

BARREN RIVER LAKE, KENTUCKY

GREEN RIVER BASIN

DESIGN MEMORANDUM NO. 16

UPDATED MASTER PLAN

1985

Prepared by

U.S. Army Engineer District, Louisville  
Corps of Engineers  
Louisville, Kentucky

## SUMMARY

This study considers existing use and presents plans for further development of the recreation resources at Barren River Lake. Recommendations made in this report have considered existing environmental and site management conditions. The proposed actions considered in this report include:

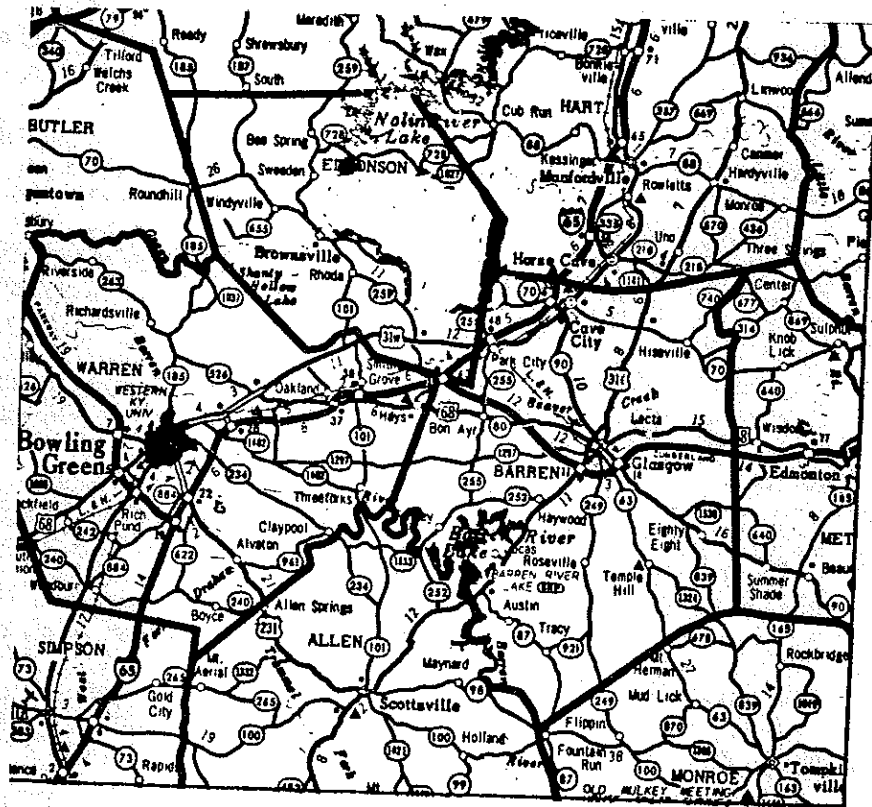
- a. Upgrading of camp sites, upgrading and additional sanitary facilities, and enhancement of day-use facilities in tailwater area.
- b. Consolidation of maintenance areas into one centralized facility located near the right abutment of the dam.
- c. Construction of an office/interpretive center near the dam.
- d. Relocation of existing day-use near the right abutment of the dam to Bailey's Point.
- e. Relocating the day-use facilities in the area on the left abutment to the tailwater area.
- f. Reconstruction of camping facilities, road improvements, and rehabilitation of day-use facilities at Beaver Creek.
- g. Confirmation of the proposal by the Barren County Fiscal Court to lease a portion of the Austin Site. The balance of the site is closed and will be used in the wildlife management program.
- h. Relocation of camping from Austin and Brown's Ford.
- i. Construction of a seasonal ramp and improvement of day-use facilities at Bailey's Point.

