development of Lake Dardanelle, and was prepared in accordance with guidance furnished by Change 3, dated 12 February 1976, to ER 1120-2-400, Investigations, Planning, and Development of Water Resources. During allocation of these lands consideration was given to the approved Lakeshore Management Plan, including areas where private floating facilities exist or are permitted. The Land Use Plans and the approved Lakeshore Management Plan are compatible and they compliment each other.

6-02. Allocation of lands. There have been 45,808 acres of land purchased in fee for the operation and maintenance of the project. Easements have been acquired on about 7,603 acres, including lands subject to occasional flooding due to operation of the project, and lands for access roads. The controlling upper elevation contour governing real estate acquisition in fee varies from elevation 341 at Dardanelle Dam to elevation 360 at Ozark Dam. The lower elevation of flowage easements varies from elevation 341 at Dardanelle Dam to elevation 365 near Ozark Dam. For detailed acquisition data, see Table 6-1. Additional real estate data are contained in the following design memorandums:

Design Memorandum No. 2-1 dated November 1956.
Design Memorandum No. 2-2 dated August 1958.
Design Memorandum No. 2-3A dated April 1959.
Design Memorandum No. 2-3B dated February 1960.
Supplement dated November 1962.
Letter Report dated December 1962.
Letter Report dated January 1964.

The location of lands acquired in fee, and those over which flowage easements were obtained, is shown on Land Use Plans, Plates 3 through 13. As of January 1977, the total acreage of the project is 45,808 in fee and 7,603 in easement. In this master plan these lands have been allocated for various uses as shown on the Land Use Plans and as described in the following subparagraphs.

a. Project operations. This allocation includes lands acquired to provide for safe efficient operation of the project for its authorized purpose other than recreation. Also approximately 109 acres have been set aside for the project operations building, administration building, maintenance compound, project overlook, and the Dardanelle Marine Terminal. Several areas have been designated for placement of dredged

DARDANELLE
TABLE 6-1
REAL ESTATE ACQUISITION LIMITS

LAND ACQUIRED IN FEE		
LOCATION		UPPER ELEVATION
Dam site (Nav. mile 205.5) to nav. mile 215.7	:	341
Nav. mile 215.7 to nav. mile 218.8	:	342
Nav. mile 218.8 to nav. mile 224.4	:	345
Nav. mile 224.4 to nav. mile 226.9	:	346
Nav. mile 226.9 to nav. mile 230.6	:	347
Nav. mile 230.6 to nav. mile 233.1	:	349
Nav. mile 233.1 to nav. mile 237.1	:	350
Nav. mile 237.1 to nav. mile 238.5	:	351
Nav. mile 238.5 to nav. mile 239.7	:	352
Nav. mile 239.7 to nav. mile 240.6	:	353
Nav. mile 240.6 to nav. mile 241.5	:	354
Nav. mile 241.5 to nav. mile 245.5	:	356
Nav. mile 245.5 to nav. mile 247.6	:	357
Nav. mile 247.6 to nav. mile 250.8	:	358
Nav. mile 250.8 to nav. mile 251.8	:	359
Nav. mile 251.8 to Ozark Lock and Dam	:	360

FLOWAGE EASEMENT LAND		
LOCATION		LOWER ELEVATION
Dam site to nav. mile 214.7	:	341
Nav. mile 214.7 to nav. mile 218.8	:	345
Nav. mile 218.8 to nav. mile 223.4	:	350
Nav. mile 223.4 to nav. mile 228.5	:	353
Nav. mile 228.5 to nav. mile 233.1	:	355
Nav. mile 233.1 to nav. mile 237.9	:	358
Nav. mile 237.9 to nav. mile 241.6	:	360
Nav. mile 241.6 to nav. mile 245.4	:	363
Nav. mile 245.4 to nav. mile 249.9	:	365
Backwater areas	:	
Illinois Bayou	:	343 increasing to 344
Piney Creek	:	345 decreasing to 342
Shoal Creek	:	350
Cabin Creek	:	350 increasing to 353
Short Creek	:	350 increasing to 351
Cane Creek	:	351 increasing to 355
Spadra Creek	:	354
Horsehead Creek	:	357
Six Mile Creek	:	358 increasing to 364
Three Mile Creek	:	364
Short Mountain Creek	:	364
Hurricane Creek	:	364
Smith Creek	:	365 decreasing to 362

material in the process of maintaining the project dimensions for the navigation channel. These areas are shown on Plates 3 through 13. A public notice was issued on 18 September 1974 concerning periodic dredging on the McClellan-Kerr Arkansas River Navigation System in Arkansas. This public notice identified dredged material placement areas and discussed our dredging activities. Several objections were made concerning the selected areas, and after all objections were considered a Statement of Findings dated 29 April 1975 declared our intentions to proceed with the dredging activities. These areas are also shown in the final Operation and Maintenance Environmental Impact Statement which has been filed with the Council on Environmental Quality. When use of areas other than those included in the 18 September 1974 Public Notice are required, Public Notices are issued.

b. Operations: recreation-intensive use. These lands were acquired for project operations and are allocated for use as public use areas for intensive recreational activities by the visiting public. No grazing or row cropping activities are permitted on these lands. Shown in Table 6-2 are the public use areas, and the approximate acreages above elevation 338, which is the top of conservation pool. There are about 2,405 acres of land in this allocation.

c. Operations: recreation-low density use. These are lands acquired for project operations and allocated for low density recreation use. These lands containing about 7,893 acres (including 4,144 acres dually allocated as noted in paragraph 6-02f) are to be used for hiking or similar low-density recreational use, to provide for the ecological and scenic protection of the shoreline, and to provide buffer zones adjacent to recreation lands. Where practicable, a buffer zone, $\frac{1}{4}$ -mile minimum ($\frac{1}{2}$ -mile desirable) shoreline length has been established at the parks to protect the environment. Lands along the shoreline where private floating facilities exist, or where they will be permitted in the future, as shown in the Lakeshore Management Plan, are included in this allocation. Also included are lands leased for agricultural purposes. Interim use of the recreation low-density use lands includes leasing for agricultural purposes where such uses enhance the maintenance of open space, scenic values, and wildlife management. Minimum corridor access across these lands is permitted for navigation related industrial purposes, such as ports, factories, and fueling dock. Requests for industrial leases are considered on an individual basis, and the minimum amount of land is used in order to preserve a maximum of the natural and scenic beauty of the lake for use by the general public. All recreation low-density use lands are managed to benefit wildlife and are open for in-season hunting. The management practices will include planting of trees to provide additional cover and food for wildlife. In some areas seed mixtures will be planted to aid quail, doves, rabbits, and small mammals. Nesting boxes will be installed for squirrels and ducks.

TABLE 6-2
AREA OF RECREATIONAL PARKS ABOVE ELEVATION 338

<u>Park</u>	<u>Area in Acres</u>
1. Old Post Road	295
2. Dam Site West	90
3. Dardanelle (State Park)	82
4. Russellville (State Park)	155
5. Delaware	136
6. Shiloh (Russellville City Park)	333
7. Ouita (State Park)	48
8. Ouita Island (Arkansas Tech University)	15
9. Dike View (Arkansas Tech University) (Future)	80
10. Illinois Bayou (Arkansas Tech University) (Future)	62
11. Flat Rock	59
12. Highway 64 Cove (Future)	145
13. Cabin Creek	51
14. Piney Bay	111
15. Shoal Bay	85
16. Dublin	28
17. Cane Creek	46
18. Horsehead	110
19. Spadra	97
20. Six Mile	94
21. O'Kane	31
22. Roseville (Future)	78
23. West Creek	150
24. Hartman (City Park)	9
25. New Blaine (City Park)	15
Total Acres	<u>2,405</u>

d. Operations: natural area. These lands containing approximately 1,000 acres were acquired for project operations and are allocated for preservation of ecological and visual values. The major portion of these lands are located in two areas - both sides of the lake extending about 2 miles upstream from the dam (see Plate 3), and about 3 miles along both banks of Piney Creek from the north shore of the lake (see Plate 5 & 6). These areas are heavily wooded, contain steep bluffs and rock outcrops, and have a scenic beauty which should be preserved. Trails are proposed along the left bank upstream from the dam to the Russellville State Park, and along the left bank of Piney Creek between Flat Rock Park and Piney Bay Park. At the present time the private land adjacent to the areas noted above contains little or no development. No agricultural uses will be permitted on the allocated lands.

e. Lease, license, and easement. Leases, licenses, and easements have been granted upon project lands for various utility rights-of-way, pipeline and pump facilities, and roads. Each of these has been located and described on the Land Use Plans. These lands are presently used for agriculture, pasture, and limited timber production. Structures for human habitation are prohibited. The erection of other structures is subject to review and approval by the District Engineer.

f. Fish and wildlife. About 4,144 acres of land have been dually allocated for fish and wildlife conservation management and recreation low-density use. Arkansas Game and Fish Commission was granted a license for a period of 25 years to use and occupy about 42,500 acres of land and water areas in the Lake Dardanelle project. At the present time, there are three areas containing about 1,400 acres in which an active management plan is in effect. These are shown on Plates 8, 9, and 13 as AG&FC No. 1, No. 2, and No. 3. Area No. 1 is known as Spadra Bottom (Plates 8 and 9); Area No. 2 is known as Skaggs Island (Plate 8); and Area No. 3 is known as O'Kane Island (Plate 13). In these three areas the Arkansas Game and Fish Commission has granted share crop agricultural leases under which a portion of the crop is left in the field as wildlife food plots. Twenty smaller areas containing 2,744 acres have been given a dual allocation of low-density recreation - wildlife management, and are in the agricultural leasing program. As funds become available to implement an active wildlife management program, they will be removed from the leasing program. Until that time, they will be dually allocated and will remain in the leasing program.

g. Commercial dock or port areas. At this time, the Clarksville Port Authority located at navigation mile 234.5 is the only grantee with a permit to develop permanent public port facilities on Lake Dardanelle. The lease for 28 acres located east of the Horsehead Park area was issued for a 5-year term beginning 1 May 1968 (see Plate 8), and the lease was extended 5 years until 30 April 1978. On the Clubb Creek arm of the lake (see lease area No. 5, Plate 5) Dilks and Company have a lease for construction of piers and for the purpose of storing and marshalling boats for shipment by water.

h. Residential subdivisions. There have been 24 sites designated for residential subdivision development. These development sites contain 212 developed homesites and are adjacent to Federal lands, and as development proceeds there will be requests for recreational use of the lands along the shoreline. These requests will be considered on their individual merits. The Federal lands adjacent to the residential sites have been allocated for low density recreational use, except at the Piney Acres subdivision on Piney Creek arm of the lake. The shoreline here is allocated as a natural area to protect its scenic value. (See Plates 3, 4, 5, and 7.)

i. Special conditions. Along the shoreline of two embayments adjacent to the nuclear power generation plant, Arkansas Power and Light Company, it may be necessary to prohibit human habitation (presence) if conditions at the nuclear generating units present a hazard to the health and safety of the public. The shoreline here has been allocated for low density recreation. (See Plates 3 and 4.)

6-03. Construction in water areas along shoreline. Any work below the ordinary high water elevation, or on land over which the Government has acquired an easement, requires Corps of Engineers approval prior to its initiation. Where the deposit of dredged or fill material, or construction affecting public use of the waterway is proposed, issuance of a public notice is required under Section 404 of the Federal Water Pollution Control Act Amendments of 1972 or Section 10 of the River and Harbor Act of 1899. The notice is sent to navigation interests, newspapers, radio, and television stations, Federal, State, and local governmental agencies, and approximately 200 other interested parties, who are allowed 30 days to file valid objections to issuance of the permit. Minor work having little environmental impact, and to which no objection is anticipated, may be authorized by a letter of permission, provided no filling in navigable waters is involved. Although no public notice is required for authorization by letter of permission, each application is reviewed by State and Federal fish and wildlife agencies as well as by the Corps of Engineers, prior to issuance of a permit. Applications are processed in accordance with the provisions of 33 CFR 325.

6-04. Interim use. Project lands which are pending future development are made available for agriculture and grazing purposes by appropriate outgrant. Currently 109 lease plots comprising 11,814 acres have been made available for agricultural and grazing leasing. These lands are managed in accordance with approved soil and water conservation practices to maintain a desirable vegetative cover, minimize erosion, and encourage wildlife. The management requirements include fire protection, seeding, and limitations on grazing use to maintain an optimum vegetative cover.

6-05. Project operation structures. The Dardanelle Resident Engineer located at Dardanelle Lock and Dam, Russellville, Arkansas, has field level responsibility for operation and maintenance of Dardanelle Lake, as well as for Ozark Lake and Navigation Pools Nos. 7, 8, 9, and 13. The Resident Office and maintenance compound are located adjacent to the dam and Old Post Road Park.

6-06. Recreational development.

a. General. The selection of the park sites was made after due consideration was given to the adaptability of sites to the desired facilities, accessibility by existing or proposed roads, terrain, scenic qualities, proximity to sheltered tributary areas, water frontage, and depth, and other pertinent data.

b. Developed parks. Recreation facilities have been developed in 14 Corps parks, 3 State parks, 1 city park, and 1 county park. A description of each of these parks is contained in the following paragraphs.

(1) Old Post Road (Plate 16). This park contains about 295 acres, excluding the area required for operation of the navigation lock and marine terminal. The area is located on the left bank at the dam site, and contains the operation and maintenance offices, workshops, and a visitor overlook. The overlook gives a view of the dam and lock, and contains waterborne restrooms. Recreation facilities include hard surfaced tennis courts, a ballfield, a playground, picnic and campsites, group picnic shelters, and a boat launching ramp. Additional picnic and campsites and trails are proposed. Access from State Highway 7 is by a paved road. The continuing increase in population is producing a greater demand on this park for day use and camping facilities.

(2) Dam Site West (Plate 17). There are about 90 acres in this park. It is located on the right bank and contains the right abutment of the dam, powerhouse, and switchyard. That portion of the area upstream from the dam contains several high voltage powerlines, therefore, recreation development has been confined to the downstream portion. Recreation facilities include picnic and campsites, a vault restroom, and a sand play area built up from dredged material. Additional campsites and drinking water fountains are proposed. Access is provided by paved road from State Highways 7, 27, 155, and 22.

(3) Delaware (Plate 18). This park is accessible by a paved road 2.5 miles from State Highway 22 and contains about 136 acres above elevation 338. Most of the facilities are located along the shoreline at the base of a steeply sloping ridge about 3/4-mile long. The area is heavily wooded and contains paved roads, picnic sites, a group picnic shelter, an overlook structure, boat launching ramp, and vault restrooms. It is

proposed to convert the overlook structure to a group picnic shelter to help meet the increasing demand for this type of facility. A nature trail is proposed along the shoreline on the side of the ridge opposite the developed area.

(4) Flat Rock (Plate 19). There are about 59 acres above elevation 338 in the park, and the terrain has gentle to steep slopes with moderate to heavy timber growth. It is located on the left bank of the Piney Creek arm near its confluence with the lake. This is a scenic area with steep cliffs along both shores of the Piney Creek arm, which is about 250-feet wide. Camping, picnicking, and boat launching facilities are available, and circulation roads are paved. A hiking trail about 3-miles long is proposed northward along Piney Creek to Piney Bay Park. Access to the park is by way of 1 mile of paved road from U.S. Highway 64 and State Highway 359.

(5) Piney Bay (Plate 20). This is one of the more popular parks on Lake Dardanelle. It contains about 111 acres with gentle to moderate slopes, and is well forested. It is located on a large embayment of the Piney Creek arm, and access is by 4 miles of paved State Highway 359 north from U.S. Highway 64. Recreational development includes picnic and campsites, and a boat launching ramp. There is an entrance complex for visitor control. A new well has been drilled to provide a better source of potable water. Proposed development includes additional campsites, waterborne restroom, and a picnic shelter.

(6) Cabin Creek (Plate 21). Located on the left bank of the lake at the confluence of the Cabin Creek arm this relatively small park contains about 51 acres above elevation 338. Access is by about 2 miles of paved road from U.S. Highway 64 through the town of Knoxville. Near Knoxville there is an interchange on Interstate 40. The existing campsites are located in an attractive cedar grove, and the terrain of the park has very gentle slopes. Facilities include camp and picnic sites, group picnic shelter, vault restrooms, and a boat launching ramp.

(7) Shoal Bay (Plate 22). This is a very popular park and a concessionaire of a commercial boat dock provides adequate supplies and equipment for fishing and boating. The park contains about 85 acres above elevation 338 with gentle slopes and good timber cover. An entrance station with overflow parking area provides visitor control. Recreational facilities include picnic and campsites, boat launching ramp, and vault restrooms. In the northern end of the park, Bridge Rock Trail has been constructed by Green Thumb Project forces. This is a 1 mile self-guiding, interpretive trail incorporating three separate routes of increasing length and difficulty. It offers a variety of plant life and geologic formations both unique and common to the area. A trail is proposed to begin in the southern end of the park and extend about 1.5 miles to connect with a system of trails proposed on the Ozark National Forest. Access to the park is by way of 1.5 miles of paved road from State Highway 22 at the town of New Blaine.

(8) Dublin (Plate 23). This is the smallest park on the lake - about 28 acres above elevation 338. The park is located on the Pigeon Roost Creek arm of the lake with direct access from paved State Highway 197. Only day use facilities are provided, including picnic sites, vault restroom, and boat launching ramps. Circulation roads are paved. The terrain has moderate slopes with good timber cover.

(9) Spadra (Plate 24). There are about 97 acres of land above elevation 338 with moderate slopes and moderately heavy timber cover. The park is located on the left bank of the lake at the mouth of Spadra Creek about 3 miles south of the city of Clarksville. Access is by way of paved State Highway 103. This park is scenic and historically significant; it is the site of a riverboat landing and a Federal fur trading post between 1819 and 1822. No physical evidence of the post remains. Along the entire length of the park the lake shoreline is a vertical rock bluff with overhanging rock ledges. Facilities include picnic and campsites, vault and waterborne restrooms, trailer sanitary station, boat launching ramps, and a commercial boat dock.

(10) Cane Creek (Plate 25). This park contains 46 acres and is located on Cane Creek near its confluence with the lake. The park is very popular with fishermen since it offers both stream and lake fishing. There are facilities for camping and picnicking. Access is by way of 2 miles of paved road from State Road 197.

(11) Horsehead (Plate 26). This 110-acre park is located on the north side of the lake at the confluence of Horsehead Creek. In a considerable portion of the park, development is precluded due to steep sloping terrain. Camping facilities are situated on the crest of a long ridge, which composes the greater portion of the park. Visitors have a good view of the lake from the campsites. There also are vault-type restrooms, picnic sites, and a boat launching ramp. Additional campsites are proposed adjacent to the lakeshore. Access is by way of 3.5 miles of paved road from U.S. Highway 64, and about 2.0 miles from State Highway 194.

(12) Six Mile (Plate 27). There are about 94 acres above elevation 338 in this park. The developed portion is situated on a delta area along Six Mile Creek and at the base of a ridge about 100 feet higher in elevation. Additional camping is proposed along the crest of this ridge. The southern slope of the ridge will permit an access road with acceptable grade. The entire area is heavily wooded with a deciduous forest. Only day use facilities are provided - vault restroom, picnic sites, group picnic shelter, and a boat launching ramp. Access is by way of 2.5 miles of graded gravel road from State Highway 109.

(13) O'Kane (Plate 28). This park contains about 31 acres above elevation 338 and is located on a diversion channel connecting Six Mile Creek to Lake Dardanelle, about 5 miles north of the city of Paris, Arkansas. The site was originally in cultivation, and after initial construction, it was planted with pine seedlings. In December 1976, unauthorized fires were set in 10 places and a large percentage of the trees were destroyed. Reforesting was accomplished during Arbor Day observance in 1977. Existing facilities include campsites, a picnic shelter, a boat launching ramp, a vault restroom, and paved and gravel circulation roads. Access is directly from paved State Highway 309.

(14) West Creek (Plate 29).

This park contains 150 acres above elevation 388 and is located about 5 miles downstream from Ozark-Jeta Taylor Dam. The park is relatively undeveloped. Due to continued silting-in of the boat launching ramp located at the mouth of West Creek, which flows through the park, boating and fishing access to the lake are limited. Existing facilities include five picnic sites, a vault restroom, and drinking water well. There is minimal demand on this park because of the water access facilities at Ozark-Jeta Taylor Dam area. Since the boat launching ramp at West Creek was built, accretion has occurred between dikes along the left bank of the lake. This, in conjunction with frequent low flows in West Creek, has created a problem of siltation for a distance of about 300 feet from the boat launching ramp to the mouth of the creek. This renders the ramp unusable, except during the high stream flow in the spring months. The limited increase in estimated visitation would not economically justify the cost of repeated dredging to keep adequate water depth for boat access to the lake.

(15) Russellville State Park (Plate 32). This 155-acre site is leased to the Arkansas Department of Parks and Tourism and is located about 2 miles due west of the city of Russellville adjacent to Arkansas State Highway 326. The area is situated near the confluence of the Illinois Bayou arm with the Arkansas River. The terrain gently slopes from the highway down to the water's edge. Tree cover is sparse to moderate with a mixture of cedars, pines, and deciduous trees. Development in the area includes a commercial boat dock and a restaurant. The park area contains picnicking and camping units with and without shelters, a group picnic shelter, waterborne restrooms, public boat launching areas, paved roads, and parking areas to serve these facilities.

(16) Ouita State Park (Plate 33). This area, containing approximately 48 acres, is leased to the Arkansas Department of Parks and Tourism and is located on the south shore of the Illinois Bayou arm of the lake adjacent to U.S. Highway 64 about 3 miles from the center of the city of Russellville. Access is by way of paved road from U.S. Highway 64 and Arkansas State Highway 7. The terrain is rocky with a moderate slope. Tree cover is dense. Developments include camping and picnicking units, a group picnic

shelter, water wells, masonry vault-type toilets, and a public boat launching area. Paved and graveled roads and parking areas serve the facilities. The island portion of the park has been partially developed by Arkansas Tech University as a Youth Conservation Corps project. The development includes clearing of underbrush, building $\frac{1}{2}$ mile of nature trail, construction of a boat dock, and riprapping of a portion of shoreline.

(17) Dardanelle State Park (Plate 34). This 82-acre site is leased to the Arkansas Department of Parks and Tourism and is located on the east shore of the Hayes Creek embayment about 4 miles west of the city of Dardanelle. Access is by way of about a half mile of paved road from Arkansas State Highway 22. The terrain in the area is rolling and has heavy to moderate tree cover. Development in the area includes a commercial boat dock, camping and picnicking units, a group picnic shelter, masonry vault-type restrooms, a waterborne restroom with showers, water well, paved and graveled roads, and parking areas to serve these facilities.

(18) Shiloh (Plate 4). The city of Russellville has leased 333 acres for development of a city park containing picnic sites, a group shelter-look, a boat launching ramp, and restrooms. A trap and skeet shooting range has also been developed. This area was previously a coal strip mine and the city has leveled and landscaped it to transform the spoil area to usable terrain. It is located adjacent to Arkansas Highway 7 about a mile north of the Arkansas Highway 7 - Interstate 40 interchange.

(19) Hartman (Plate 37). Johnson County, Arkansas, has leased about 9 acres for development of a city park at Hartman. Facilities include a group picnic shelter, a paved all-purpose court, a boat launching ramp, a vault restroom, picnic units, a ballfield, a water distribution system, playground equipment, and paved roads. The park is located adjacent to U.S. Highway 64 at the east edge of Hartman on Horsehead Creek. The site is level to gently rolling and has a limited amount of tree cover.

c. Future parks. There are five areas designated for future park development, three of which are leased to other agencies for planning, development, and maintenance of facilities.

(1) Highway 64 Cove (Plate 31). This 145-acre area has been designated as a future recreation park and is being held in reserve until increased visitation requires additional facilities. Additional park development will be subject to the current cost-sharing policy.

(2) Roseville (Plate 30). This park contains 78 acres above elevation 338, and is located on the right bank about 7 miles downstream from the Ozark-Jeta Taylor Dam. Access is directly off paved State Highway 309. The terrain has slopes which vary from gentle to moderate and is well forested with a cedar and deciduous growth. Existing facilities include a gravel access road and a concrete boat launching ramp. Upstream from the ramp the lakeshore is a nearly vertical rock bluff about 30 feet high which restricts access to the water.

(3) Illinois Bayou (Plate 35). There are about 62 acres above elevation 338 in this park, which has been leased to Arkansas Tech University for planning purposes and field study by the Department of Recreation and Park Administration. A road alinement has been cleared through the park and a graveled parking area has been constructed at the west end of the park. Access is across private property. The site is moderately forested and is located adjacent to, and south of, Interstate Highway 40 about 2 miles west of Arkansas Highway 7 - Interstate 40 interchange.

(4) Dike View (Plate 36). This park contains about 80 acres and has been leased to Arkansas Tech University for planning purposes and field study by the Department of Recreation and Park Administration. It is located adjacent to, and south of, Interstate Highway 40 about a mile west of the Arkansas Highway 7 - Interstate 40 interchange. No construction has been done, and the park is accessible only by water.

(5) New Blaine (Plate 7). Logan County, Arkansas, has leased about 15 acres for development of a city park at New Blaine. Facilities will include a baseball field, group picnic shelter, picnic units, vault restrooms, and drinking water well. This site is located adjacent to Arkansas Highway 22 on the Shoal Bay arm of the lake. The county has received a \$10,000 grant from the Bureau of Outdoor Recreation for assistance in the development of this park in 1977.

SECTION VII
BENEFITS AND ECONOMIC VALUE OF THE PROJECT

7-01. General. Justification for the recreational development of Lake Dardanelle is based on the need for recreational facilities to provide for the pleasure, relaxation, health, and safety of the using public for the present and future. The development proposed in this master plan increases and enhances the benefits realized from the recreational and fish and wildlife resources of the area.

7-02. Recreational benefits. During 1976 an estimated 2,590,000 people visited Lake Dardanelle. Based upon standards for the evaluation of recreational benefits contained in Supplement No. 1, Senate Document No. 97, 87th Congress, June 1964, the estimated value of an average recreation day at Lake Dardanelle is \$1.40. Application of this unit value to the 1976 visitation estimates yields an annual gross recreational benefit of \$3,620,260. Similarly, the anticipated 7,356,000 visitors in the year 2000 would result in an estimated annual gross recreational benefit of \$10,277,890. (See Table 7-1.)

7-03. Collateral benefits of the project. Past experience at completed projects indicates that as a result of the construction of a lake project there is a pronounced increase in values of land, property, and sales in the surrounding area. Several housing subdivisions are being promoted in the immediate vicinity of the lake. Businesses and services catering to the tourists and sportsmen become a major source of income in nearby communities. Other economic values of an intangible nature are increases in property taxes, revenue to governmental agencies from the sale of hunting and fishing licenses, and revenue from gasoline taxed due to recreational travel. It is likely that these collateral benefits will continue to grow because of the construction of Dardanelle Lock and Dam and development of the lake.

TABLE 7-1
RECREATION BENEFITS

Activity	Unit Value Per Activity Occasion	Year 1976		Year 2000	
		Annual Act. Occ.	Total Value	Annual Act. Occ.	Total Value
Fishing	\$1.25	1,158,000	\$1,447,500	3,288,000	\$4,110,000
Boating	1.25	482,000	602,500	1,368,000	1,710,000
Picnicking	1.06	236,000	250,160	669,000	709,140
Camping	1.25	308,000	385,000	875,000	1,093,750
Sightseeing	0.90	961,000	864,900	2,729,000	2,456,100
Other	0.90	78,000	70,200	221,000	198,900
Total			3,620,260		10,277,890

Annual Visitation:

1976 = 2,590,000

2000 = 7,356,000

Value of a recreation day = $\frac{\text{total value}}{\text{total visitation}}$

Value of a recreation day (1976) = $\frac{\$3,620,260}{2,590,000} = \1.40

Value of a recreation day (2000) = $\frac{\$10,277,890}{7,356,000} = \1.40

SECTION VIII
EXPENDITURES AND COST ESTIMATES

8-01. General. The following paragraphs and tables are presented to facilitate review of expenditures for existing recreation facilities and estimates of costs for development of proposed facilities. Approximately \$2,700,000 (Construction General Funds) has been spent through FY 77 for construction of recreation facilities on Lake Dardanelle. No new construction is scheduled in FY 78, however, approximately \$139,000 is scheduled in FY 79 for needed sanitary facilities.

8-02. Cost Sharing - Public Law 89-72. After completion of initial recreational development, all further development requires 50-50 cost sharing with a non-Federal public agency under policy established by the Secretary of the Army in coordination with the Office of Management and Budget. Urgently needed sanitary facilities, needed to meet the requirements of applicable State and Federal laws, can be constructed without cost sharing. Various public agencies were contacted during the preparation of this updated master plan. Several of the agencies were informed of the cost sharing requirements, and were asked about any interest they might have in participating in cost sharing of additional recreational facilities. None were interested in cost sharing at this time. Two cost sharing developments have recently been completed and are described in the following paragraphs.

a. Dardanelle State Parks. Three areas (Ouita, Russellville, and Dardanelle) were initially developed by the Corps of Engineers and leased to the State for establishment of a State park. During FY 75 a cost-sharing contract for further development of the Dardanelle State Park was executed between the Government and the Arkansas Department of Parks and Tourism. The contract allowed the State to hire an A-E, award and administer the construction contract with 50 percent reimbursement by the Government. Construction was completed in October 1976 and provided the visiting public with 70 new campsites, a complete sewage collection system and treatment plant, 3 water wells and water distribution system, electrical distribution system, 1 bathhouse, 1 sanitary disposal station (trailer), 15 picnic sites, and additional roads and parking. A supplemental agreement to the cost-sharing contract provides for the addition of a courtesy dock to be built at the Russellville Park. Upon completion of all work, the State will be required to enter into a new 50-year lease for operation and maintenance of the three parks. Total cost of this cost-sharing development was approximately \$530,000. (See Plates 32, 33, and 34.)

b. Hartman City Park. A cost-sharing contract for the development of the Hartman City Park was executed 1 December 1975, between the Government and Johnson County, Arkansas. The contract requires the county to pay and contribute work-in-kind for 50 percent of the cost of development and enter into a 50-year lease for operation and maintenance of the park upon completion of construction. The county provided work-in-kind, towards their 50 percent share, by constructing the roads, parking, and ballfield. The Government awarded a construction contract for the ramp, restroom, picnic units, all purpose court, and group picnic shelter in May 1976. The construction contract was completed in December 1976. Upon completion of the construction contract, the county completed their work of paving the roads and parking and furnishing playground equipment. The park was completed at a cost of approximately \$200,000 and is open to the public for their use. (See Plate 37.)

8-03. Future recreational development cost.

a. General. The estimated cost of development of the proposed recreational facilities shown on Plates 16 through 37 are summarized in the following tables. These estimates are based on July 1977 price levels.

b. Tables of estimated cost of additional recreational facilities. The estimated total cost of construction for the proposed recreational facilities is \$8,902,800. A summary of estimated cost of additional development by parks is shown in Table 8-1. A summary of estimated cost for additional development by facilities planned is shown in Table 8-2. Detailed cost estimates for additional recreational facilities in each park are shown in Table 8-3 through 8-22.

c. User fee receipts. User fee receipts will be used for type of improvements presently authorized by letter SWDCO-R dated 8 May 1977, subject: Utilization of Special Recreation Use Fees (turnback funds).

8-04. Annual operation and maintenance cost. A summary of the estimated cost for resource management and the cost of real estate management activities are shown below.

SUMMARY OF OPERATION AND MAINTENANCE COSTS
FOR RESOURCE MANAGEMENT AND
REAL ESTATE MANAGEMENT ACTIVITIES
(1976 Dollars)

<u>Item</u>	<u>Public use</u>	<u>Real Estate Activities</u>
<u>Fiscal Year 1976</u>		
Real Estate		40,600
Resource Management	431,000	
S&I Overhead 21% +	<u>89,000</u>	<u> </u>
TOTAL	520,000	40,600
<u>Fiscal Year 1980</u>		
Real Estate		60,000
Resource Management	509,000	
S&I Overhead 21% +	<u>106,000</u>	<u> </u>
TOTAL	615,000	60,000
<u>Fiscal Year 2000</u>		
Real Estate		171,340
Resource Management	778,000	
S&I Overhead 21% +	<u>162,000</u>	<u> </u>
TOTAL	940,000	171,340

TABLE 8-1
ESTIMATED COST OF ADDITIONAL RECREATIONAL
DEVELOPMENT BY PARKS
LAKE DARDANELLE

TABLE	PARK	ESTIMATED COST
8-3	OLD POST ROAD	921,700
8-4	DAM SITE WEST	24,300
8-5	DELAWARE	455,050
8-6	FLAT ROCK	210,550
8-7	PINEY BAY	798,000
8-8	CABIN CREEK	339,550
8-9	SHOAL BAY	278,850
8-10	DUBLIN	185,000
8-11	SPADRA	208,300
8-12	CANE CREEK	533,300
8-13	HORSEHEAD	507,800
8-14	SIX MILE	14,150
8-15	O'KANE	109,750
8-16	WEST CREEK	1,439,250
8-17	ROSEVILLE (FUTURE)	558,750
8-18	HWY 64 COVE (FUTURE)	<u>1,060,550</u>
	DIRECT CONSTRUCTION COST BY PARK	\$7,644,850
	PROJECT TRAIL COST	<u>30,000</u>
	TOTAL DIRECT CONSTRUCTION COST	\$7,674,850
	E&D and S&A 16%	<u>1,227,950</u>
	TOTAL COST	<u>\$8,902,800</u>

NOTE: Cost estimates not available for Russellville, Quita, and Dardanelle State Park areas. Layouts and cost estimates were not prepared for Illinois Bayou and Dike View future parks. Additional work is not contemplated in the Hartman City Park.

TABLE 8-2
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park LAKE SUMMARY Acres 1606 See Plate

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	17,810	3,000	78,000
b. 22 feet	do	24.00	3,100	---	---
c. 20 feet	do	22.00	115	---	---
d. 18 feet	do	20.00	123,790	52,200	1,044,000
e. 16 feet	do	18.00	8,440	---	---
f. 14 feet	do	16.00	1,260	---	---
g. 12 feet, one way	do	13.00	10,420	4,150	53,950
Gravel roads	do	---	4,745	---	---
Gravel roads to be paved					
12 feet	do	6.00	560	750	4,500
18 feet	do	8.00	7,465	3,055	24,400
Gravel parking areas	SY	8.00	3,435	10,814	86,500
Gravel parking to be paved	SY	4.50	---	3,295	14,850
Paved parking areas	do	10.00	76,305	17,730	177,300
Launching lanes, concrete	EA	31,500.00	26	2	63,000
Courtesy piers	EA	8,000.00	12	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	13	7	175,000
b. Vault, Type II	do	30,000.00	12	---	---
c. Vault, Type III	do	35,000.00	1	---	---
d. Convert Type II to WB	do	10,000.00	---	12	120,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	5	17	765,000
g. Waterborne with showers	do	60,000.00	4	10	600,000
h. Washhouses	do	75,000.00	1	2	150,000
Disposal field for waterborne	Sum Job	---	---	---	456,000
Sewage collection system	Sum Job	---	1	---	---
Trailer sanitary station	EA	7,000.00	4	5	35,000
Marine sanitary station		20,000.00	1	1	20,000
Water distribution system	Sum Job	---	---	---	548,500
Water well	EA	10,000.00	23	8	80,000
Picnic unit	do	1,000.00	177	250	250,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	268	591	1,773,000
Table canopies	do	2,000.00	23	6	12,000
Electrical distribution & hookups at campsites	Sum Job	---	99	---	760,500
Group campsites	EA	2,500.00	---	30	75,000
Group Picnic shelters	do	20,000.00	19	6	120,000
Overlook shelters	do	9,200.00	3	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	17	31	15,500
Entrance complex	Sum Job	---	4	---	35,000
Park trails	Mile	13,200.00	1.5	2.7	35,650
* Project trails	do	5,000.00	---	6.0	30,000
Playground equipment	Sum Job	---	2	---	---
Ballfield	do	---	2	---	---
Multi-use courts	do	---	4	---	---
Miniature golf course	do	---	1	---	---
Amphitheater	do	---	1	---	10,500
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	30,200
Landscaping and Beautification	do	---	---	---	31,500
TOTAL					\$7,674,850

July 1977 price level

*Flat Rock Park to Piney Bay Park = 4 miles

Old Post Road Park to Russellville State Park = 2 miles

TABLE 8-3
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE ✓

Park OLD POST ROAD PARK Acres 295 See Plate 16

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet *	LF	26.00	---	---	---
b. 22 feet	do	24.00	3,100	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	9,970	4,200	84,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	750	9,750
Gravel roads	do	---	600	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	2,780	22,250
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	13,395	920	9,200
Launching lanes, concrete	EA	31,500.00	3	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	3	1	45,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	24,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	46,100
Water well	EA	10,000.00	---	---	---
Picnic unit	do	1,000.00	2	46	46,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	12	150	450,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	88,800
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	4	1	20,000
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	1	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	3,500
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	6,000
Landscaping and Beautification	do	---	---	---	2,100
TOTAL					\$921,700

July 1977 price level

*Excluding access road from Hwy. 7 to dam

TABLE 8-4
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park	DAM SITE WEST	Acres	90	See Plate	17
Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
*a. 24 feet	LF	26.00	1,040	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	1,180	---	---
e. 16 feet	do	18.00	440	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	4,190	---	---
Launching lanes, concrete	EA	31,500.00	---	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	8,200
Water well	EA	10,000.00	---	---	---
Picnic unit	do	1,000.00	14	---	---
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	8	2	6,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	---	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	100
Landscaping and Beautification	do	---	---	---	---
TOTAL					\$24,300

*Does not include access road to powerhouse

July 1977 price level

TABLE 8-5
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE ✓

Park DELAWARE PARK Acres 136 See Plate 18

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	11,810	1,950	39,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	1,944	15,550
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	2,960	870	8,700
Launching lanes, concrete	EA	31,500.00	---	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	2	50,000
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	24,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	1	7,000
Marine sanitary station	do	20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	26,100
Water well	EA	10,000.00	2	2	20,000
Picnic unit	do	1,000.00	7	15	15,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	8	42	126,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	23,700
Group campsites	EA	2,500.00	---	3	7,500
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	1	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	1.0	13,200
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	2,200
Landscaping and Beautification	do	---	---	---	2,100
TOTAL					\$455,050

July 1977 price level

TABLE 8-6
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE ✓

Park	FLAT ROCK PARK	Acres	59	See Plate	19
Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	6,170	900	18,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	2,200	17,600
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	2,300	870	8,700
Launching lanes, concrete	EA	31,500.00	---	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	12,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	1	7,000
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	27,400
Water well	EA	10,000.00	1	---	---
Picnic unit	do	1,000.00	---	10	10,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	11	23	69,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	24,600
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	---	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	1,250
Landscaping and Beautification	do	---	---	---	---
TOTAL					\$210,550

July 1977 price level

TABLE 8-7
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE ✓

Park PINEY BAY PARK Acres 111 See Plate 20

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	9,935	4,900	98,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	100	600
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	1,330	2,220	17,750
Gravel parking to be paved	SY	4.50	---	1,330	6,000
Paved parking areas	do	10.00	5,510	755	7,550
Launching lanes, concrete	EA	31,500.00	2	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	2	20,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	1	45,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	1	75,000
Disposal field for waterborne	Sum Job	---	---	---	60,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	1	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	61,000
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	18	7	7,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	20	74	222,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	67,400
Group campsites	EA	2,500.00	---	7	17,500
Group Picnic shelters	do	20,000.00	1	1	20,000
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	5	2,500
Entrance complex	Sum Job	---	1	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	3,500
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	3,000
Landscaping and Beautification	do	---	---	---	4,200
TOTAL					\$798,000

July 1977 price level

TABLE 8-8
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park CABIN CREEK PARK

Acres 51

See Plate 21

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	3,250	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	5,060	1,000	20,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	740	1,100	14,300
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	2,815	720	7,200
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	2	90,000
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	36,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	1	7,000
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	37,200
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	3	22	22,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	8	30	90,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	5	2,500
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	1,950
Landscaping and Beautification	do	---	---	---	1,400
TOTAL					\$339,550

July 1977 price level

TABLE 8-9
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park	SHOAL BAY PARK	Acres	85	See Plate	22
Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	3,750	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	6,770	---	---
e. 16 feet	do	18.00	3,560	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	7,760	460	4,600
Launching lanes, concrete	EA	31,500.00	3	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	2	50,000
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	24,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	1	---	---
Marine sanitary station		20,000.00	1	---	---
Water distribution system	Sum Job	---	1	---	27,000
Water well	EA	10,000.00	4	1	10,000
Picnic unit	do	1,000.00	16	2	2,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	45	16	48,000
Table canopies	do	2,000.00	9	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	20,500
Group campsites	EA	2,500.00	---	4	10,000
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	1	5	2,500
Entrance complex	Sum Job	---	1	---	---
Park trails	Mile	13,200.00	1.0	0.30	3,950
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	3,500
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	700
Landscaping and Beautification	do	---	---	---	2,100
TOTAL					\$278,850

July 1977 price level

TABLE 8-10
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park	DUBLIN PARK	Acres	28	See Plate	23
Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	70	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	690	1,900	38,000
e. 16 feet	do	18.00	1,940	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	580	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	2,690	90	900
Launching lanes, concrete	EA	31,500.00	2	---	---
Courtesy piers	EA	8,000.00	2	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	1	45,000
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	12,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	27,200
Water well	EA	10,000.00	1	---	---
Picnic unit	do	1,000.00	16	1	1,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	13	39,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	---	1	20,000
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	500
Landscaping and Beautification	do	---	---	---	1,400
TOTAL					\$185,000

July 1977 price level

TABLE 8-11
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park SPADRA PARK Acres 97 See Plate 24

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	3,660	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	8,640	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	1,260	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	650	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	650	3,900
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	1,750	---	---
Gravel parking to be paved	SY	4.50	---	1,750	7,900
Paved parking areas	do	10.00	5,170	200	2,000
Launching lanes, concrete	EA	31,500.00	2	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	1	1	45,000
g. Waterborne with showers	do	60,000.00	1	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	12,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	1	---	---
Marine sanitary station		20,000.00	---	1	20,000
Water distribution system	Sum Job	---	---	---	32,400
Water well	EA	10,000.00	1	---	---
Picnic unit	do	1,000.00	9	5	5,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	22	13	39,000
Table canopies	do	2,000.00	5	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	34,700
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	2	---	---
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	700
Landscaping and Beautification	do	---	---	---	700
TOTAL					\$208,300

July 1977 price level

TABLE 8-12
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park CANE CREEK PARK Acres 46 See Plate 25

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	3,970	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	115	---	---
d. 18 feet	do	20.00	---	3,600	72,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	3,800	1,100	11,000
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	1	45,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	36,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	1	7,000
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	46,400
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	2	31	31,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	14	42	126,000
Table canopies	do	2,000.00	---	6	12,000
Electrical distribution & hookups at campsites	Sum Job	---	---	---	65,800
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	---	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	4	2,000
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	2,700
Landscaping and Beautification	do	---	---	---	1,400
TOTAL					\$533,300

July 1977 price level

TABLE 8-13
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park HORSEHEAD PARK Acres 110 See Plate 26

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	2,070	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	8,705	1,950	39,000
e. 16 feet	do	18.00	2,500	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	1,960	635	6,350
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	1	45,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	36,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	47,500
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	5	9	9,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	7	46	138,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	99,000
Group campsites	EA	2,500.00	---	3	7,500
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	4	2,000
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	2,050
Landscaping and Beautification	do	---	---	---	1,400
TOTAL					\$507,800

July 1977 price level

TABLE 8-14
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park	SIX MILE PARK	Acres	94	See Plate	27
Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	2,950	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	1,500	---	---
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	---
Water well	EA	10,000.00	1	---	---
Picnic unit	do	1,000.00	5	4	4,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	---	---
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	150
Landscaping and Beautification	do	---	---	---	---
TOTAL					\$14,150

July 1977 price level

TABLE 8-15
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park O'KANE Acres 31 See Plate 28

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	2,255	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	3,055	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	3,055	24,400
Gravel parking areas	SY	8.00	215	---	---
Gravel parking to be paved	SY	4.50	---	215	950
Paved parking areas	do	10.00	1,335	460	4,600
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	22,400
Water well	EA	10,000.00	1	---	---
Picnic unit	do	1,000.00	---	13	13,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	5	---	---
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	32,900
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	2	1,000
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	500
Landscaping and Beautification	do	---	---	---	---
TOTAL					\$109,750

July 1977 price level

TABLE 8-16
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park WEST CREEK PARK Acres 150 See Plate 29

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	6,760	8,100	162,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	490	2,300	29,900
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	1,670	13,350
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	3,140	3,800	38,000
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	1	25,000
b. Vault, Type II	do	30,000.00	1	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	1	10,000
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	4	180,000
g. Waterborne with showers	do	60,000.00	---	2	120,000
h. Washhouses	do	75,000.00	---	1	75,000
Disposal field for waterborne	Sum Job	---	---	---	96,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	1	7,000
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	77,900
Water well	EA	10,000.00	1	2	20,000
Picnic unit	do	1,000.00	5	32	32,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	118	354,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	155,400
Group campsites	EA	2,500.00	---	3	7,500
Group Picnic shelters	do	20,000.00	---	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	3	1,500
Entrance complex	Sum Job	---	---	---	5,000
Park trails	Mile	13,200.00	---	1.4	18,500
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	5,600
Landscaping and Beautification	do	---	---	---	5,600
TOTAL					\$1,439,250

July 1977 price level

TABLE 8-17
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park ROSEVILLE (FUTURE) Acres 78 See Plate 30

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	---	7,300	146,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	*1,040	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	---	2,450	24,500
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	1	25,000
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	2	90,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	36,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	27,100
Water well	EA	10,000.00	---	1	10,000
Picnic unit	do	1,000.00	---	22	22,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	9	27,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	52,800
Group campsites	EA	2,500.00	---	5	12,500
Group Picnic shelters	do	20,000.00	---	1	20,000
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	1	500
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	1,150
Landscaping and Beautification	do	---	---	---	4,200
TOTAL					\$558,750

July 1977 price level

*Road to be abandoned

TABLE 8-18
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park HWY. 64 COVE (FUTURE) Acres 145 See Plate 31

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	3,000	78,000
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	---	16,400	328,000
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	---	4,400	44,000
Launching lanes, concrete	EA	31,500.00	---	2	63,000
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	1	25,000
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	3	135,000
g. Waterborne with showers	do	60,000.00	---	1	60,000
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	48,000
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	---	---	34,600
Water well	EA	10,000.00	---	2	20,000
Picnic unit	do	1,000.00	---	31	31,000
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	13	39,000
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	94,900
Group campsites	EA	2,500.00	---	5	12,500
Group Picnic shelters	do	20,000.00	---	2	40,000
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	2	1,000
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	1,650
Landscaping and Beautification	do	---	---	---	4,900
TOTAL					\$1,060,550

July 1977 price level

TABLE 8-19
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park RUSSELLVILLE STATE PARK Acres 155 See Plate 32

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities (1)	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	12,190	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	3,530	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	7,700	---	---
Launching lanes, concrete	EA	31,500.00	2	---	---
Courtesy piers	EA	8,000.00	1	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	3	---	---
h. Washhouses	do	75,000.00	1	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	1	---	---
Trailer sanitary station	EA	7,000.00	1	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	1	---	---
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	33	---	---
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	64	---	---
Table canopies	do	2,000.00	9	---	---
Electrical distribution & hookups at campsites	Sum Job	---	64	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	2	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	1	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	1	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	---
Landscaping and Beautification	do	---	---	---	---
TOTAL					

(1) Not available

July 1977 price level

TABLE 8-20
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park QUITA STATE PARK

Acres 48

See Plate 33

Item	Unit	Unit Cost	Existing(1) Facilities	Proposed Facilities (2)	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	3,570	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	1,490	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	4,480	---	---
Launching lanes, concrete	EA	31,500.00	2	---	---
Courtesy piers	EA	8,000.00	3	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	2	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	1	---	---
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	18	---	---
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	17	---	---
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	0.5*	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	1*	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	---
Landscaping and Beautification	do	---	---	---	---
TOTAL					

July 1977 price level

(1) *Arkansas Tech University developed 2 courtesy piers, 1 amphitheater, and ½ mile of trail on Quita island.

(2) Not available

TABLE 8-21
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park DARDANELLE STATE PARK Acres 52 See Plate 34

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities (1)	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	6,700	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	3,590	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	810	---	---
Gravel parking areas	SY	8.00	140	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	4,710	---	---
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	1	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	---	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	1	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	1	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	1	---	---
Water well	EA	10,000.00	2	---	---
Picnic unit	do	1,000.00	12	---	---
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	27	---	---
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	18	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	---	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	---	---	---
Ballfield	do	---	---	---	---
Multi-use courts	do	---	---	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	---
Landscaping and Beautification	do	---	---	---	---
TOTAL					

July 1977 price level

(1) Not available

TABLE 8-22
ESTIMATE OF COST FOR ADDITIONAL RECREATIONAL FACILITIES
LAKE DARDANELLE

Park HARTMAN CITY PARK Acres 9 See Plate 37

Item	Unit	Unit Cost	Existing Facilities	Proposed Facilities	
				Quantity	Cost
Paved roads					
a. 24 feet	LF	26.00	---	---	---
b. 22 feet	do	24.00	---	---	---
c. 20 feet	do	22.00	---	---	---
d. 18 feet	do	20.00	440	---	---
e. 16 feet	do	18.00	---	---	---
f. 14 feet	do	16.00	---	---	---
g. 12 feet, one way	do	13.00	---	---	---
Gravel roads	do	---	---	---	---
Gravel roads to be paved					
12 feet	do	6.00	---	---	---
18 feet	do	8.00	---	---	---
Gravel parking areas	SY	8.00	---	---	---
Gravel parking to be paved	SY	4.50	---	---	---
Paved parking areas	do	10.00	2,390	---	---
Launching lanes, concrete	EA	31,500.00	1	---	---
Courtesy piers	EA	8,000.00	---	---	---
Restrooms, masonry					
a. Vault, Type I	EA	25,000.00	---	---	---
b. Vault, Type II	do	30,000.00	---	---	---
c. Vault, Type III	do	35,000.00	1	---	---
d. Convert Type II to WB	do	10,000.00	---	---	---
e. Convert Type III to WB/S	do	25,000.00	---	---	---
f. Waterborne	do	45,000.00	---	---	---
g. Waterborne with showers	do	60,000.00	---	---	---
h. Washhouses	do	75,000.00	---	---	---
Disposal field for waterborne	Sum Job	---	---	---	---
Sewage collection system	Sum Job	---	---	---	---
Trailer sanitary station	EA	7,000.00	---	---	---
Marine sanitary station		20,000.00	---	---	---
Water distribution system	Sum Job	---	1	---	---
Water well	EA	10,000.00	---	---	---
Picnic unit	do	1,000.00	8	---	---
Camp Unit (includes parking spur or walk-in camp trail)	do	3,000.00	---	---	---
Table canopies	do	2,000.00	---	---	---
Electrical distribution & hookups at campsites	Sum Job	---	---	---	---
Group campsites	EA	2,500.00	---	---	---
Group Picnic shelters	do	20,000.00	1	---	---
Overlook shelters	do	9,200.00	---	---	---
Fishing berm (30 c.y./100LF)	LF	15.00	---	---	---
Mercury vapor lights	EA	500.00	14	---	---
Entrance complex	Sum Job	---	---	---	---
Park trails	Mile	13,200.00	---	---	---
Project trails	do	5,000.00	---	---	---
Playground equipment	Sum Job	---	1	---	---
Ballfield	do	---	1	---	---
Multi-use courts	do	---	1	---	---
Miniature golf course	do	---	---	---	---
Amphitheater	do	---	---	---	---
Reforestation	acre	1,000.00	---	---	---
Site preparation	Sum Job	---	---	---	---
Landscaping and Beautification	do	---	---	---	---
TOTAL					

July 1977 price level

SECTION IX
MANAGEMENT PLANS

9-01. Project Resources Management Plan (Appendix A).

a. Objective. The primary management objective of the Project Resources Management Plan is to guide the efficient utilization and administration of all project resources in the highest public interest consistent with authorized project purposes. In order to accomplish this primary objective all resource management activities must be carried-out in such a manner as to insure the continued enjoyment and maximum sustained public use of lands, water, forests, and associated recreational resources, consistent with their carrying capacity and their esthetic and biological values. Subfunctions of the primary management objectives which are provided for under the various management plan appendixes include:

- (1) Maintenance and administration of the parks.
- (2) Protection of project visitors and employees.
- (3) Protection of project resources including enforcement of zoning requirements to prevent conflict between recreation uses.
- (4) Prevention or elimination of visual and physical encroachments upon project lands and waters.
- (5) Preservation and enhancement of the esthetic integrity of banks and shorelines and keeping them open and available for public use.
- (6) Prevention or elimination of unauthorized structures and habitation on project lands or on the water surface.
- (7) Insure compatibility between recreation uses and equipment employed in recreation activity and established water quality standards.
- (8) Improvement of the project environment by landscape treatment.
- (9) Insurance of proper utilization of project lands appropriate for agricultural purposes in a manner designed to optimize recreation and fish and wildlife benefits.
- (10) Monitoring all types of public recreation use and recreation technology being used so as to insure that management practices and future recreation development are consistent with public preferences.

b. Management plan provisions. Included in the management plan are discussions of:

(1) The administration, maintenance activities, duties, and responsibilities of the park manager are described. Also included are details with regard to maintenance activities such as painting, road repairs, solid waste disposal, sanitation, and mowing.

(2) Laws enforcement. The responsibilities of park managers for enforcement of Title 36, Code of Federal Regulations, are outlined.

(3) Resource identification. Resource identification along with guidance or reference to guidance in the effective utilization of the resource is a prime portion of the management plan.

c. Implementation of plan. Accomplishment of the primary management objective is provided for in this comprehensive master plan which includes the Project Resource Management Plan and the other management plan appendixes. Accomplishment of the management objective through implementation of above subfunctions is a joint responsibility of District and Resident Office personnel. Field implementation is accomplished through the following organizations:

DARDANELLE RESIDENT OFFICE

W. H. Hashbarger	Resident Engineer
Supv Civil Engineer	GS-13
	SWLDN
C. D. Lassiter	Asst Resident Engineer
Supv Civil Engineer	GS-12

LAKES AND PARKS BRANCH

J. E. Callaway	Chief
Park Manager	GS-12

DARDANELLE PREVENTIVE MAINT SECTION

S. K. Long	Chief
Facility Manager	GS-09
1 Service Contract Inspector	GS-04
1 Maint Worker Foreman	WS-06
1 Engr Equip Operator	WG-10
1 Carpenter	WG-09
1 Electrical Worker	WG-08
1 Cement Finisher	WG-08
1 Engr Equip Operator	WG-08
2 Painting Worker (V) (1 Temp)	WG-07
3 Maint Worker (1 V)	WG-06
1 Motor Vehicle Operator	WG-06
1 Laborer (Temp)	WG-02

RANGER AND SURVEILLANCE SECTION

J. K. Johnson	Chief
Park Manager	GS-09
3 Park Ranger	GS-07
2 Student Trainee Park Mgmt (Temp)	GS-04

The Project Resource Management Plan was approved 8 November 1976. The plan provides for attainment of the primary management objective.

9-02. Forest Management Plan (Appendix B).

a. Objective. The objective of the Forest Management Plan is to guide the forest management effort so as to assure that activities are accomplished in a manner to increase the public value of project lands for recreation and wildlife while promoting natural ecological conditions through accepted conservation practices. A primary consideration is the maintenance of a diversified resource with respect to age and species.

b. Management plan provisions. The main components of the Forest Management Plan are the treatment programs by which the forest management objective is accomplished and the guidance for preparation and implementation of the annual work plan.

c. Implementation. Implementation of the forest management program is a joint responsibility of Resident and District Office personnel. The Forest Management Plan was approved 16 October 1974 and provides for the efficient accomplishment of the management objective.

9-03. Fire Protection Plan (Appendix C).

a. Objective. The objective of the Fire Protection Plan is to safeguard public property from the ravages of fire.

b. Management plan provisions. Provisions considered necessary for the accomplishment of this objective include:

(1) Training of personnel to prevent and suppress fire.

(2) Establishment of procedures for the efficient suppression of wildfire.

(3) Establishment of cooperative agreement for mutual assistance efforts in the control of wildfire.

c. Implementation. Appendix C was approved 16 December 1976. Implementation is the responsibility of the Resident Engineer.

9-04. Fish and Wildlife Management Plan (Appendix D).

a. Objective. The objective of the Fish and Wildlife Management Plan is to provide for use of the Lake Dardanelle project for the conservation, maintenance, and management of fish and wildlife resources and habitat.

b. Management plan provisions. The management plan describes in detail the actions to be accomplished to meet the objective and are discussed below.

(1) General. Approximately 42,500 acres of lands, waters, and interests thereon have been licensed to the Arkansas Game and Fish Commission for management. Park areas and the lands around Dardanelle Dam are managed by the Corps of Engineers. This plan includes the major species being managed, wildlife habitat maintenance and enhancement plans, and coordinated efforts with other agencies relative to fish and wildlife management on the project.

(2) Aquatic. Management programs for aquatic fauna are for the purpose of providing game fish which are desirable for recreational fishing. The plan contains descriptions of the fish propagation, stocking, and research programs which have been conducted, as well as plans for future programs. Fish management and regulation is the responsibility of the Arkansas Game and Fish Commission and the Fish and Wildlife Service, Department of Interior. The Corps of Engineers will assist in the management program by maintaining a water quality monitoring system and by enforcing the antilittering laws.

(3) Terrestrial. Areas for hikers, naturalists, and outdoor sportmen are available. These areas will also provide outdoor classroom situations and areas for the photographer. Bird nesting areas are also to be provided. Programs for terrestrial fauna will be conducted by the Arkansas Game and Fish Commission and the Corps of Engineers. In general, the programs will consist of habitat improvement, provision of wildlife foods, and stocking. The principal focus of the Corps program will be in forestry management and administration of the agricultural and grazing program for wildlife enhancement. Also, the Corps will undertake wildlife management activities within the Corps operated parks for the purpose of attracting wildlife for observation by the park visitors.

c. Implementation. Implementation of the Fish and Wildlife Management Plan approved 26 February 1973 is the joint responsibility of the District and Resident Office personnel.

9-05. Project Safety Plan (Appendix E).

a. Objectives. The objectives of the Project Safety Plan are the identification of common recurring hazards or unsafe conditions in each major phase or area of operation and development of precautionary actions to be taken to prevent, reduce, or control such hazards.

b. Management plan provisions.

(1) Public Safety. Common recurrent hazards and unsafe conditions have been identified and procedures implemented to protect the public and minimize or eliminate the possibility of personal injury. These procedures include not only the provision of equipment such as handrails for steps and ramps, adequate lighting for sanitary facilities, and warning signs, but also frequent inspection and maintenance of public facilities and the implementation of a continuing program of pollution and disease vector control. Numerous methods are employed to educate the public concerning possible safety hazards, and rules and regulations have been established for visitor protection. Boating safety is especially emphasized.

(2) Employee safety. It is the policy of the Corps of Engineers that no employee shall be required to work in surroundings or under working conditions which are unsatisfactory, hazardous, or dangerous to his health or safety. Accordingly, appropriate sanitation procedures and safety precautions have been implemented and an equipment monitoring system instituted in compliance with Corps safety regulations. Weekly safety meetings for all employees are conducted covering topics related to current operations and activities.

c. Implementation. Implementation of the Project Safety Plan approved 7 June 1973 is the responsibility of the Resident Engineer.

9-06. Lakeshore Management Plan (Appendix F).

a. Objectives. The objectives of the plan are to insure the proper management and protection of the shoreline of Lake Dardanelle; to maintain acceptable fish and wildlife habitat, aesthetic quality, and natural environmental conditions; and to promote the safe and healthful use of the shoreline for recreational purposes for all the public.

b. Implementation. Implementation of the Lakeshore Management Plan which was fully coordinated through public involvement and approved 6 November 1975 is a joint responsibility of District and Resident Office personnel.

SECTION X
COORDINATION WITH OTHER AGENCIES

10-01. Initial coordination. Development of Lake Dardanelle and related resources has been coordinated with all interested State and local governmental agencies. The initial coordination was accomplished at the public hearing on proposed recreational development and lake management held at the Pope County Courthouse on 25 May 1961 as well as through personal contacts and correspondence. This initial coordination resulted in the cities of Subiaco, Scranton, Dardanelle, and Paris expressing interest in administering public use areas located in close proximity to their communities. However, after reviewing the problems involved in administering such areas, these communities declined.

10-02. Subsequent coordination. Further coordination with State and local governmental agencies has resulted in significant improvements to several parks. The Arkansas Department of Parks and Tourism assumed the operation and maintenance and has cost shared in the further development of Dardanelle, Russellville, and Ouita State parks. Johnson County, Arkansas, cost shared the development of Hartman City Park. The city of Russellville has developed the Shiloh Park on lands leased to the city by the Corps. Arkansas Tech University has been given a lease to plan, develop, and maintain recreation facilities at Illinois Bayou Park, Dike View Park, and the island located immediately north of Ouita State Park. Logan County has leased lands from the Corps and has obtained a BOR grant for assistance in the development of a city park at New Blaine in 1977.

a. The mayors of Clarksville, Dardanelle, and Russellville were contacted in April 1973, and the mayor of London in July 1976, concerning a possible interest in cost sharing for park development. The mayor of London indicated they were interested in developing a city park. After subsequent meetings and correspondence with the mayor, the project was abandoned.

b. The Lakeshore Management Plan was coordinated with the public. The plan was discussed with individuals, groups, and real estate agencies. A series of public meetings were held at Paris, Russellville, and Clarksville in April and May of 1973, and again in September 1973 after the final plan was prepared.

10-03. Correspondence. As required by ER 1103-2-811 dated 29 April 1976, this updated master plan has been coordinated with the State of Arkansas, Department of Local Services, which is the State A-95 clearinghouse. Copies of the preliminary and final drafts of the updated master plan were sent to this agency for review and coordination with all interested local and State agencies. Prior to updating this master plan, a copy of the project information folder was sent to mayors in the immediate area of the project asking for comments which would be helpful in updating the master plan. A copy of each of these transmittal letters and the replies received are inclosed.



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

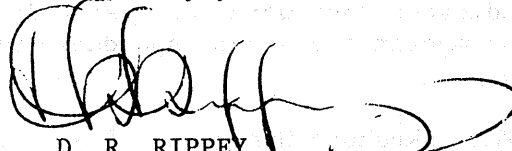
REPLY TO
ATTENTION OF:

SWLED-PV

We are presently updating the Master Plan for Recreational Development and Management of Dardanelle Lake. This plan will be used as a guide in further development, maintenance, and administration of Dardanelle Lake project lands and resources.

Please review the inclosed project information folder map and furnish any comments you feel would be helpful in our updating of the Master Plan.

Sincerely yours,


D. R. RIPPEY
Chief, Engineering Division

1 Incl
As stated

List for letter SWLED-PV dated 4 May 1977 transmitting project information folders on Lake Dardanelle.

Honorable M. J. Hickey
Mayor of Russellville
Russellville, Arkansas 72801

Honorable Dana Merritt
Mayor of Dardanelle
Dardanelle, Arkansas 72834

Honorable W. F. Elsken, Jr.
Mayor of Paris
Paris, Arkansas 72855

Honorable Bill Porter
Mayor of Clarksville
Clarksville, Arkansas 72830

Honorable Don Smith
Mayor of Ozark
Ozark, Arkansas 72949

Mayor
Bill Porter
City Clerk
Carolyn Black
City Treasurer
Dorcas Patterson
City Attorney
Edward Patterson

City of Clarksville

P. O. Box 529
Clarksville, Arkansas 72830

Council
Charles Callahan
James Cameron
John Chrisman
Frank Resimont
Boyce West
Ted Young

May 25, 1977

Mr. D. R. Rippey
Chief, Engineering Division
Department of the Army
Little Rock District, Corps of Engineers
P. O. Box 867
Little Rock, Arkansas 72203

Dear Mr. Rippey:

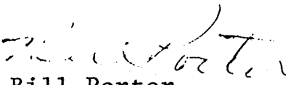
Thank you for the opportunity to comment on the updating of the Lake Dardanelle brochure.

I am sure that you have already included the Arkansas River bridge now under construction between New Spadra and Morrison's Bluff, but lest the obvious be overlooked, I'll mention it.

Also, the City of Clarksville has extended water lines to the Spadra recreational area thereby giving that area an approved water supply.

If we can be of any service as you prepare this revision, please do not hesitate to ask.

Sincerely yours,


Bill Porter
Mayor

BP:as





DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

REPLY TO
ATTENTION OF:

SWLED-PV

27 June 1977

Mr. Ranny Cullom, Manager
State of Arkansas
Planning and Research Services
Department of Local Services
First National Building, Suite 900
Little Rock, Arkansas 72201

Dear Mr. Cullom:

Inclosed are two final draft copies of the updated master plan for development and management of Lake Dardanelle. We would appreciate any comments and recommendations by 30 July 1977.

If you have any questions concerning this master plan, feel free to contact Mr. John Hogan or Mr. Gene Hull, telephone 378-5836.

Sincerely yours,

1 Incl (dupe)
As stated

for Calvin W. Shelton
D. R. RIPPEY
Chief, Engineering Division



STATE OF ARKANSAS
DEPARTMENT OF LOCAL SERVICES

SUITE 900 • FIRST NATIONAL BUILDING

LITTLE ROCK 72201

DAVID PRYOR
GOVERNOR

RONALD R. COPELAND
DIRECTOR

July 25, 1977

Mr. D.R. Rippey
Chief, Engineering Division
Department of the Army
Little Rock District, Corps of
Engineers
P.O. Box 867
Little Rock, Arkansas 72203

RE: Updated Master Plan for Development and Management of Lake
Dardanelle

Dear Mr. Rippey:

In regard to your letter dated June 27, 1977, our Department has reviewed the Updated Master Plan for Development and Management of Lake Dardanelle. We find the document to be comprehensive in relation to the recreation proposals for existing Corps of Engineers' lands at Lake Dardanelle. In addition, the plan adequately states the relationship of additional recreation sites in the vicinity of the Corps' proposal.

The recreation needs of the area identified in the 1974 Statewide Comprehensive Outdoor Recreation Plan (SCORP) should be alleviated to a large extent by implementation of the master plan. The Arkansas Department of Local Services recommends approval of the master plan. We are looking forward to future correspondence concerning the development of outdoor recreation facilities in Arkansas.

Sincerely,

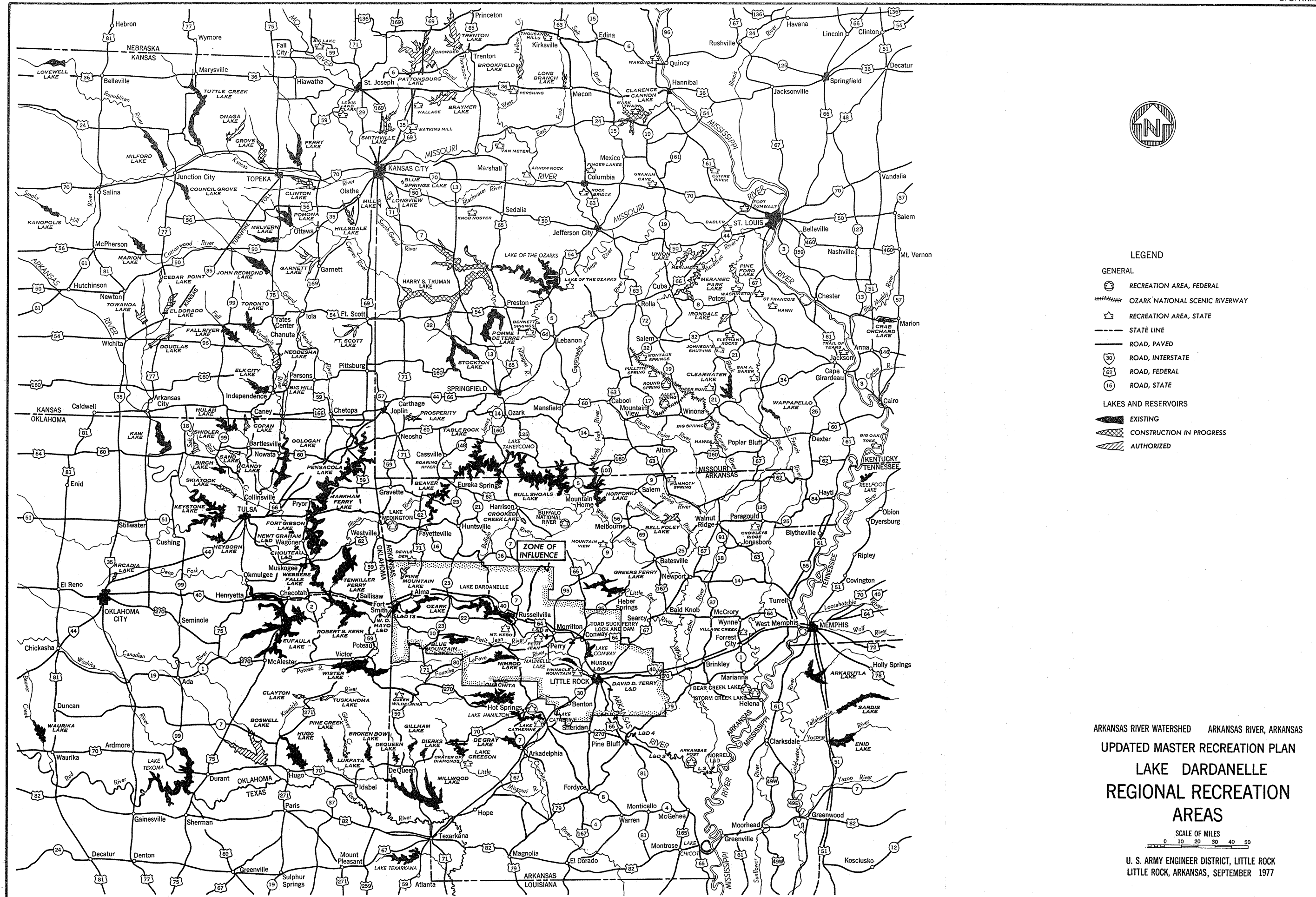
Ranny Cullom
Manager
Planning and Research

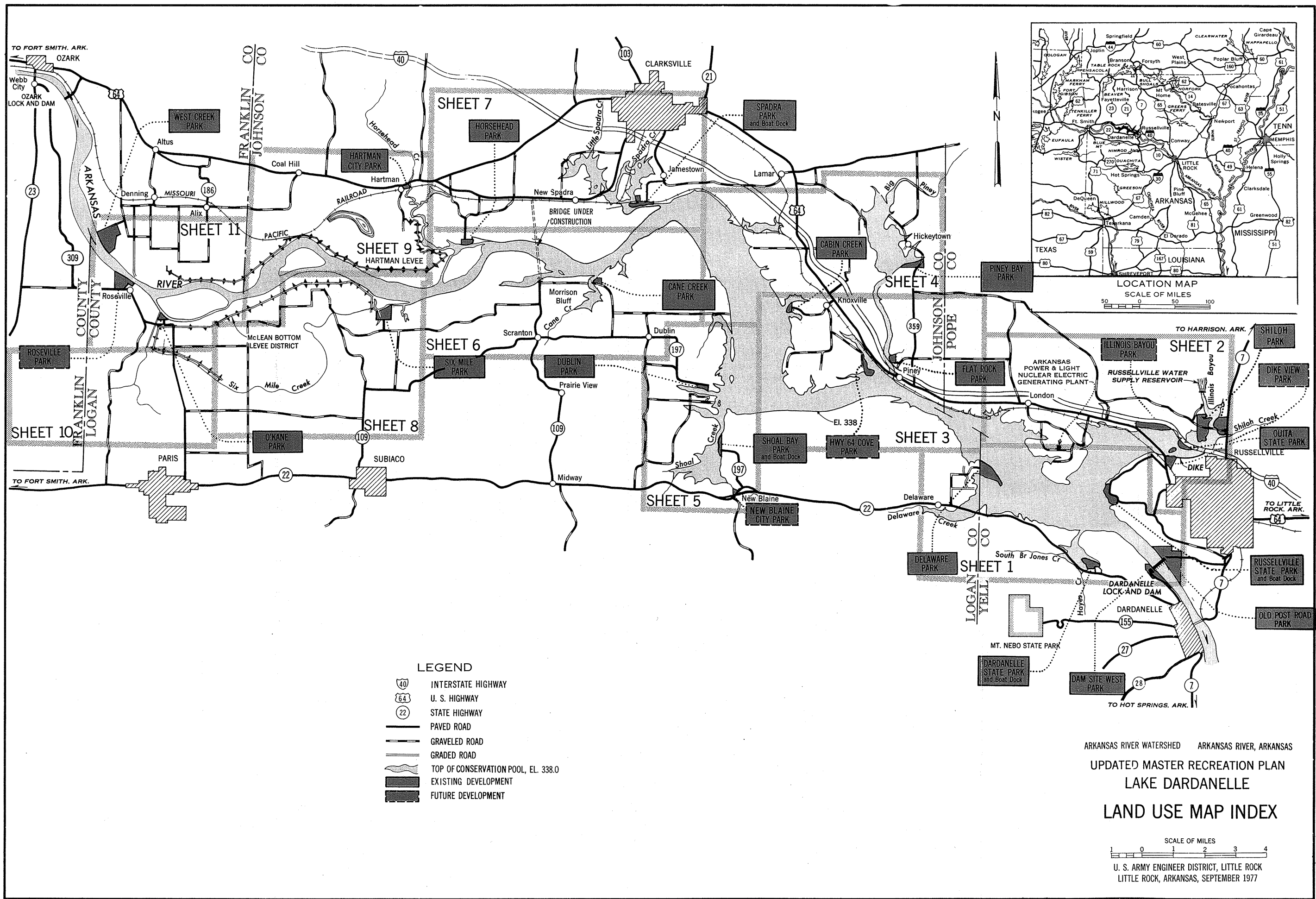
RC/BH/bw

SECTION XI
CONCLUSIONS AND RECOMMENDATIONS

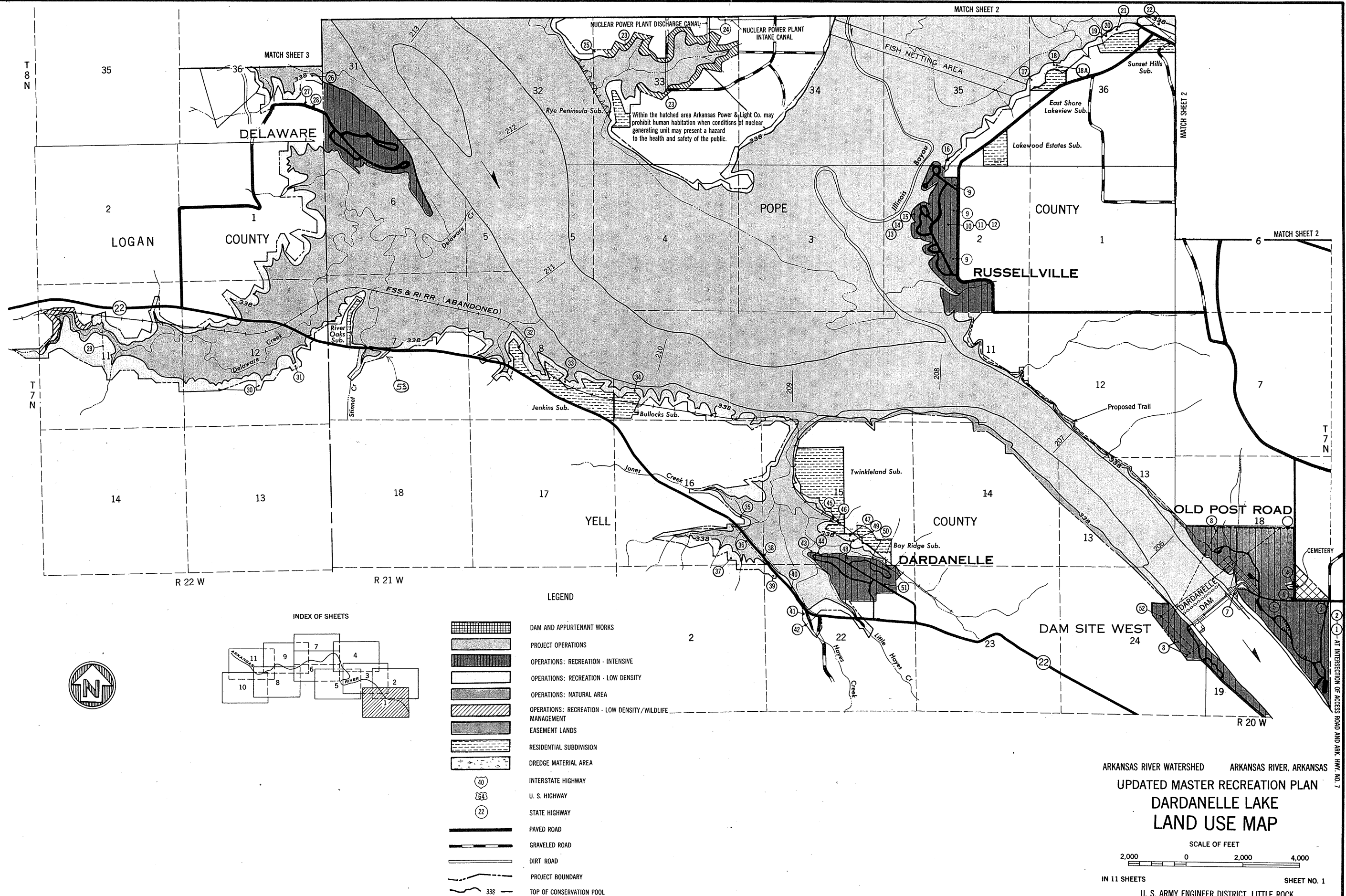
11-01. Conclusions. The master plan for recreational development and management presented herein is flexible enough to absorb any changes resulting from changes in visitation and recreational activities at the project. The total facility development proposed in this plan is adequate to serve the estimated recreational demand to approximately the year 1993. However, funding restrictions will limit the construction of additional recreational facilities and thus reduce the number of visitors which the parks can accommodate without deterioration of the project resources.

11-02. Recommendations. It is recommended that this master plan be approved to provide for the orderly development and management of recreational resources on Lake Dardanelle.



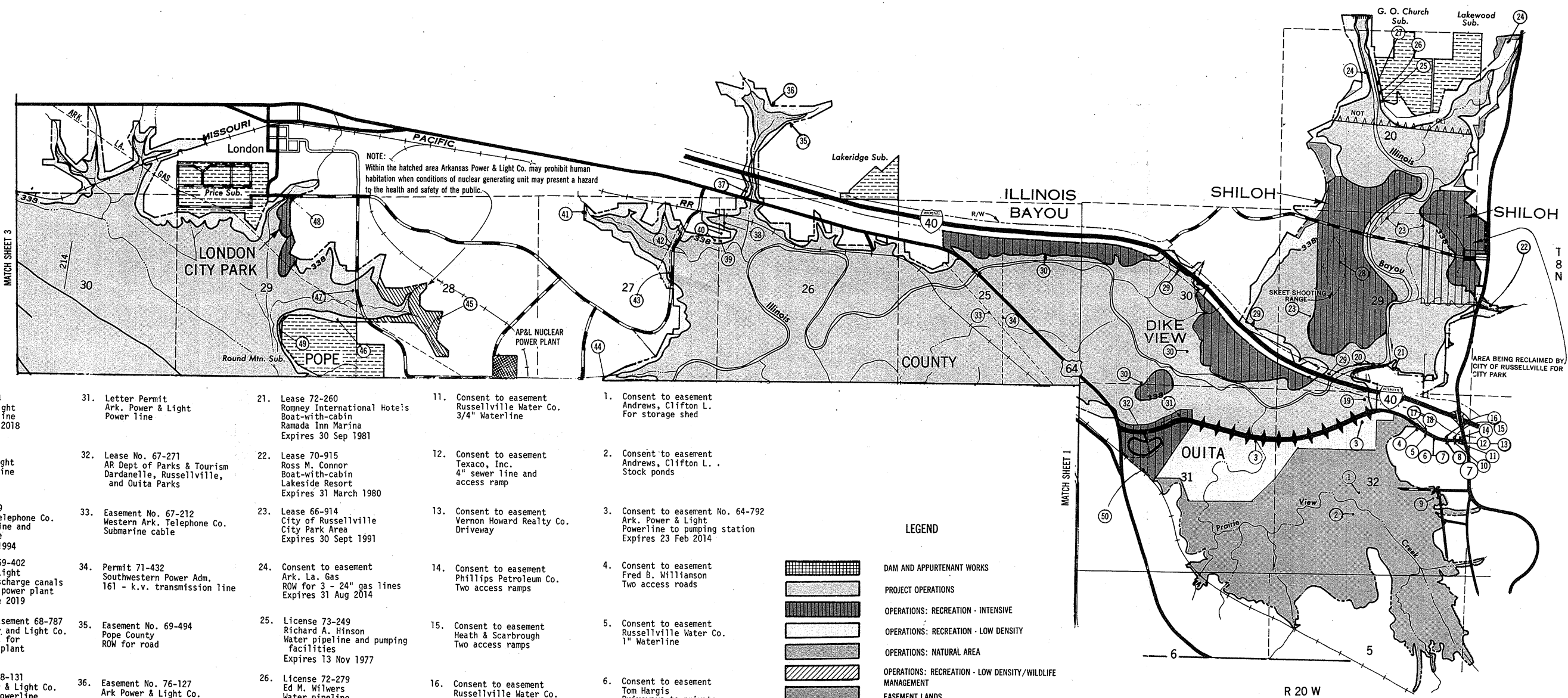
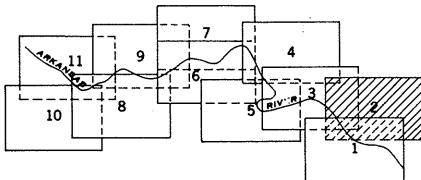


36. Easement No. 69-923
Western Ark. Telephone Co.
ROW for telephone cable
Expires 4 May 1994
37. Easement No. 68-132
Arkansas Power & Light
120 Volt powerline
Expires 7 Sep 92
38. Easement No. 75-133
Ark. Power & Light Co.
8 - k.v. powerline
Expires 7 Nov 1999
39. License No. 74-276
Opal Rice
Driveway
Expires 14 March 1979
40. License No. 73-248
E. J. Hicks
Water pipeline and pumping
facilities
Expires 27 Oct 1977
41. Easement No. 65-1282
Yell County
ROW for road
Indefinite
42. Easement No. 69-307
Ark. Power & Light
ROW for power line
43. Lease No. 76-112
Mr & Mrs Milton Stratton
Dardanelle Boat Dock
Expires 31 October 1989
44. Lease No. 75-169
Mr & Mrs Milton Stratton
River Valley Marine Service
Expires 31 Dec 1984
45. Easement No. 67-207
Bay Ridge Boat & Golf Club
Pipeline & pump facilities
Expires 7 July 1991
46. Easement No. 70-306
Yell County
Road
47. License No. 72-275
Ark Power & Light Co.
120/240-volt electric powerline
Expires 29 Nov 1976
48. Easement No. 66-392
Western Ark. Telephone Co.
ROW for telephone line
49. Easement No. 67-203
Yell County
ROW for launching ramp
50. Lease No. 67-271
Ark Dept of Parks & Tourism
Dardanelle, Russellville, and
Quita Parks
51. Easement No. 65-1289
Ark. Power & Light
ROW for power line
Expires 24 June 1990
52. Permit 71-432
Southwestern Power Adm.
161-K.v. transmission line
53. Easement No.
Yell County
ROW for road
July 89
- 18-A. License No. 72-462
N. L. Carnahan
Embayment, Jetty and boat
tramway
Expires 5 April 1977
19. License No. 74-150
Donald Barger
Underground line &
two nightwatcher lights
Expires 6 Dec 1978
20. License No. 73-286
Donald Barger
Embayment & breakwater
Expires 18 Dec 1977
21. Permit 71-432
Southwestern Power Adm.
161 - k.v. transmission line
22. Easement No. 67-212
Western Ark. Telephone
Submarine cable
23. Restrictive Easement No. 68-787
Ark. Power & Light Co.
Exclusion area for
Atomic energy plant
24. Easement No. 69-402
Ark. Power & Light
Intake and discharge canals
for Nuclear I power plant
Expires 4 June 2019
25. Easement No. 69-414
Pope County
ROW for road
26. License No. 74-109
W. B. Roper
Water pipeline
Expires 18 July 1978
27. Consent to easement
W. B. Roper
Two turnoff roads
28. Consent to easement
W. B. Roper
Road
29. Easement No. 71-272
Ark Power & Light Co.
Two 500-k.v. transmission lines
Expires 29 July 2020
30. Easement No. 68-606
Ark. Valley Elec Corp
7,200 Volt Powerline
Expires 25 Jan 2018
31. License No. 67-651
David Wood
Water line & pump
Expires 19 June 1977
32. License No. 72-304
Robert W. Griffin
Water drainpipe
Expires 6 Jan 1977
33. License No. 73-219
Joe L. Partridge
Water pipeline and
pumping facilities
Expires 7 August 1977
34. License no. 72-268
J. Merle Lemly
Boat dock
Expires 3 Nov 1976
35. License No. 70-353
James W. Wallis
Water pipeline
Expires 23 Oct 1979
1. Consent to easement
Russellville Water Co.
Water Main, 8"
2. Letter permit
Western Arkansas Tel. Co.
Cable under left bank
access road to L&D
3. Easement No. 68-795
Ark. Power & Light Co.
8/13 - Kv. powerline
Expires 26 Apr 93
4. Easement No. 68-280
Pope County
Road
5. Easement No. 68-243
Western AR Telephone Co.
Telephone cable
Expires 2 Jan 93
6. Perpetual Easement
Ark. Power & Light
Power Line
7. License No. 71-381
Western AR Tel. Co.
Pay telephones
Expires 30 June 1980
8. Easement No. 69-951
Ark Power & Light
ROW for power line
Expires 15 Jun 2019
9. Easement No. 68-143
Ark Power & Light Co.
8 k.v. powerline
Expires 12 Oct 92
10. Easement No. 65-1244
Ark. Power & Light
ROW for power line
11. Easement No. 66-302
Western Ark. Telephone
ROW for line
Expires 5 July 1990
12. Lease No. 67-271
Ark. Dept. of Parks & Tourism
Dardanelle, Russellville
and Quita Parks
13. Lease No. 70-904
Mr & Mrs Edgar N. Borneman
Mr & Mrs W. Richard Borneman
Russellville Cafe Site
Expires 31 October 1989
14. Easement No. 72-273
Jack V. Dennis
Gas pipeline
Expires 17 Nov 1989
15. Lease No. 72-409
Messrs. Milton L. Stratton, Sr.
and Milton L. Stratton, Jr.
Russellville Boat Dock
Expires 31 October 1989
16. License No. 73-206
James M. Parrish
Launching ramp
Expires 3 May 1977
17. License No. 73-201
John E. Shoemaker
Water pipeline and
pumping facilities
Expires 5 July 1977
18. License No. 72-487
George C. Jackson
Embayment with platform
boat lift
Expires 20 June 1977



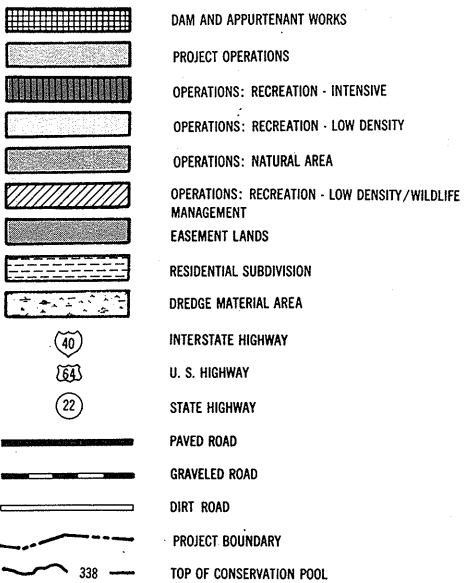


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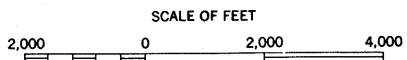


- | | | | | |
|--|--|---|--|--|
| 41. Easement 69-404
Ark. Power & Light
ROW for power line
Expires 10 Oct 2018 | 31. Letter Permit
Ark. Power & Light
Power line | 21. Lease 72-260
Romney International Hotel's
Boat-with-cabin
Ramada Inn Marina
Expires 30 Sep 1981 | 11. Consent to easement
Russellville Water Co.
3/4" Waterline | 1. Consent to easement
Andrews, Clifton L.
For storage shed |
| 42. Easement 67-331
Ark. Power & Light
ROW for power line | 32. Lease No. 67-271
AR Dept of Parks & Tourism
Dardanelle, Russellville,
and Ouita Parks | 22. Lease 70-915
Ross M. Connor
Boat-with-cabin
Lakeside Resort
Expires 31 March 1980 | 12. Consent to easement
Texaco, Inc.
4" sewer line and
access ramp | 2. Consent to easement
Andrews, Clifton L.
Stock ponds |
| 43. Easement 69-879
Western Ark. Telephone Co.
ROW for pole line and
submarine cable
Expires 4 Feb 1994 | 33. Easement No. 67-212
Western Ark. Telephone Co.
Submarine cable | 23. Lease 66-914
City of Russellville
City Park Area
Expires 30 Sept 1991 | 13. Consent to easement
Vernon Howard Realty Co.
Driveway | 3. Consent to easement No. 64-792
Ark. Power & Light
Powerline to pumping station
Expires 23 Feb 2014 |
| 44. Easement No. 69-402
Ark. Power & Light
Intake and discharge canals
for Nuclear 1 power plant
Expires 4 June 2019 | 34. Permit 71-432
Southwestern Power Adm.
161 - k.v. transmission line | 24. Consent to easement
Ark. La. Gas
ROW for 3 - 24" gas lines
Expires 31 Aug 2014 | 14. Consent to easement
Phillips Petroleum Co.
Two access ramps | 4. Consent to easement
Fred B. Williamson
Two access roads |
| 45. Restrictive Easement 68-787
Arkansas Power and Light Co.
Exclusion area for
Atomic Energy plant | 35. Easement No. 69-494
Pope County
ROW for road | 25. License 73-249
Richard A. Hinson
Water pipeline and pumping
facilities
Expires 13 Nov 1977 | 15. Consent to easement
Heath & Scarbrough
Two access ramps | 5. Consent to easement
Russellville Water Co.
1" Waterline |
| 46. Easement No. 68-131
Arkansas Power & Light Co.
120-240 Volt powerline
Expires 7 Sep 92 | 36. Easement No. 76-127
Ark Power & Light Co.
8 - k.v. powerline
Expires 15 Oct 2000 | 26. License 72-279
Ed M. Wilwers
Water pipeline
Expires 6 Dec 1976 | 16. Consent to easement
Russellville Water Co.
Water main | 6. Consent to easement
Tom Hargis
Driveways to private
property |
| 47. Easement 70-338
Western AR Tel Co.
Telephone line
Expires 11 Sept 94 | 37. Easement No. 69-403
Town of London
ROW for water line
Expires 10 Oct 2018 | 27. Easement No. 65-788
A. A. Kennedy
ROW for gas pipe line
Expires 19 Nov 1989 | 17. Consent to easement
Ark. La. Gas
1" gas line under Russellville
Dike road | 7. Consent to easement
R. W. Braselton
Private driveway |
| 48. Easement No. 70-569
J. C. Hess
1" Gas pipeline
Expires 5 Feb 1995 | 38. Easement No. 64-462
Pope County
Road ROW | 28. Letter Permit
Cameron Energy, Inc.
Drill test holes | 18. Consent to easement
Ark. La. Gas
2" gas line under Russellville
Dike road | 8. Consent to easement
Buster Leavell
Access road |
| 49. Easement No. 69-909
Pope County
ROW for road
Expires 20 March 1999 | 39. License 69-493
Boyce Tidwell & Richard Mobley
ROW for water line
Expires 6 Nov 1978 | 29. Easement No. 63-797
Ark. Hwy. Dept.
ROW for I-40 | 19. License 67-298
Chas. W. Mize
Water line & pump | 9. Consent to easement
Ark. St. Hwy. Dept.
Segment of St. Hwy. 872 |
| 50. Easement No. 70-357
Ark. Power and Light
8-kv powerline
31 Oct 1984 | 40. License 69-317
W. S. Newton
ROW for water line
Expires 31 July 78 | 30. Lease No. 69-319
AR Polytechnic Coll
Rec parks Dikey View, Ill Bayou
(future parks) & Ouita Island
Expires 30 June 1993 | 20. License 74-256
Romney International Hotels
Curb and gutter
Expires 9 Feb 1979 | 10. Consent to easement
Holiday Inns, Edward G. Sims,
City Real Estate Co., Inc.
and Phillips Petroleum Co.
Sewer pipeline |