BARREN RIVER LAKE, KENTUCKY  
GREEN RIVER BASIN

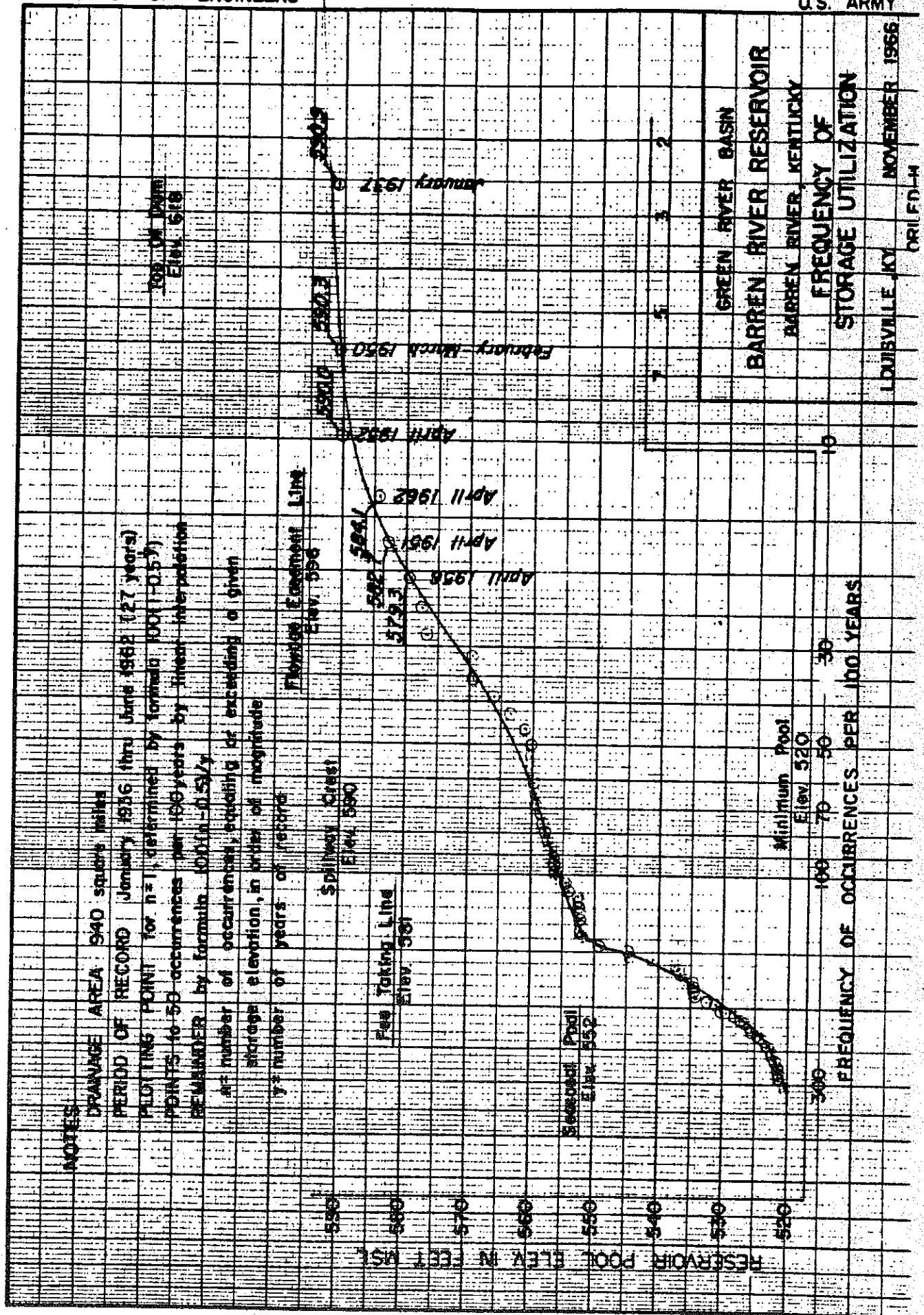
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LAKE AREA MAP  
BARREN RIVER LAKE



# ANNUAL VISITATION

(in thousands)

1975 - 1984

## BARREN RIVER LAKE

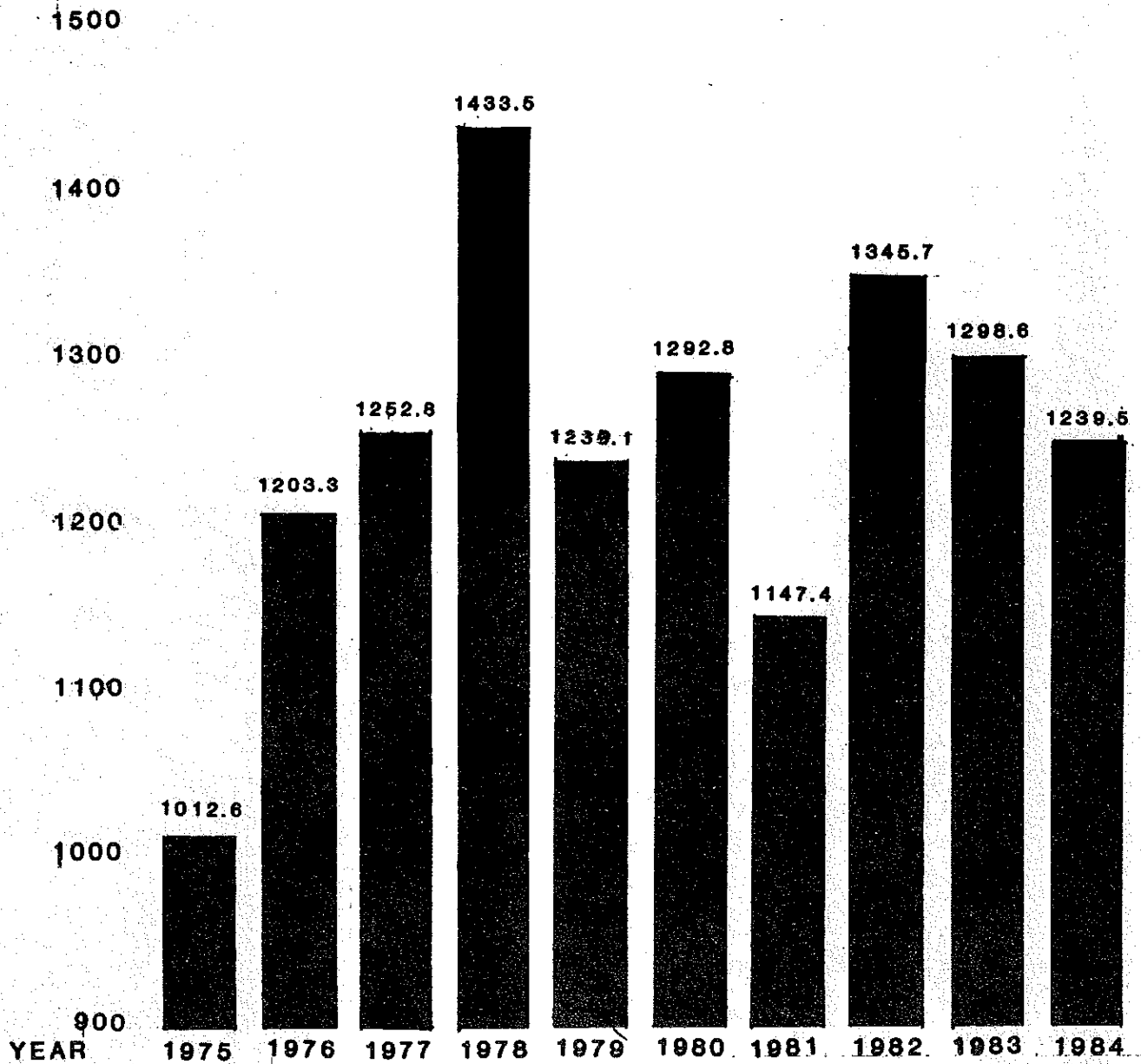


Figure 4

### III. STATUS OF PROJECT

3-01. General. Construction of Barren River Lake began in March 1960 and all major construction and relocation items were completed in October 1964. The project was placed in operation in March 1964. Land acquisition is complete.