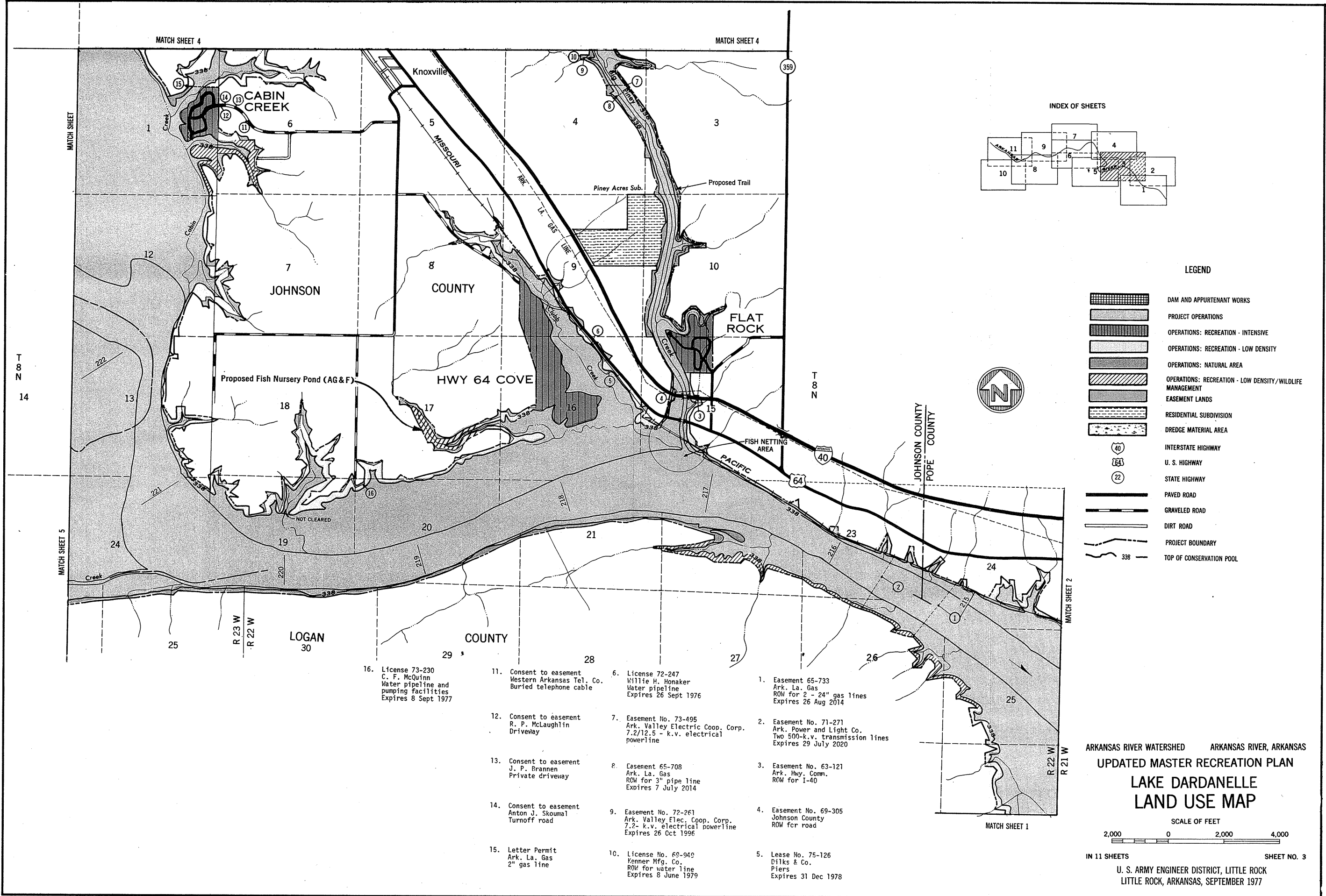
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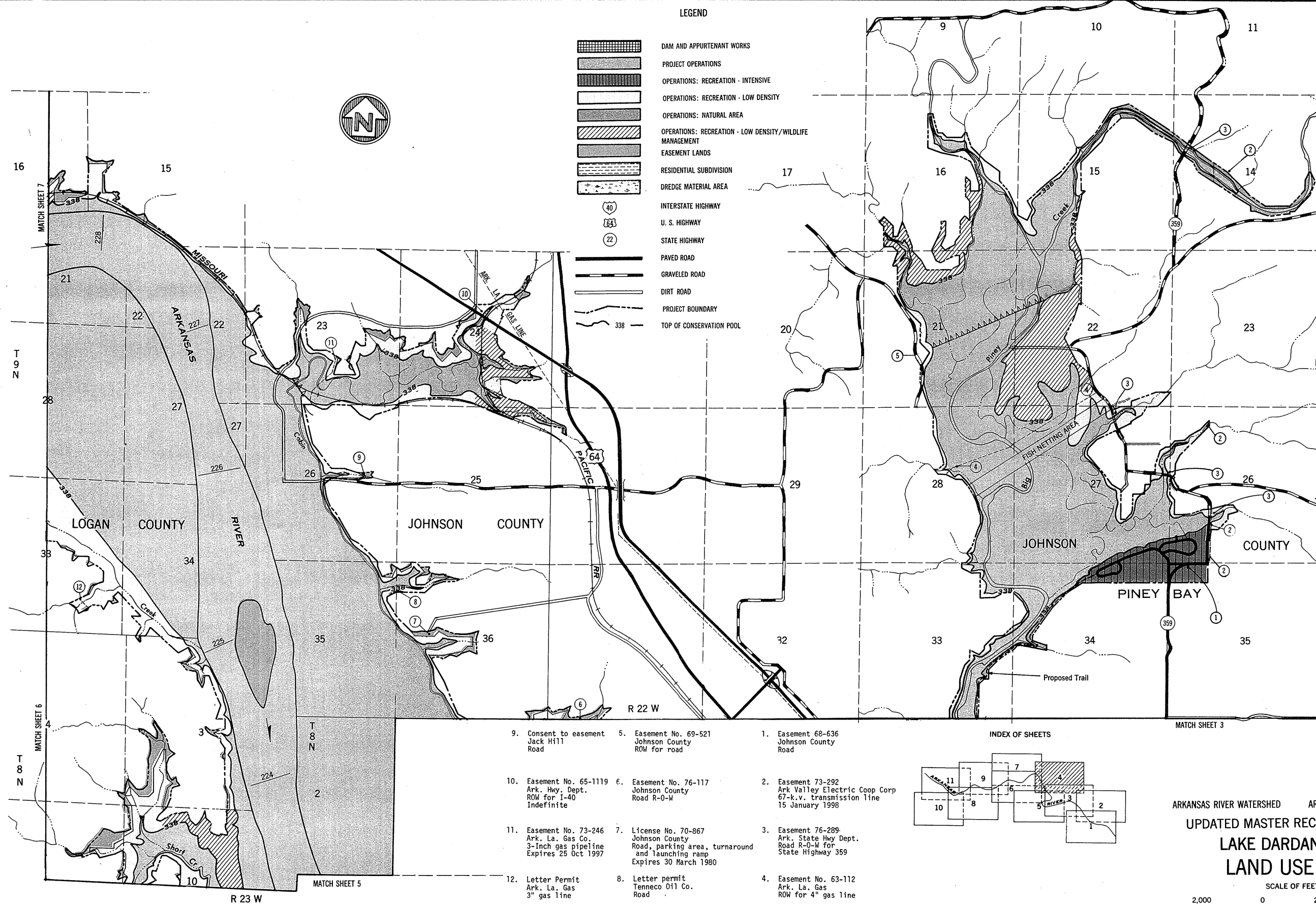
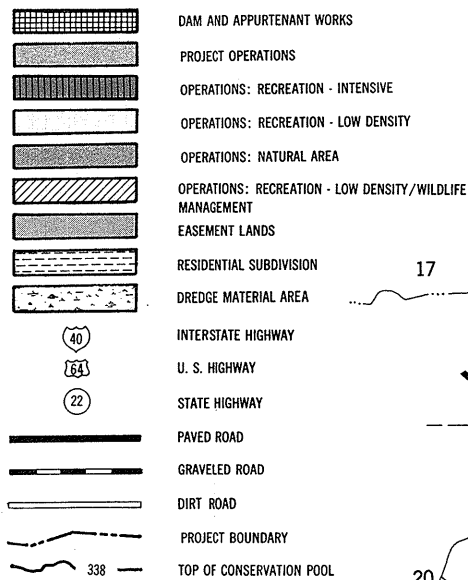
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
DARDANELLE LAKE
LAND USE PLAN



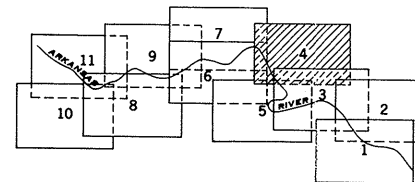
IN 11 SHEETS SHEET NO. 2
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977
REVISED JANUARY 1978



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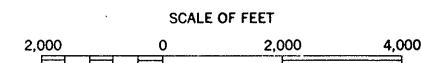


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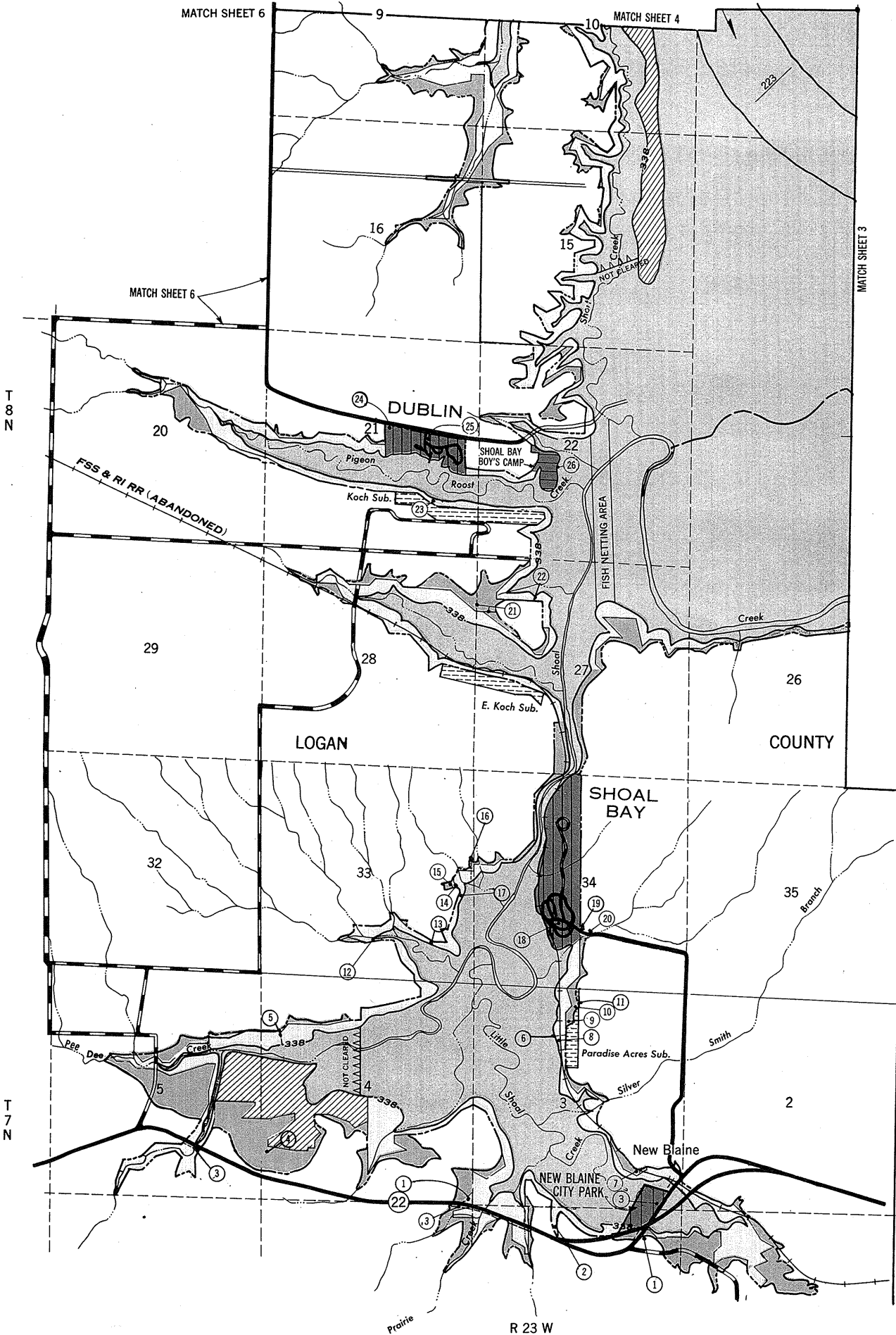


- Easement 68-636 Johnson County Road
- Easement 73-292 Ark Valley Electric Coop Corp 67-k.v. transmission line 15 January 1998
- Easement 76-289 Ark. State Hwy Dept. Road R-0-W for State Highway 359
- Easement No. 63-112 Ark. La. Gas ROW for 4" gas line
- Easement No. 69-521 Johnson County ROW for road
- Easement No. 76-117 Johnson County Road R-0-W
- License No. 70-867 Johnson County Road, parking area, turnaround and launching ramp Expires 30 March 1980
- Letter permit Tenneco Oil Co. Road
- Consent to easement Jack Hill Road
- Easement No. 65-1119 Ark. Hwy. Dept. ROW for I-40 Indefinite
- Easement No. 73-246 Ark. La. Gas Co. 3-inch gas pipeline Expires 25 Oct 1997
- Letter Permit Ark. La. Gas 3" gas line

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
LAND USE MAP



IN 11 SHEETS SHEET NO. 4
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

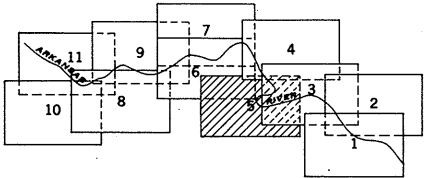


- | | |
|---|--|
| 14. Consent to easement
E. A. Wahl
Boat storage house | 1. Easement No. 66-405
Ark. Hwy. Dept.
ROW for Hwy. 22 |
| 15. Consent to easement
Abe Lensing
Access road | 2. Consent to easement
Dean Sadler
Stock pond |
| 16. Easement No. 76-243
Logan County
Road R-0-W | 3. Easement No. 66-380
Western Ark. Telephone
ROW for telephone line |
| 17. License No. 67-631
Leo B. Jansen
Winch line for
launching boats
Expires 4 May 1977 | 4. Consent to easement
Jacqueline M. Bailey
Construct pond |
| 18. Easement No. 66-310
Ark. Valley Elec. Co.
ROW for power line
Perpetual | 5. License No. 67-616
Jim Ward
Water line |
| 19. Consent to easement
Ark. Valley Elec. Coop.
ROW for elec. power line | 6. Easement No. 72-243
James M. Hall
Sewage disposal line
Expires 20 Sept 1996 |
| 20. Letter permit
Eugene Sanders
Turnoff road | 7. License No. 76-284
Birk Neal
Water pipeline and pumping
facilities
Expires 6 May 1981 |
| 21. Consent to easement
Herman F. Buss
Access road | 8. License No. 70-577
John Guion
Boat tramway
Expires 12 Feb 1980 |
| 22. License No. 76-129
Harold Schwartz
Water pipeline
Expires 20 Oct 1980 | 9. Partial release on restriction
George J. Michel
House |
| 23. License No. 73-209
Dr. Roy H. Kennen
Water pipeline and pumping
facilities
Expires 25 July 1977 | 10. Partial release of
habitation restriction
Kenneth Britt
House encroachment |
| 24. Easement No. 66-946
Logan County
ROW for road | 11. Partial release of
restriction & waiver
of damages
R. L. Jarvis
House |
| 25. Easement
Ark. Valley Elec. Coop.
ROW for power line | 12. License No. 72-468
Lawrence P. Schulte
Water pipeline and
pumping facilities
Expires 24 April 1977 |
| 26. Lease No. 65-749
New Subiaco Abbey
Recreational area
Expires 31 May 1989 | 13. License No. 74-129
Edwin Henderson
Water pipeline
Expires 1 Nov 1978 |

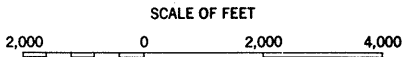
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- | | |
|--|---|
| | DAM AND APPURTENANT WORKS |
| | PROJECT OPERATIONS |
| | OPERATIONS: RECREATION - INTENSIVE |
| | OPERATIONS: RECREATION - LOW DENSITY |
| | OPERATIONS: NATURAL AREA |
| | OPERATIONS: RECREATION - LOW DENSITY/WILDLIFE
MANAGEMENT |
| | EASEMENT LANDS |
| | RESIDENTIAL SUBDIVISION |
| | DREDGE MATERIAL AREA |
| | INTERSTATE HIGHWAY |
| | U. S. HIGHWAY |
| | STATE HIGHWAY |
| | PAVED ROAD |
| | GRAVELED ROAD |
| | DIRT ROAD |
| | PROJECT BOUNDARY |
| | TOP OF CONSERVATION POOL |

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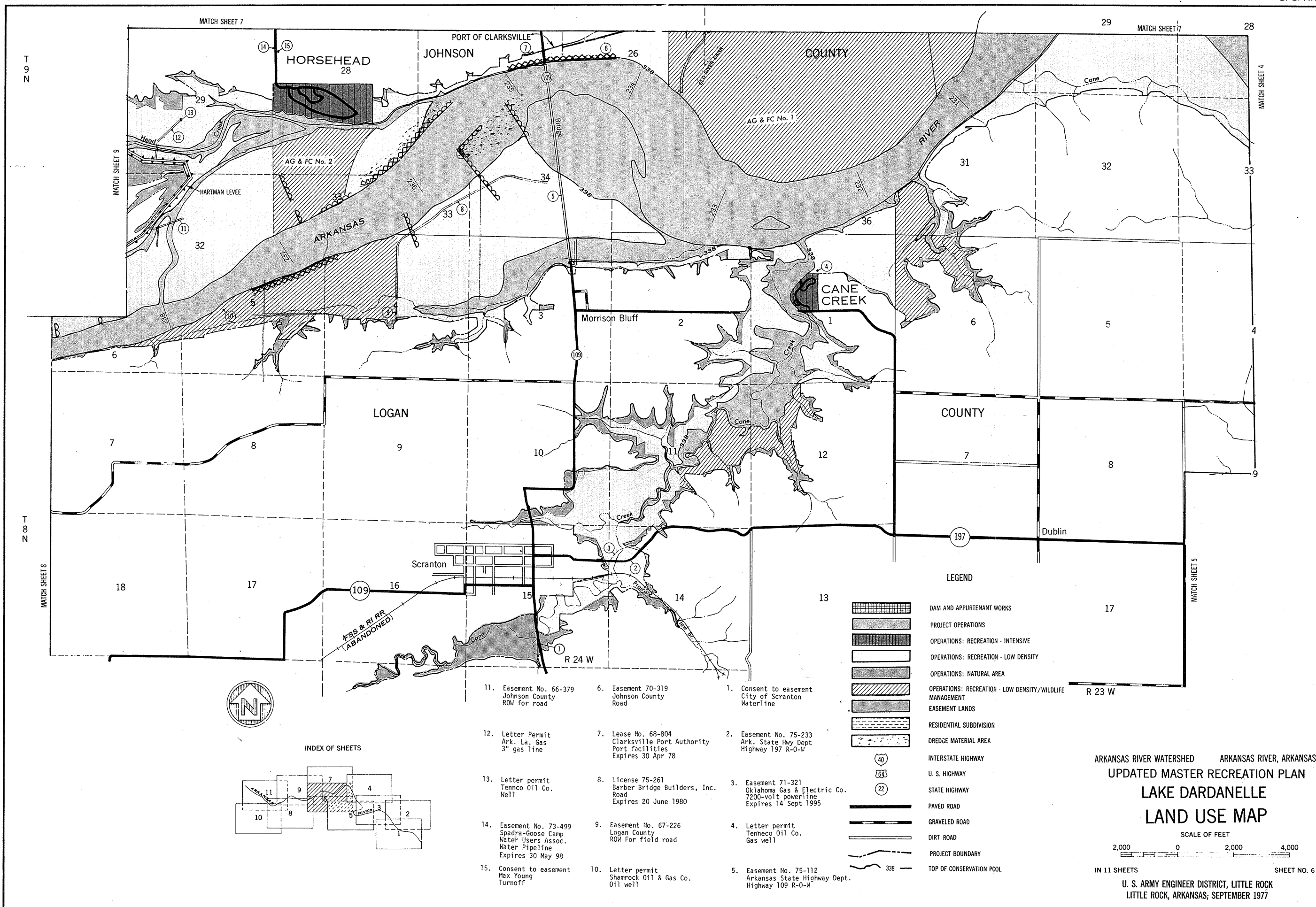


ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
LAND USE MAP



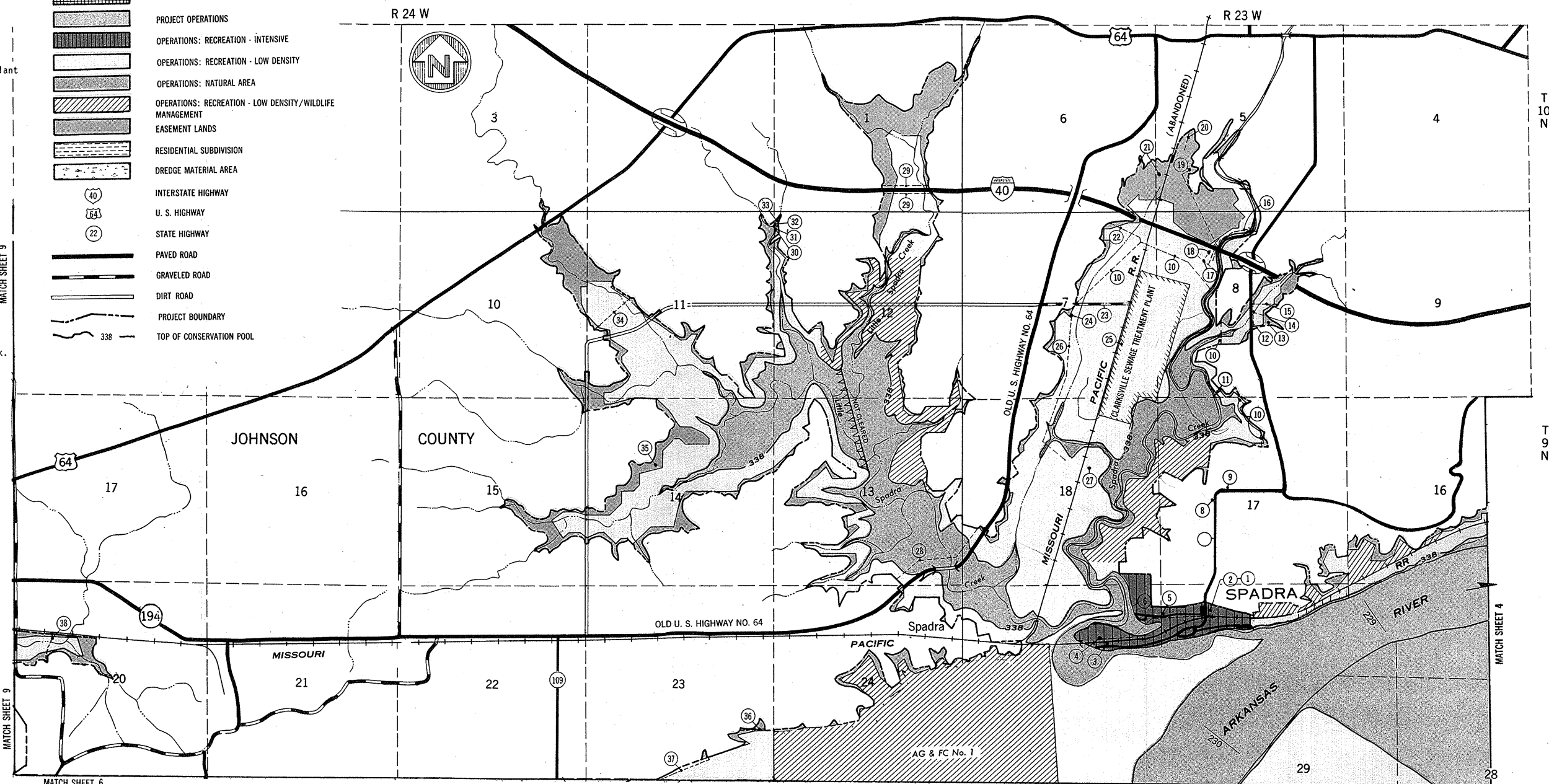
IN 11 SHEETS SHEET NO. 5

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



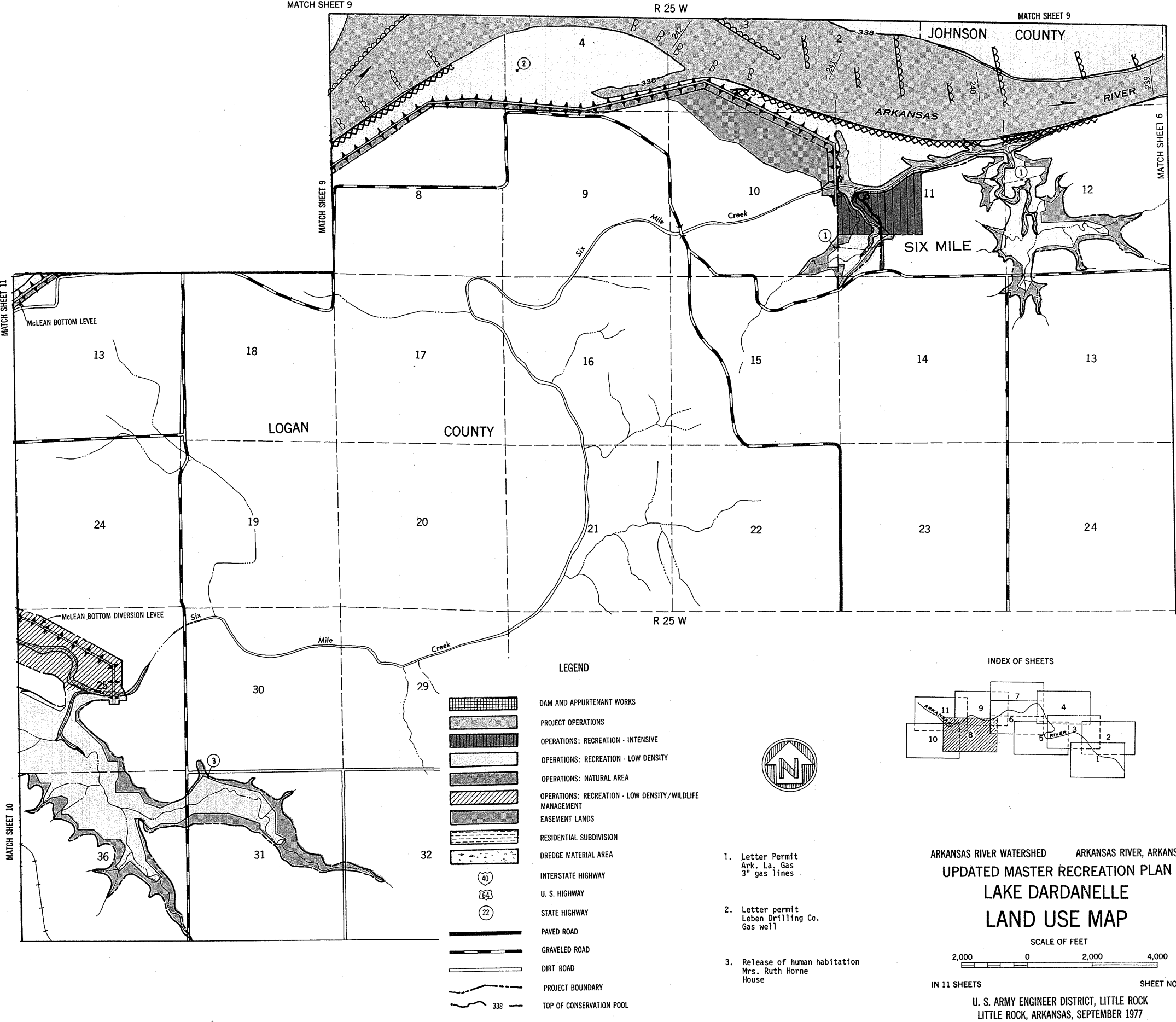
35. Letter Permit
Diamond Shamrock Corp.
Drill well

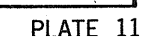
- DAM AND APPURTENANT WORKS
- PROJECT OPERATIONS
- OPERATIONS: RECREATION - INTENSIVE
- OPERATIONS: RECREATION - LOW DENSITY
- OPERATIONS: NATURAL AREA
- OPERATIONS: RECREATION - LOW DENSITY/WILDLIFE
MANAGEMENT
- EASEMENT LANDS
- RESIDENTIAL SUBDIVISION
- DREDGE MATERIAL AREA
- INTERSTATE HIGHWAY
- U. S. HIGHWAY
- STATE HIGHWAY
- PAVED ROAD
- GRAVELED ROAD
- DIRT ROAD
- PROJECT BOUNDARY
- TOP OF CONSERVATION POOL

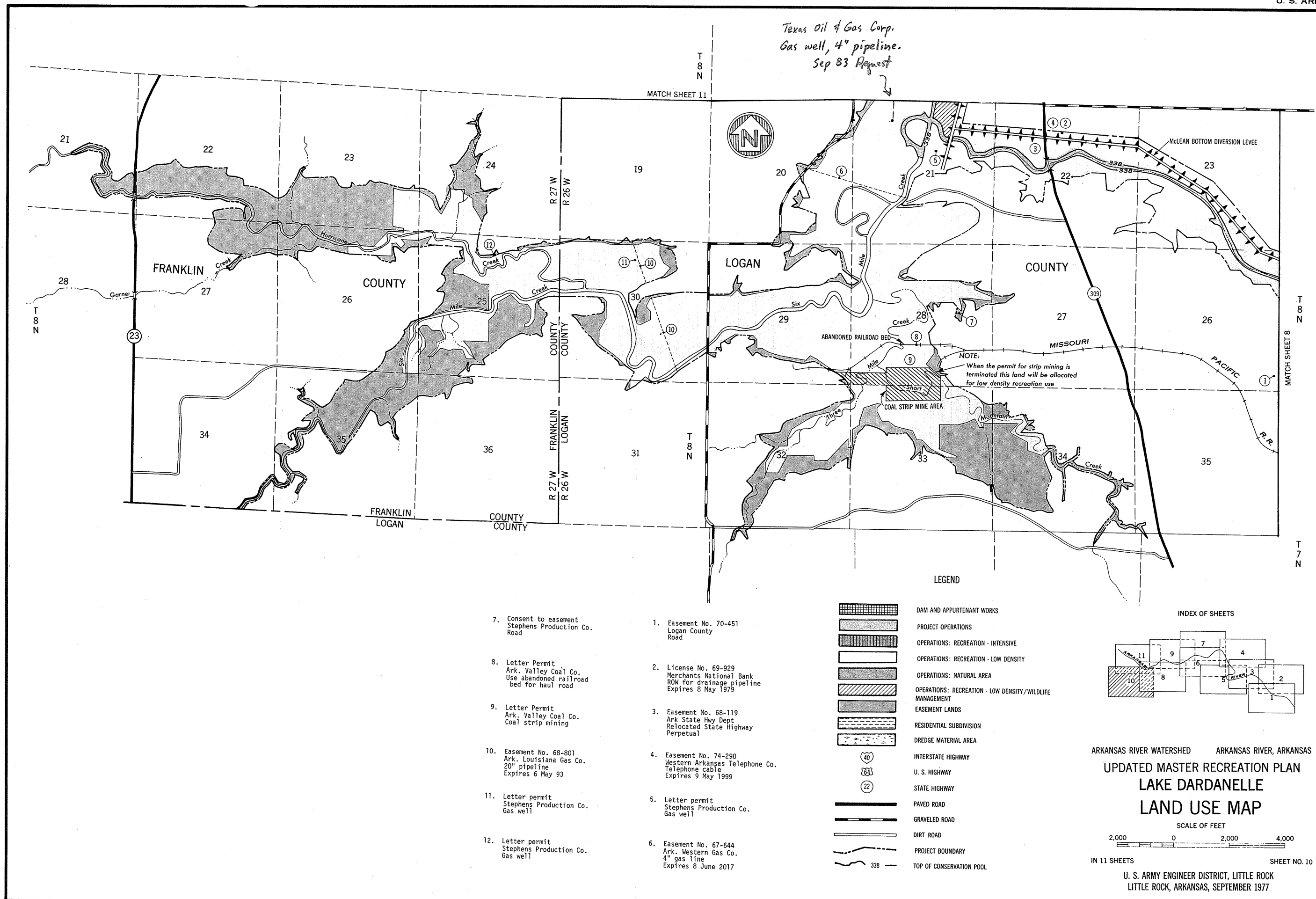


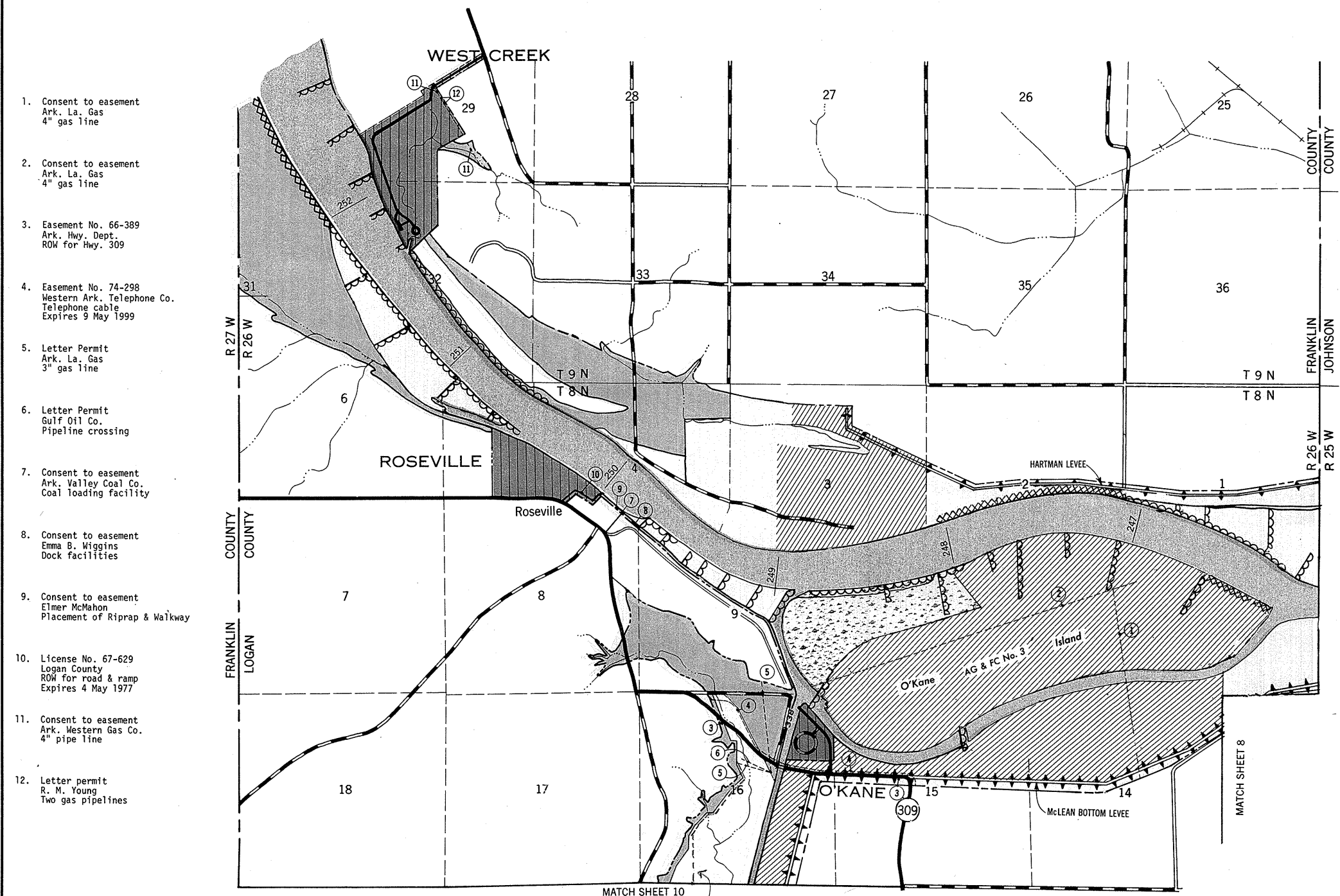
5. Easement No. 66-308
Okla. Gas & Elec.
ROW for power line
Expires 11 July 1990

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977





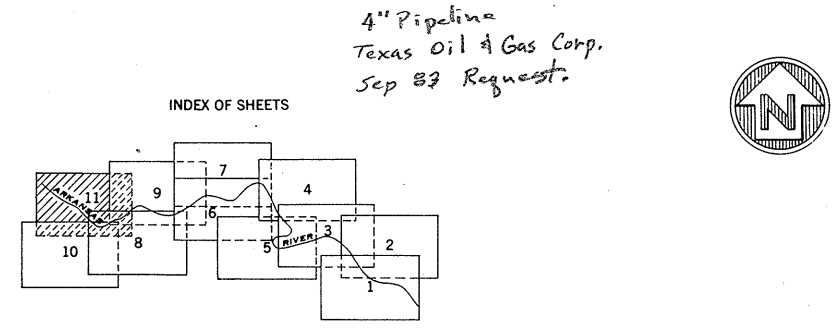




1. Consent to easement
Ark. La. Gas
4" gas line
2. Consent to easement
Ark. La. Gas
4" gas line
3. Easement No. 66-389
Ark. Hwy. Dept.
ROW for Hwy. 309
4. Easement No. 74-298
Western Ark. Telephone Co.
Telephone cable
Expires 9 May 1999
5. Letter Permit
Ark. La. Gas
3" gas line
6. Letter Permit
Gulf Oil Co.
Pipeline crossing
7. Consent to easement
Ark. Valley Coal Co.
Coal loading facility
8. Consent to easement
Emma B. Wiggins
Dock facilities
9. Consent to easement
Elmer McMahon
Placement of Riprap & Walkway
10. License No. 67-629
Logan County
ROW for road & ramp
Expires 4 May 1977
11. Consent to easement
Ark. Western Gas Co.
4" pipe line
12. Letter permit
R. M. Young
Two gas pipelines

LEGEND

[Pattern]	DAM AND APPURTENANT WORKS
[Pattern]	PROJECT OPERATIONS
[Pattern]	OPERATIONS: RECREATION - INTENSIVE
[Pattern]	OPERATIONS: RECREATION - LOW DENSITY
[Pattern]	OPERATIONS: NATURAL AREA
[Pattern]	OPERATIONS: RECREATION - LOW DENSITY/WILDLIFE MANAGEMENT
[Pattern]	EASEMENT LANDS
[Pattern]	RESIDENTIAL SUBDIVISION
[Pattern]	DREDGE MATERIAL AREA
[Symbol]	INTERSTATE HIGHWAY
[Symbol]	U. S. HIGHWAY
[Symbol]	STATE HIGHWAY
[Symbol]	PAVED ROAD
[Symbol]	GRAVELED ROAD
[Symbol]	DIRT ROAD
[Symbol]	PROJECT BOUNDARY
[Symbol]	TOP OF CONSERVATION POOL



ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

LAKE DARDANELLE

LAND USE MAP

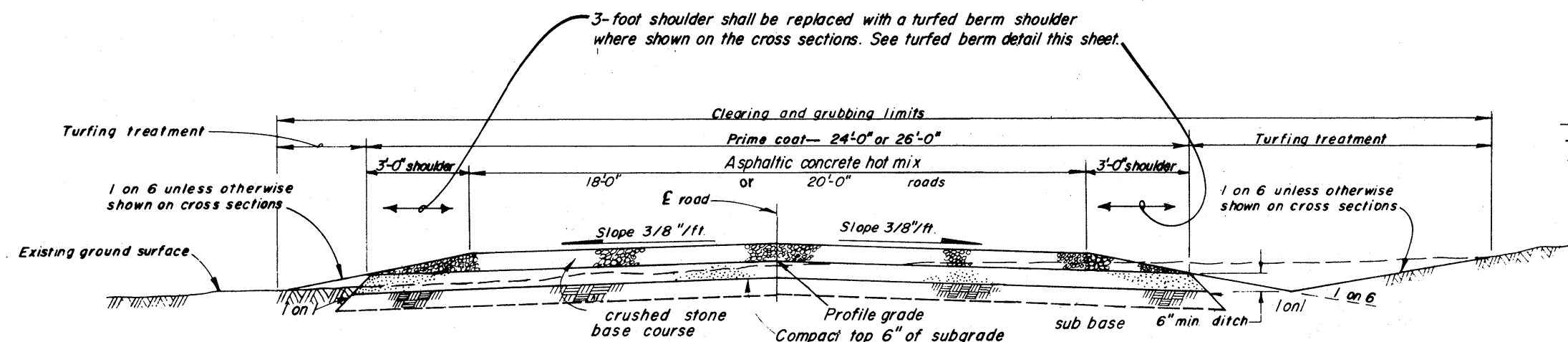
SCALE OF FEET

2,000 0 2,000 4,000

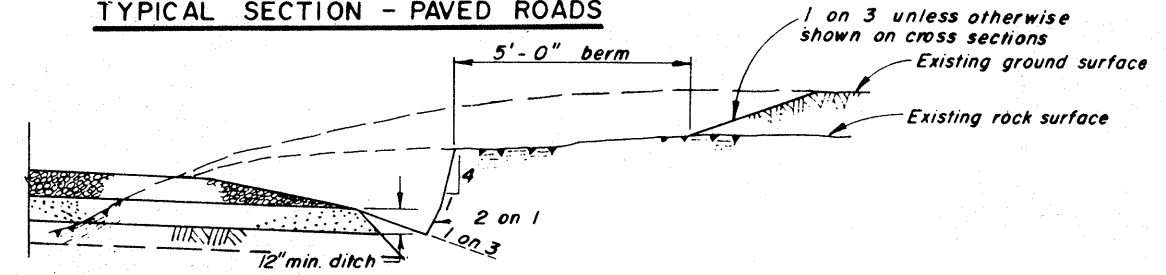
IN 11 SHEETS SHEET NO. 11

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK

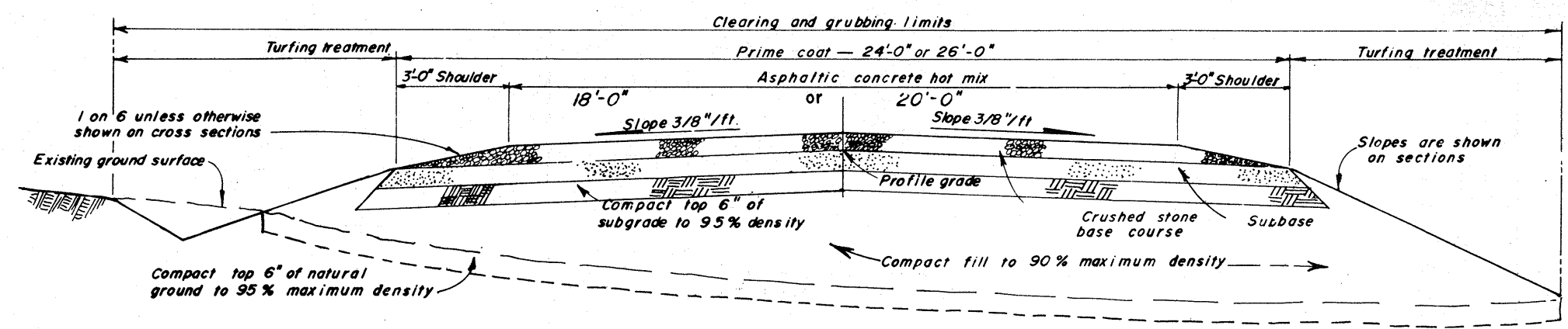
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



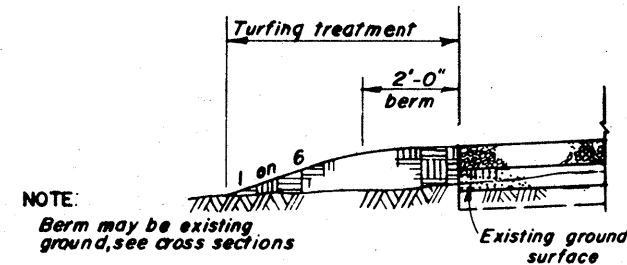
TYPICAL SECTION - PAVED ROADS



DITCH SECTION - ROCK CONDITION

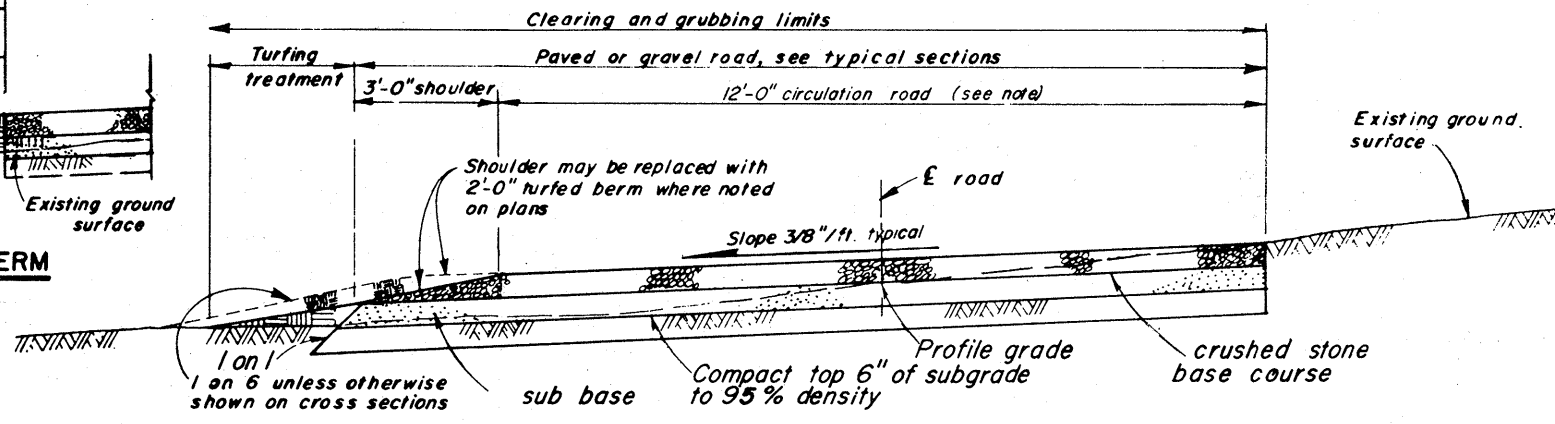


TYPICAL FILL SECTION

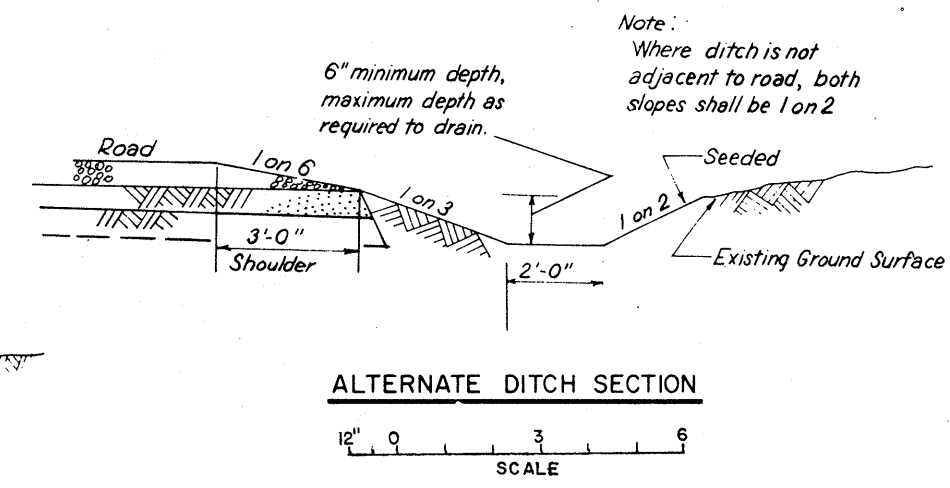


NOTE:
Berm may be existing ground, see cross sections

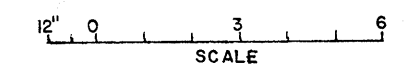
TURFED BERM



TYPICAL SECTION - LOOP ROAD



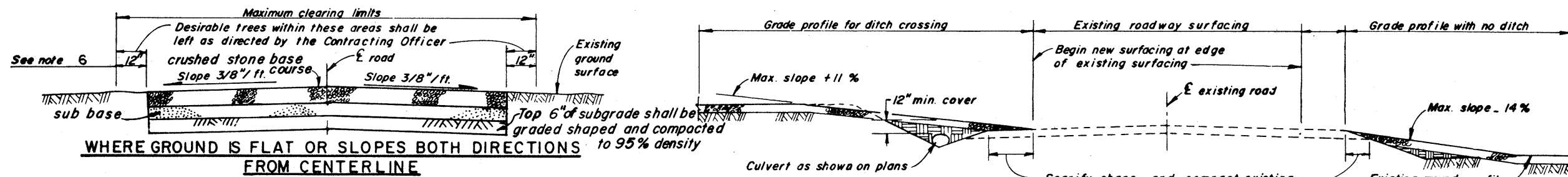
ALTERNATE DITCH SECTION



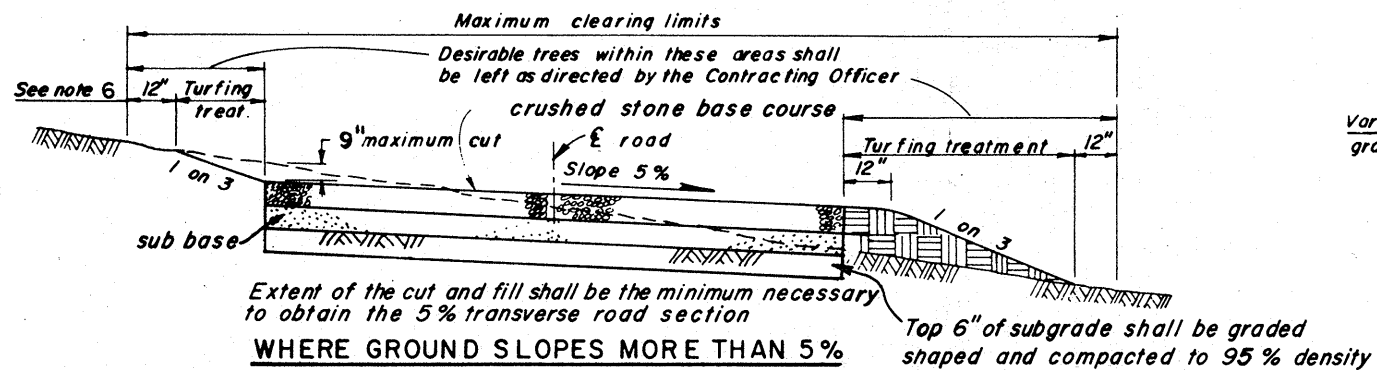
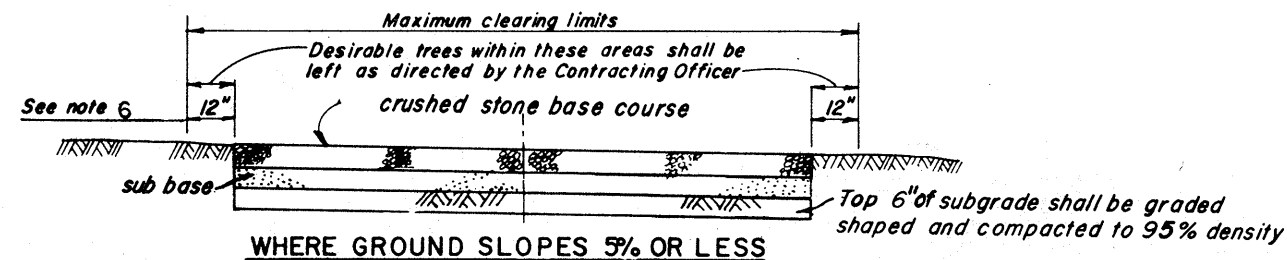
NOTES:

1. Surfacing at parking areas shall be equal to that provided for roadways.
2. Crushed stone base course for paved and gravel surfaced roads shall be class SB-2.
3. Clearing in general shall extend from toe of fill to top of back slope. Grubbing shall extend to edge of shoulders in fills to ditch bottom in cuts.
4. Desirable trees within the limits of the turfed treatment area shall be preserved to the maximum extent possible. Tree wells may be used as required, and back slopes warped where necessary to preserve desirable trees.
5. Ditches shall be the minimum ditch shown on the typical sections unless otherwise indicated on the cross sections. Care shall be exercised to construct ditches and drainage swales only where needed.

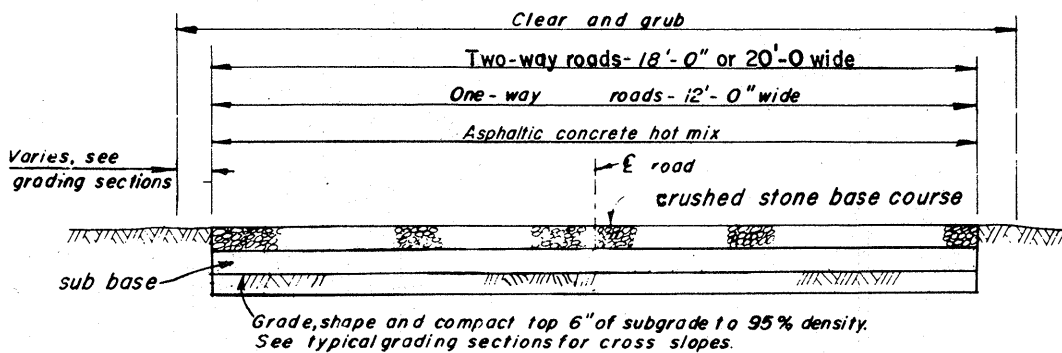
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
ROAD DETAILS
SCALE: AS SHOWN
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, 1977
SHEET 1 OF 2



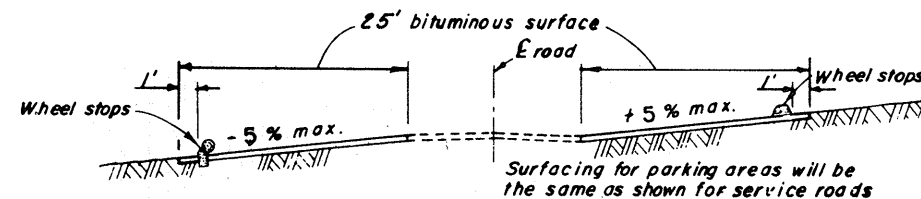
TYPICAL INTERSECTION PROFILES



TYPICAL GRADING SECTIONS



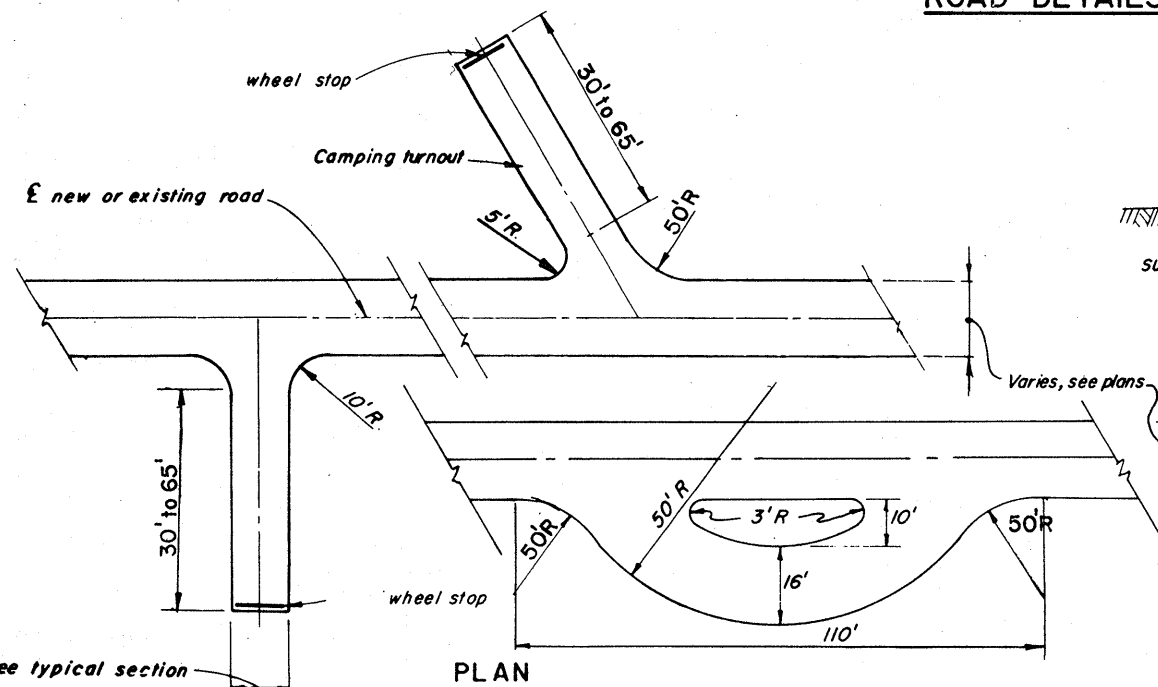
TYPICAL ROAD SECTION



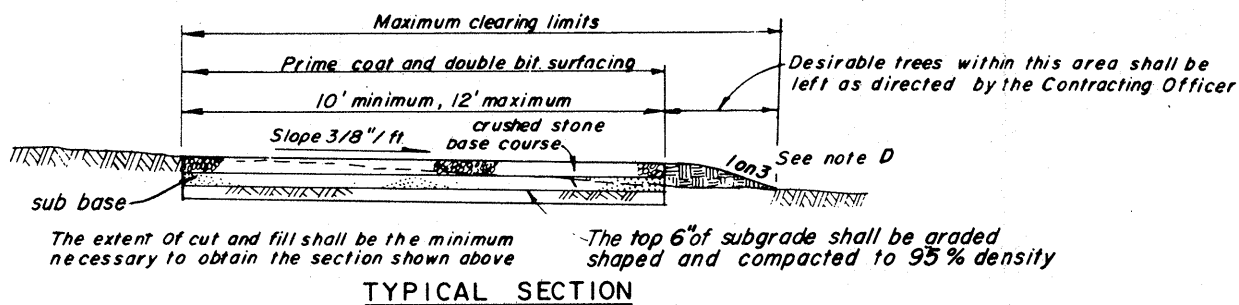
PARKING AREA DETAILS

- NOTES:
1. The centerline grade for the roads shall not exceed 16 %.
 2. Radii for all road intersections are 30 feet unless otherwise noted on plans.
 3. Care shall be taken to protect all trees. Only those trees within the limits of excavation or fill slopes are to be removed.
 4. Cleared timber and brush shall be disposed of as approved by the contracting officer.
 5. Debris left from clearing, grubbing and burning shall be disposed of as approved by the contracting officer.
 6. Turfing: all disturbed and graded areas shall be left in suitable condition for turfing treatment.

ROAD DETAILS FOR STATION GRADING

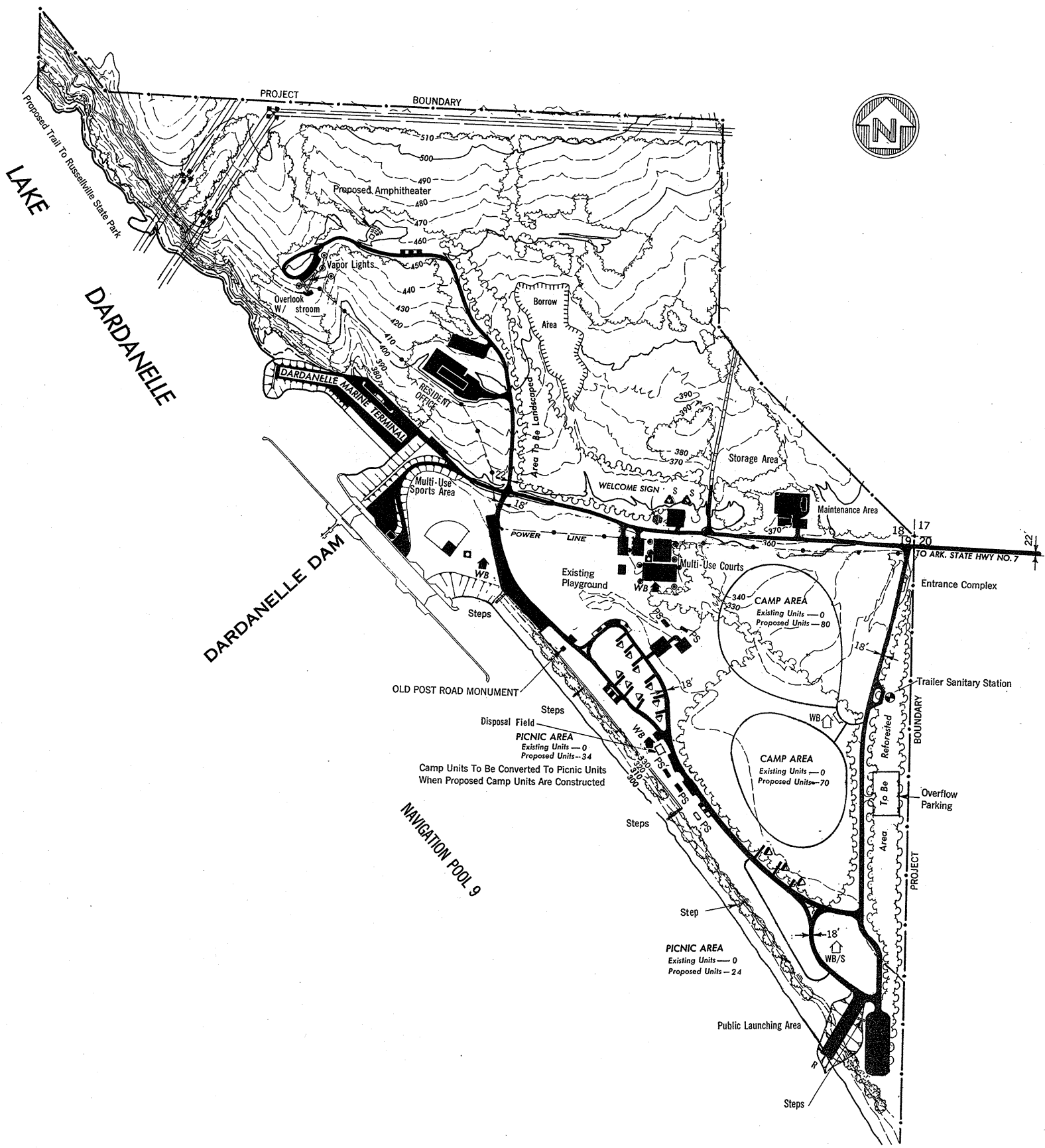


CAMPING TURNOUT DETAILS



- NOTES:
- A. The desirable maximum centerline grade of the turnouts is 5% and the absolute maximum shall be 10%.
 - B. Any suitable spoil material left from grading and shaping of the turnouts shall be used to level the last 20 feet of the turnouts as much as practicable.
 - C. The lengths of the turnouts shall be the lengths indicated on the typical layout unless otherwise shown on the plans.
 - D. Where the ground slopes 3/8\"/>

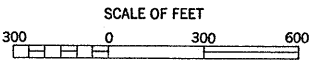
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
 UPDATED MASTER RECREATION PLAN
 LAKE DARDANELLE
 ROAD DETAILS
 SCALE: AS SHOWN
 U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
 LITTLE ROCK, ARKANSAS, 1977
 SHEET 2 OF 2



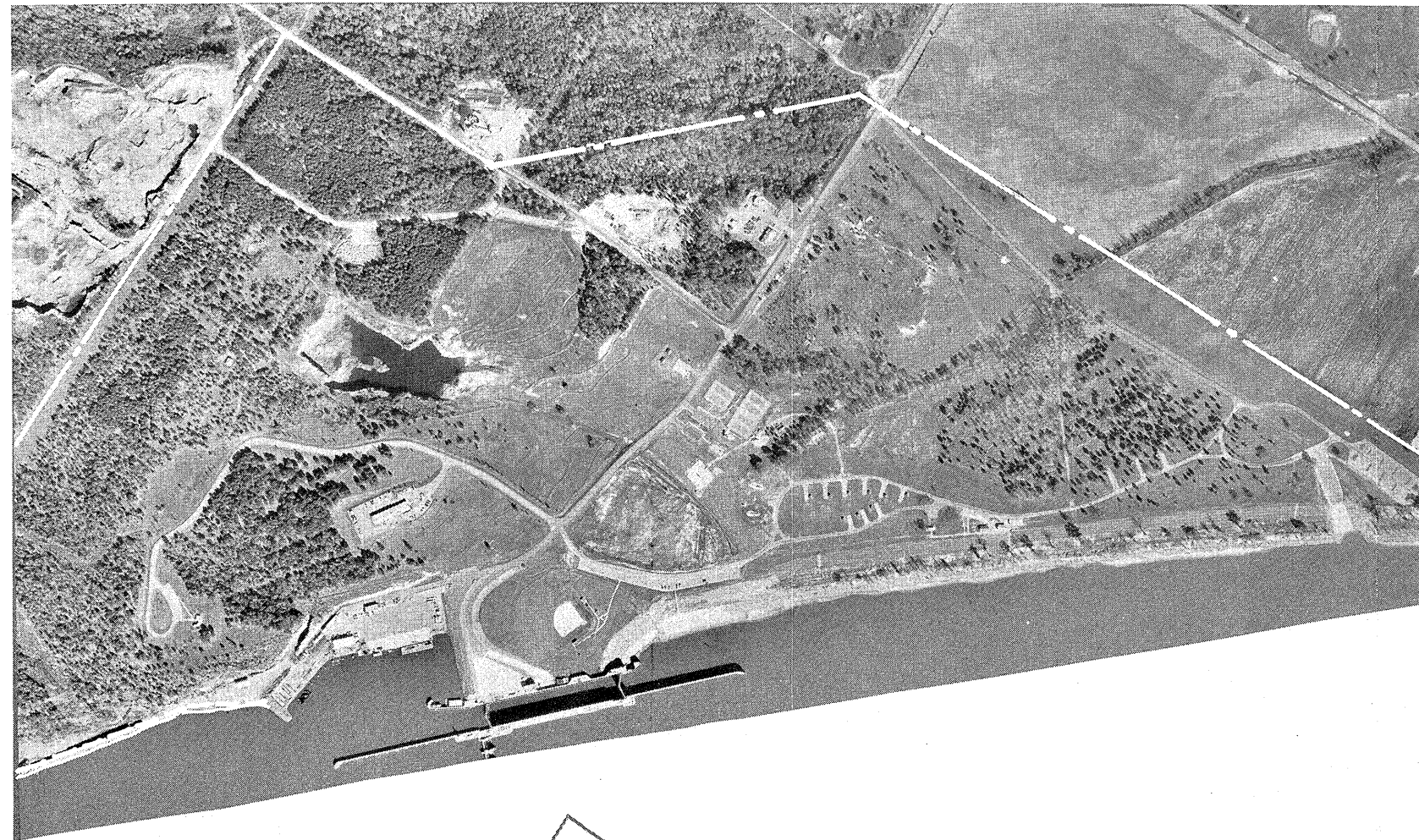
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTIONS 18 AND 19,
T. 7 N., R. 20 W., POPE CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
DARDANELLE LAKE
OLD POST ROAD PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

LEGEND

-----	PROJECT BOUNDARY
-----	TOP OF CONSERVATION POOL EL. 338
-----	BOTTOM OF CONSERVATION POOL EL. 336

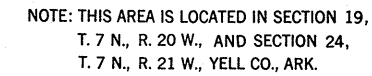
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

LAKE DARDANELLE OLD POST ROAD PARK

SCALE OF FEET
300 0 300 600

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



SCALE OF FEET

200 0 200 400

A horizontal scale bar with a central zero point. To the left of zero, there is a mark at 200. To the right of zero, there are marks at 200 and 400. The bar is divided into segments by these marks and smaller tick marks. The segment from 0 to 200 on the right is further divided into four equal parts by three small tick marks.

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

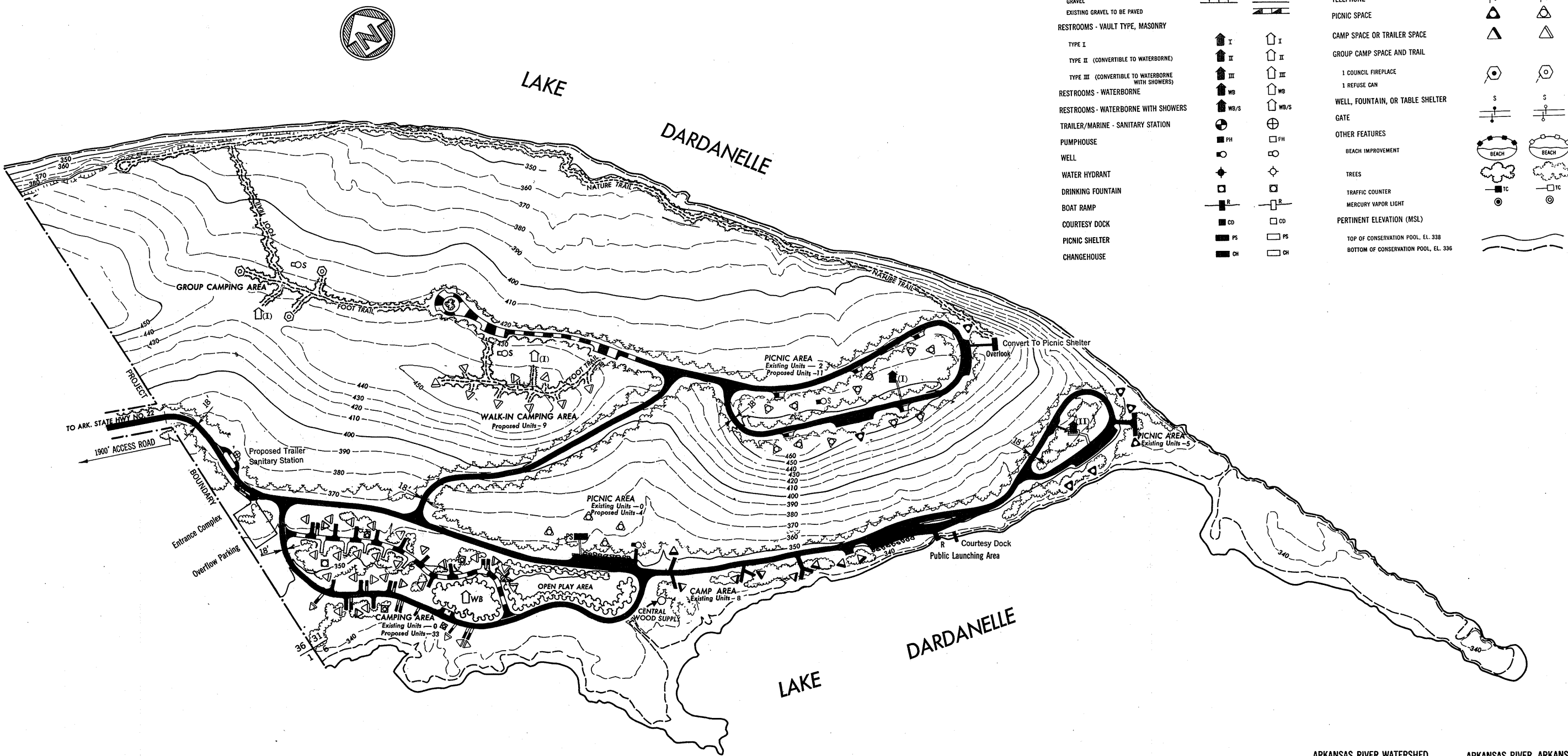
LEGEND

----- PROJECT BOUNDARY
----- TOP OF CONSERVATION POOL EL. 338
----- BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DAM SITE WEST PARK

SCALE OF FEET
200 0 200 400

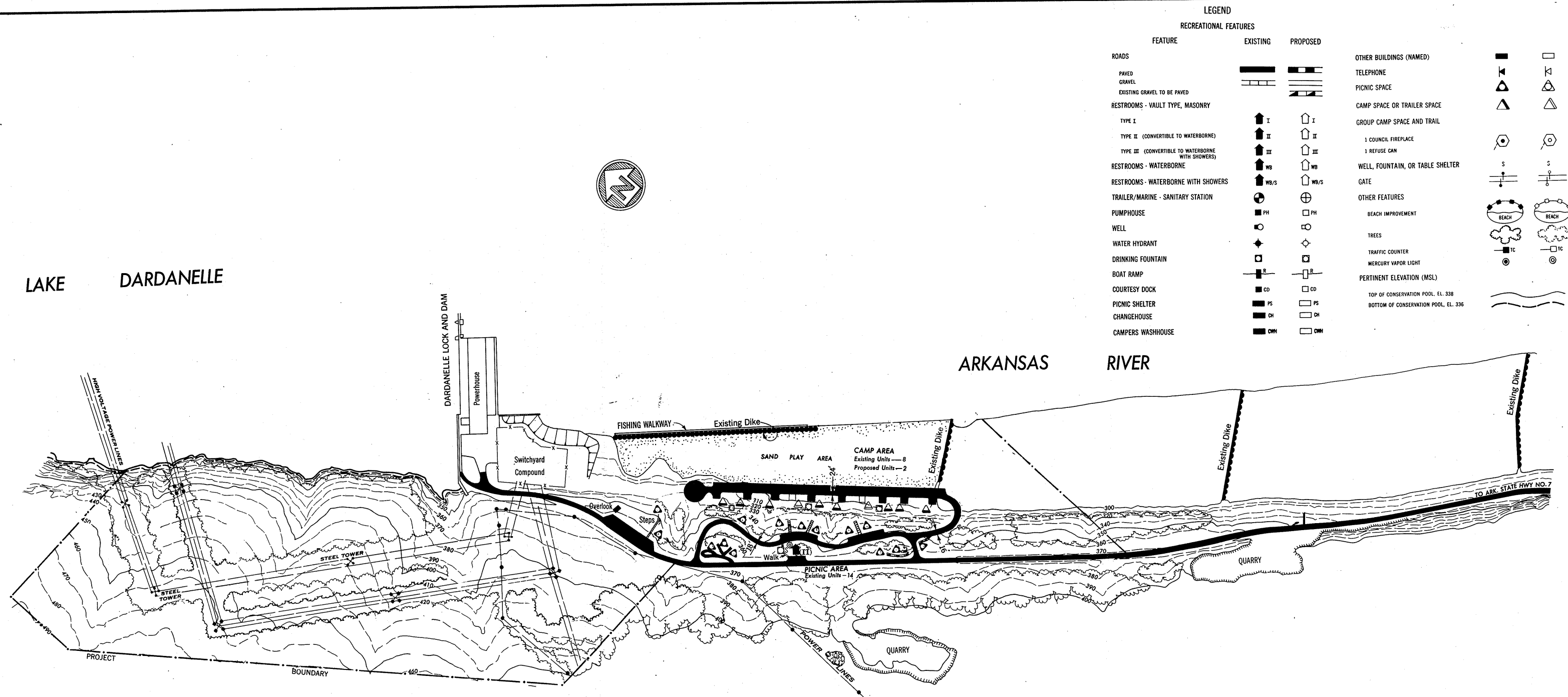
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

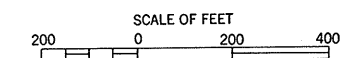
NOTE: THIS AREA IS LOCATED IN SECTION 31,
T. 8 N., R. 21 W., AND SECTION 6, T. 7 N.,
R. 21 W., YELL CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DELAWARE PARK
SCALE OF FEET
200 0 200 400
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



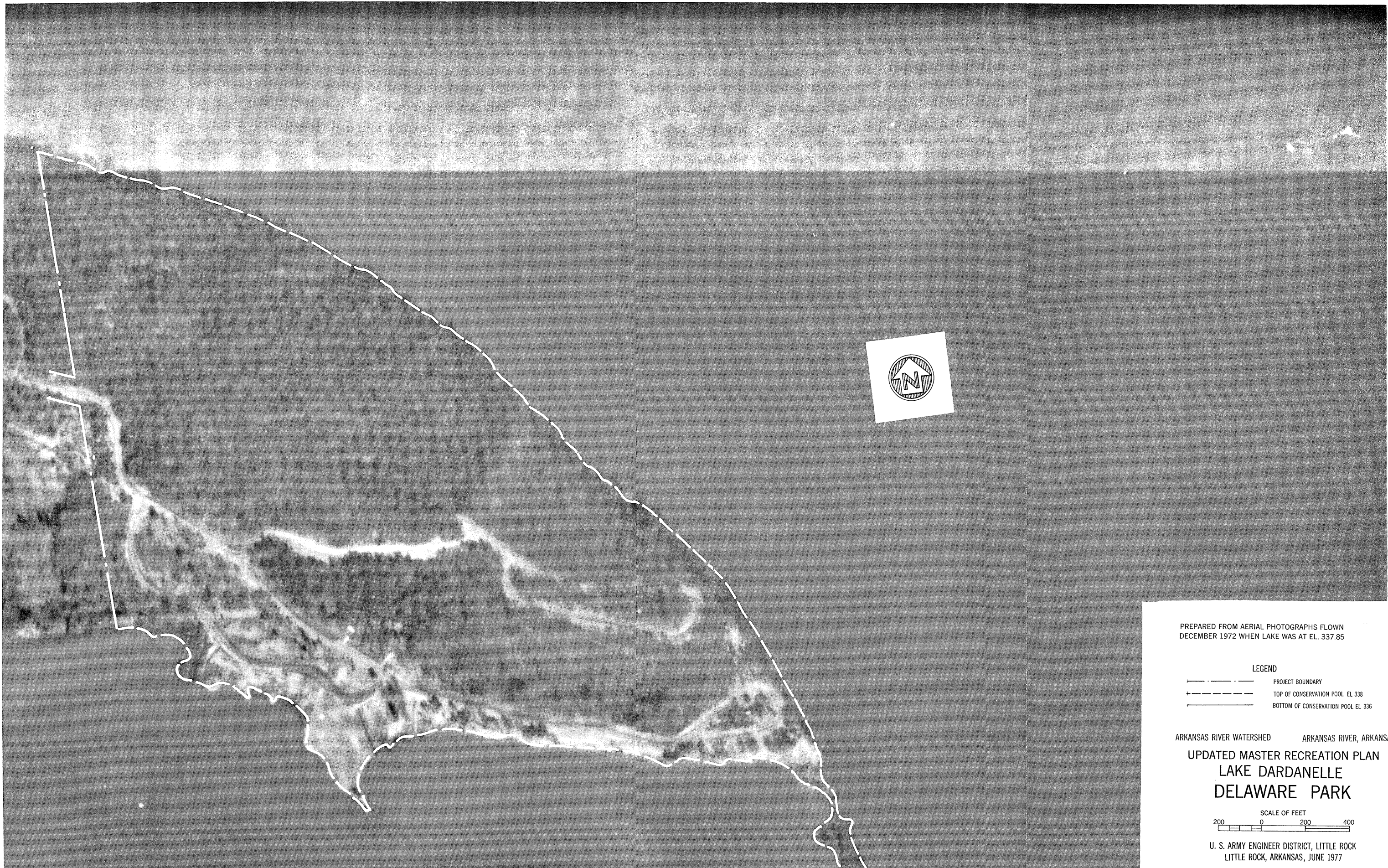
NOTE: THIS AREA IS LOCATED IN SECTION 19,
T. 7 N., R. 20 W., AND SECTION 24,
T. 7 N., R. 21 W., YELL CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
RIVERSIDE



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
 LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

REVISED JUNE 1985



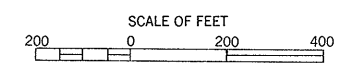
PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

LEGEND

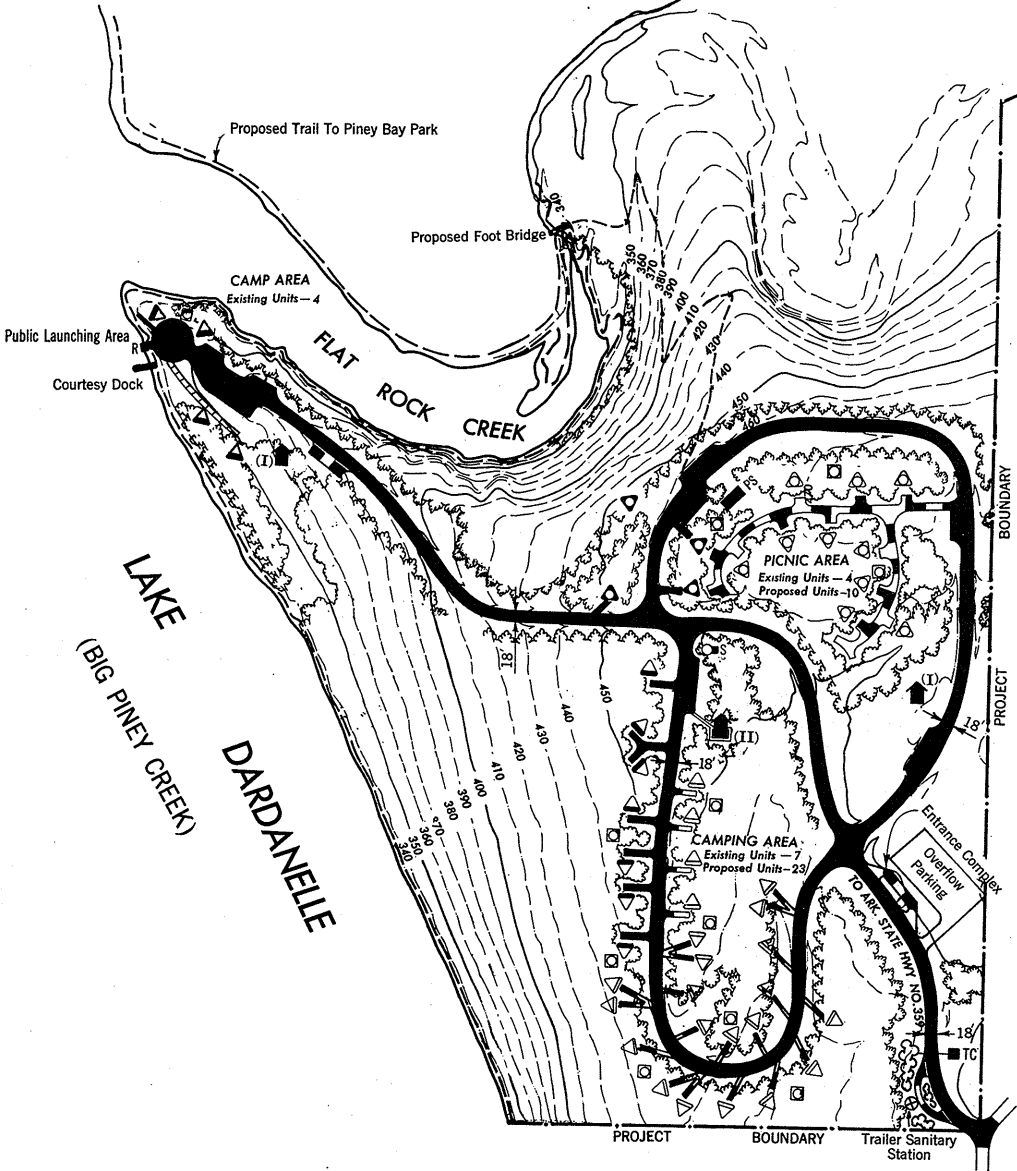
- PROJECT BOUNDARY
- TOP OF CONSERVATION POOL EL 338
- BOTTOM OF CONSERVATION POOL EL 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DELAWARE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTIONS 10 AND 15,
T. 8 N., R. 22 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
FLAT ROCK PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

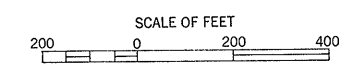


PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

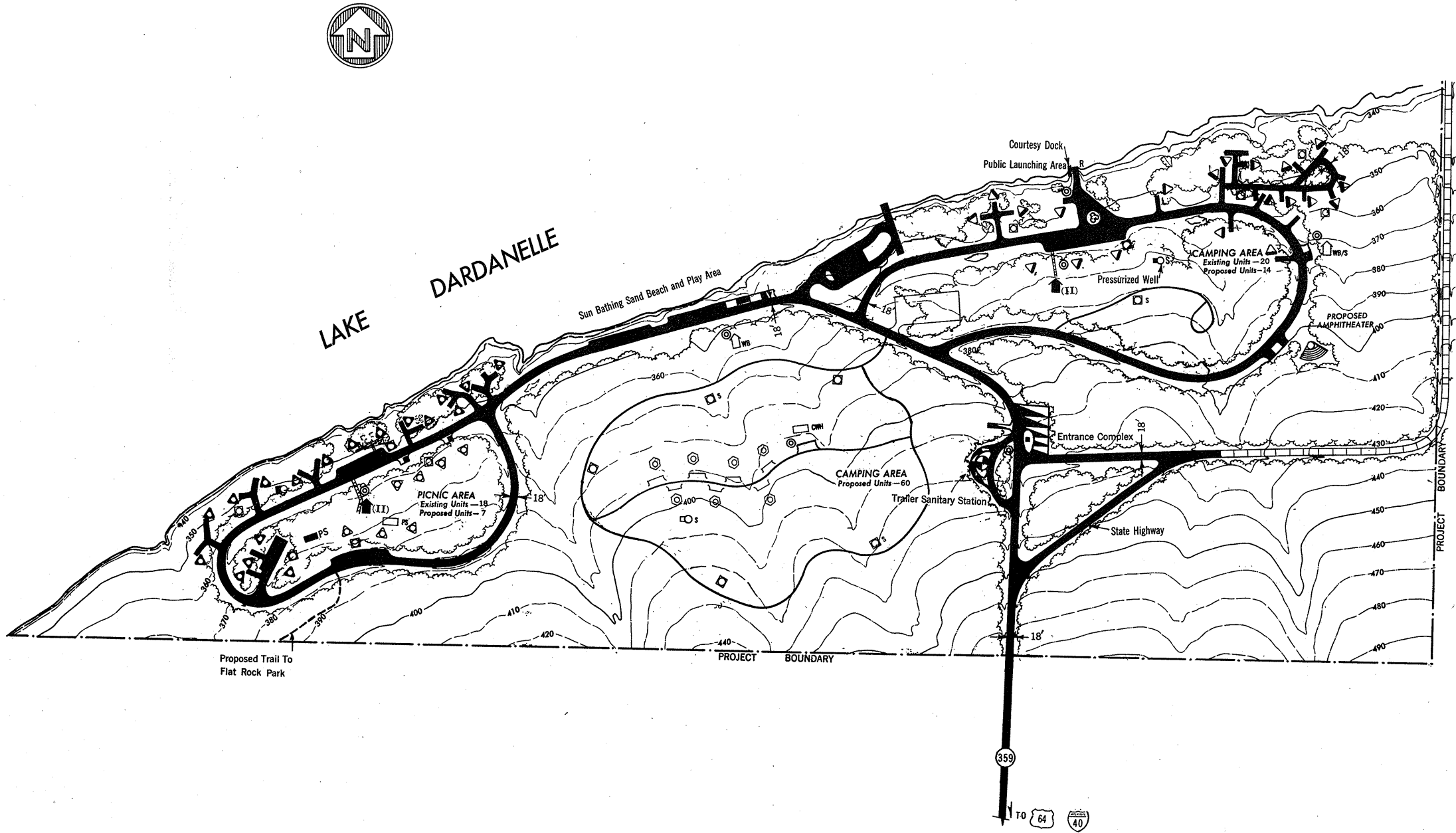
LEGEND
——— PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL. 338
————— BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
FLAT ROCK PARK



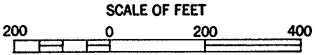
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



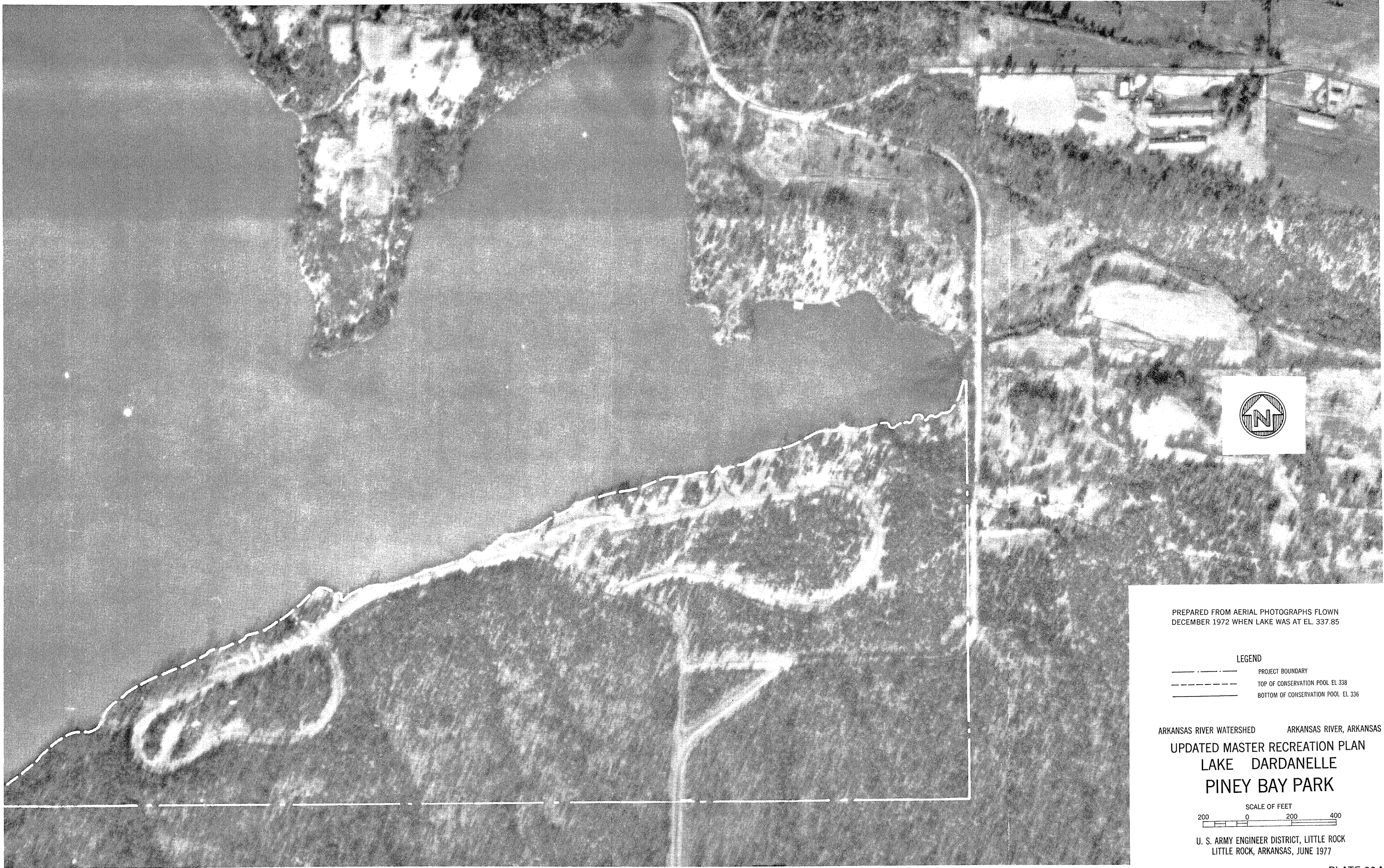
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTIONS 26, 27, 34 AND 35 T. 9 N., R. 22 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
PINEY BAY PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

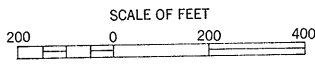


PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

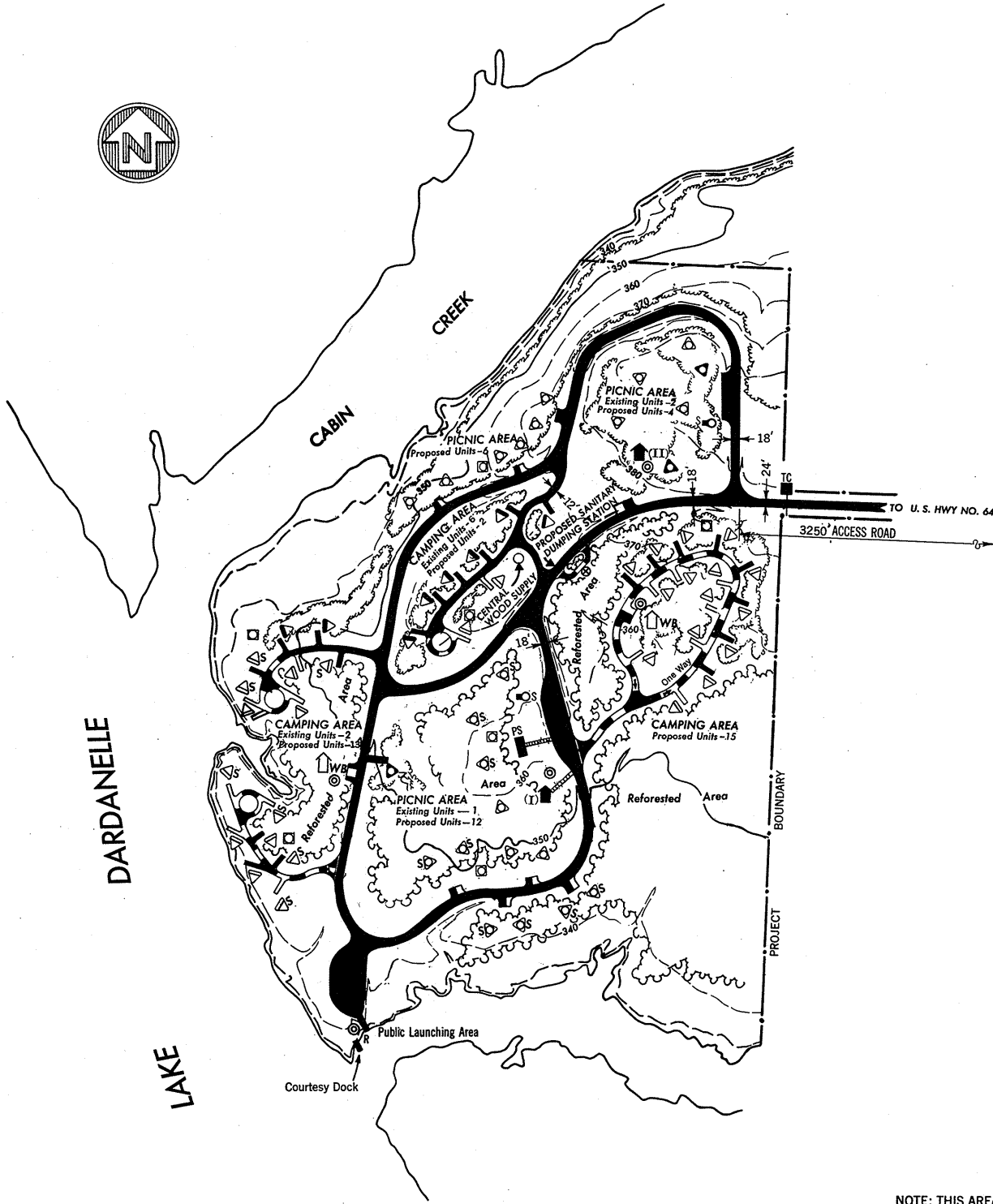
- LEGEND
- · — · — PROJECT BOUNDARY
 - - - - - TOP OF CONSERVATION POOL EL 338
 - BOTTOM OF CONSERVATION POOL EL 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
PINEY BAY PARK



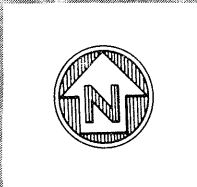
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



NOTE: THIS AREA IS LOCATED IN SECTION 1,
T. 8 N., R. 23 W., JOHNSON CO., ARK.

LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
CABIN CREEK PARK
SCALE OF FEET
200 0 200 400
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



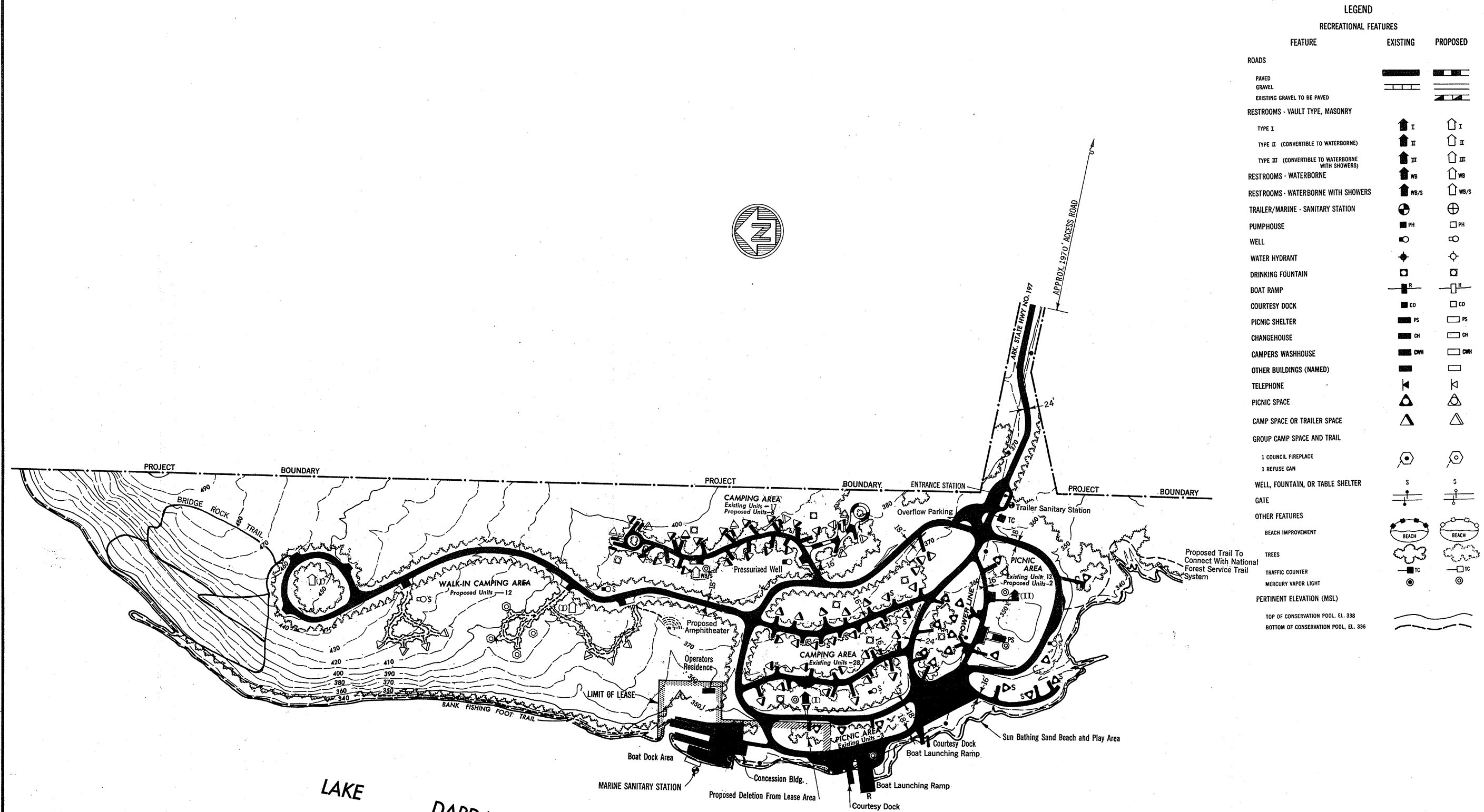
PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

LEGEND
- - - - - PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL. 338
- - - - - BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
CABIN CREEK PARK

SCALE OF FEET
200 0 200 400

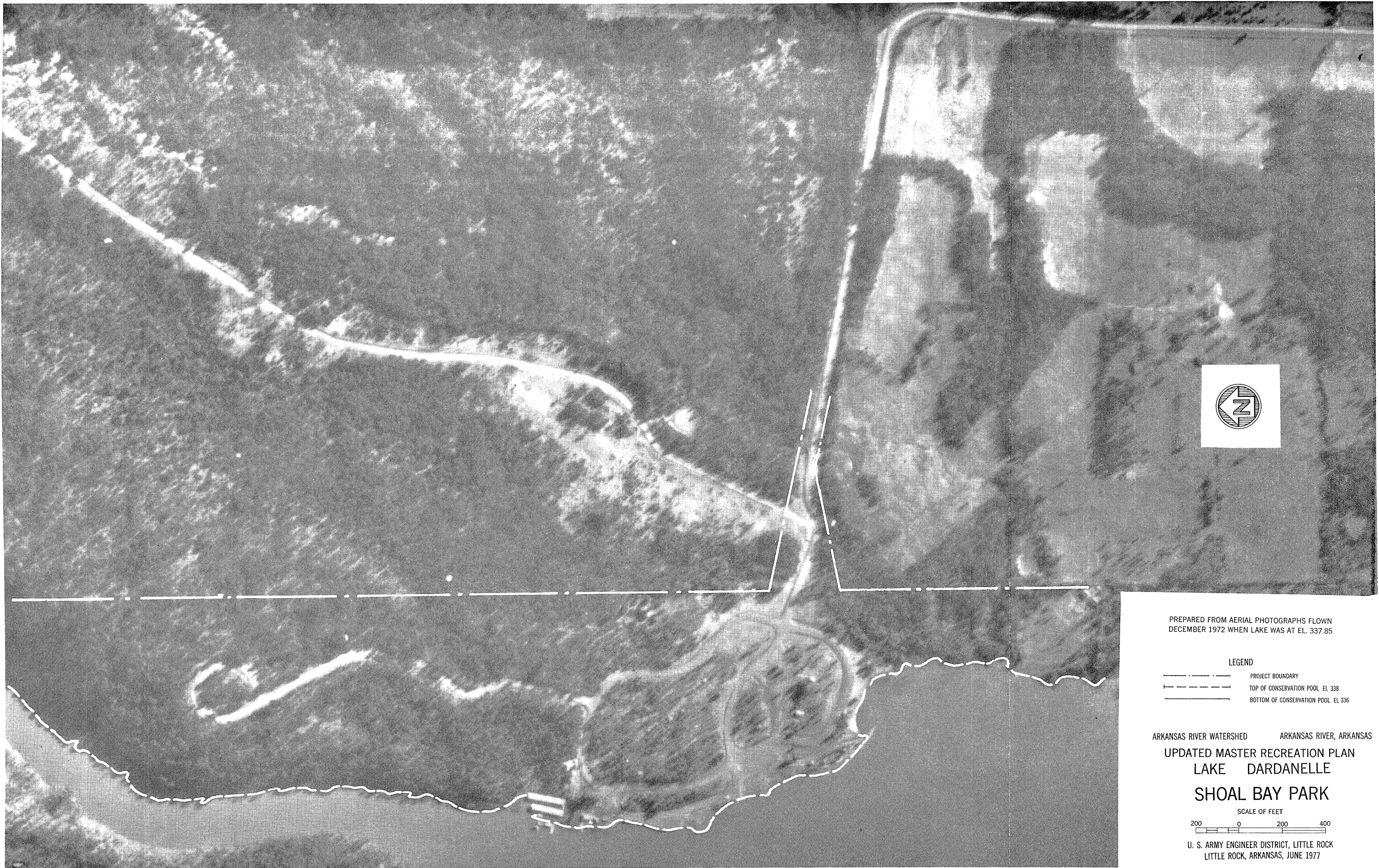
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		

NOTE: THIS AREA IS LOCATED IN SECTION 34,
T. 8 N., R. 23 W., LOGAN CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SHOAL BAY PARK
SCALE OF FEET
200 0 200 400
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

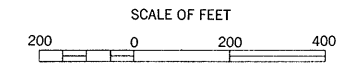


PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

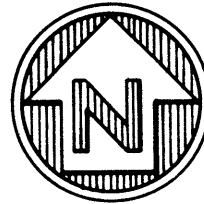
LEGEND

- PROJECT BOUNDARY
- TOP OF CONSERVATION POOL EL. 338
- BOTTOM OF CONSERVATION POOL EL. 336

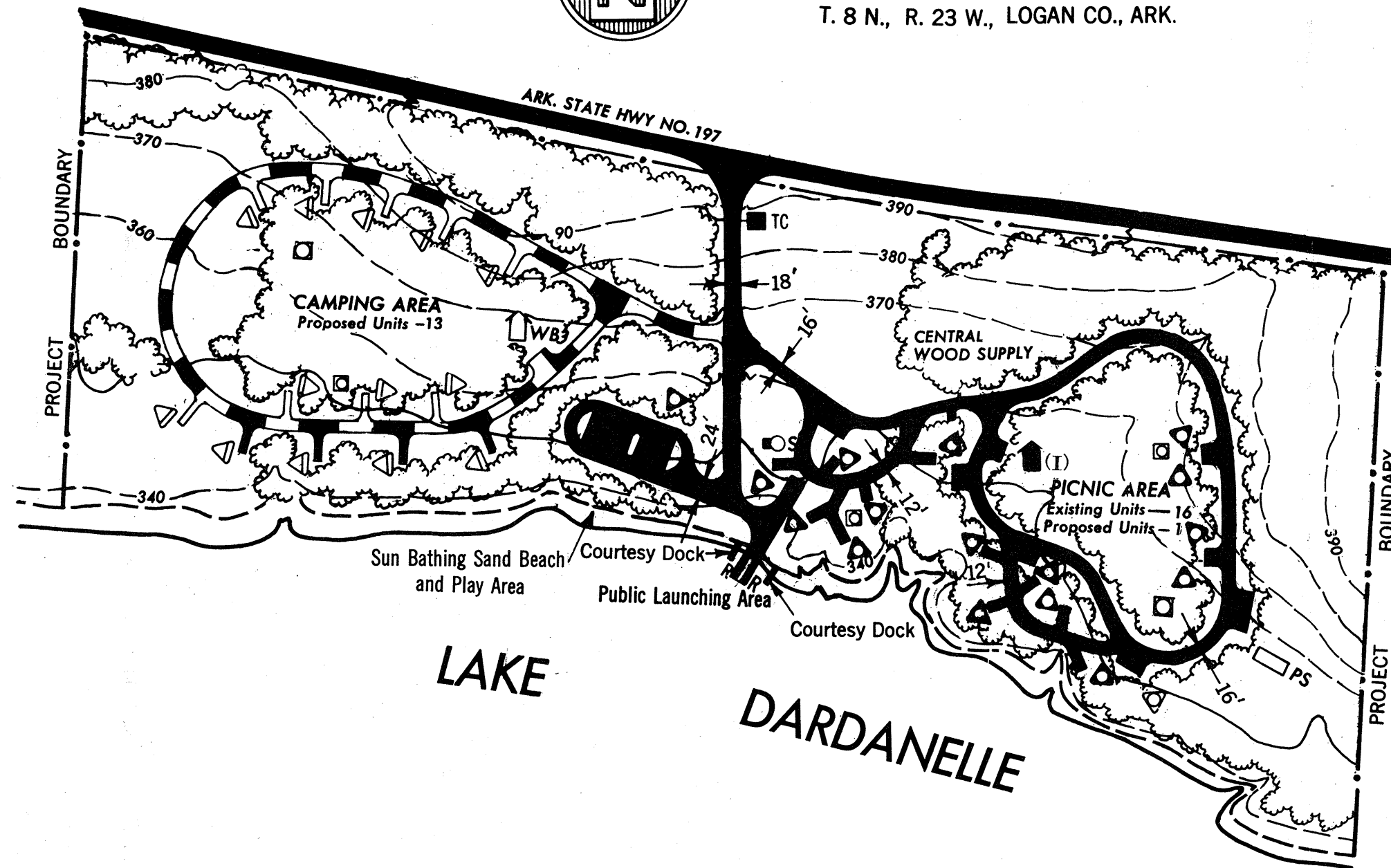
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SHOAL BAY PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



NOTE: THIS AREA IS LOCATED IN SECTION 21,
T. 8 N., R. 23 W., LOGAN CO., ARK.



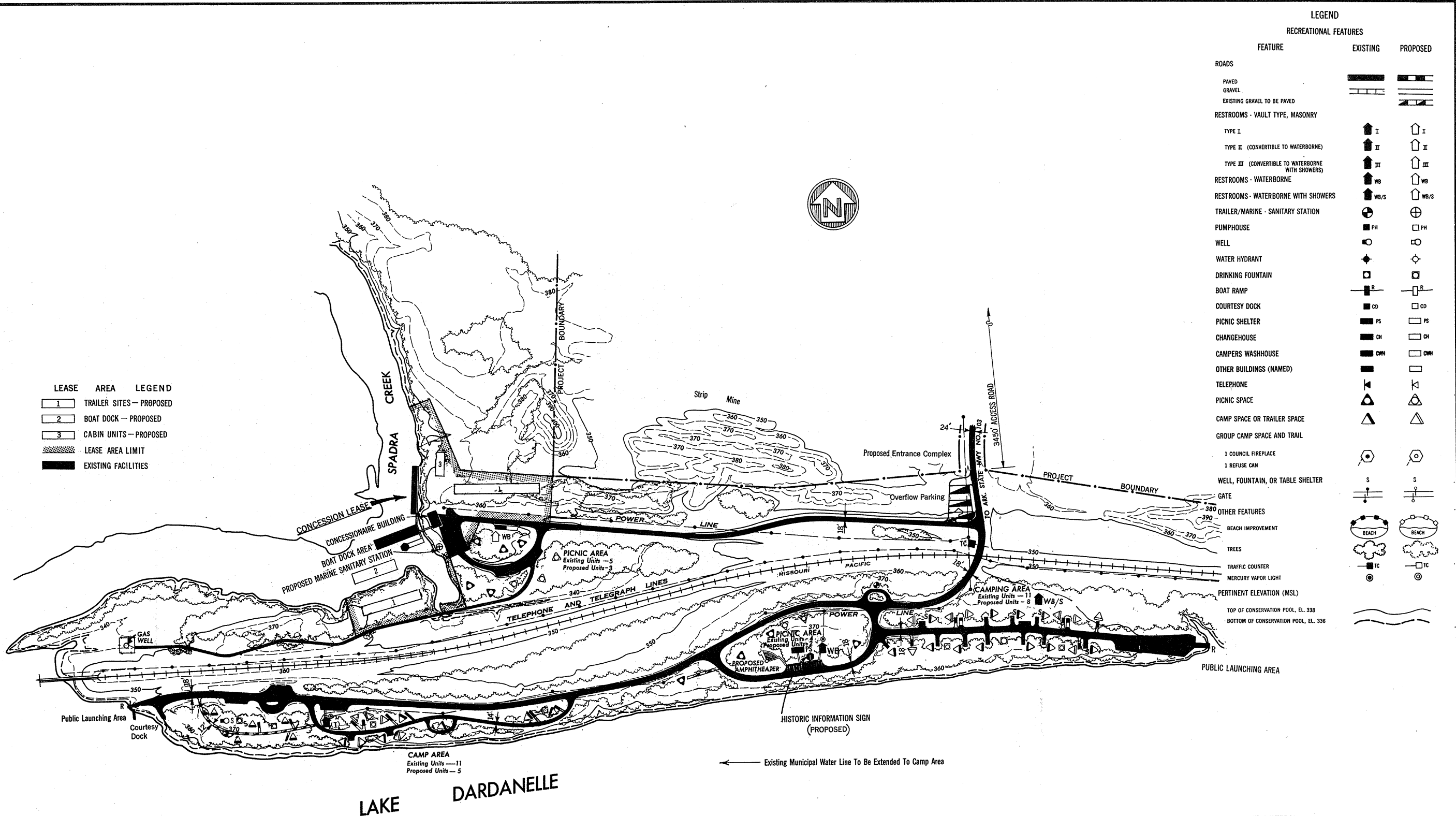
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE WITH SHOWERS		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
TRAILER/MARINE - SANITARY STATION		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
PUMPHOUSE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
WELL		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
WATER HYDRANT		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
DRINKING FOUNTAIN		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
BOAT RAMP		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
COURTESY DOCK		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
PICNIC SHELTER		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
CHANGEHOUSE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
CAMPERS WASHHOUSE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
OTHER BUILDINGS (NAMED)		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
TELEPHONE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
PICNIC SPACE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
CAMP SPACE OR TRAILER SPACE		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
GROUP CAMP SPACE AND TRAIL		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN LAKE DARDANELLE DUBLIN PARK

SCALE OF FEET
100 0 100 200

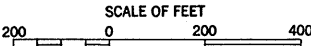
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



NOTE: THIS AREA IS LOCATED IN SECTIONS 19 AND 20,
T. 9 N., R. 23 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SPADRA PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

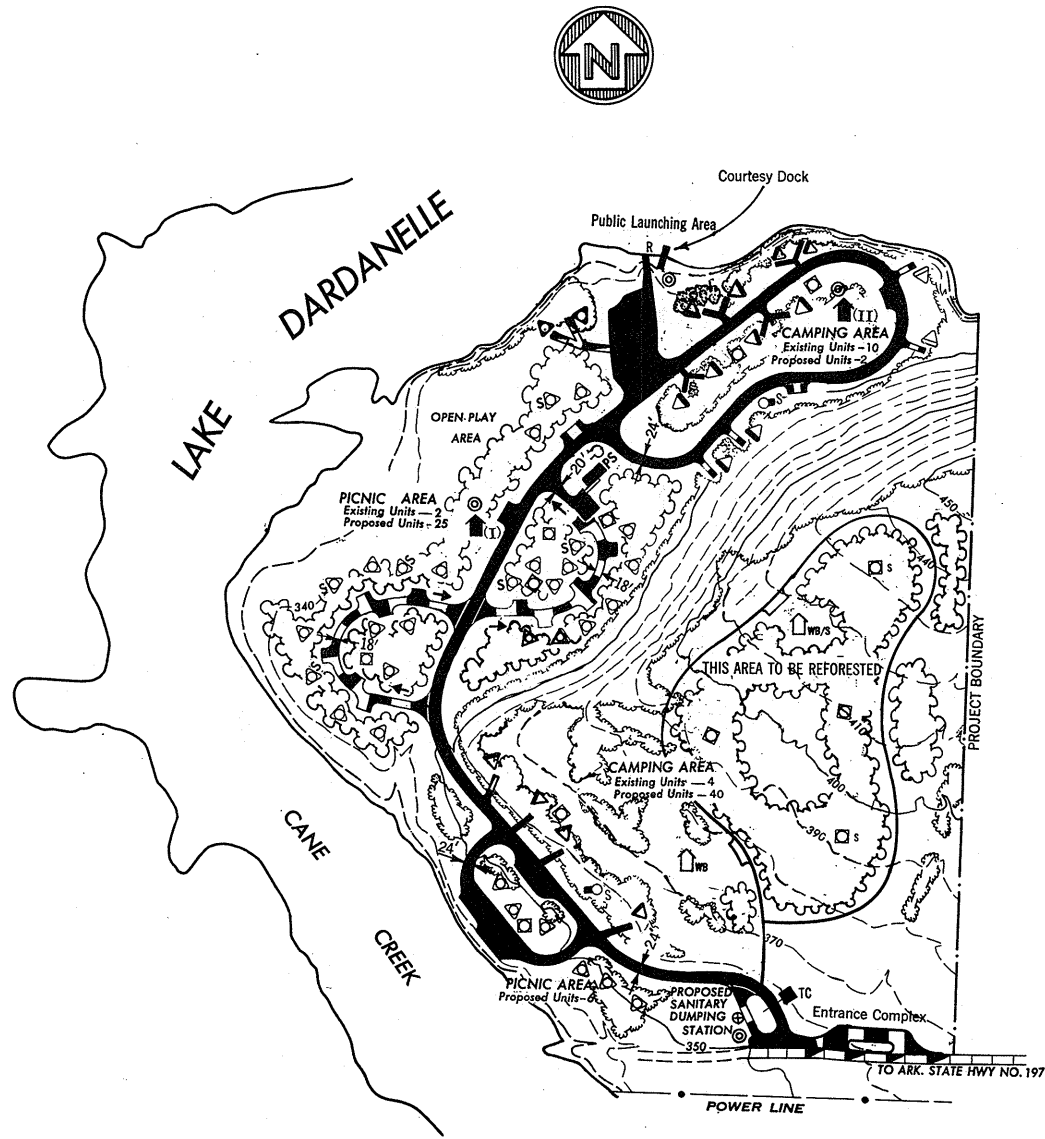
LEGEND

— — — — — PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL. 338
- - - - - BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SPADRA PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



NOTE: THIS AREA IS LOCATED IN SECTION 1,
T. 8 N., R. 24 W., LOGAN CO., ARK.

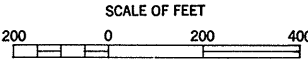
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

LAKE DARDANELLE

CANE CREEK PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

LEGEND

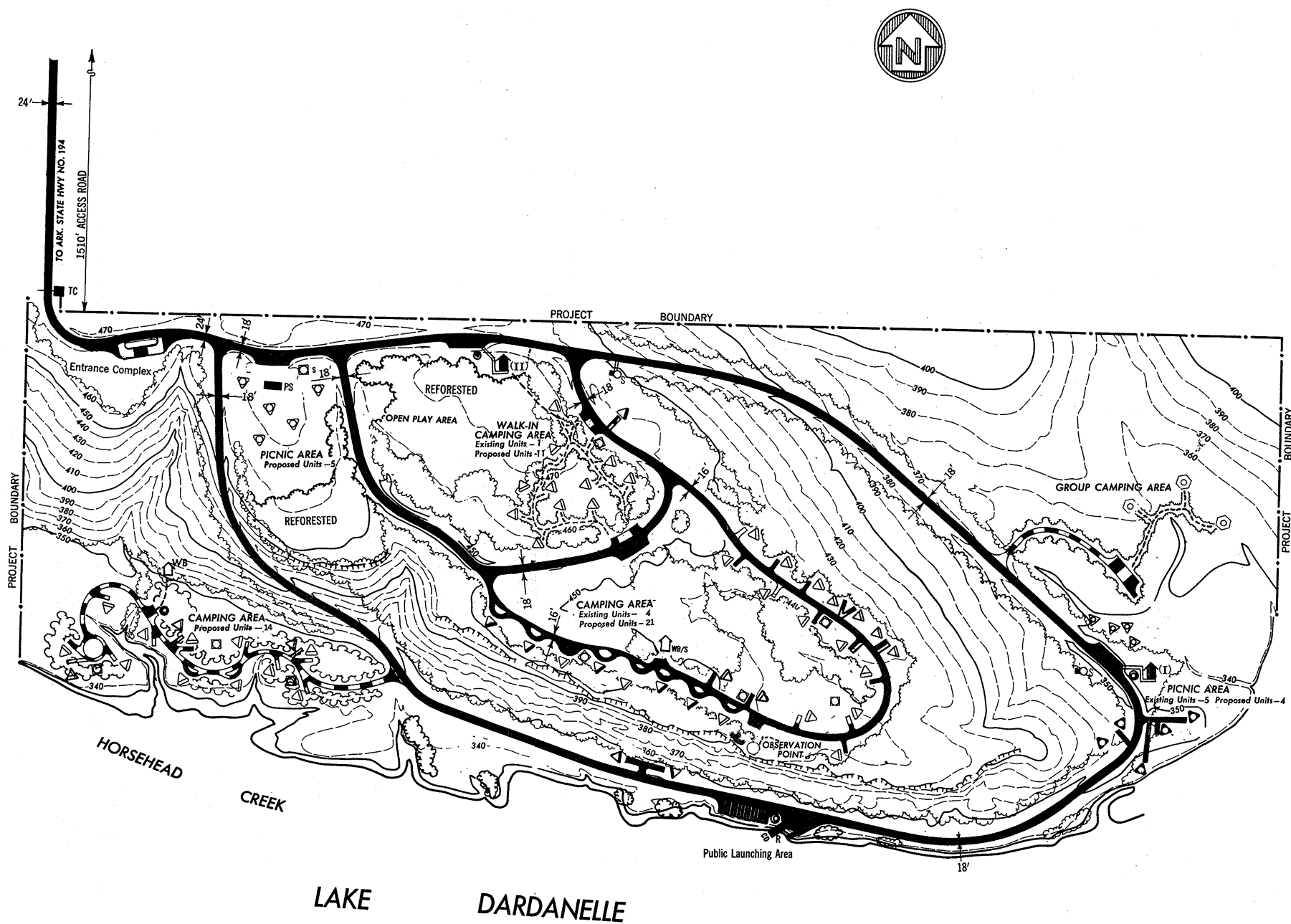
----- PROJECT BOUNDARY
----- TOP OF CONSERVATION POOL EL. 338
----- BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
CANE CREEK PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

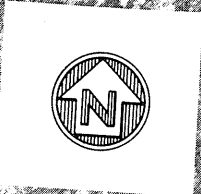
NOTE: THIS AREA IS LOCATED IN SECTION 28,
T. 9 N., R. 24 W., JOHNSON CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
HORSEHEAD PARK

SCALE OF FEET
 200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
 LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

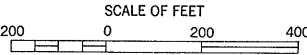


PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

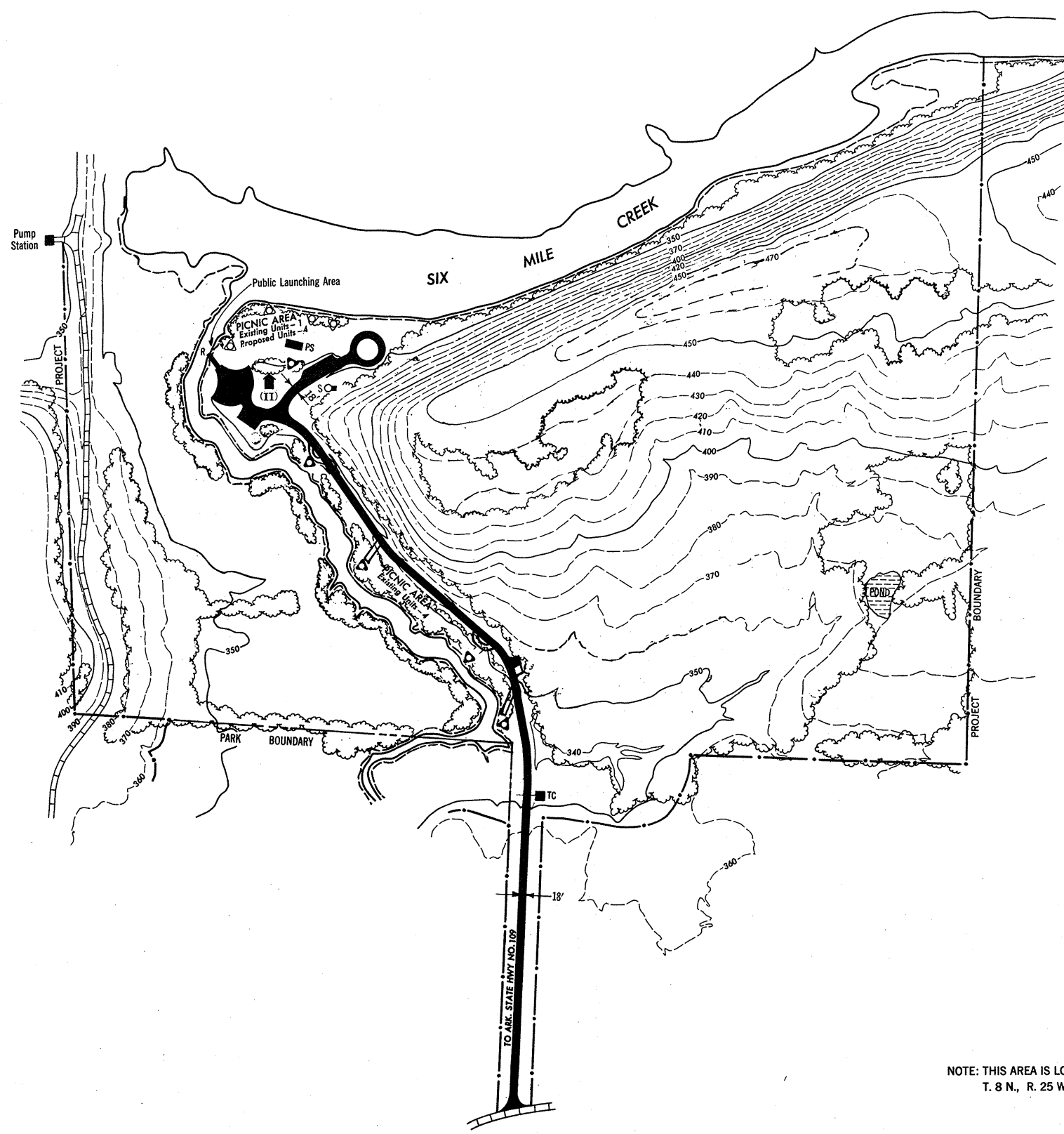
LEGEND
----- PROJECT BOUNDARY
----- TOP OF CONSERVATION POOL EL. 338
----- BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
HORSEHEAD PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977

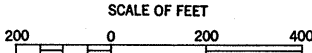


NOTE: THIS AREA IS LOCATED IN SECTION 11,
T. 8 N., R. 25 W., LOGAN CO., ARK.



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SIX MILE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

LEGEND

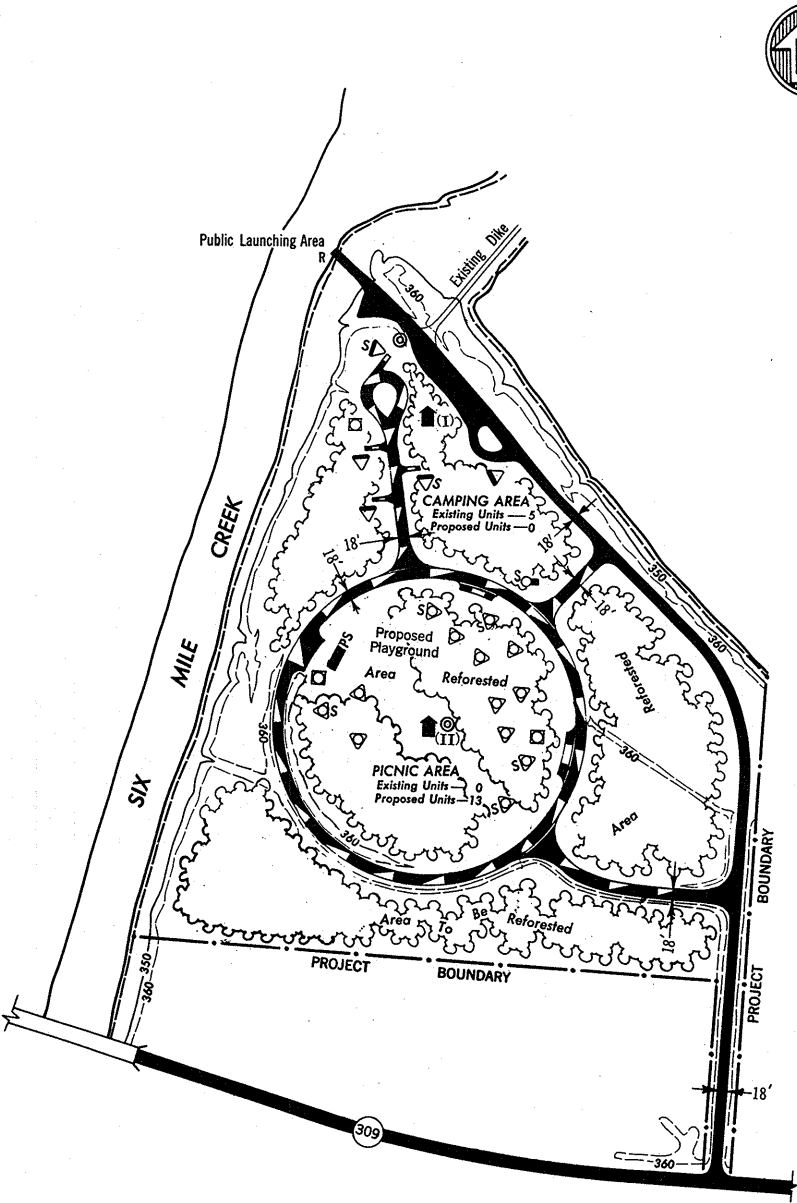
-----	PROJECT BOUNDARY
-----	TOP OF CONSERVATION POOL EL 338
-----	BOTTOM OF CONSERVATION POOL EL 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
SIX MILE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977

PLATE 27 A



NOTE: THIS AREA IS LOCATED IN SECTION 16,
T. 8 N., R. 26 W., LOGAN CO., ARK.

LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
O'KANE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



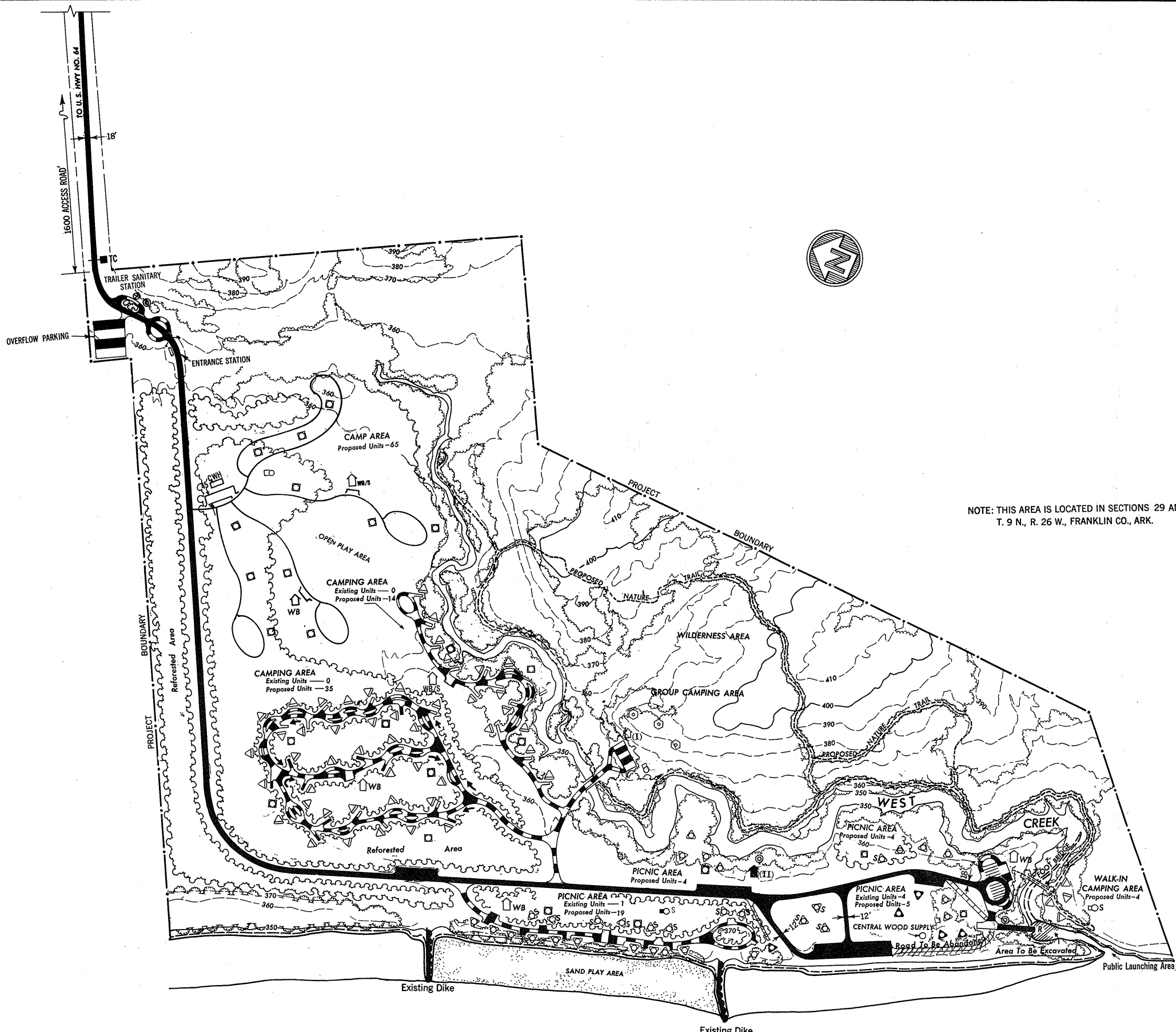
PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

LEGEND
--- PROJECT BOUNDARY
--- TOP OF CONSERVATION POOL EL. 338
--- BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
O'KANE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



NOTE: THIS AREA IS LOCATED IN SECTIONS 29 AND 32,
T. 9 N., R. 26 W., FRANKLIN CO., ARK.