Total construction costs of the project to 30 September 1984 are \$27,371,298 which includes \$2,224,948 Code 711 funds and \$110,107 Code 713 funds. Maintenance costs through the same date were \$7,914,970 which include \$100,000 supplemental funds and \$186,688 special recreation use fees. Contributed funds (matching Code 713 funds from the Commonwealth of Kentucky) amounted to \$108,418.

#### IV. RECREATIONAL AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA

4-01. Physiography, Soils and Geology. The Barren River basin lies within the Interior Low Plateaus Physiographic Province. This province is south of the limit of glaciation and along the axis of the Cincinnati Arch. The Mississippian Plateau, also known as the Pennyroyal Region, covers most of the basin. The Eastern Pennyroyal is an area of steep sloping uplands and narrow ridges with some underground drainage and karst areas.

The Baxter-Bedford Association and the Trimble-Garmon-Mountview Association are the dominant soil types of the area.

The principal bedrock surfaces of the basin are of the Mississippian System. Rocks of the Osage Group are at the base of the Mississippian section and consist of shale, limestone, chert and sandstone. The next youngest group of rocks within the Mississippian System are the limestones of the Meramac Group, which are cavernous and underlie the rolling karst areas in the basin; however, no caves of commercial proportions are known to exist in the lake area.

4-02. History. The Green River Basin was first explored by hunters such as Daniel Boone and John Knox in the 1760's and 1770's. Early settlers followed these hunters and developed farms and settlements along the valleys while using the rivers for transportation and mills.

Barren River was an important waterway for flatboat commerce during the early 1800's. Navigation was opened all the way to Indian Creek in Monroe County by 1837.

The region has largely retained its rural character. Agriculture and forestry are still the dominant land uses with surface mining of coal next in importance. The towns in the basin are small agriculture-serving communities. The largest urban center in the Barren River Basin is Bowling Green in Warren County which is approximately 25 miles from Barren River Lake.

4-03. Environmental and Scenic Qualities. The lake area varies from rugged near the dam and in the upper reaches to gently rolling near the center. The slopes are generally tree-covered with open pasturage on the flatter uplands. These uplands had been cleared of most tree cover and were intensively farmed prior to construction of the lake. Programs for the management of wildlife have resulted in reforestation of some areas while others are actively cropped with a part of the crops left in the field as food and cover.

The shoreline varies from gently sloping to steep. Bluffs are detrimental to recreation development at some sites because they limit access to the water.



## V. FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT

5-01. General. This section analyzes data to determine the assets and liabilities of this project. Need for and benefits of additional development will be considered for the limited lands available so as to achieve the most desirable plan of future use. Any proposed development will take into account the environment, as has been done in existing facilities, so as to minimize the detrimental effects while providing quality recreation.

5-02. Demography. The Barren River basin is primarily rural in character, and agriculture and related industries are the primary employers; however, there has been a slow trend toward urbanization.

The major agricultural activity is the production of livestock and livestock-related products. The major cash crop is tobacco, but considerable acreage is devoted to grain cash crops such as wheat, corn and soybeans. There is a tendency toward larger farm units, but the average size is still only 100 acres.

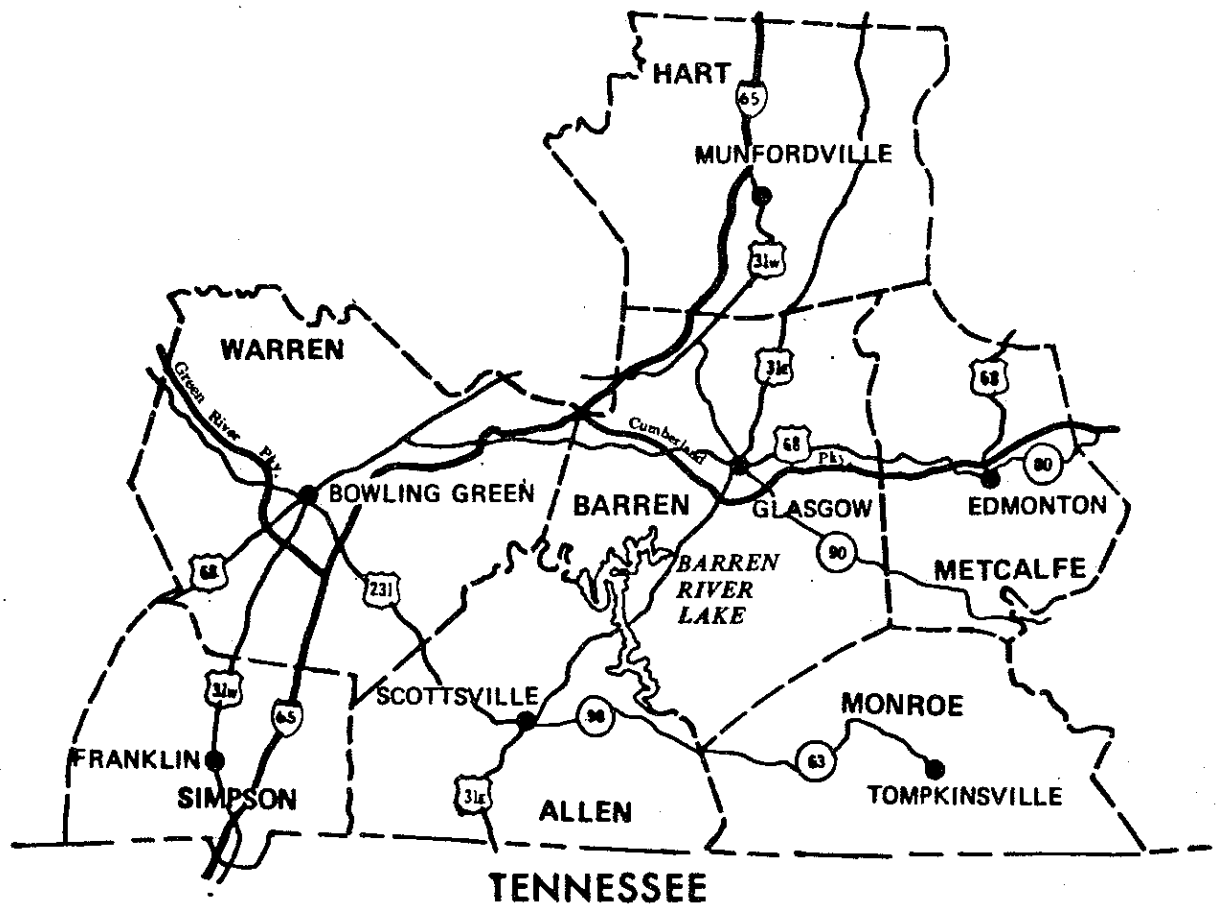
The principal towns of the area are the county seats, which serve as commercial and trade centers for the surrounding agricultural area. The major urban centers are Bowling Green, Glasgow and Scottsville. Their location on major transportation routes such as Interstate 65, the Western Kentucky Parkway, and the Cumberland Parkway has contributed to industrial development.

5-03. Accessibility. Barren River Lake is easily accessible. The Cumberland Parkway passes just north of the lake, and I-65 passes a few miles west. U.S. 31-E parallels the lake for some distance and crosses near the State Park site. All recreation sites are readily accessible from State and county roads except the Austin site which is accessed by a series of curvy, county roads.

The ease of access has made this lake popular with visitors from larger urban areas. Although travel distance is greater, the actual driving time in many cases is comparable to that required to similar facilities with the region.

5-04. Area of Influence. Barren River Lake has a primary and secondary area of influence. The primary region is the seven-county area within 50 miles of the lake; the secondary lies over 100 miles from the lake and consists principally of urban, weekend visitors. The percentage of contribution of each area will be considered to remain steady and projections will be based on the growth and population trends of the primary area. The primary area is further restrained by the proximity of competing projects. The area of influence and road distances are shown in Table 1 below. This area is shown in Figure 6. Table 2 shows those similar projects which compete with visitation to Barren River Lake.

KENTUCKY



PRIMARY  
ZONE OF INFLUENCE  
BARREN RIVER LAKE

Those counties within the primary zone of influence are expected to exhibit modest growth over the life of the project. It is expected that this growth and the increase in importance of urban areas as the farm population diminishes will be reflected in future visitation. Table 3 gives actual 1980 population data and projections through 2020.

TABLE 3  
POPULATION PROJECTIONS \* -  
BARREN RIVER LAKE

County	Actual 1980	Projected	
		2000	2020
Allen	14,128	15,230	15,947
Barren	34,009	40,198	45,874
Hart (1/2)	7,701	8,933	10,086
Metcalfe	9,484	10,047	10,338
Monroe	12,353	13,097	13,470
Simpson	14,673	16,708	18,768
Warren	71,828	80,020	83,636
	164,176	184,233	198,119

\* How Many Kentuckians: Population Forecasts, 1980-2020

"The 1979 Update," prepared by University of Louisville, Urban Studies Center, Population Research Unit, James M. Brockway, Ph. D. & Clarence J. Wurdock, December 1981.

5-05. Anticipated Future Attendance. Using the 1980 visitation of 1,292,800 since this is near the 10-year average, visitation can be projected as follows:

Total visitors	=	1,292,800
64% within 50 miles	=	827,392
total 1980 population	=	164,176
per capita use rate		
827,392/164,176	=	5.04

The population projection of 184,233 in the year 2000 at a per capita use rate of 5.04 results in visitation as shown:

Projected 2000 population	184,233
Visitors within 50 miles (184,233 x 5.04)	928,534
Total visitors (928,534/.64)	1,450,834