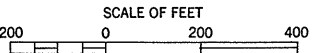
LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

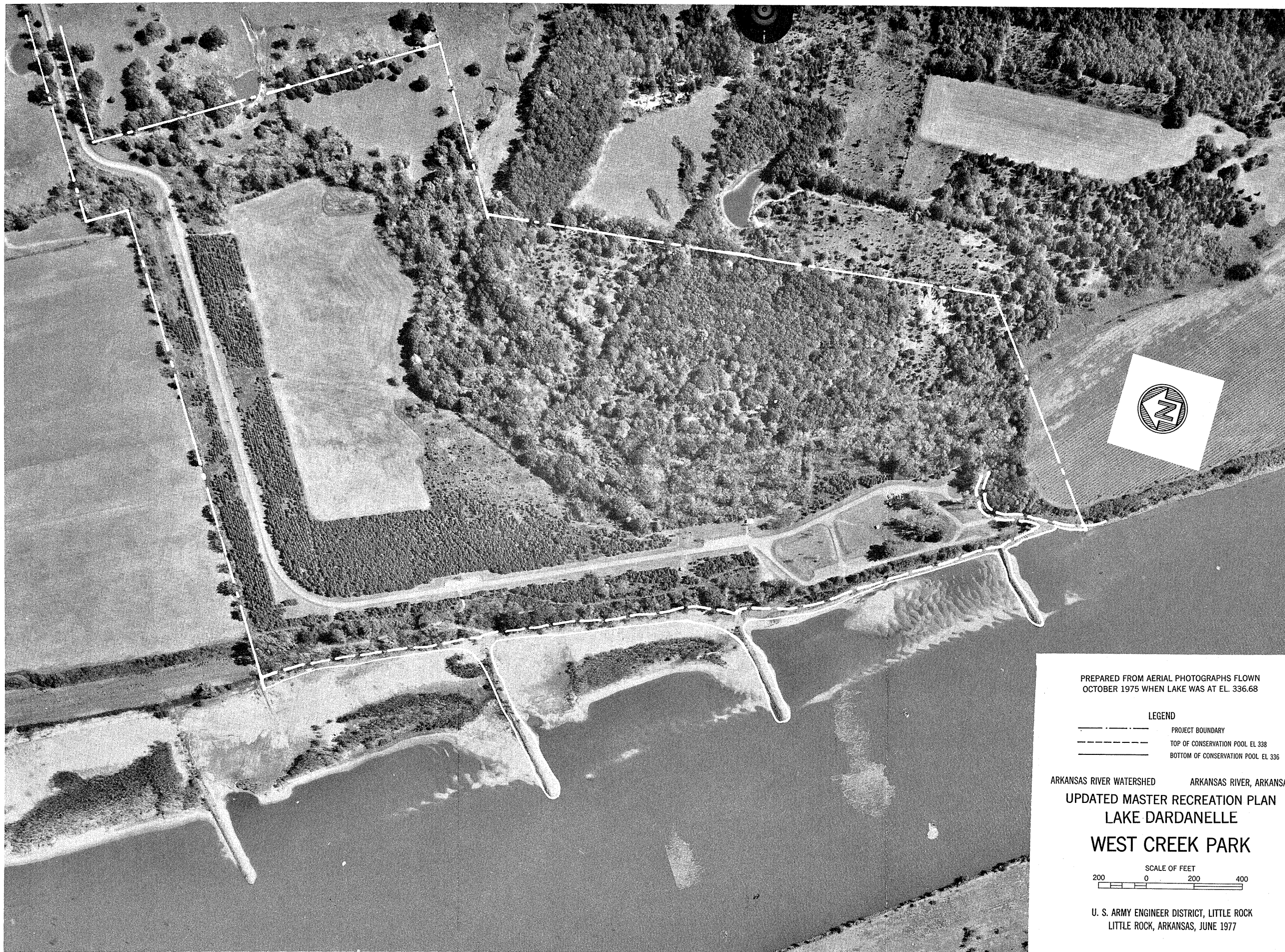
UPDATED MASTER RECREATION PLAN

LAKE DARDANELLE

WEST CREEK PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



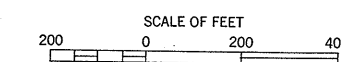
PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
OCTOBER 1975 WHEN LAKE WAS AT EL. 336.68

LEGEND
——— PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL 338
- - - - - BOTTOM OF CONSERVATION POOL EL 336

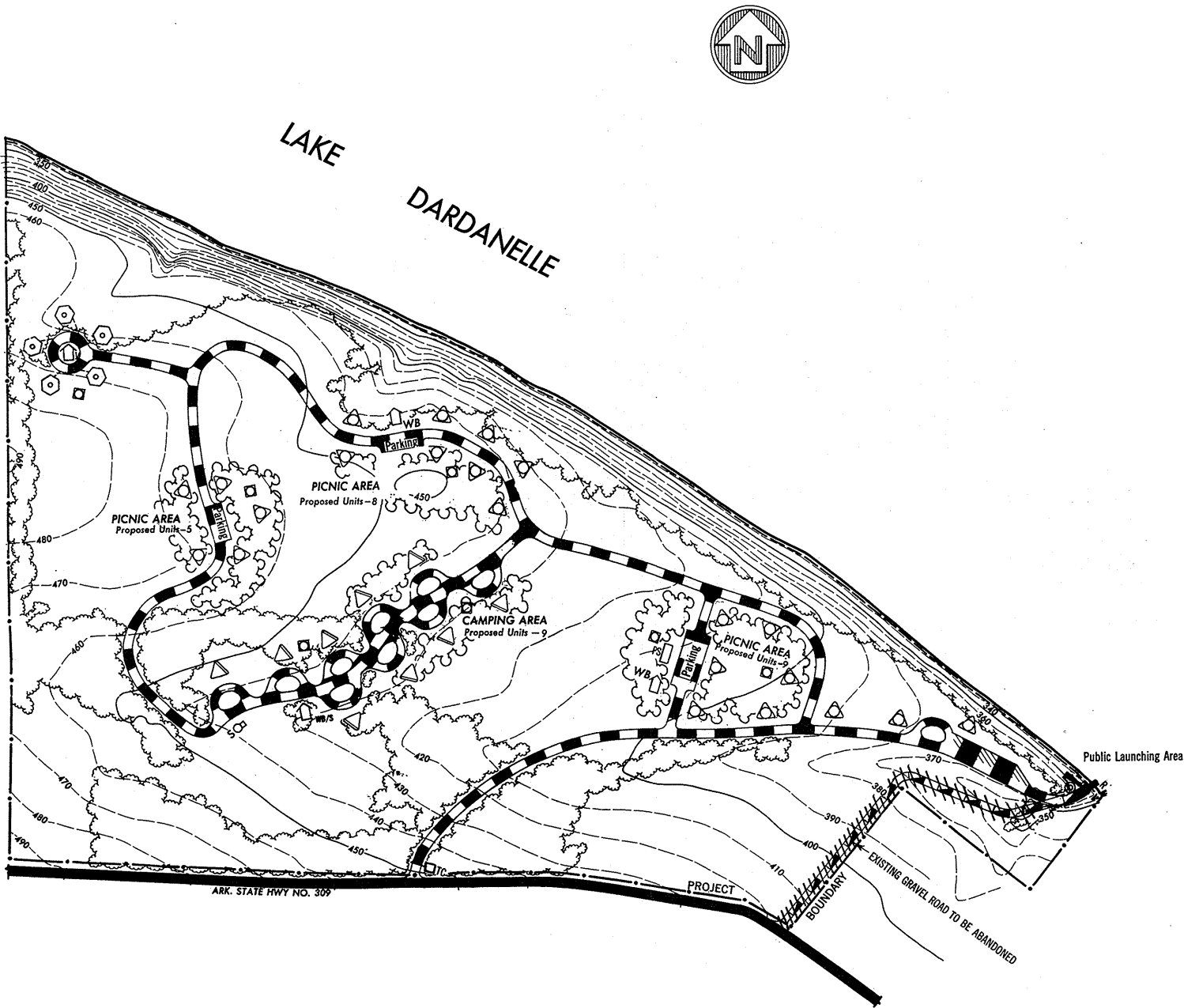
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE

WEST CREEK PARK



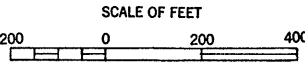
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPER'S WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTION 5,
T. 8 N., R. 26 W., LOGAN CO., ARK.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
ROSEVILLE FUTURE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
NOVEMBER 1975 WHEN LAKE WAS AT EL. 337.58

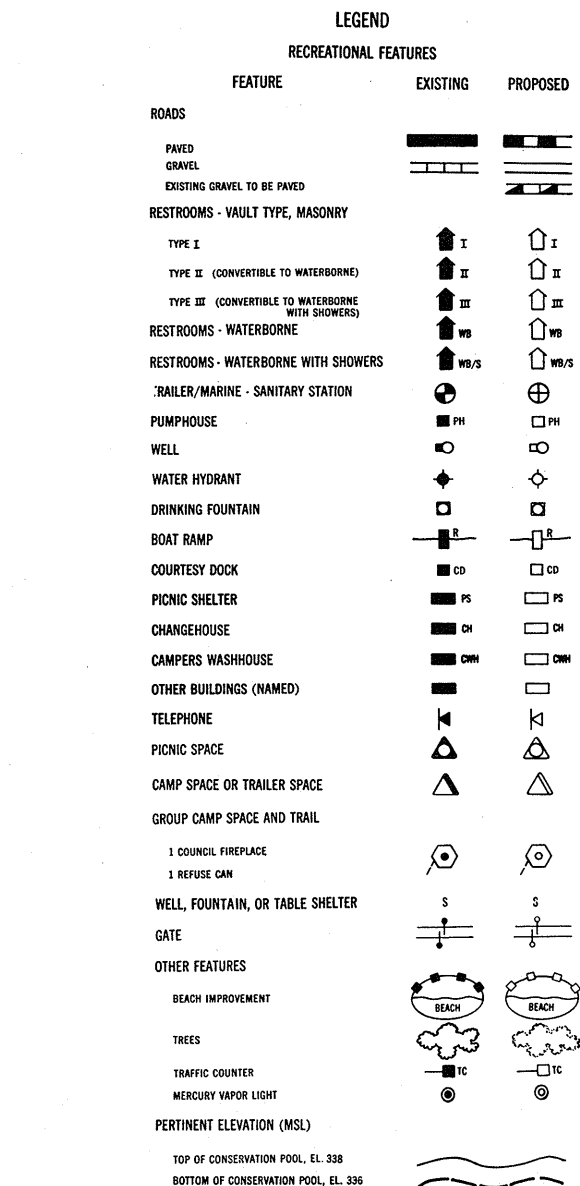
LEGEND

— — — — — PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL. 338
_ _ _ _ _ BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
ROSEVILLE FUTURE PARK

SCALE OF FEET
200 0 200 400

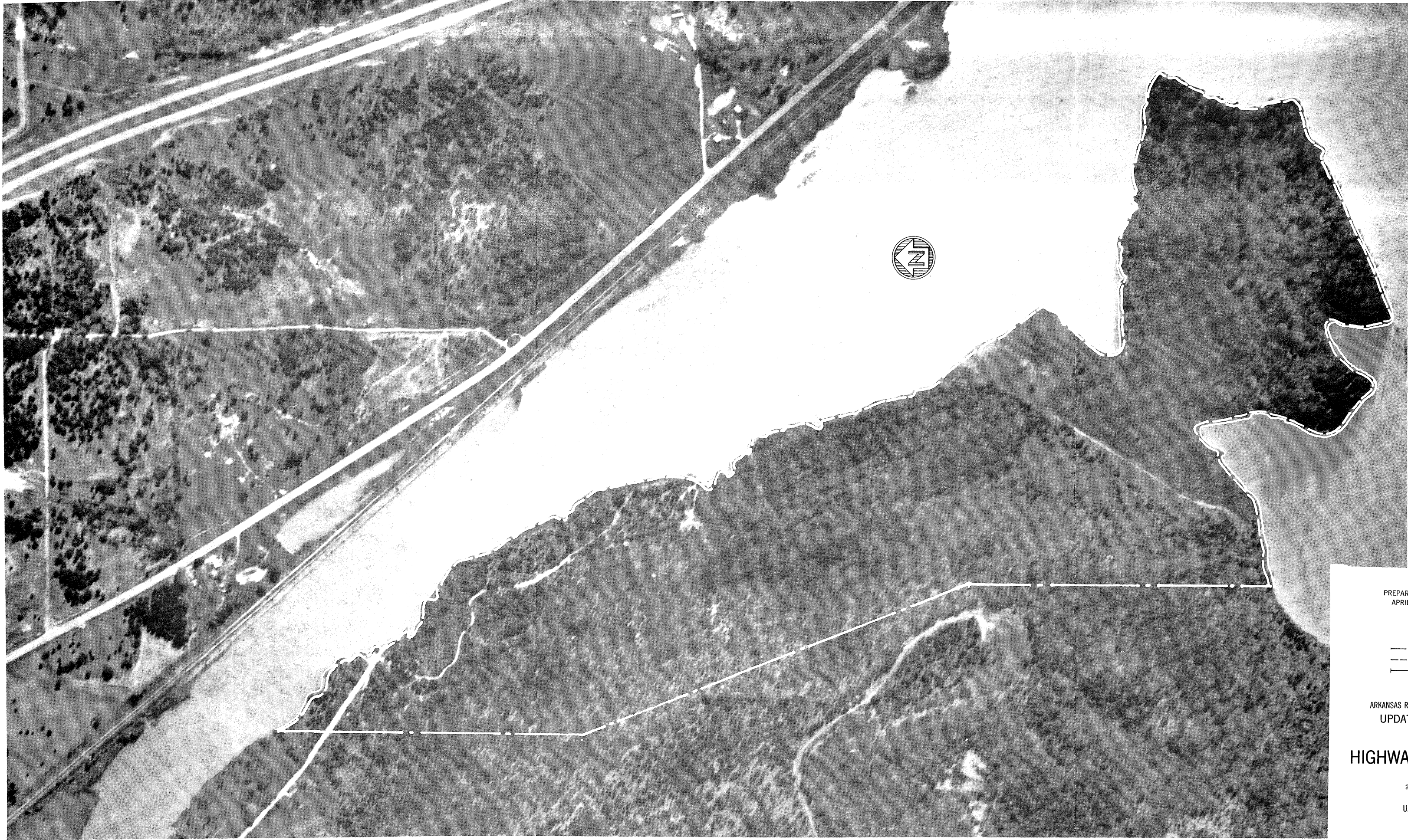
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



SCALE OF FEET

200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
APRIL 1974 WHEN LAKE WAS AT EL. 337.88

LEGEND

- PROJECT BOUNDARY
- TOP OF CONSERVATION POOL EL. 338
- BOTTOM OF CONSERVATION POOL EL. 336

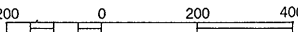
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN

LAKE DARDANELLE

HIGHWAY 64 COVE FUTURE PARK

SCALE OF FEET



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977





PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

LEGEND

--- PROJECT BOUNDARY
--- TOP OF CONSERVATION POOL EL. 338
--- BOTTOM OF CONSERVATION POOL EL. 336

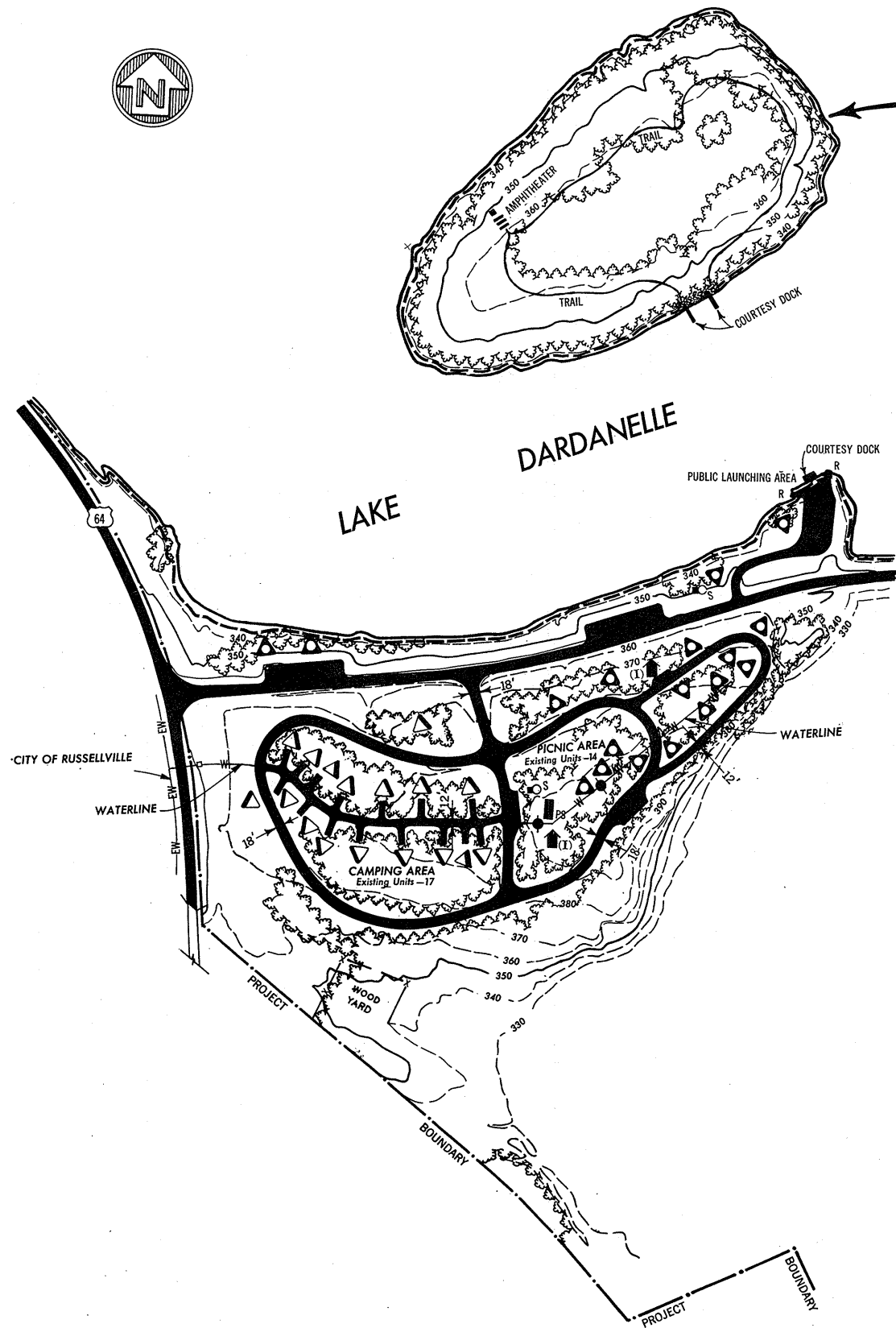
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
RUSSELLVILLE STATE PARK

SCALE OF FEET



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977



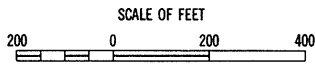
DEVELOPMENT BY ARK. TECH UNIVERSITY

LEGEND		
RECREATIONAL FEATURES		
FEATURE	EXISTING	PROPOSED
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GRAVEL		
EXISTING GRAVEL TO BE PAVED		
RESTROOMS - VAULT TYPE, MASONRY		
TYPE I		
TYPE II (CONVERTIBLE TO WATERBORNE)		
TYPE III (CONVERTIBLE TO WATERBORNE WITH SHOWERS)		
RESTROOMS - WATERBORNE		
RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER		
CHANGEHOUSE		
CAMPERS WASHHOUSE		
OTHER BUILDINGS (NAMED)		
TELEPHONE		
PICNIC SPACE		
CAMP SPACE OR TRAILER SPACE		
GROUP CAMP SPACE AND TRAIL		
1 COUNCIL FIREPLACE		
1 REFUSE CAN		
WELL, FOUNTAIN, OR TABLE SHELTER		
GATE		
OTHER FEATURES		
BEACH IMPROVEMENT		
TREES		
TRAFFIC COUNTER		
MERCURY VAPOR LIGHT		
PERTINENT ELEVATION (MSL)		
TOP OF CONSERVATION POOL, EL. 338		
BOTTOM OF CONSERVATION POOL, EL. 336		

NOTE: THIS AREA IS LOCATED IN SECTION 31,
T. 8 N., R. 20 W., POPE CO., ARK.
THIS AREA LICENSED TO STATE OF
ARKANSAS.

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
OUITA
STATE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
FEBRUARY 1973 WHEN LAKE WAS AT EL. 338.00

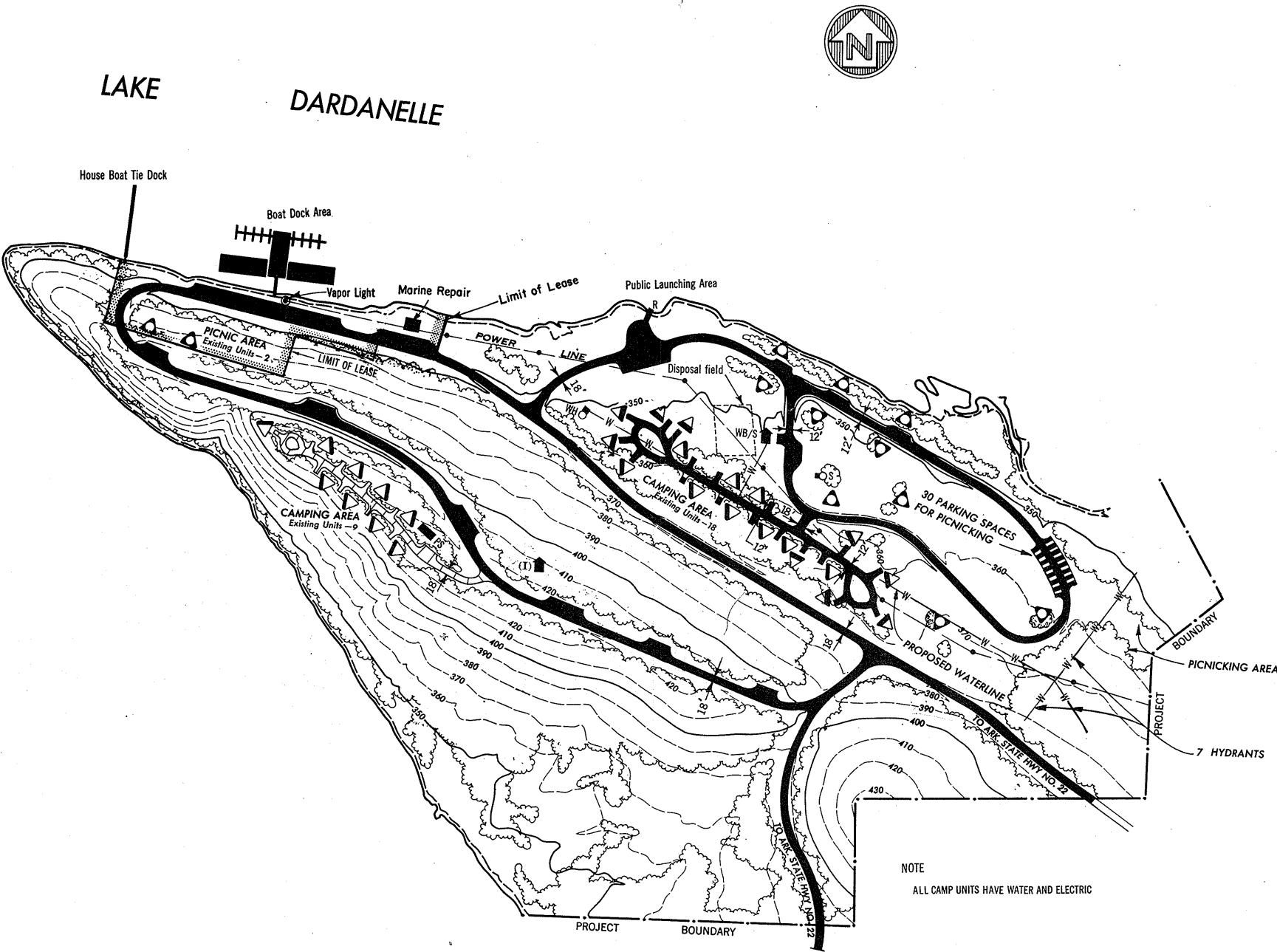
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----- TOP OF CONSERVATION POOL EL. 338
----- BOTTOM OF CONSERVATION POOL EL. 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
OUITA STATE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977

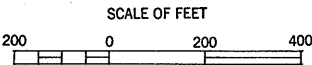


NOTE
ALL CAMP UNITS HAVE WATER AND ELECTRIC

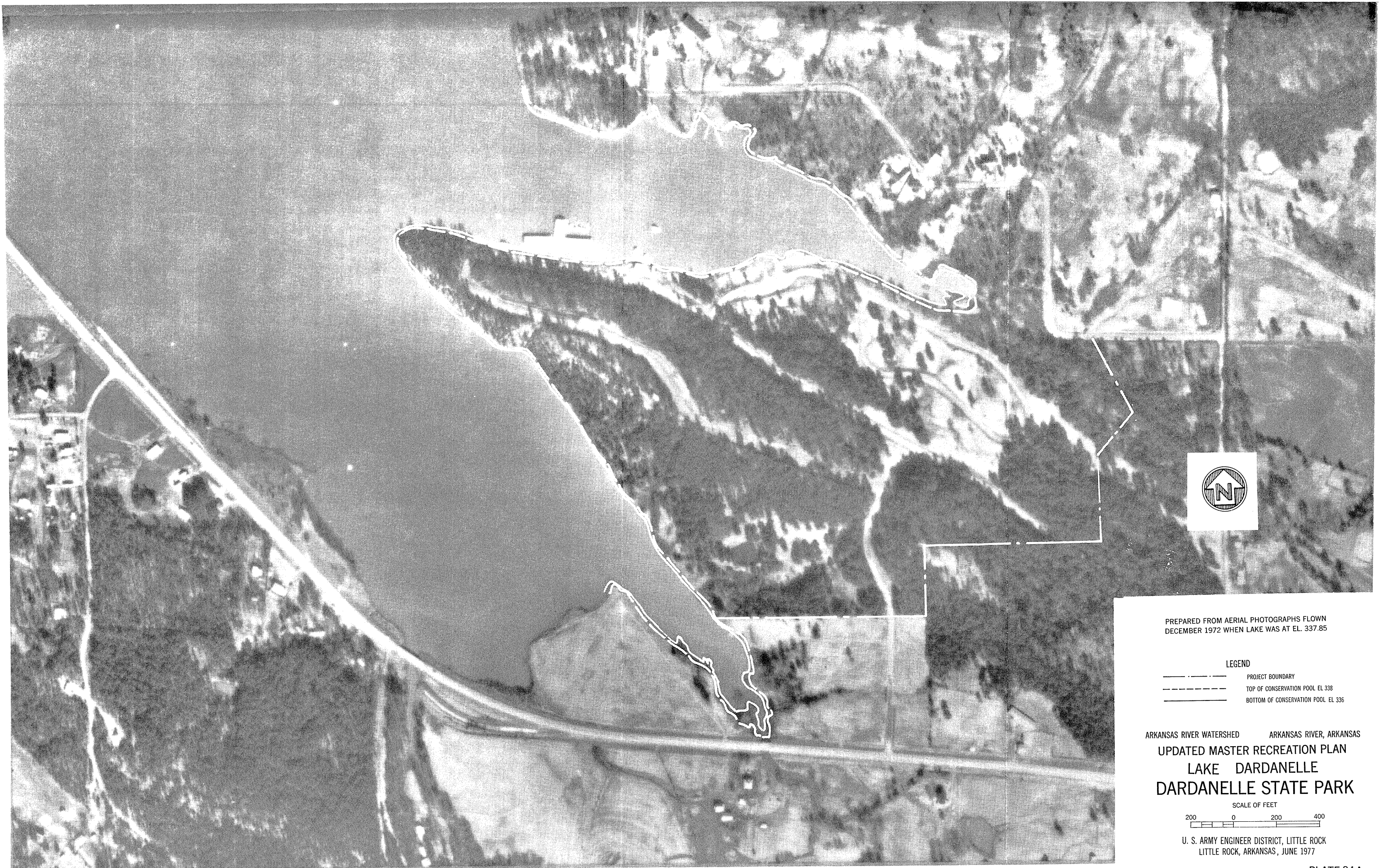
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RESTROOMS - WATERBORNE WITH SHOWERS		
TRAILER/MARINE - SANITARY STATION		
PUMPHOUSE		
WELL		
WATER HYDRANT		
DRINKING FOUNTAIN		
BOAT RAMP		
COURTESY DOCK		
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TRAFFIC COUNTER		
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BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DARDANELLE STATE PARK

NOTE: THIS AREA IS LOCATED IN SECTIONS 15 AND 22
T. 7 N., R. 21 W., YELL CO., ARK. THIS AREA
LICENSED TO STATE OF ARKANSAS.



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
DECEMBER 1972 WHEN LAKE WAS AT EL. 337.85

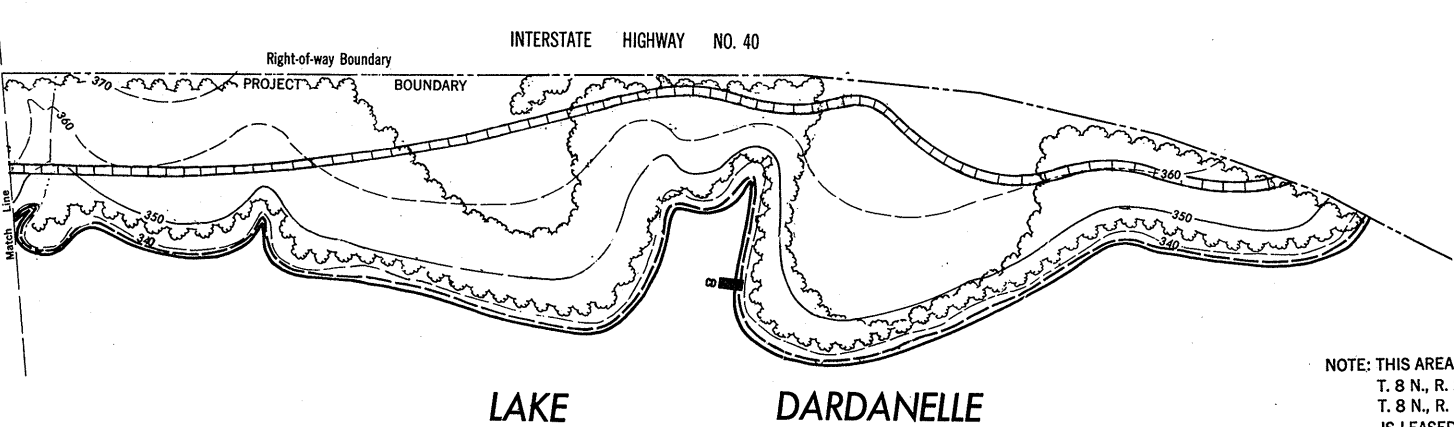
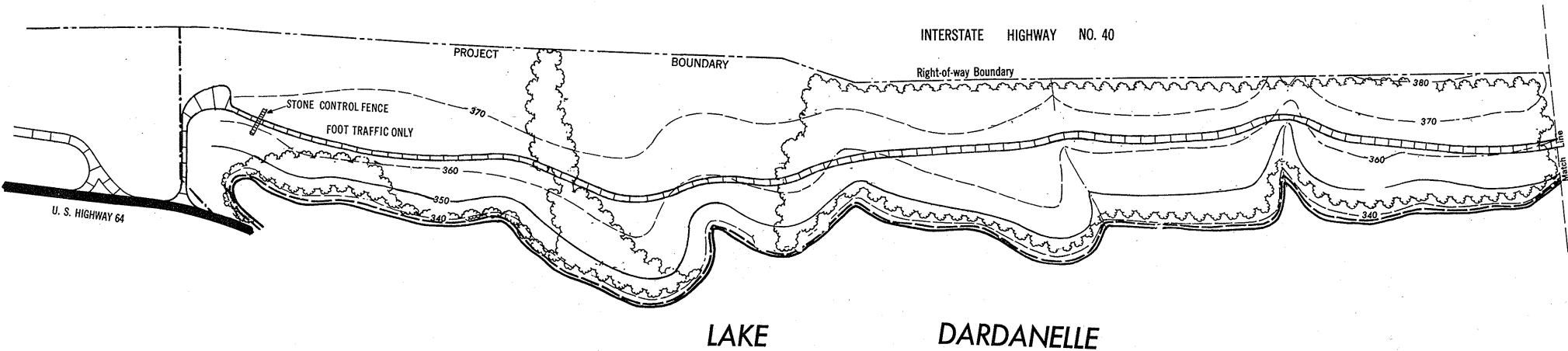
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——— BOTTOM OF CONSERVATION POOL EL 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DARDANELLE STATE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977

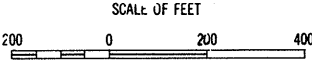


NOTE: THIS AREA IS LOCATED IN SECTION 25, T. 8 N., R. 21 W., AND SECTION 30, T. 8 N., R. 20 W., POPE CO., ARK., AND IS LEASED TO ARKANSAS TECH UNIVERSITY. THE AREA WILL BE DESIGNED, DEVELOPED, AND OPERATED BY THE UNIVERSITY.

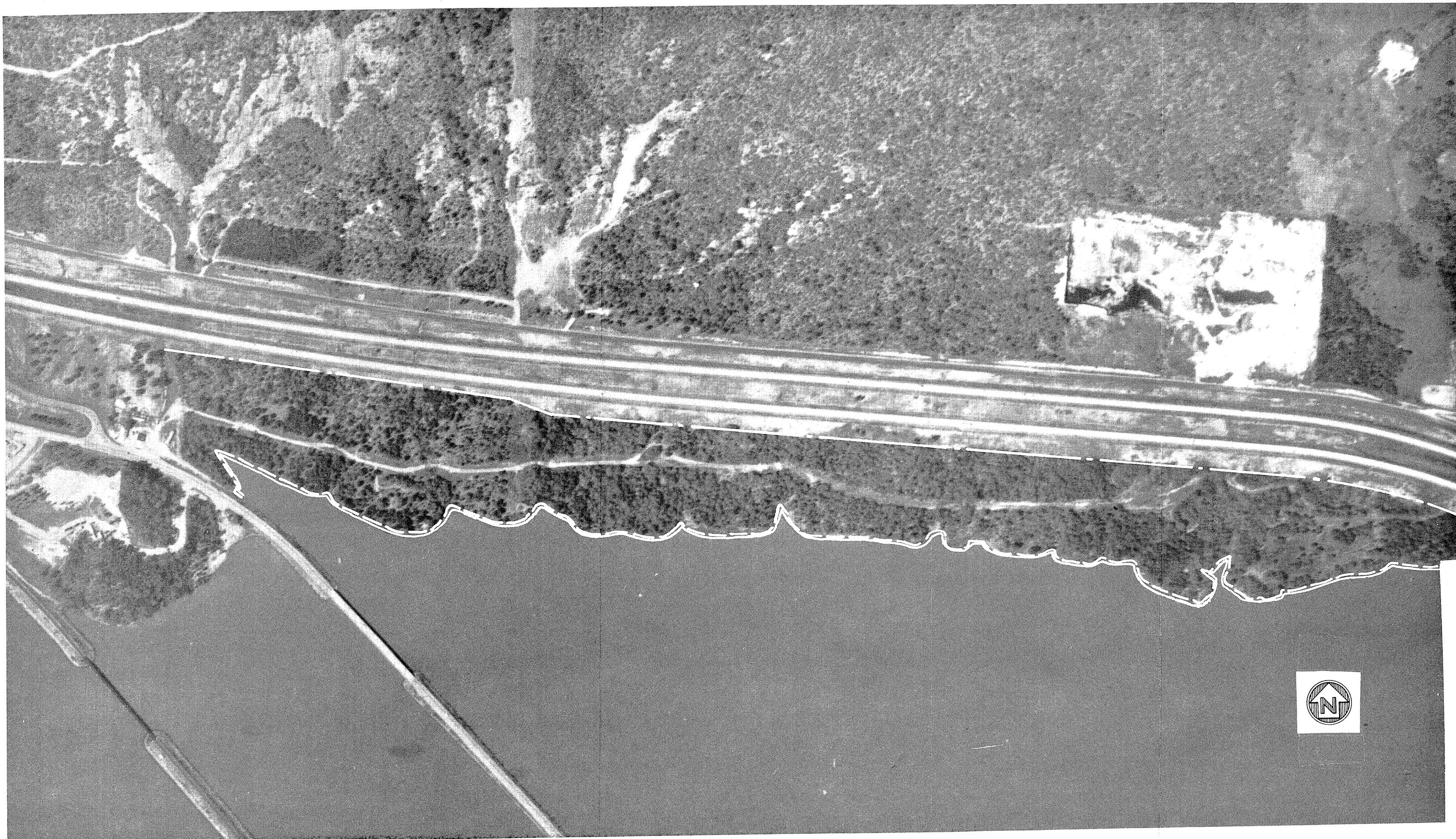
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BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
ILLINOIS BAYOU
FUTURE PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977



PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
APRIL 1974 WHEN LAKE WAS AT EL. 337.88

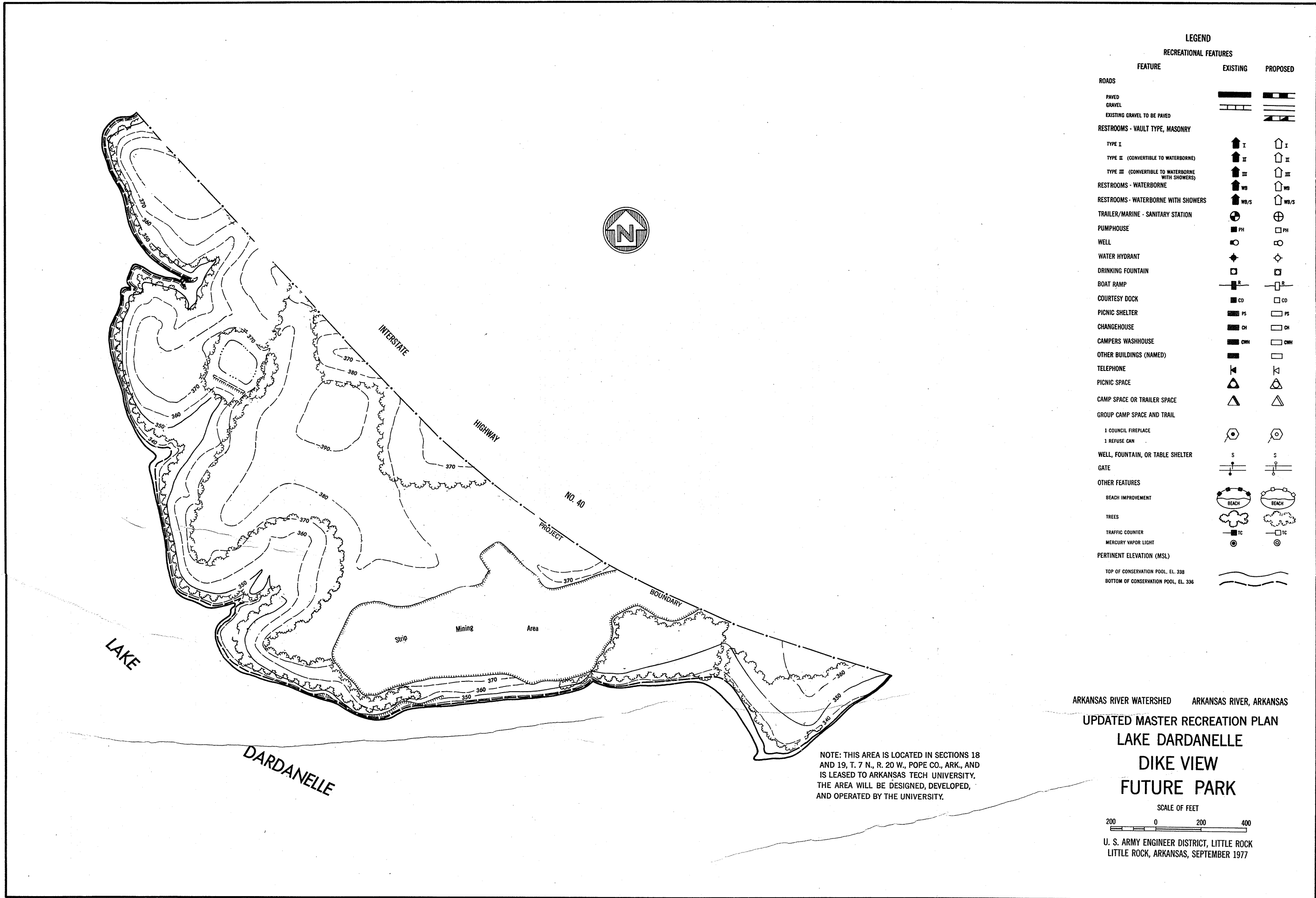
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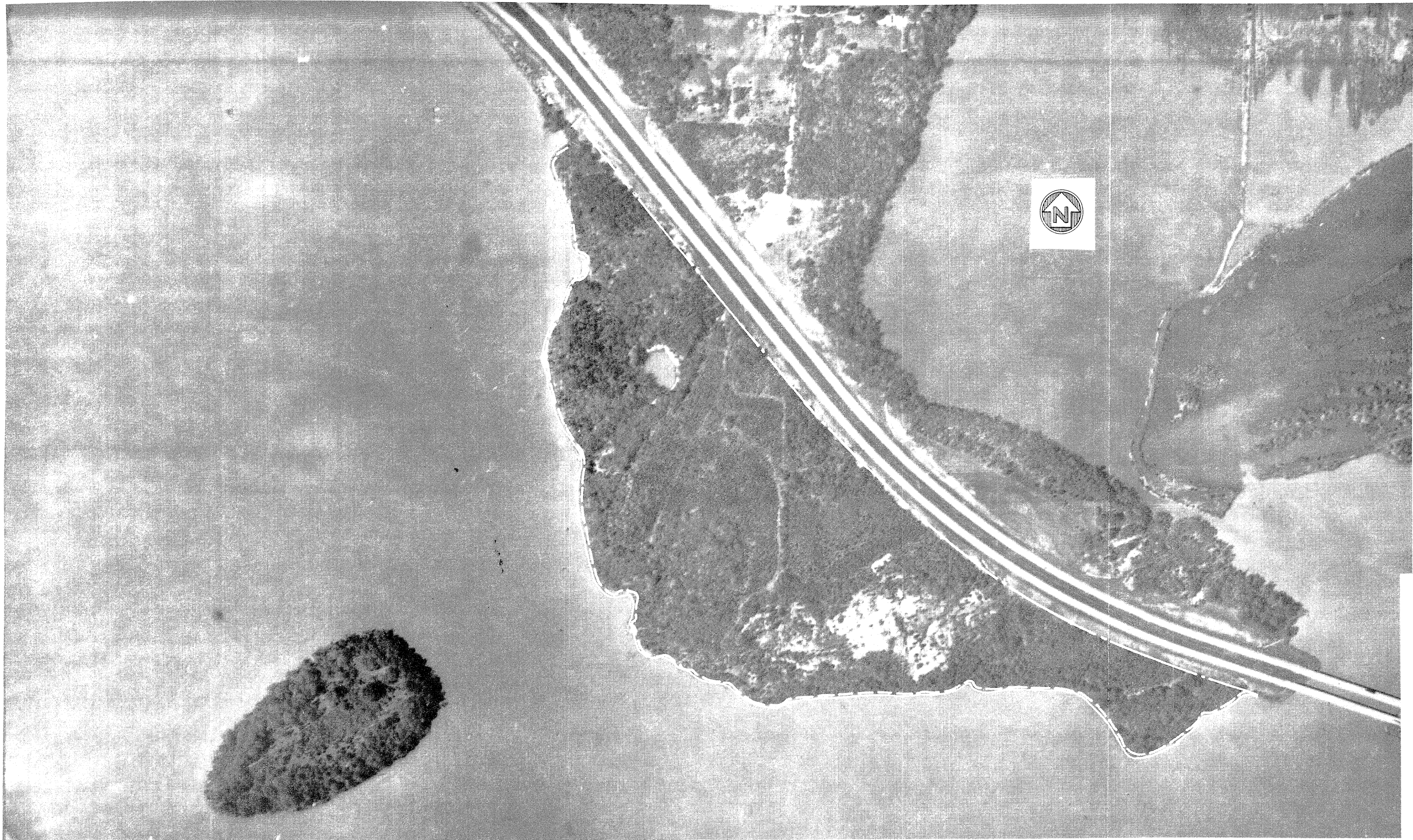
ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
ILLINOIS BAYOU FUTURE PARK

SCALE OF FEET
200 0 200 400

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, JUNE 1977

PLATE 35 A





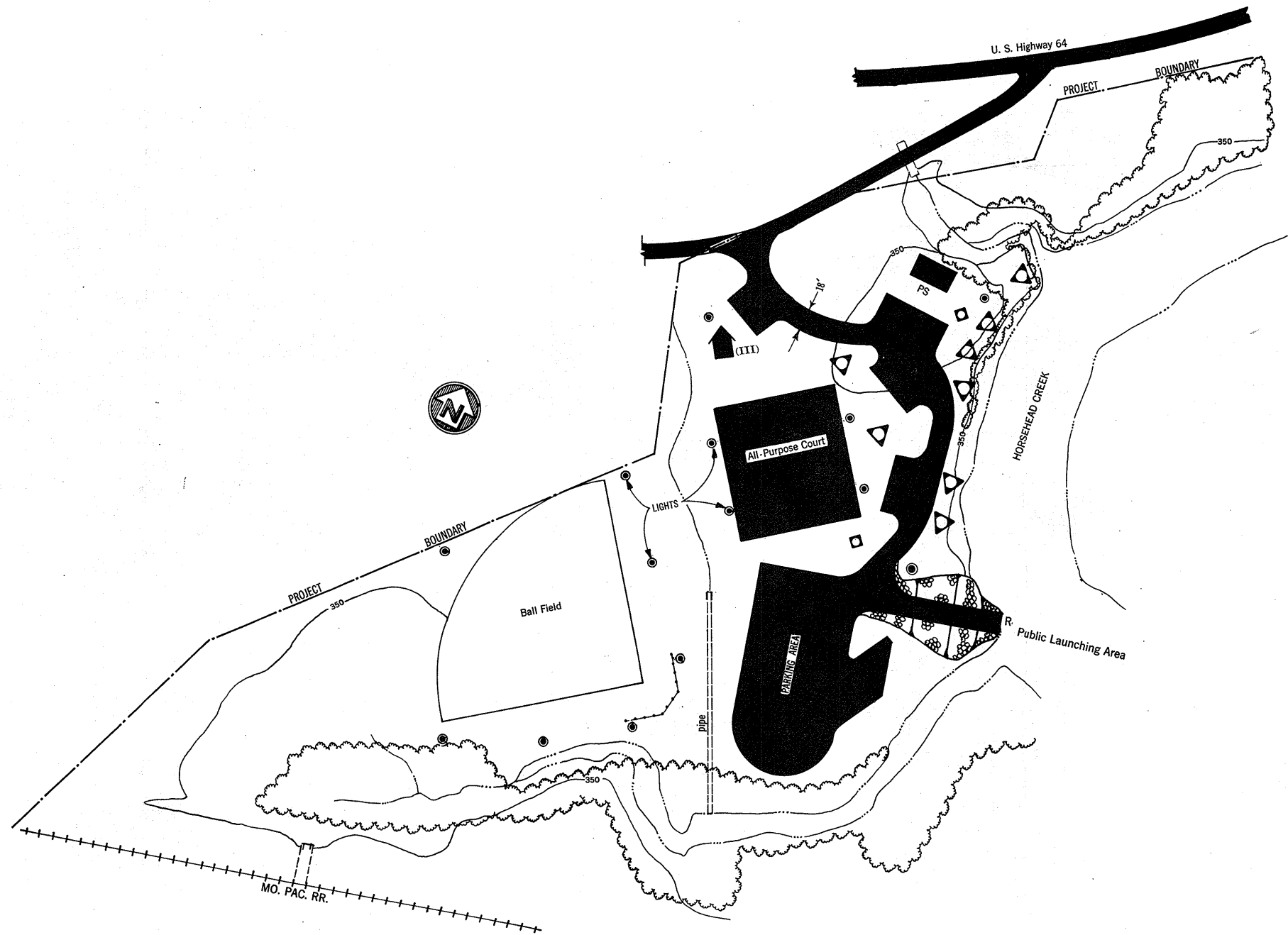
PREPARED FROM AERIAL PHOTOGRAPHS FLOWN
APRIL 1974 WHEN LAKE WAS AT EL. 337.88

LEGEND
- - - - - PROJECT BOUNDARY
- - - - - TOP OF CONSERVATION POOL EL 338
- - - - - BOTTOM OF CONSERVATION POOL EL 336

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE
DIKE VIEW FUTURE PARK

SCALE OF FEET
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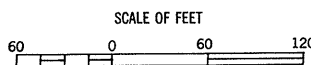
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS JUNE 1977



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BOTTOM OF CONSERVATION POOL, EL. 336		

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
UPDATED MASTER RECREATION PLAN
LAKE DARDANELLE

HARTMAN CITY PARK



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
LITTLE ROCK, ARKANSAS, SEPTEMBER 1977

SWDCO-R (SWLCO-L 2 May 75) 1st Ind
SUBJECT: Lake Dardanelle - Appendix F, Lakeshore Management Plan

DA, Southwestern Division, Corps of Engineers, Main Tower Building,
1200 Main Street, Dallas, TX 75202 28 MAY 1975

TO: District Engineer, Little Rock

The draft of the Lakeshore Management Plan is approved subject to the following comments:

a. A buffer should be provided adjacent to and north of the Russellville park area.

b. It is noted that a larger segment of the shoreline is allocated for private floating facilities than is needed to accommodate the existing boathouses. Therefore, the District should restudy the plan and eliminate any areas where there have been no interest generated for docks and the rezoning can be done without adverse public reaction. Prior to publishing the approved plan the areas allocated for private floating facilities should be significantly reduced. It is not my intent, however, to require any changes that would necessitate another public meeting.