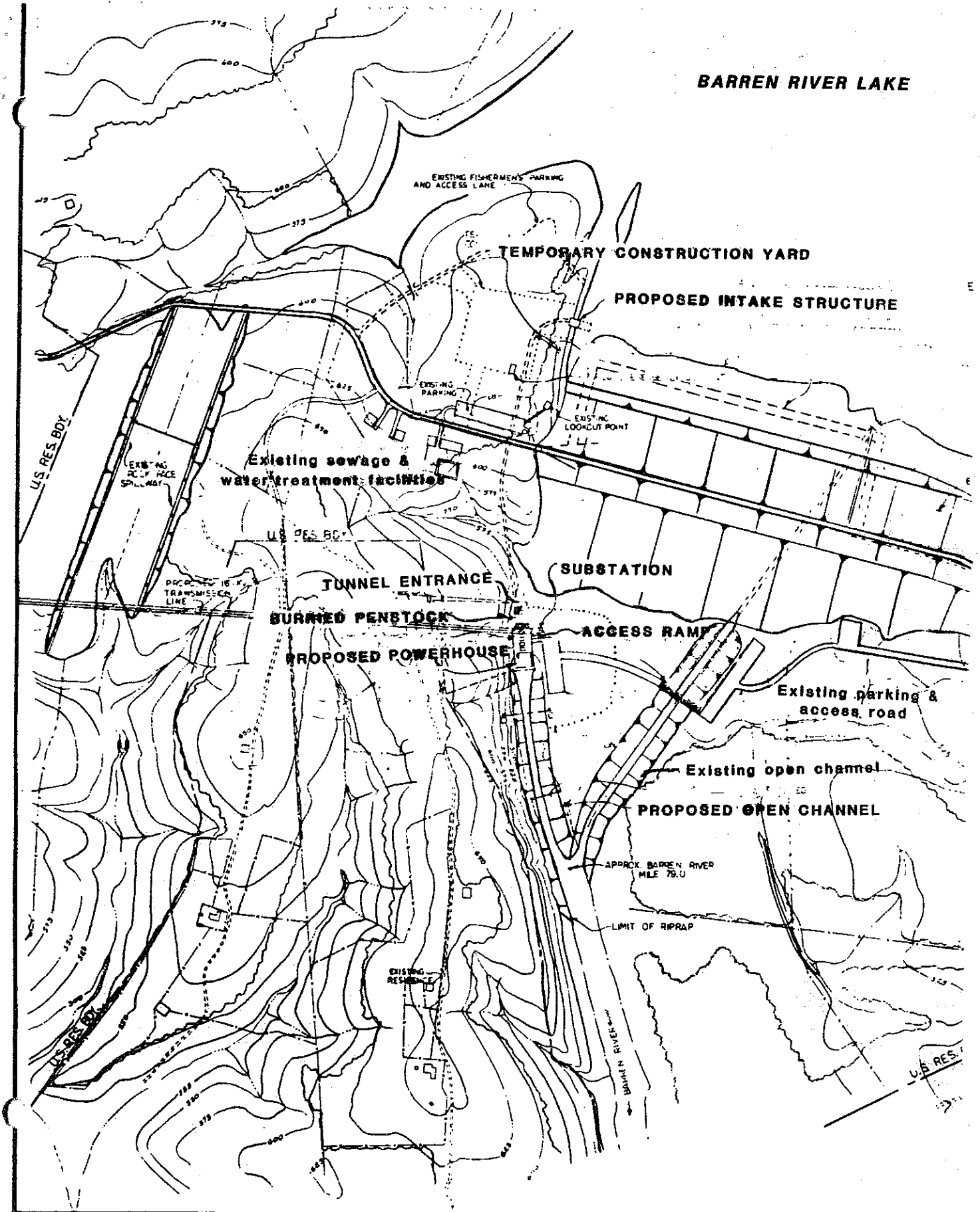
Using the per capita rate of 5.04 and the projected 2020 population of 198,119, future visitation is estimated as follows:

Projected 2020 population	198,119
Visitors within 50 miles (198,119 x 5.04)	998,520
Total visitors (998,520/.64)	1,560,188

The projected visitation for the year 2020 is lower than the previous estimate which was 2 million visitors. The size of the present estimate reflects a slower growth for the population of the 90-mile area of influence. However, about 32 percent of the visitors currently come from urban areas outside of the 90-mile zone. Since the projected growth of these cities is more rapid than the growth of the area of influence, the original estimate of 2 million visitors by the year 2020 is still believed to be valid.

5-06. Hydropower. The Glasgow Electric Plant Board applied for and has been granted a license to develop the hydropower potential of the lake. The facility is expected to be a run-of-the-river using the overflow detailed in the project rule curve. A sketch of the proposed plan is shown in Figure 7. In September 1985, the Board must commence construction, however, indications are that they will have to have the date extended by FERC. The impact of the proposal on public use facilities will have to be mitigated as part of the construction. If the preliminary proposal is followed, the tailwater fishing area would be relocated from the existing channel at the outlet works to the open channel downstream of the powerhouse. A bridge would be built across the existing channel and a road and parking lot built to allow fisherman access to the new area. The existing channel would be retained as a backwater fishing area. Some adverse impacts are inevitable during the construction period, however, plans will have to be carefully developed to minimize these effects. For a further description of the site see paragraph 8-05.

# BARREN RIVER LAKE



## VI. COORDINATION WITH OTHER AGENCIES

6-01. General. Coordination with other Federal, State and local interests is a continuing process in order to achieve maximum benefits and to insure orderly development of the project. Upon initiation of this study, letters were sent to various interested parties asking for their views. As a result of this early coordination effort, a workshop was held in Bowling Green, Kentucky, on 23 July 1981. The Barren River Area Development District was extremely active in identifying interested parties and cooperative in arranging facilities for this workshop. Concerned agencies and individuals were given the opportunity to voice their concerns on present development at the lake and to express their views on what they considered to be future goals.

a. Federal. As expressed in their reply to the initial coordination effort and at the workshop, the U. S. Fish and Wildlife Service assured its help and cooperation in any regard to the project. They also expressed concern about the effects of the Sikes Act on real estate management at a project such as Barren River Lake. A Louisville District Real Estate Division attorney's opinion was sought on the applicability of this Act and it was determined that it did not apply to Corps of Engineers lake projects.

b. State. Plans for the State Park and Peninsula Sites have been discussed with the Kentucky Department of Parks, the managing agency. All plans for development of these sites are coordinated with this office. The Kentucky Department of Fish and Wildlife Resources manages over 17,000 acres for fish and wildlife purposes. Management plans, cropping agreements, etc., are approved by this office. This close cooperation will be maintained as future development continues.

Drafts of this master plan were sent to the Department of Parks and the Department of Fish and Wildlife Resources for their comments. Commissioners Karibo and Kays have expressed their concurrence with this plan.

c. Local. Substantive comments were received from the Barren County Joint City-County Planning Commission, the Barren River Area Development District, and the Barren County Fiscal Court. Their comments and the Corps responses are described herein. Also, extensive coordination has been maintained with Allen County.

(1) Site 10, Walnut Creek, has been leased to the Allen County Fiscal Court for management. This site has been operated by the Allen County Fish and Game Club under a third-party agreement with the Fiscal Court as a marina and camping and picnicking area. In January 1982, the Fish and Game Club sold their interest in the marina to new operators, who have agreed to maintain the area in the same manner as the previous subleasee. Both the Fiscal Court and the operators have expressed an interest in continued site development.

- (f) Most of the Camping Areas at the project have boat ramps located close to the campground. This pattern of development will be continued in the future.

(3) Barren River Area Development District staff recommended the following:

- (a) Provide more picnicking and camping facilities.
- (b) Provide electricity, fish cleaning facilities and hot water showers at all camping facilities.
- (c) Enlarge boat ramps; build additional ramp at State Park.
- (d) Limit fishing tournaments so that the participants don't conflict with other boat ramp users.
- (e) Build boat ramp closer to campgrounds.
- (f) Develop hydroelectric capacity.
- (g) Increase law enforcement.
- (h) Provide more swimming areas for highwater use with lifeguards.
- (i) Establish areas for canoeing.
- (j) Bury utility lines in boat launching areas.
- (k) Improve picnic and boat launching areas near KY 100/ Barren River.
- (l) Spread development around lake more, especially in Allen County.
- (m) Restore camping and picnicking on the Peninsula site.
- (n) Construct a boat ramp near the dam.
- (o) Improve and provide lifeguards for Bailey's Point swimming areas.
- (p) Open Bailey's Point for day-use.
- (q) Construct picnic shelters in the Tailwater area.
- (r) Develop lodge type facilities at Bailey's Point.
- (s) Develop camping facilities at Brown's Ford.

- (j) It is desirable to bury utility lines whenever practical, however, with many other needs for the scarce funds available it may be some time before existing overhead lines can be replaced.
- (k) The facilities near KY 100/Barren River are informal facilities which have grown over time. Although this area may receive local use it cannot be added to existing access sites due to funding limitations for both development and operation.
- (l) In order to stretch operation funds the number of areas around the lake must be reduced rather than increased. It is recognized that this may not convenience everybody but we believe that the greatest number can be well served by this conservation of resources.
- (m) There does not appear to be a substantial need for camping and picnicking facilities at the Peninsula site at this time. It is noted that facilities are planned in the Tailwater site which is located nearby.
- (n) The Port Oliver Yacht Club has constructed a sailboat launching facility near the dam. This ramp along with facilities at the Peninsula site are believed to be adequate for boat launching in this part of the project.
- (o) An improved swimming area is proposed for Bailey's Point.
- (p) A day-use area is proposed for Bailey's Point.
- (q) Although picnic shelters are not now proposed for the Tailwater they may be reconsidered when more definite plans are presented for the hydropower facility.
- (r) When the day-use area is developed at Bailey's Point, the site will be fully developed. Development of a lodge would cause overcrowding of the site.
- (s) Although camping has been permitted at Brown's Ford in the past, the site does not lend itself well to camping. Camping no longer will be permitted but day-use facilities will be developed.
- (t) Development of additional boat ramps at Hurricane Creek cannot be proposed since no new sites can be developed without cost-sharing by a state or local agency.



c. Canoers asked that a section of the lake be reserved for their use. This would not be in keeping with the policy of not allowing exclusive use by any group. Tributaries and much of the upper lake are zoned for idle speed which should allow canoers to operate in relative safety without undue wave action.

d. Day-use facilities at Bailey's Point have been proposed for enhancement in response to requests and recommendations for such facilities to lessen the congestion at the camping area.

e. A second ramp at the Park Site was suggested as a need at this site. The ramp is included in approved plans for campground expansion; however, the work has been delayed indefinitely by the State due to budgetary restrictions.

f. Fish cleaning stations will be considered for inclusion in existing areas as project operating funds allow.

g. Supervised swimming at the larger camping areas would entail hiring large numbers of people to lifeguard and maintain beach areas. This plan is not financially feasible.

## VII. FACILITY LOAD AND DESIGN CRITERIA

### 7-01. Evaluation of Existing Facilities.

a. Existing User Demand. The existing user demand can be reflected in the minimum existing design requirements when visitation (1980 base) is used as a basis for the computations.

b. Activity Design Load (ADL). The ADL for an activity based on current visitation is:

$$ADL = \frac{K \times AV \times P \times .3}{N \times T}$$

where:

K = Percent of activity visitation expected to occur during the recreation season

AV = Annual visitation (1980)

N = Number of weeks in the normal recreation season (15)

.3 = Percent of weekly visitation expected to occur on a normal summer Sunday

T = Turnover rate for the activity

P = Percent of annual visitation expected to engage in an activity

<u>Activity</u>	<u>P*</u>	<u>K*</u>	<u>T</u>
Boating	.18	.545	2.5
Camping	.12	.696	1
Fishing	.24	.375	3
Picnicking	.12	.765	2
Swimming	.22	.901	2