1 Incl
wd Incl 1.

Joseph A. Shumaker Colonel CE
for
CHARLES I. MCGINNIS
Brigadier General, USA
Division Engineer



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203

REPLY TO
ATTENTION OF:

SWLCO-L

2 May 1975

SUBJECT: Lake Dardanelle - Appendix F, Lakeshore Management Plan

Division Engineer, Southwestern
ATTN: SWDCO-R

1. References:

- a. ER 1130-2-406, 13 December 1974, subject: Lakeshore Management at Civil Works Project.
- b. Letter SWLCO-L, 11 February 1975, subject: Lakeshore Management at Civil Works Project.

2. The inclosed draft of the subject appendix is submitted for review and approval in accordance with your 1st Indorsement, SWDCO-R, 14 February 1975 to reference lb. The lakeshore allocations and the locations of existing docks are shown on the inclosed map. This map is our working copy and should be returned after your review is completed.

3. Upon approval of this draft, some of the color designations shown on the inclosed map will be grouped together to correspond with the four lakeshore allocations discussed in the plan. These color combinations are described below:

FINAL PLAN

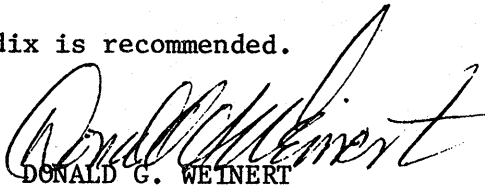
Limited Development Areas
Public Recreation Areas
Protected Areas
Prohibited Areas
Commercial, industrial &
port areas

Colors shown on DRAFT MAP

Red
Blue and Orange
Green, Yellow, Purple & White
Area Adjacent to lock & dam, Brown, Gold
Black and Gray

4. Approval of the subject appendix is recommended.

- 2 Incl
1. Plan (trip)
2. Map


DONALD G. WEINERT
Colonel, Corps of Engineers
District Engineer

SWDCO-R SWLCO-L 2 May 75) 3d Ind
SUBJECT: Lake Dardanelle - Appendix F, Lakeshore Management Plan

DA, Southwestern Division, Corps of Engineers, Main Tower Building,
1200 Main Street, Dallas, TX 75202 6 NOV 1975

TO: District Engineer, Little Rock

1. Appendix F, Lakeshore Management Plan, Lake Dardanelle, is approved subject to the following comments:


a. Plates 1, 5, 8, and 11. Priority type land allocations are no longer used on land use plans. Accordingly, these plates and the Land Use Plan in the master plan proper should be revised as soon as practicable to agree with land use allocation designations prescribed in change 1 to ER 1120-2-400.

b. The area north of Russellville Park should be designated to prohibit private floating facilities. Since there is a marina operating in Russellville Park, the area is conveniently located near a commercial dock. The fact that a public launching complex has been constructed in the area supports the position of excluding private floating facilities.

2. The shoreline allocated for private boat docks should be considered as the maximum authorized. Any deviations from the approved plan should be toward eliminating areas designated for limited development.

FOR THE DIVISION ENGINEER:

wd incl


JOSEPH A. SHEWSKI
Colonel, CE
Deputy Division Engineer

CF: w/incl
HQDA (DAEN-CWO-R) 2 cys

SWLCO-L (SWLCO-L 2 May 75) 2nd Ind
SUBJECT: Lake Dardanelle - Appendix F, Lakeshore Management Plan

DA, Little Rock District, Corps of Engineers, P. O. Box 867, Little
Rock, Arkansas 72203 15 Oct 75

TO: Division Engineer, Southwestern
ATTN: SWDCO-R

1. The subject plan has been published in final form and is submitted for approval.
2. The area to the north of the Russellville Park cannot effectively be used as a buffer. Government ownership at this location consists of an extremely narrow band of land with adjacent homesite development. A launching complex has been built on a right-of-way granted to the county at this location.
3. The percentage of shoreline allocated for private boat docks has been reduced by two percent. The Resident Engineer will continue to monitor the areas designated for limited development and recommend elimination of these areas where an expressed interest in providing dock mooring space fails to materialize.



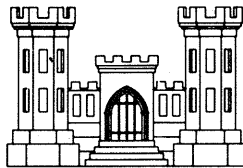
CHARLES E. EDGAR III
Colonel, Corps of Engineers
District Engineer

2 Incl
wd incl 2
Added 1 incl
2. Plan (7 cys)

ARKANSAS RIVER WATERSHED
ARKANSAS

ARKANSAS RIVER
**LAKE DARDANELLE AND
DARDANELLE LOCK AND DAM
DESIGN MEMORANDUM NO. 13-3**
**UPDATED MASTER PLAN FOR LAKE
DEVELOPMENT AND MANAGEMENT
OF LAKE DARDANELLE**

APPENDIX F
LAKESHORE MANAGEMENT PLAN



U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS
OCTOBER 1975

ARKANSAS RIVER WATERSHED
ARKANSAS
DESIGN MEMORANDUM NO. 13-3

UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
LAKE DARDANELLE
APPENDIX F
LAKESHORE MANAGEMENT PLAN

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ARKANSAS RIVER WATERSHED
ARKANSAS
DARDANELLE DAM AND LAKE
DESIGN MEMORANDUM NO. 13-3

UPDATED MASTER PLAN FOR
DEVELOPMENT AND MANAGEMENT
LAKE DARDANELLE
APPENDIX F
LAKESHORE MANAGEMENT PLAN

SECTION I

INTRODUCTION

1-01. Purpose. - The Lakeshore Management Plan establishes policy and furnishes guidelines for the protection and preservation of the desirable environmental characteristics of the Lake Dardanelle shoreline. The plan also considers means of restoration of the shoreline where degradation has occurred because of private exclusive use.

1-02. Authority. - This Appendix was prepared in accordance with the requirements of ER 1130-2-406 dated 13 December 1974.

1-03. References.

- a. Section 4, 1944 Flood Control Act, as amended, PL 87-874.
- b. The Act of 31 August 1951 (31 USC 483a).
- c. The National Environmental Policy Act of 1969, PL 91-190.
- d. The Federal Water Pollution Control Act of 1972 (FWPCA).
- e. Title 36, Chapter III, Part 327 Code of Federal Regulations, "Rules and Regulations Governing Public Use of Water Resource Development Projects administered by the Chief of Engineers."
- f. Executive Order 11752
- g. 33 CFR 209.120, "Permits for work in Navigable Waters or Ocean Waters."

1-04. Private Floating Recreation Facilities. - Private recreation facilities as discussed in this plan include boat moorage facilities, courtesy docks, duck blinds, and other private floating recreation facilities. Private floating facilities used for boat mooring will not exceed the minimum size required to moor the owners boat or boats plus a minimum area for storage of oars, life preservers, and other items essential to the operation of the watercraft. Private floating facilities will not be used for human habitation.

1-05. Master Plan. - Upon approval, this Appendix will become a part of the Updated Master Plan for Lake Dardanelle.

SECTION II

OBJECTIVES OF THE PLAN

2-01. General. - Experience has shown that management is necessary to prevent large sections and possibly all of the shoreline from becoming congested with private floating facilities and thereby lost for public use and enjoyment. Management of the lakeshore will provide an opportunity for optimum recreational experiences for the maximum number of people and assure compatibility between the recreating public, the environment, and project resources. The objectives of this plan are to manage and protect the lakeshore, to establish and maintain acceptable fish and wildlife habitat, aesthetic quality and natural environmental conditions and to promote the safe and healthful use of the lake and shoreline for recreational purposes by all Americans. Boat owners will be encouraged to moor their boats at commercial marinas, utilize dry storage facilities off project lands or trailer their boats to public launching ramps provided in the Corps parks or to one of the launching complexes developed by the county, state and city Governments.

2-02. Commercial Concessions. - Floating facilities used in connection with commercial concessions, limited motel/resort leases, and boat with cabin license operations are not affected by the shoreline allocations presented in this plan. These commercial operations are effectively controlled under existing regulations. The services and storage facilities provided by these commercial operations will reduce the need for numerous individually owned docks along the lakeshore.

2-03. Private Exclusive Use. - Ownership of private land does not convey any exclusive rights to the use of the adjoining public lands. It is the objective of this plan to manage private exclusive use of public property to the degree necessary to gain maximum benefit to the general public.

2-04. Background. - Development of a preliminary lakeshore management plan was initiated in January 1973. A moratorium on accepting applications for lakeshore use permits was declared at that time. In the development of this plan the entire shoreline was inspected, problem areas were reviewed, photographs were taken, and the proposed plan was discussed with individuals, groups, and real estate agencies. Representatives of the Little Rock District Office also inspected the shoreline and recommended other changes to the preliminary plans.

2-05 Public Involvement. - Following the development of the initial plan it was discussed with local civic groups and a copy was displayed in the Resident Office for public viewing and comments. A series of public meetings were held in communities around the lake to present the plan to the general public. Meetings were held in the following locations:

Paris, Arkansas - 17 April 1973
Russellville, Arkansas - 24 April 1973
Clarksville, Arkansas - 26 April 1973
Clarksville, Arkansas - 15 May 1973

Public comments, recommendations, and objections were received from the date of the first public meeting, 17 April 1973, until 21 June 1973 when the reevaluated and revised plan was furnished to the District Engineer for final review. The plan was approved by the District Engineer on 12 July 1973 and the moratorium was lifted. Applications were once again accepted giving preference to community mooring facilities over individually owned docks in areas approaching the maximum density of development. Another series of public meetings were held at the following locations to familiarize the public with the finalized Lakeshore Management Plan:

Paris, Arkansas - 4 September 1973
Russellville, Arkansas - 11 September 1973
Clarksville, Arkansas - 13 September 1973

Subsequent issuance of ER 1130-2-406 required approval by the Division Engineer prior to implementation of the plan as presented in this appendix.

SECTION III

DESCRIPTION OF THE SHORELINE

3-01. General. - Lake Dardanelle is located in the Arkansas River Valley and is a part of the McClellan-Kerr Arkansas River Navigation System in west-central Arkansas, bordered on the north by the Ozark Mountains and on the south by the Ouachita Mountains. Topography varies from fertile farmland in the river valley to steep bluffs and otherwise rugged terrain along the tributaries. The lake is relatively shallow and irregular in shape having prominent "tentacle-like" extensions along tributaries.

3-02. Shoreline. - At top of navigation pool, elevation 338, the shoreline has a total length of 315 miles.

3-03. Present Land Use. - Current Master Plan allocations of the lands are as follows:

<u>Project Purposes</u>	<u>Acres</u>
Fee	44,979
Easement	6,417
Total	51,396
Priority One	10,135
Priority Two & Three	450

This allocation will be revised in accordance with current allocation criteria of ER 1120-2-400 during the upcoming master plan updating scheduled for submission in June 1977.

3-04. Private Development. - The population of the area surrounding Lake Dardanelle is rapidly increasing. There are 24 subdivisions adjoining Government ownership. These subdivisions contain 920 lots of which 212 have been developed as homesites.

3-05. Existing Access. - In addition to pedestrian access, 15 launching lanes and 12 severed roads around the lake are used by residents and sportsmen for boat launching. Eight rights-of-way have been granted to local county Governments for the construction of public launching ramp complexes. Rights-of-way have been granted to 4 adjoining landowners for construction of tramways to provide access to the waters of the lake.

3-06. Prior Commitment. - Private docks have been permitted on Lake Dardanelle since it was impounded in October 1964. At present there are 37 private docks on Lake Dardanelle.

3-07. Indian Lands. - There are no Indian lands within the boundaries of Lake Dardanelle.

3-08. Joint Jurisdiction. - No other Federal agencies have jurisdiction over administration of the lakeshore covered by this plan.

SECTION IV

LAKESHORE ALLOCATION

4-01. General. - Increased development of adjoining private land increases the demand for private floating facilities; therefore, it is readily apparent that a plan for systematic development of the shoreline is essential. This approach is intended to protect the natural beauty of the shoreline and to control exclusive use of the lakeshore by a limited number of people.

4-02. Allocations. - A comprehensive study of the entire lakeshore, involving public participation, resulted in development of a lake-shore management plan for Lake Dardanelle which establishes the following shoreline allocations:

a. Limited Development Areas. - Private floating facilities are permitted in areas designated for limited development. The density of development in limited development areas will depend upon and be consistent with the ecological and aesthetic characteristics of the particular area. The density of development will not exceed fifty percent of the shoreline allocated for limited development when the lake level is at the top of the navigation pool. Approximately 8 percent of the shoreline at top of navigation pool is designated for limited development. Generally, the number of docks that will be permitted in an area will be limited by spacing a minimum of 100' apart in ideal shoreline conditions. Each area will be considered separately as applications and facilities approach saturation. Location on lake, fluctuation of water level and other criteria will be the determining factors. All United States citizens have an equal opportunity to moor a dock in a limited development area provided the area has not reached the maximum density of development. The applicant must have ready access to the shoreline either by public road, ownership of adjoining property, or right of access across adjoining property. Generally, ready access to the lake is considered within 200 feet or a reasonable distance a person could carry a motor, fishing tackle, and other related gear. Dock owners that are not permanent residents of the area, must designate a local party that will be responsible for their dock on a 24-hour day basis.

b. Public Recreation Areas. - Private floating facilities are not permitted within or adjacent to developed or future parks or in areas in close proximity to parks where the structures would detract from the vista of the park. Individuals are not permitted to make any modification of the land form or vegetative characteristics of lands under this allocation. Commercial boat docks and concessions are permitted in public recreation and buffer areas.

c. Protected Lakeshore Areas. - Private floating facilities are not permitted in protected lakeshore areas. These areas were designated to protect aesthetic, environmental, and fish and wildlife values. Other reaches of the shoreline were included under this allocation for physical protection reasons including shallow areas and reaches of the subject to exposure to winds or currents. Land access and boating are permitted along the shoreline with these allocations as long as aesthetic, environmental, and natural resource values are not damaged or destroyed. Modification of the land form or vegetation may be permitted after consideration of the effects on the environmental and physical characteristics of the area. Rights-of-way for tramways or launching complexes across shoreline allocated as protected areas will be considered on a case by case basis. Shoreline not designated under another allocation on the inclosed maps is considered a protected lakeshore area.

d. Prohibited Access Areas. - Private floating facilities are prohibited in areas in close proximity to the navigation channel or structures, dredge spoil areas, and the area immediately upstream from the dam and adjacent to the lock.

e. Other Areas. - Private floating facilities will be discouraged in other areas that have been developed or have potential as port, commercial, or industrial areas. The locations of these sites are shown on the inclosed maps.

4-03. Shoreline Allocation Maps. - Maps showing the shoreline allocations is included as Exhibit I of this Appendix. A master map of the shoreline is on display at the Office of the Resident Engineer at Lake Dardanelle. The master map shows further designations within the protected and prohibited lakeshore areas, i.e., scenic, shallow, natural, dredge spoil, close proximity to navigation channel, etc.

4-04. Mooring Buoys. - Placement of mooring buoys will be subject to the same shoreline allocations as other private floating facilities.

SECTION V

IMPLEMENTATION OF THE PLAN

5-01. Existing Docks Now Under Permit. - All of the existing permits for private floating facilities will remain in effect for the term of the current permit and will continue to be subject to all terms and conditions of the permit.

5-02. Existing Docks in Limited Development Areas. - Permits for private floating facilities moored in limited development areas will be renewed when the current permit expires or when ownership of the dock is transferred. All new or renewal permits for docks in these areas will be subject to terms and conditions of the permit and after 1 July 1976, an administration charge of ten dollars (\$10.00) will be made for issuance of the permit and initial inspection of the dock. An additional annual inspection fee of five dollars (\$5.00) for each additional year in the term of the permit will also be collected in advance at the time the permit is issued. A five-year permit would cost \$30.00 initially. The prepaid inspection fees will be transferable upon sale of the dock and issuance of a new permit.

5-03. Existing Docks in Other Allocated Areas. - Private floating facilities moored in areas where allocations made by this plan do not allow docks will be phased out as follows:

a. Individually owned facilities: Individually owned docks will be permitted to remain in their present locations until transfer of ownership, need for major repair to the structure, need of replacement, or death of the present permittees (providing the structures are maintained to Corps of Engineers standards). Existing docks in these areas may not be enlarged in size to accommodate additional boats. The names of the present owner and spouse will appear on the permit for record purposes in determining the period that the dock will be permitted to remain at present location. After expiration of the present permit, no additional names will be added to the permit.

b. Community or multi-ownership docks: Community or multi-ownership docks will be permitted to remain in their present locations until in need of replacement or until death or transfer of ownership of the last of the present permittees (providing the structures are maintained to Corps of Engineers standards). In the interim, individual interests may be transferred but no additional names may be added to the permits of the present owners. No additions or major alterations will be permitted on these docks located in areas where docks are no longer allowed. After 1 July 1976 all new permits, relocations, or extension of permits allowed under the phase-out procedures described above will be subject to an administration charge of ten dollars (\$10.00). This will include the first year fee for inspection. An additional annual inspection fee of five dollars (\$5.00) for each

additional year in the term of the permit will also be collected in advance at the time the permit is issued. These prepared inspection fees will be transferable in the event the structure is sold.

c. Termination. - Upon termination of permits issued under the special conditions outlined above, the dock must be moved to one of the areas designated for limited development or else removed from the lake. When multi-ownership docks are moved to a limited development area, the new permit will be issued in the name of one individual.

SECTION VI

CONSTRUCTION AND MAINTENANCE REQUIREMENTS -

PRIVATE FLOATING FACILITIES

6-01. Recommended Minimum Design Standards. - Private floating facilities will meet or exceed the SWD minimum design standards attached to this appendix as Exhibit II. Plans and specifications for the dock must accompany the application for a private floating facility. Plans and specifications will be subject to the approval of the Resident Engineer at Lake Dardanelle. The initial and subsequent annual inspections will consider the items shown on the Safety Check List attached to this plan as Exhibit III.

6-02. Electrical Outlets. - Electrical service to most docks is used only for lighting and operation of battery chargers. Where there is an indication that power tools may be used on the dock, the use of an approved ground fault interrupter will be encouraged.

SECTION VII

OTHER LAKESHORE USES BY INDIVIDUALS

7-01. Private Exclusive Use of the Shoreline. - Adjacent landowners must obtain a permit from the Resident Engineer prior to modification of land form or vegetative characteristics of the area. Permits will not be granted to individuals for use of lands allocated as public recreation areas including their buffers or on lands allocated as prohibited access areas.

7-02. Conditions. - Construction of paths and other shoreline improvements will be subject to the following requirements.

a. Only hand operated tools may be used. The use of heavy equipment such as tractors and bulldozers is not permitted.

b. Only dead or diseased trees, previously inspected by the Resident Engineer or his representative, may be cut. Any felled trees must be removed from Government-owned land for disposal. No burning by individuals will be allowed on Government-owned lands.

c. No flowering trees or shrubs such as dogwood, redbud, etc., may be removed, regardless of their size.

d. Healthy trees, larger than 2 inches in diameter, may not be removed. In certain cases the Resident Engineer may restrict the cutting of trees less than 2 inches in diameter if he determines that it would create an erosion problem or similar adverse impact.

e. Trimming of healthy trees to obtain a view is prohibited.

7-03. Access Paths. - Pedestrian access paths approximately four feet or less in width may be constructed to the lakeshore. The path must follow a meandering route to prevent erosion and to avoid the need for removal of trees and vegetation. The use permit does not convey the right to construct any structure (steps, bridges, etc.) in connection with the path.

7-04. Landscaping. - Requests for this type of shoreline improvement must be accompanied either by a detailed or well described landscape plan. The plan will provide for better management of the area for the enhancement of wildlife propagation, preservation of the aesthetics and prevention of erosion.

7-05. Mowing. - Mowing of the shoreline will be permitted for fire protection purposes. The limits of this mowing will be dependent on the proximity of privately owned dwellings and outbuildings to the Government boundary. A maximum mowed radius of 200 feet from buildings is considered adequate for fire protection. The limits of mowing in each case will

be determined by the Resident Engineer and defined on the lakeshore use permit. There are other reaches of the lakeshore that are popular areas for public use or have potential public use. Many of these areas have been kept mowed by the adjacent landowners and it may be in the best interest of the general public to allow this practice to continue at those locations where substantial public use is made possible in part by the clearing and mowing. Each case has to be considered on an individual basis. All clearing and mowing activities will be covered by a permit, ENG Form 4264 and contain an added condition that "all lands covered by this permit will remain open at all times for use by the general public."

7-06. Fee. - An administration charge of \$10.00 will be made for lakeshore use permits issued for these purposes after 1 July 1976. No annual inspection fees will be charged for these permits.

SECTION VIII

PERMITS

8-01. Lakeshore Use Permits. - Lakeshore use permits are issued for private floating recreation facilities, access paths, mowing and landscaping activities which do not in any way involve a disruption to or a change in land form. All of these permits will be nontransferable. Upon sale or other transfer of the permitted facility or death of the permittee, the permit is null and void. A new permit may be issued to the new owner after an application has been made and administrative charges and inspection fees have been paid.

8-02. Department of the Army Permits. Activities such as dredging, construction of fixed structures, including fill and combination fixed-floating structures, and the discharge of dredged or fill material in navigation waters will be permitted under conditions specified in permits issued under authority of Section 10, River and Harbor Act of 3 March 1899 (33 USC 403) and Section 404 of the Federal Water Pollution Control Act (33 USC 1344). Lakeshore use permits, will not be used under these circumstances.

8-03. Real Estate Instruments. All commercial development activities and all activities by individuals which are not covered above and involve grade, cuts, fills, other changes in land form, or appropriate land-based support facilities required for private floating facilities such as roads, drives, powerlines, and tramway rights-of-way will be covered by a lease, license, or other grant.

SECTION IX

OTHER LAND USES

9-01. Project Lands. - Sanitary facilities within the developed parks consist of restrooms with masonry vault holding tanks, septic tanks and disposal fields, or sewage treatment plants. Sanitary dump stations with holding tanks are provided for trailers in parks. A marine dump station with holding tank is provided at 1 of the commercial docks on the lake. Sewage disposal methods and facility designs are in accordance with applicable State Department of Health and EPA requirements. None of the effluent from the holding tanks are disposed of on project land. There are no sanitary landfills on the Lake Dardanelle lands.

9-02. Adjoining Lands. - Septic tanks and other sanitary facilities constructed on adjoining private land are subject to inspection and approval by representatives of the Arkansas State Department of Health. Any evidence that these facilities are not functioning properly is reported to the Arkansas State Department of Health for investigation and corrective action.

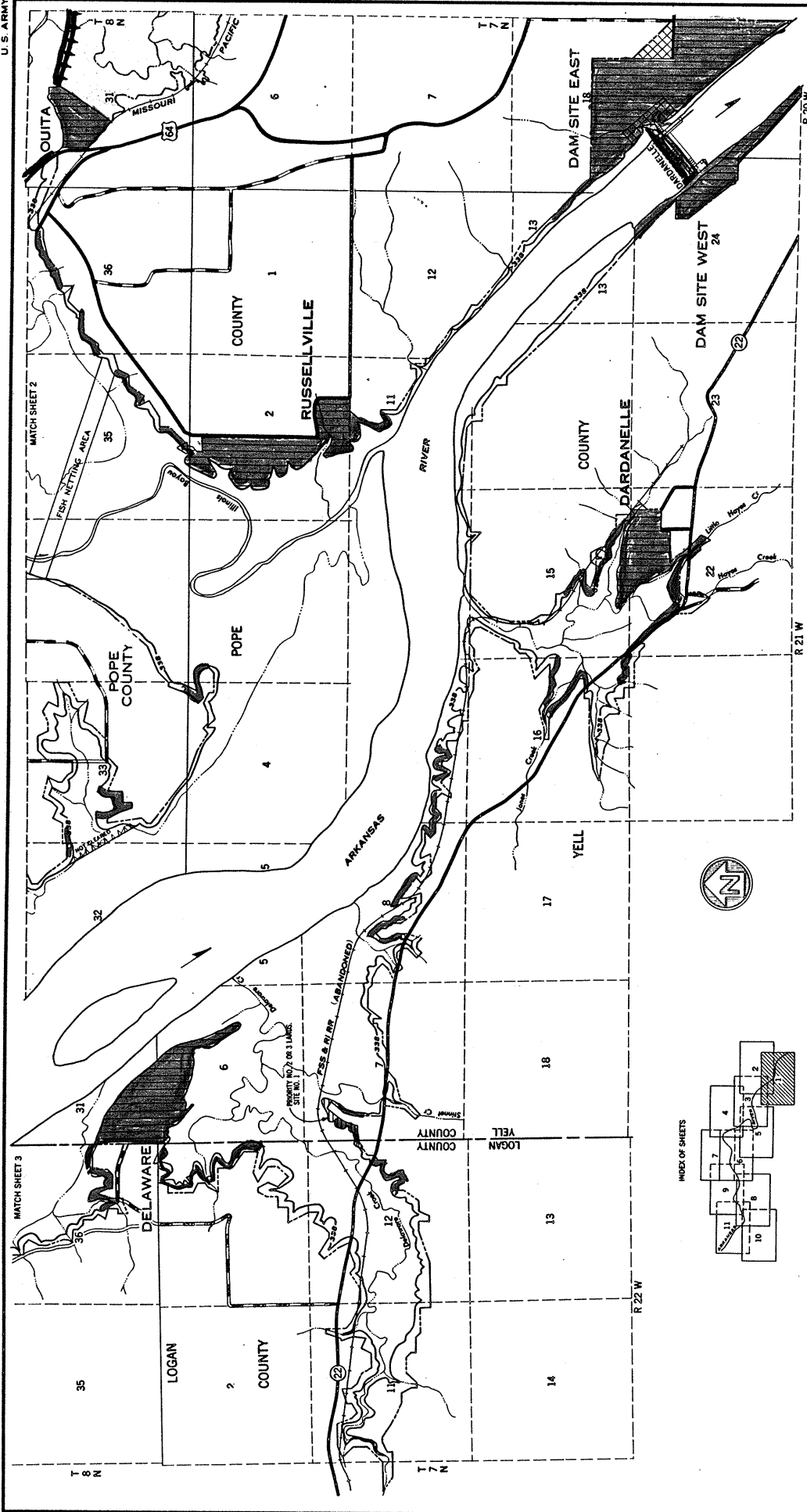
SECTION X

CONCLUSIONS AND RECOMMENDATION

10-01. Conclusions. The lakeshore management plan presented in this Appendix is considered to provide the greatest recreational benefit to all the public and to balance bona fide recreational needs against the physical limitations and aesthetic qualities of the lake and surrounding lands. The plan has taken into consideration both the present and anticipated recreational needs of the area.

10-02. Review. - The lakeshore management plan presented in this Appendix is a flexible and working document. The Resident Engineer will continually monitor the needs of the recreational users of the lake and recommend revisions that will minimize conflicts between various interest. Minor changes in area limits or allocations of areas will continue to be approved by the District Engineer and reported to the Division Engineer on an annual basis. Additional public meetings will be held in advance of recommending any major revision to this plan.

10-03. Recommendation. - Approval of this plan is recommended.



- LIMITED DEVELOPMENT AREAS
- PARK AND BUFFER AREAS
- PROHIBITED AREAS
- PROTECTED AREAS

ALL LAKESHORE NOT SPECIFICALLY ALLOCATED UNDER ONE OF THE ABOVE CLASSIFICATIONS ARE PROTECTED AREAS WHERE NO DOCKS ARE ALLOWED.

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ARKANSAS RIVER WATERSHED
MASTER RECREATION PLAN

LAKE DARDANELLE

LAKESHORE MANAGEMENT PLAN

SCALE OF FEET

0 2,000 4,000

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK

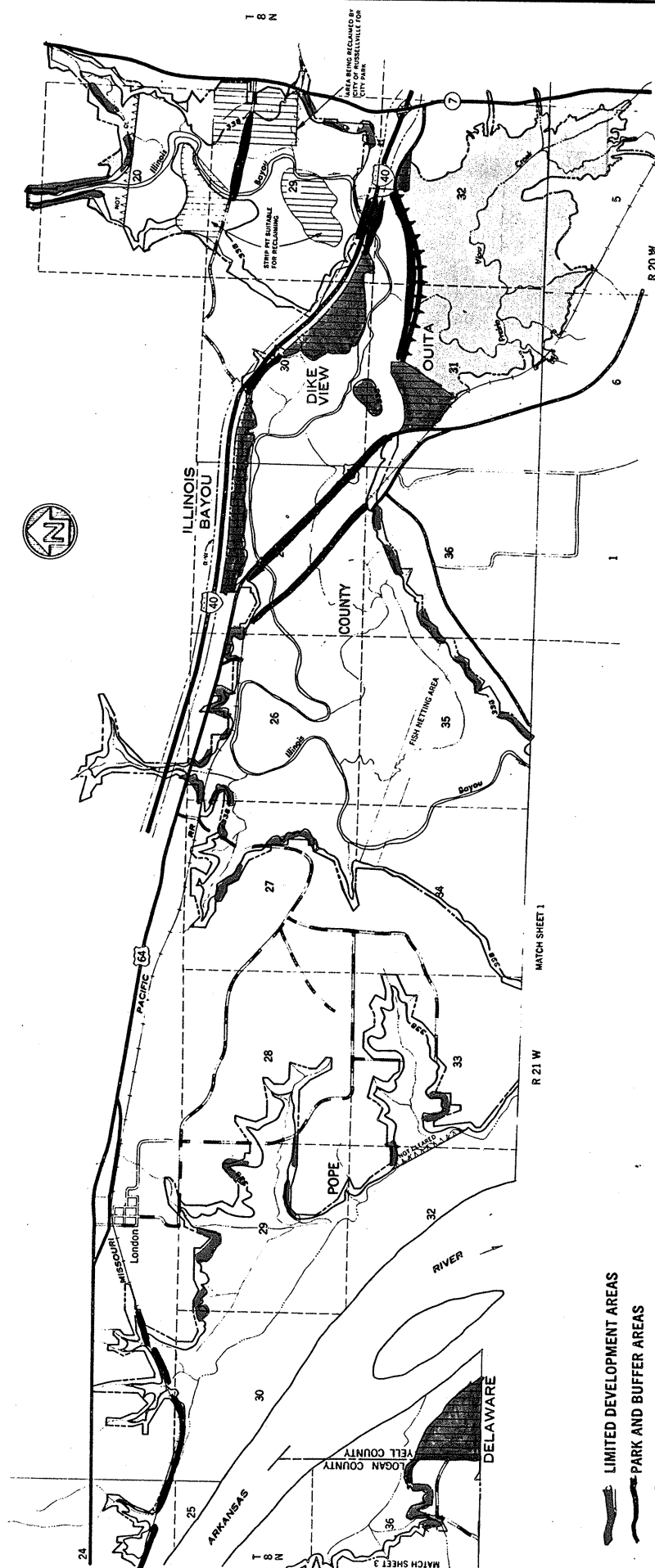
LITTLE ROCK, ARKANSAS, JULY 1975

SHEET NO. 1

EXHIBIT I

NOTE:

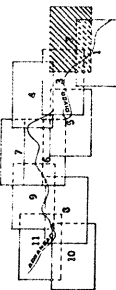
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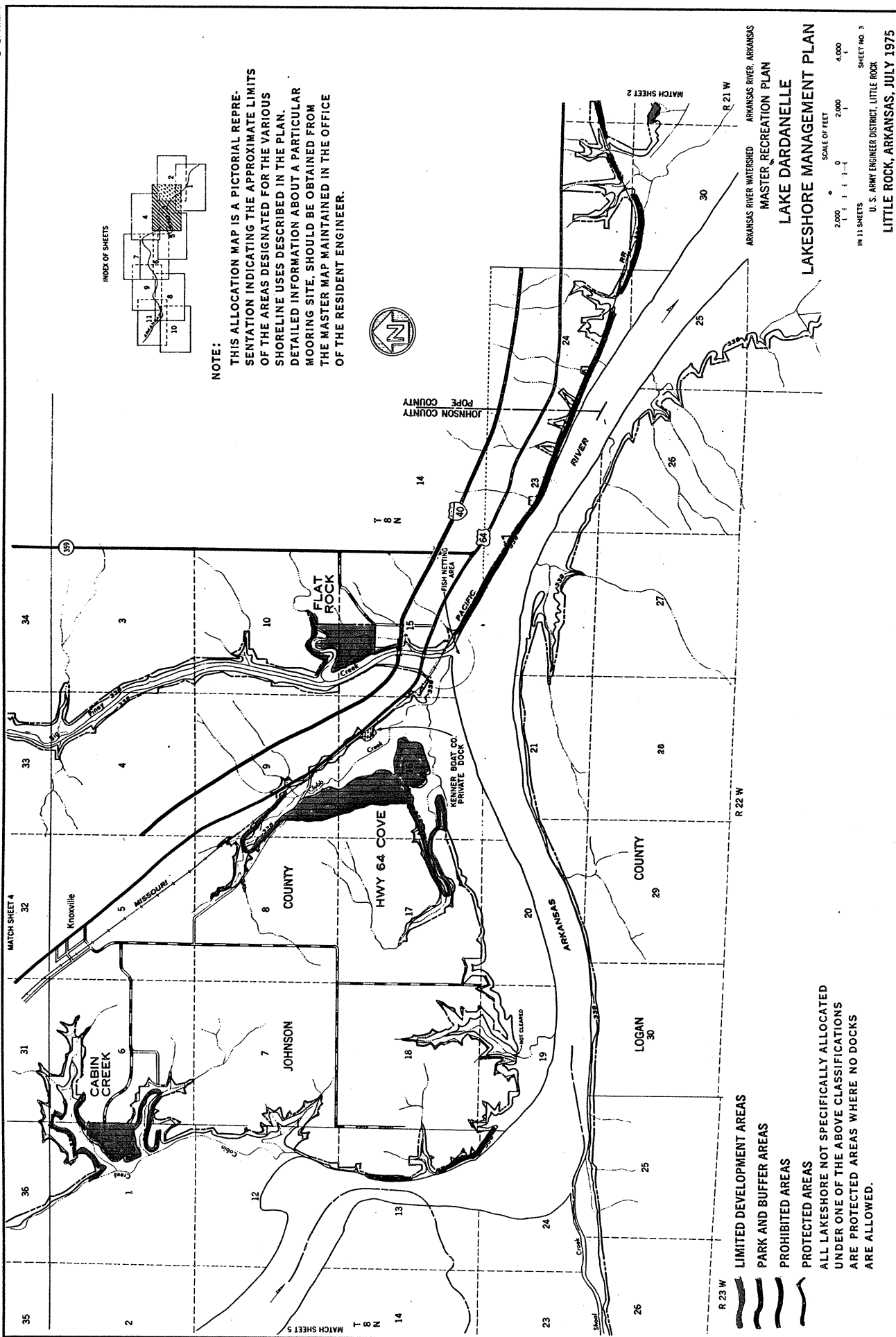


ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
MASTER RECREATION PLAN
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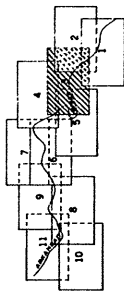
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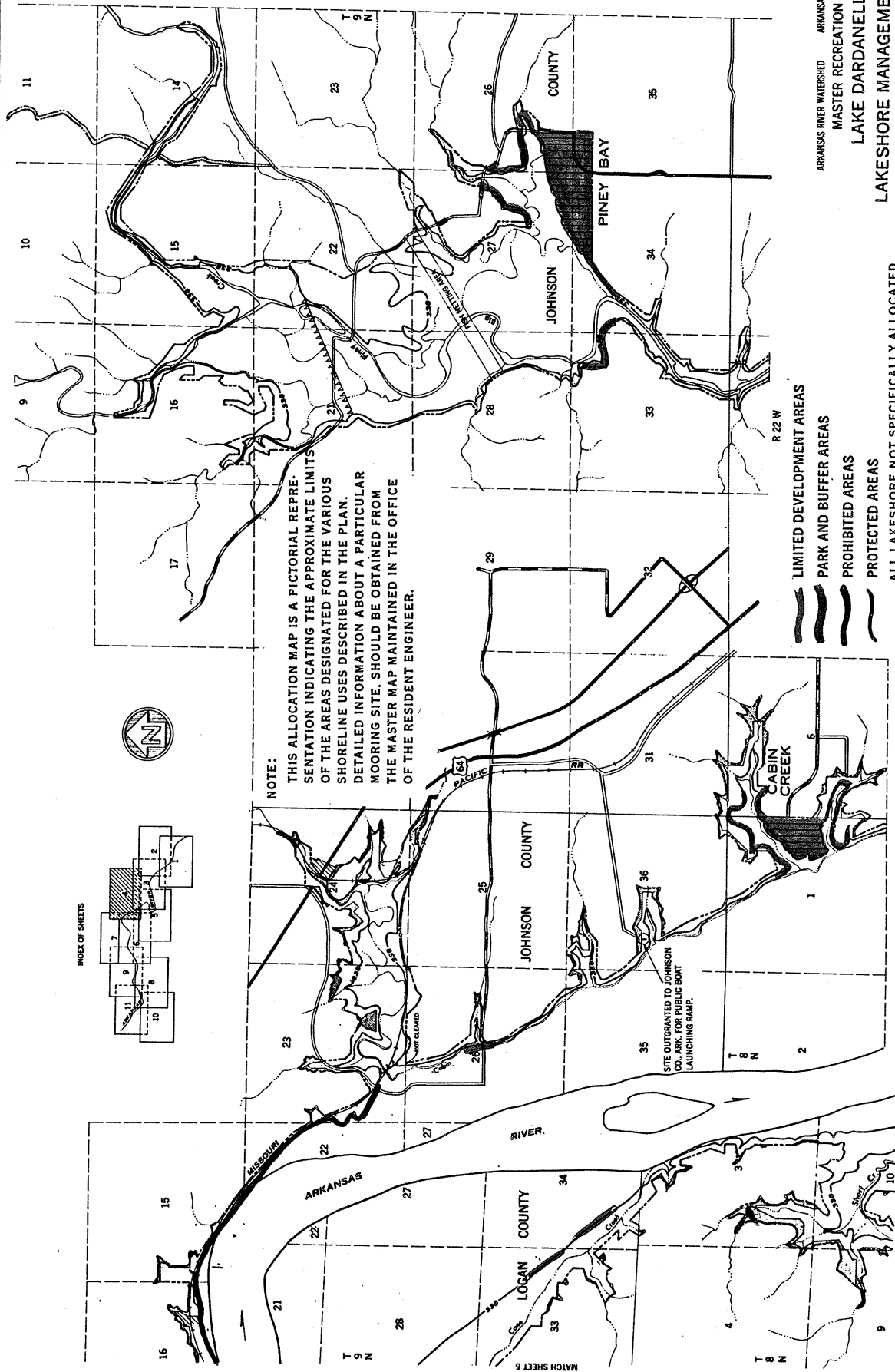


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LAKESHORE MANAGEMENT PLAN

SCALE OF FEET
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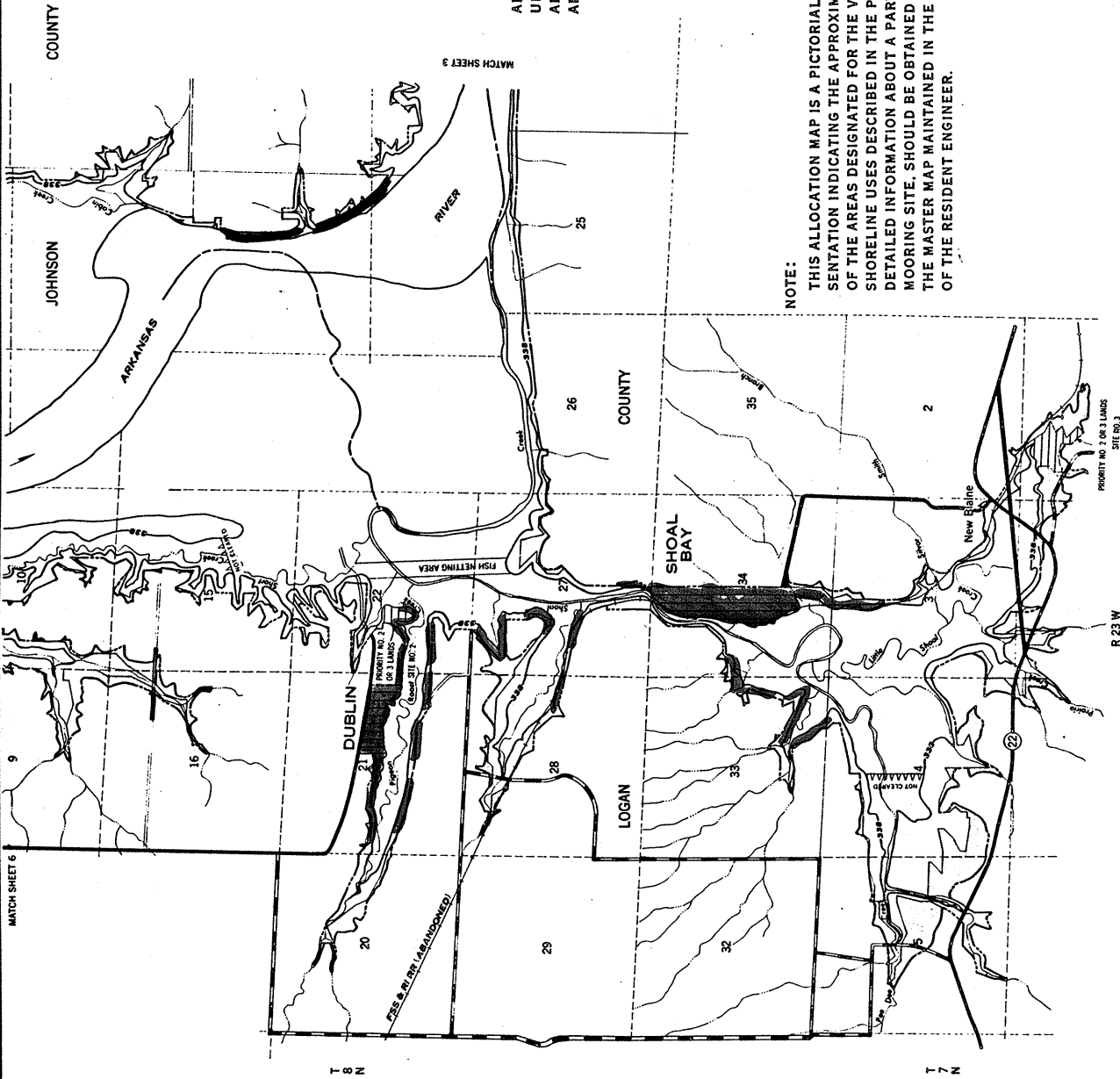


ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS
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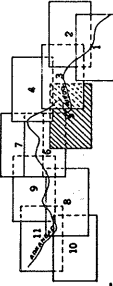
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LIMITED DEVELOPMENT AREAS
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ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MASTER RECREATION PLAN

LAKE DARDANELLE

LAKESHORE MANAGEMENT PLAN

SCALE OF FEET

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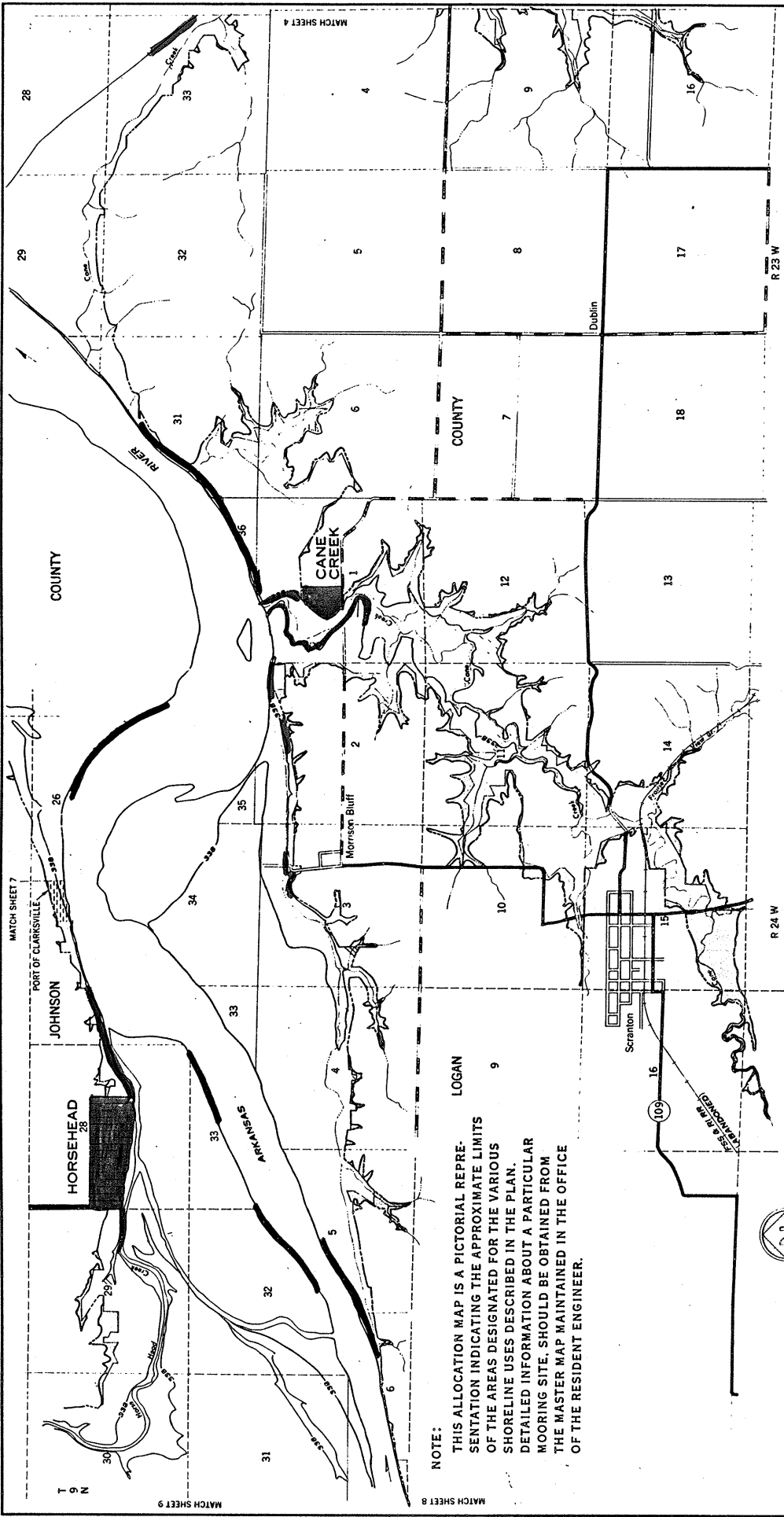
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11 SHEETS