\* Percentages based on monthly visitation reports

7-02. Projected Intermediate User Demand

a. Using an annual visitation to the project in the year 2000 of 1,450,000 facility needs at that time can be projected.

b. The same method of estimating the activity design load as used in para. 7-01b. results in the following average weekend-day use:

$$\text{ADL(2000) (Boating)} = \frac{.545 \times 1,450,000 \times .18 \times .3}{15 \times 2.5} = 1,138 \text{ persons}$$

$$\text{ADL(2000) (Camping)} = \frac{.696 \times 1,450,000 \times .12 \times .3}{15 \times 1} = 2,422 \text{ persons}$$

$$\text{ADL(2000) (Fishing)} = \frac{.375 \times 1,450,000 \times .24 \times .3}{15 \times 3} = 870 \text{ persons}$$

$$\text{ADL(2000) (Picnicking)} = \frac{.765 \times 1,450,000 \times .12 \times .3}{15 \times 2} = 1,331 \text{ persons}$$

$$\text{ADL(2000) (Swimming)} = \frac{.901 \times 1,450,000 \times .22 \times .3}{15 \times 2} = 2,874 \text{ persons}$$

c. Minimum Intermediate Design Requirements (MIDR). The number of units, sites, or parking spaces required to accommodate users in a specific activity is reflected below:

$$\text{MEDR(2000) (Boating)} = \frac{1,138 \text{ persons}}{3 \text{ persons/car trailer space}} = 379 \text{ car/trailer spaces}$$

$$\text{MEDR(2000) (Launching)} = \frac{1,450,000 \text{ visitors}}{40,000 \text{ visitors/launch lane}} = 36 \text{ launch lanes}$$

$$\text{MEDR(2000) (Camping)} = \frac{2,422 \text{ persons}}{4 \text{ persons/campsite}} = 605 \text{ camp units}$$

$$\text{MEDR(2000) (Fishing)} = \frac{870 \text{ persons}}{2.5 \text{ persons/car trailer space}} = 348 \text{ car/trailer spaces}$$

$$\text{MEDR(2000) (Picnicking)} = \frac{1,331 \text{ persons}}{4 \text{ persons/picnic unit}} = 333 \text{ picnic units}$$

$$\text{MEDR(2000) (Swimming)} = \frac{2,874 \text{ persons}}{4 \text{ persons/parking space}} = 719 \text{ parking spaces}$$

$$\text{MEDR(2000) (Swimming)} = 2,874 \text{ persons} \times 100 \text{ sq.ft./person} = 287,400 \text{ sq. ft. of beach}$$

7-04. Existing and Required Facilities. Existing facilities were inventoried as a base in establishing whether current needs have been met and where shortages may be expected in the future. A summary of these facilities and of current and expected future needs are shown in Table 4.

TABLE 4  
SUMMARY OF REQUIRED FACILITIES

Year	C/T Parking	Launch Lanes	Camp Sites	Picnic Units	Swimming	
					Beach	Car Parking Spaces
Existing	680	25	530	283	120,000	190
Required 1982	648	33	540	297	256,300	641
Required 2000	727	36	605	333	287,400	719
Required 2020	782	39	652	358	309,300	773

A comparison between existing and currently needed facilities indicates a shortage of launch lanes and beach area exists. Other facilities are at or near the number needed to satisfy present demand but do not allow for any growth of demand. This shortage will become more acute unless planning for future need is continued.

7-05. Design Criteria. Design criteria and layout of facilities are in accordance with ER 1110-2-400, Design of Recreation Sites; EM 1110-2-400, Recreation Resources Planning and Design Criteria; and ER 1120-2-400, Recreation Resources Planning. A summary of special design considerations is presented herein.

7-06. Roads. (Drawing Nos. 1 and 2) Four types of roads are used at the project.

Type A road will have a 22-foot wide bituminous concrete surface with 4-foot grassed shoulders.

Type B road will have a 20-foot wide bituminous concrete surface with 2-foot grassed shoulders.

Type C road will have an 18-foot wide surface, with 2-foot wide grassed shoulders.

7-12. Utilities. Secondary utility distribution systems will be located in such manner as to preserve the landscape and enhance the quality of the environment to the maximum practicable extent. This can be accomplished by placing these facilities underground, wherever practical, and especially within the recreation sites and areas, concession areas, and special use areas, except where to do so would cause excessive damage to the ecology of the site or area. The use of overhead wires across the launch ramp will be avoided to preclude the danger of contact with sailboat masts. When overhead utility lines become imperative, special care must be taken to insure minimum impact upon the environment.

Utility rights-of-way should be kept to a minimum in both width and impact. Park access road rights-of-way should be considered for this purpose.

## VIII. PLAN OF DEVELOPMENT

8-01. Zoning of Project Lands (Plates A1, A2, & A3). Project lands are allocated to meet the best management potential of the resources to achieve maximum benefits over the life of the project. Allocations are made in accordance with ER 1110-2-400. The total project lands include approximately 20,108.61 acres of which 10,106 are above seasonal pool. Environmental conditions have been considered in the allocations to prevent deleterious effects from misuse of project lands. These allocations are as follows:

a. Project Operations. Three hundred and eighteen acres have been retained for project operations of the dam and outlet works and as a maintenance and administrative area. One hundred and ten acres of this land have been developed for recreation purposes. Lands within the area may be periodically restricted for reasons of public safety and project security.

b. Operations, Recreation - Intensive Use. The 946 acres of joint-use land in this category include those areas where intensive use facilities, such as marinas and ramps, are located and also that land which lies between recreation lands and the seasonal pool. These lands are subject to the same intensive use as specific recreation lands; however, since they lie within the flood pool, use may be curtailed or interrupted by high water.