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U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK

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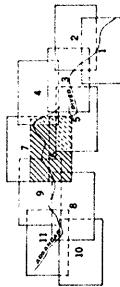


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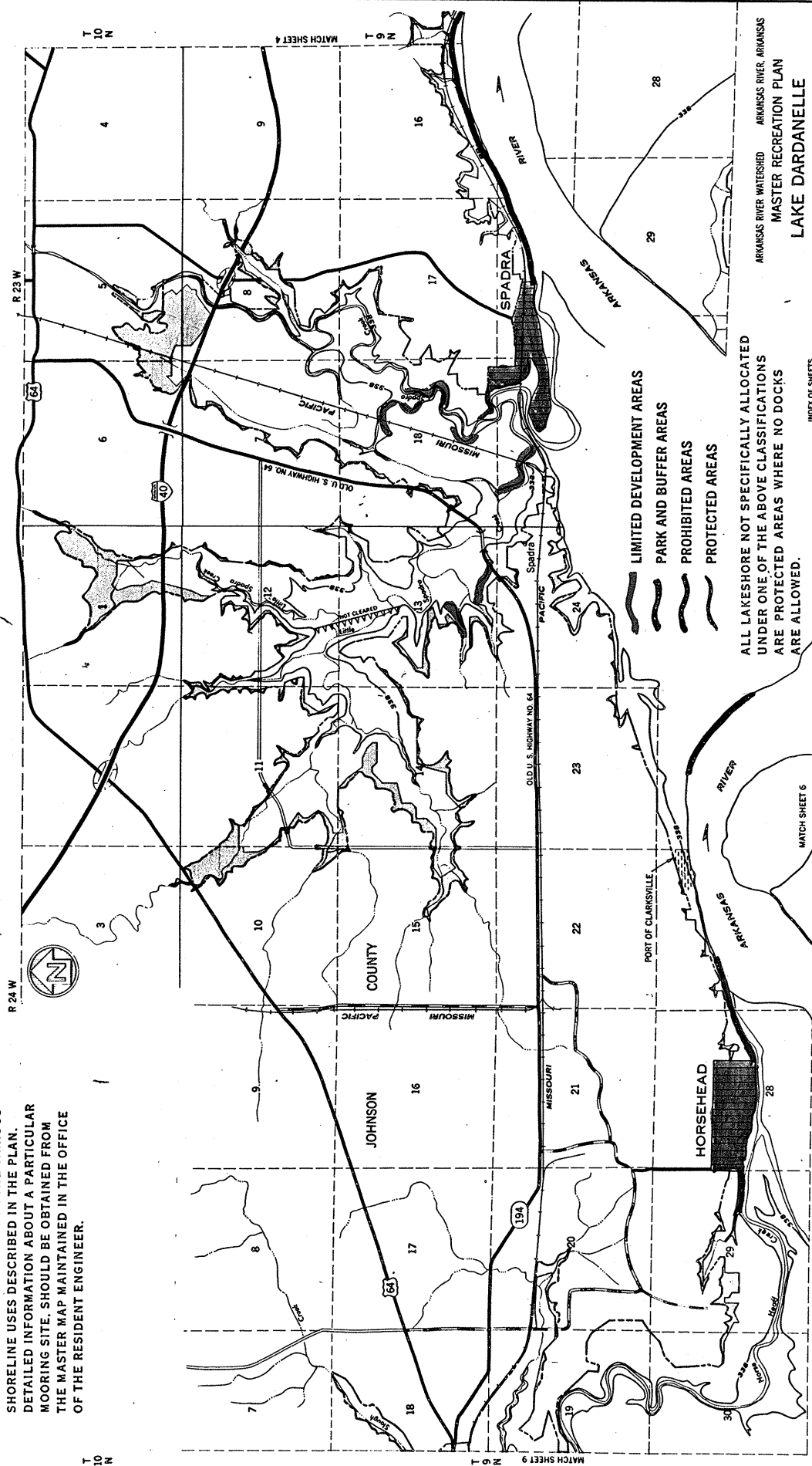
LAKESHORE MANAGEMENT PLAN

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LITTLE ROCK, ARKANSAS, JULY 1975

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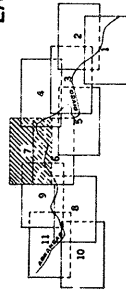
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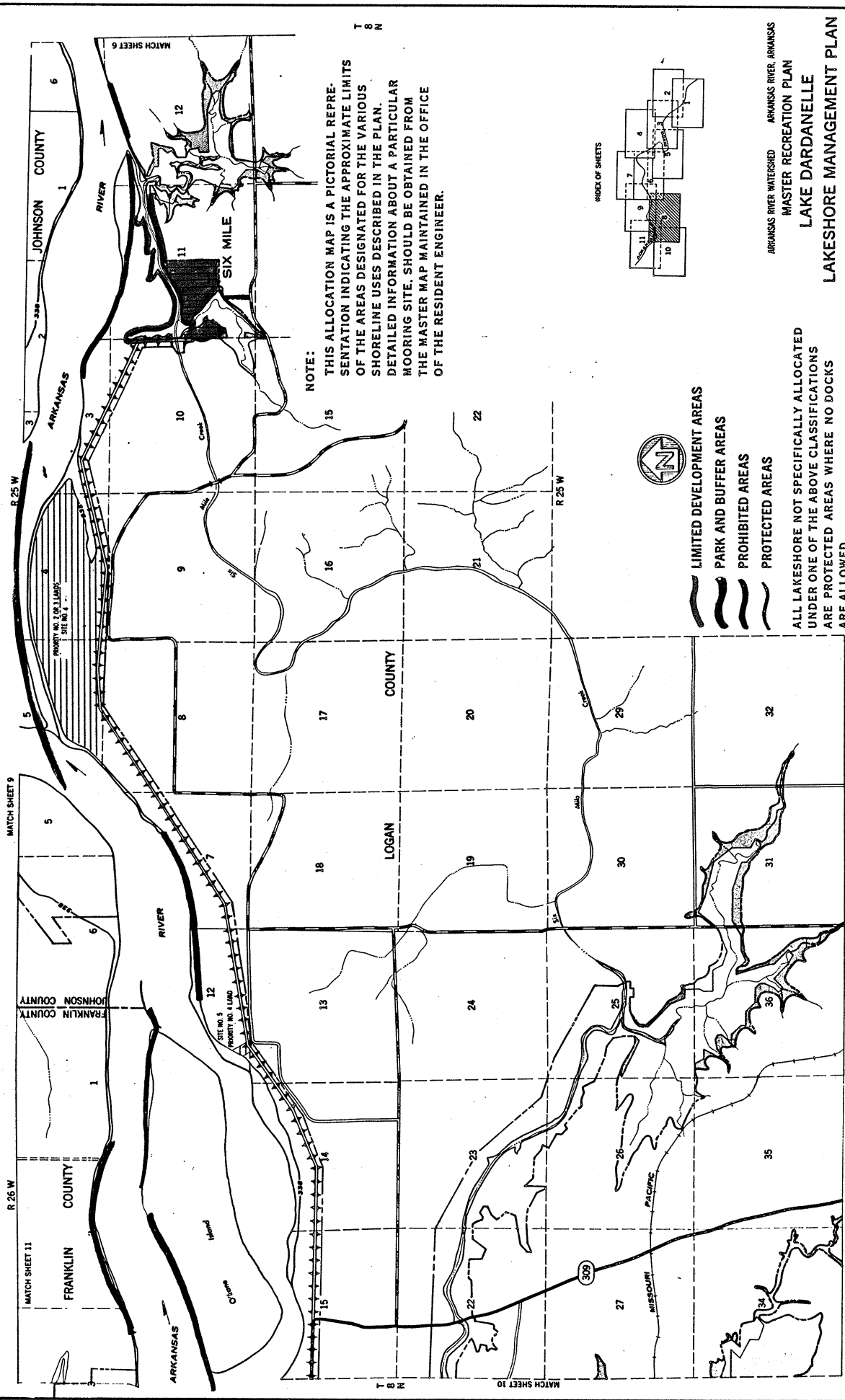


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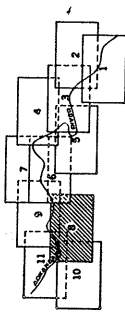
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MASTER RECREATION PLAN

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LITTLE ROCK, ARKANSAS, JULY 1975



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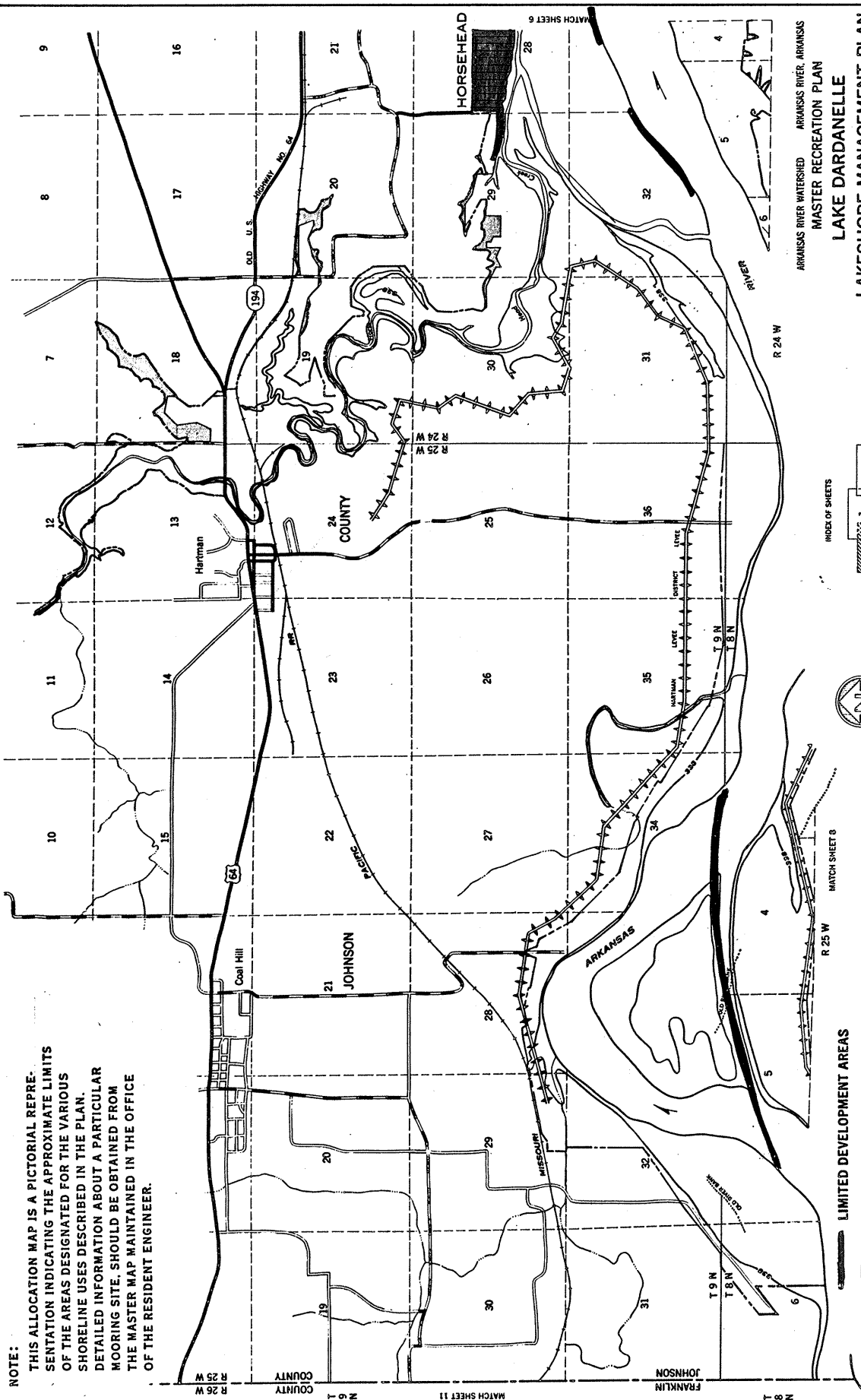
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SCALE OF FEET
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 SHEET NO. 8
 LITTLE ROCK, ARKANSAS, JULY 1975

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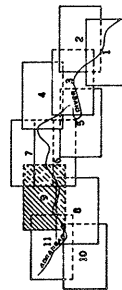
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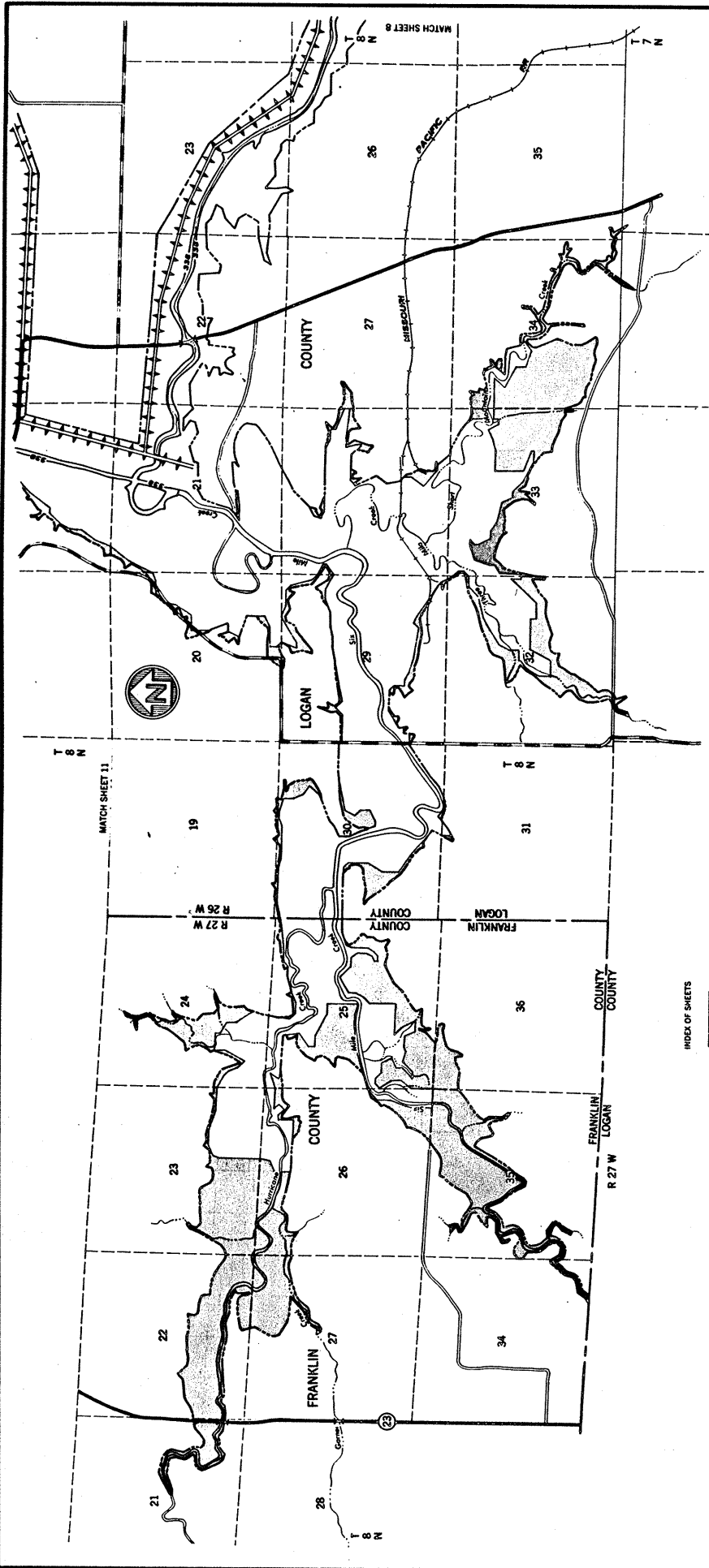


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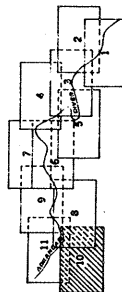


11 SHEETS
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LITTLE ROCK, ARKANSAS, JULY 1975



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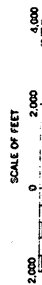
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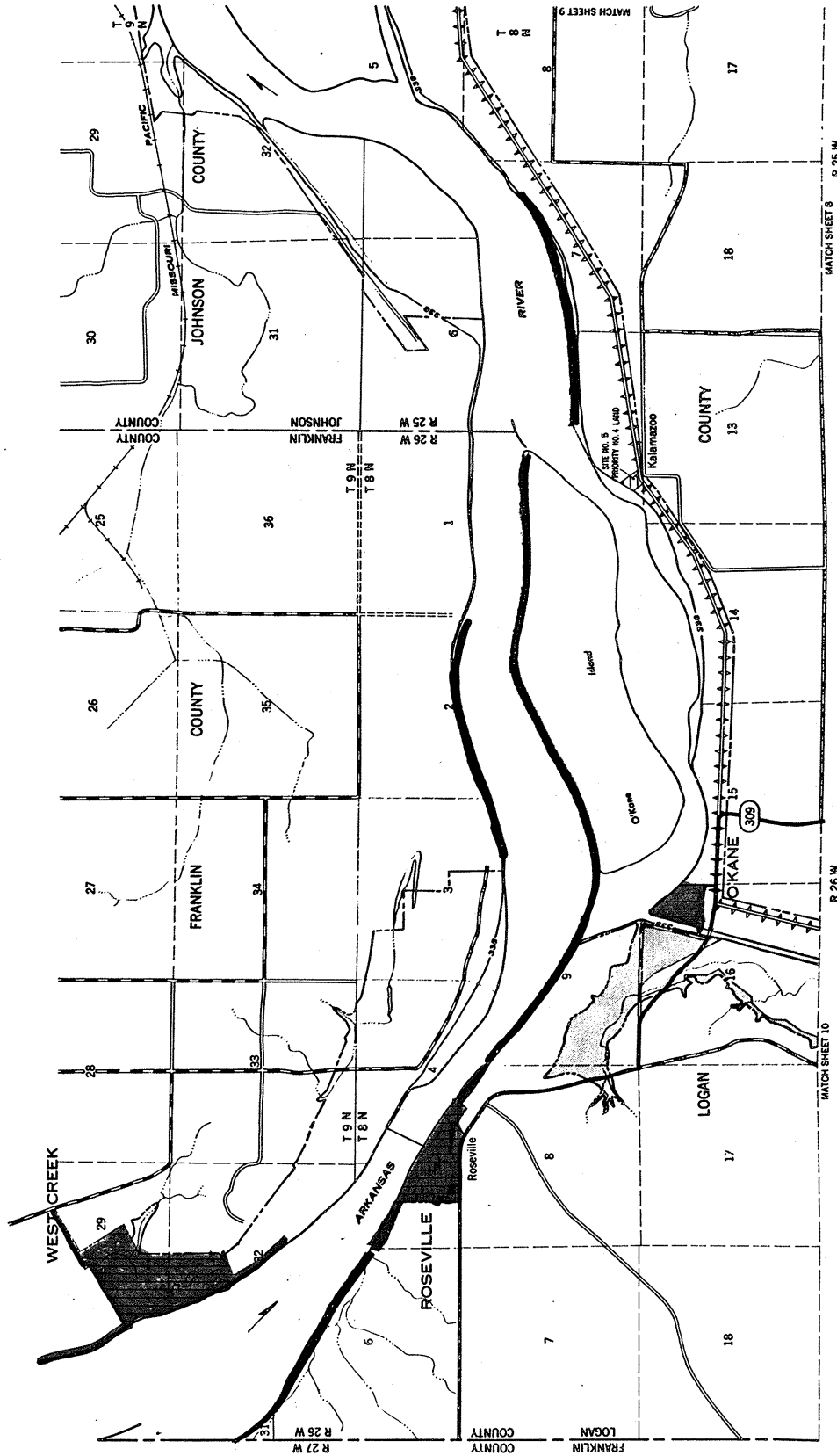
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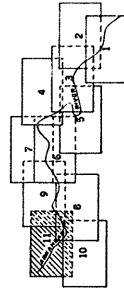
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK
SHEET NO. 10
LITTLE ROCK, ARKANSAS, JULY 1975



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ARKANSAS RIVER WATERSHED
MASTER RECREATION PLAN
LAKE DARDANELLE

LAKESHORE MANAGEMENT PLAN

SCALE OF FEET
0 2000 4000

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U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK

LITTLE ROCK, ARKANSAS, JULY 1975

SPECIFICATIONS FOR MINIMUM DESIGN STANDARDS

1. Design Criteria -

a. Wood Material: When wood material is used it will be designed in accordance with Federal Housing Administration Minimum Property Standards for One and Two Living Units, No. 300, 1960 edition, as applicable. However, all connections will be secured with galvanized sheet metal, steel plates, metal straps or treated plywood gussets to resist movement that would otherwise tend to dismantle the structural connections. All wood material in the substructure including the deck must be treated with a preservative. Wood material in the superstructure will not require preservative treatment, but the exposed exterior will be painted with not less than two coats of exterior oil paint.

b. Metal Material: When metal material is used it will be designed in accordance with American Institute of Steel Construction Specifications or applicable specifications of the American Society of Civil Engineers Proceedings for Aluminum Structures depending on the type of metal used.

c. Bracing: Wood or metal material or a combination thereof: All columns and studwalls will be adequately braced to resist wind loads of at least 25 pounds per square foot. Bracing will be designed and constructed to counteract design loads. The structure will have sufficient flexibility whereby wave actions will not damage the structural or roof system.

2. Design Loads (Minimum):

a. Deck loads (substructure) 50# sq ft

b. Approach bridges or walkways 50# sq ft

c. Wind loads (substructures and superstructure) 20# sq ft

d. Roof loads (superstructures). To provide for a 2-inch ice load or an equivalent amount of snow load.

e. Flotation must be provided under all areas of the substructure having 25 square feet or greater.

3. Siding on Superstructure: Siding on the superstructure may consist of wood, galvanized steel, corrugated or flat; or aluminum, corrugated or flat.

4. Roofs (Superstructure):

a. Roofs may be gabled or monosloped.

b. Wood roof joists or rafters shall be not less than 2" x 6" and spaced not more than 2'-0" center to center. Consideration will be given to approving 4'-0" spacing where sufficient vertical supports and bracing are provided. Purlines shall be not less than 2" x 4" and spaced not more than 30" center to center.

c. Wood roofs must consist of 1" nominal tongue and groove, shiplap or 1/2" plywood sheathing covered with 30-pound asphalt roll roofing or asphalt shingles. (When asphalt shingles are used the roof slope must be 4 on 12 or steeper).

d. Metal roof joists or rafters shall be not less than 1-1/4" ID standard pipe or structural aluminum tubing, either round, square or rectangular and spaced not more than 2'-0" center to center. Consideration will be given to approving 4'-0" spacing where sufficient vertical supports and bracing are provided. Purlins shall be not less than 1" ID pipe or structural aluminum tubing and spaced not more than 2'-0" center to center.

e. Metal roofs must be steel, minimum gauge of 28 or aluminum, minimum thickness of 0.032".

f. Roofs must be securely fastened to the superstructure to resist wind uplift.

5. Wood Construction:

a. Floor joists and flotation frames shall be not less than 2" x 8" and stringers shall not exceed 24" center to center.

b. Framing for wood column shall be not less than 4" x 4" and/or double 2" x 4" spaced not more than 4'-0" center to center or 2" x 4", spaced not more than 2'-0" center to center. Subject to the stability of the roof structure including adequate bracing, the 4" x 4" vertical supports may be spaced up to 8'-0" on centers. Columns will in every case be spaced symmetrically on each side of walkways equal to their width. Flooring or decking shall be not less than 1" rough or 2" x 6" S4S material and spaced in such manner to allow for expansion. Concrete or similar types of flooring and decking will be approved. Wood columns will be bolted through a 4" dimension to 2" x 8" stringers or flotation frames.

6. Metal Construction:

a. Floor joists and flotation frames shall be not less than 2" ID standard pipe. Other standard structural steel sections will be approved.

b. Framing for pipe construction shall be not less than 1-1/4" ID standard pipe or structural aluminum, round, square or rectangular tubing. Studs shall not exceed 48" center to center. Other standard steel or structural aluminum sections will be approved.

7. Flotation will be of materials which will not become waterlogged or sink when punctured.

8. Anchorage or Mooring Facilities: Design of these facilities will be submitted for each separate structure and will be developed in accordance with the site where facility will be moored, taking into consideration the water depth, exposure to fetch and wind loads.

9. Walkway:

a. Walkway shall be not less than 3' wide and structurally sound.

b. Flotation material will be determined on length of walkway in the water and/or connections on the floating craft and the shore.

c. The proposed method of anchoring the walkway to the floating structure and the shore will be shown.

10. Stabilized or Underwater Brace:

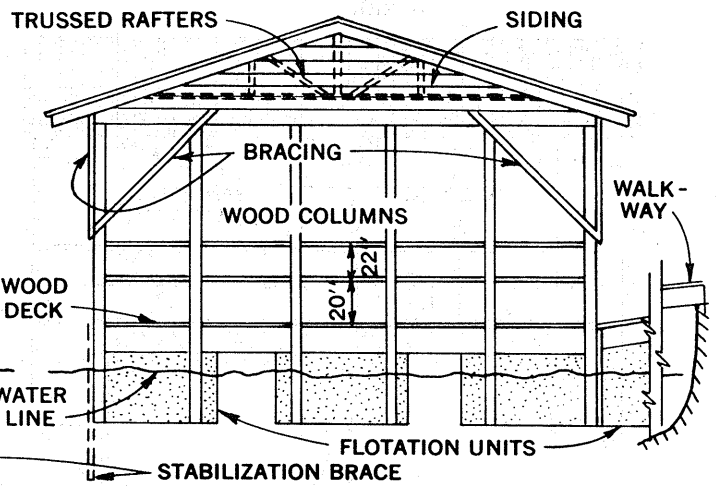
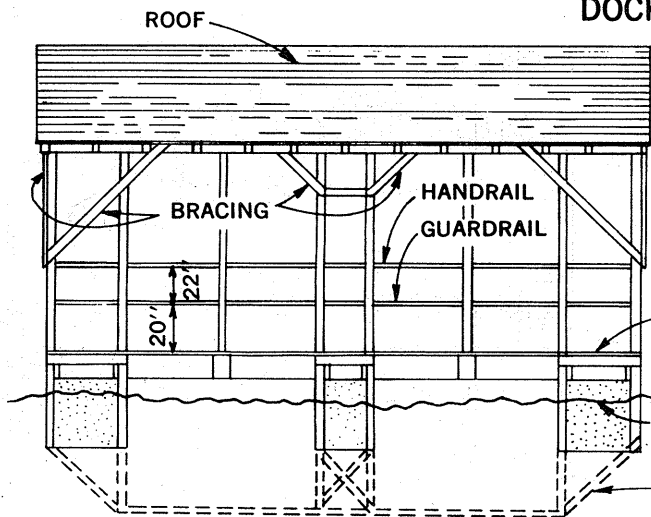
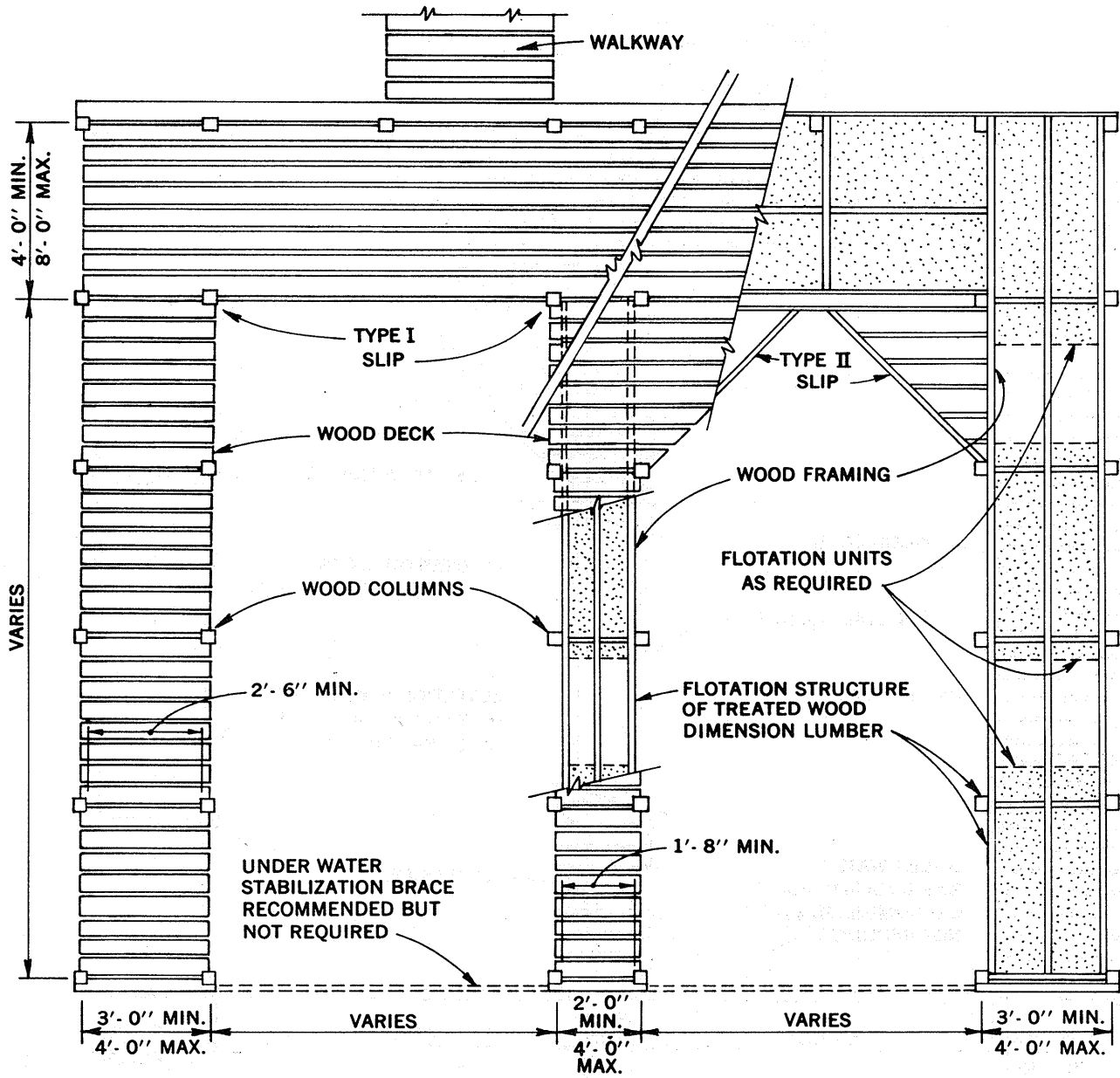
a. A stabilized or underwater metal brace is recommended but not mandatory on the front (lake side) of a boathouse between the dock walkways.

b. The size of the metal brace will be determined on the width between the dock walkways.

c. The depth of the metal brace below the waterline will be determined on the draft of the floating craft to be stored in the boathouse.

TYPICAL PLANS FOR DOCKS AND BOATHOUSES

These typical plans are included for illustrative purposes only. The shapes, sizes and uses of these types of floating facilities are so varied. Complete construction plans for these floating facilities must be submitted to the Resident Engineer, where it is desired to place and/or operate such facility, for review and necessary action before a permit will be issued. Approval of the plans should be received prior to initiating construction.



WOOD BOAT DOCK

NOT TO SCALE

LITTLE ROCK DISTRICT
SAFETY CHECKLIST FOR INSPECTION
OF COMMUNITY AND PRIVATE DOCKS

1. CONSTRUCTION DETAILS. In wood construction, all connections shall be secured with sheet metal, steel plates, metal straps, or plywood gussets to resist movement that would tend to dismantle the structure. All columns and walls shall be adequately braced to resist windloads. Roofs shall be securely fastened to the superstructure to resist wind uplift.

2 FLOTATION.

a. Flotation shall be of materials which will not become waterlogged or sink when punctured.

b. Flotation shall be adequate to maintain a stabilized and safe dock.

c. The three grades of molded expandable polystyrene are described below in order of preference:

(1) Type SE - Self extinguishing or fire retardant. As long as there is nothing to kindle the flame, the foam will not burn.

(2) Type GR - Gasoline resistant. While not impervious to petroleum products, this type of foam performs well in cases of splash or spills. In such instances, evaporation can occur before the attack on the foam becomes apparent.

(3) Type REG - This is the most common type of expandable polystyrene. It is neither gasoline resistant nor fire retardant.

Use of Type SE expandable polystyrene is recommended because of added safety of having fire retardant flotation.

3. ANCHORAGE. An anchorage system shall be provided which will insure secure mooring of the structure, taking into consideration the water depth, exposure to wave action, and windloads. For structures anchored in rivers, the anchorage shall provide safety against extreme water level fluctuations, currents, drift impact, and wave action.

4. WALKWAYS.

a. Walkways shall not be less than 3 feet in width, except between slips where the minimum width shall be 2 feet.

b. Walkways shall be kept free from mud, ice, snow, grease, or any other material or obstructions which would render them unsafe to the persons using them.

c. Walkways shall be structurally sound. Lumber used in these walkways shall be free from knots, splits, decay, or other conditions which would decrease the strength of the walkway. Lumber used in walkways shall have a minimum size of 2 inches by 6 inches or be of equivalent strength.

d. Walkways shall be free from protruding nails.

e. Walkways from shore to dock shall be free from excessive spring, deflection, or lateral movement; adequately supported with flotation where necessary; and above water at all times, so as to provide safe access.

5. HANDRAILS.

a. Handrails around outside perimeter of docks shall be 42 inches in height, with a guardrail approximately 20 inches in height below the handrail.

b. Handrails shall be structurally sound and maintained in a state of good repair, and be a minimum size of 2 inches by 4 inches.

c. Walkway from shore to dock shall have a minimum of one handrail, 42 inches in height, with a guardrail approximately 20 inches in height below the handrail.

d. Handrails shall be located in all areas of the perimeter not subjected to frequent loading and unloading of boats.

6. ELECTRICAL.

a. The supply cable from the meter pole to the dock shall be either a multiconductor, neoprene-jacketed cable, or messenger-type service cable. Wire shall be sized for the intended service, but in no case shall the conductors be smaller than No. 6. The supply cable shall be installed to maintain a minimum of 18 feet clearance above ground where public vehicular traffic may travel and a minimum of 12 feet clearance above ground or water at all lake elevations at other locations. Use of intermediate poles may be required to maintain this clearance. A takeup reel shall be furnished either at the dock or the final pole to eliminate the excess sag. "Dock" refers to any separate floating structure requiring electrical service. A simple sketch illustrating the above requirements is shown on Plate 1.

b. A fused disconnect switch shall be provided for deenergizing the supply cable at the meter pole. The supply cable shall be terminated on a main circuit breaker in a panelboard at the dock. The panelboard shall be designed to accommodate the number of branch circuits furnished on the dock. (See requirement in subparagraph 6c below for determination of number of circuits.) The panelboard shall be centrally and conspicuously located on the dock and shall be in a rainproof enclosure.

c. Receptacles shall be rated not less than 20 amperes and shall be of the grounding type, mounted at least 3 feet above the floor. Outside receptacles shall be weatherproof. Other circuits shall be designed for the intended use and individual branch circuits shall be provided for all loads except lighting. The dock lighting fixtures shall be so constructed and installed that water cannot enter or accumulate in the lampholders or other electrical parts. The fixtures shall be suitable for damp or wet locations. Each fixture shall be mounted on a corrosion-resistant box equipped with a neoprene gasket and threaded hubs for conduit connections. Fixtures shall be mounted at least 7 feet above the walkway.

d. The following items shall be grounded by an insulated conductor with a green cover, such conductor to be run with other circuit conductors:

- (1) Boxes, cabinets, and all other metallic enclosures.
- (2) Metal frames of utilization equipment.
- (3) Grounding terminals or receptacles. (All receptacles shall be grounding type.)

e. All dock wiring shall be installed in conduit except that nonmetallic sheathed cable approved for the purpose may be used where there is a need for continuous flexibility or in areas that are inaccessible, such as above ceilings and in dry walls. Conduit may be galvanized steel, PVC, or electrical metallic tubing.

f. The meter pole location shall be such that the meter and pole-mounted service equipment are installed a minimum of 3 feet above the elevation of the top of the flood control pool. In areas where no flood control is provided, the meter and pole-mounted service equipment shall be mounted above the maximum water elevation at which the dock can be safely maintained.

g. Minimum wire sizes shall be:

- (1) No. 6 Awg for service conductors.
- (2) No. 8 Awg for feeder conductors.
- (3) No. 12 Awg for branch circuit conductors.

h. Service conductors may be buried from the meter pole to the dock. The dock end of the service conductors may be installed on a takeup reel, so positioned that the conductor angle will be practically straight, or may be installed with a loop in the cable under water. Buried cable shall meet the requirements of the National Electric Code for the intended use.

i. All electrical work shall be carefully designed. A plan showing the physical layout of the fixtures, conduit, fittings, wiring diagrams, and catalog data covering the items of material to be incorporated in the work

shall be submitted to the Corps of Engineers for approval. Approval of the above shall be obtained before any work is commenced. Electrical work shall be performed by competent electricians in a workmanlike manner and shall be subject to Corps of Engineers approval, as well as all local and State codes and the National Electric Code in effect at the time. All work not in accordance with the above will be subject to disapproval and correction will be required.

j. All new docks shall be wired to meet the requirements of this regulation when constructed. All new wiring installed on existing docks shall meet the requirements of this regulation. All hazardous wiring and/or electrical apparatus which in the opinion of the Corps of Engineers inspector is an immediate threat to the safety of the public shall be repaired to the satisfaction of the inspector until the dock is completely rehabilitated.

7. FIRE PROTECTION.

a. An A-B-C dry chemical fire extinguisher of not less than 10 pounds in capacity shall be located on every community dock. On community docks over 50 linear feet, an A-B-C dry chemical fire extinguisher shall be located every 50 linear feet.

b. It is recommended that a fire extinguisher be located at the entrance to the dock.

c. All fire extinguishers shall be inspected by owner every 4 months and bear a date inspection tag.

8. EMERGENCY RESCUE EQUIPMENT. A United States Coast Guard approved ring buoy, having 50 feet of 3/8-inch manila rope or equal, shall be located on each community dock. Where the community dock exceeds 100 linear feet, a ring buoy shall be located every 100 linear feet.

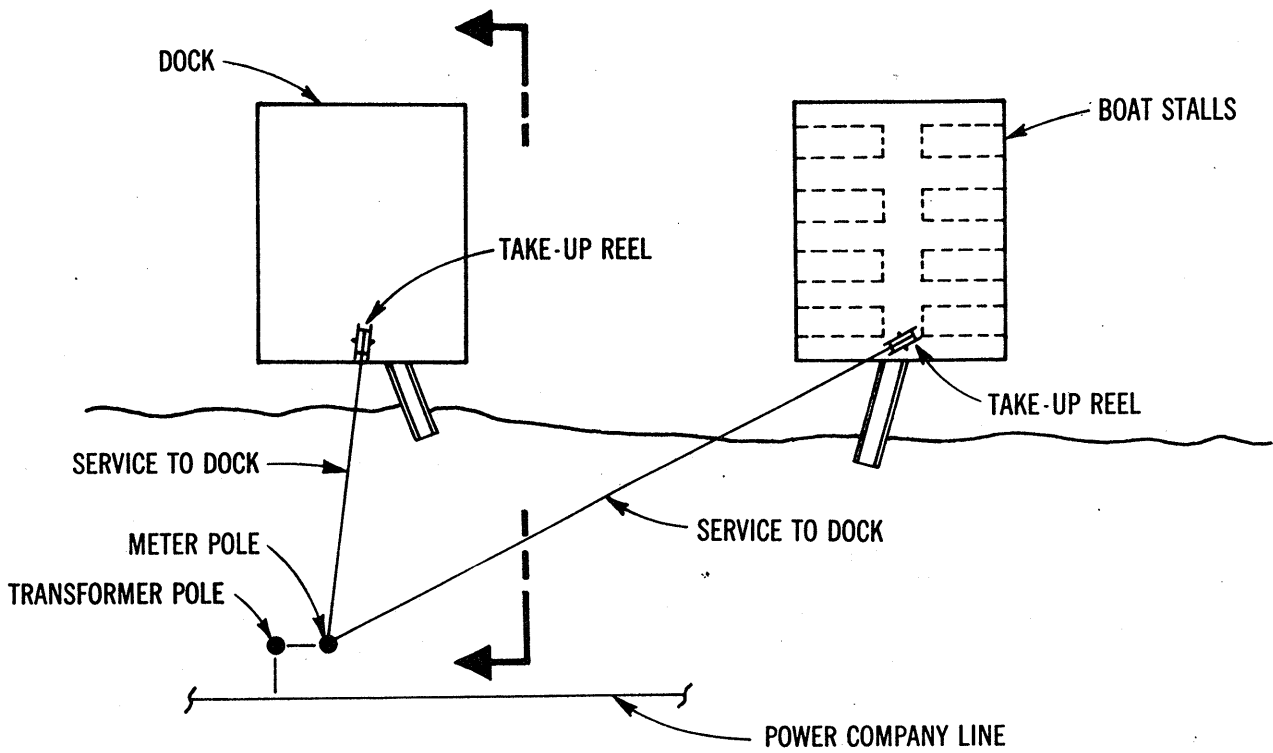
9. STORAGE ROOMS

a. Gas cans and batteries shall not be stored in the same storage room.

b. Storage rooms where flammable liquids are stored shall be ventilated so as to have no accumulation of fumes.

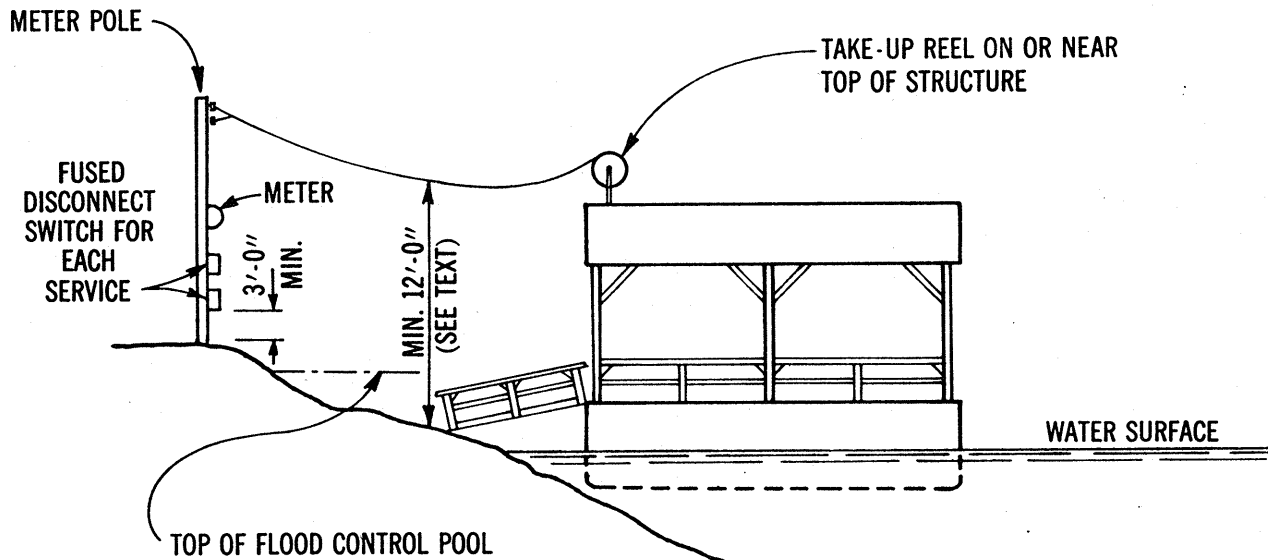
c. Rooms in which batteries are charged shall be well ventilated near the ceiling to prevent hazardous accumulation of gases.

10. INSPECTION The above-mentioned docks shall be subject to periodic safety inspections not less than annually by the Resident Engineer.



PLAN

NO SCALE



SECTION

NO SCALE
(TYPICAL ALL DOCKS)