c. Operations, Recreation - Low Density. Lands in this classification are available for trails and other low density recreation and as either wooded or open spaces between noncompatible uses such as intensive recreation and fish and wildlife. Lands which are accessible from roads and bridges around the project are also included in this category because of their use for bank fishing. Management practices in the designated 560 acres encourage opportunities for nature study and increased public awareness of the environment.

d. Operations, Wildlife Management. Programs of wildlife management and improvement involving planting of food plots and brush control are a part of the 6,205 acres in the category. This land is available for low-density recreational activity.

e. Operations, Forest Reserve Land. Access to much of these lands is limited by the steep slopes. The natural forest cover provides excellent wildlife habitat, but it is primarily devoted to erosion and vegetation control. These 590 acres are available in the wildlife program and also for light density recreation.

f. Recreation Lands. One thousand, four hundred and eighty-five acres were acquired specifically for recreation. Primary recreation development is located on these lands which are available for all types of recreation.

a. Dam and Tailwater Area, Site 1 (Plates 2 and 3). This site of 318 acres includes operation and maintenance areas as well as recreation activities. The 1984 visitation to the site 266,828 which reflects the popularity of the facilities. Access to the site is from State Route 252 which loops around both sides of the lake from U. S. 31E. The Glasgow Electric Plant Board has a license to build a run-of-the-river power facility at the dam. This facility could make major changes to the left abutment area and the tailwater. Site 1 is divided into four parts, as follows:

(1) Project Operations. The Barren River Lake operations area contains the office, maintenance building, a former residence, and a sewage treatment plant which are located at the northern (right) end of the dam. The residence has been pressed into service as a maintenance repair shop, and for storage of interpretive materials, and as a shelter for interpretive programs during the inclement weather. Across Highway 252 from the office is located an overlook/comfort station with a 50-car parking area. Additional maintenance facilities are located along the road to the tailwater. These include a storage building and an open storage yard. Although the storage yard is screened from the tailwater road, it is unsightly when viewed from the highway on the top of the dam.

The lack of centralization of operation and maintenance facilities results in inefficiency, because people and materials have to move frequently between areas. Consequently, a centralized maintenance center is proposed as part of construction of the hydroelectric generating facilities. The sewage treatment plant also needs to be upgraded because it does not have sufficient capacity to accommodate the proposed upgrading of the tailwater area. Across S.R. 252, a new office and interpretive center would provide needed office space and allow a more fully developed interpretive program.

(2) Tailwater Area. Tailwater facilities are located on the left bank of the river which has generally flat topography. This recreation area serves both overnight and day-use activities. A fishing platform is located along the stilling basin, and a picnic area has been developed around the parking lot. A small picnic area is located along the tailwater access road between the previously mentioned storage building and open storage area. 68 campsites and a one-lane ramp lie along the stream bank below the stilling basin.

The popularity of this area is leading to its degradation. Campsites, picnicking and sanitary facilities are in need of rehabilitation and upgrading. It is proposed that the small picnic area along the tailwater access road and the one located on the left abutment, be consolidated with the existing picnicking at the tailwater. A waterborne comfort station will be located in the area as part of the upgraded sanitary facilities. Campsites will be rebuilt and relocated away from the stream bank which is deteriorating from

b. Peninsular, Site 2 (Plate 3 & 4). This 727.7-acre site is located adjacent to the Dam Site on the east side of the lake. The site, which is accessible from State Route 252, has been leased to the Kentucky Department of Parks. Initial development consisted of a three-lane ramp, 105 car/trailer parking, and vault toilet. A concessionaire-operated marina, with 104 slips and 40 buoy spaces has been developed by the State on the opposite side of the peninsula from the ramp. The balance of the site is undeveloped and is used in the wildlife management program. At present, the Department of Parks has no plans for additional development of the site. Future development will be contingent upon need. However, since no timetable for any definite development is proposed and needs could change substantially in the future, feasibility studies and cost estimates have not been presented. This site received a visitation of 75,096 people in 1984.

c. Beaver Creek, Site 5A (Plate 5). This site is accessible from State Route 252, and is one of the closest recreation areas to Glasgow. The site contains 57 acres with 45 of these specific-use recreation land. Visitation in 1984 was 47,696. Initially minimum facilities of a two-lane boat ramp, 50 car/trailer parking and vault toilet were constructed. All recreational use are confined to a 22 acre peninsula along the southern edge of the site. Although originally developed as a day-use area, this peninsula has been serving as both a day-use and a non-fee camping area. The 33 sites extend the length of the peninsula along a wooded bluff overlooking the launching ramp and are served by a gravel road. The only shade is along the wooded strip. The land slopes gently from the bluff to the cove on the opposite side of the peninsula, and is used as an overflow area. Vehicles are frequently driven to the water's edge and boats launched from the bank.

This site is overused and abused. Ground cover has been destroyed by the 2200 annual visitors per acre and the flooding during periods of high water. Dust from the gravel road contributes to the problems of this area. Measures considered for this site include (1) closing and relocating facilities, (2) restricting use to day-use or camping and (3) rehabilitating and upgrading the area. It was decided that rehabilitation and upgrading of this site is the most feasible solution because the area is popular and well-suited for shoreline activities. Furthermore, another area offering equal water-accessibility is not available nearby and day-use and camping are both popular.

It is proposed that a paved road be constructed parallel to the gravel road. A total of 42 camp sites, each approximately 50 feet apart will be developed along this road. Each site will be equipped with minimum facilities for a table, campfire ring, and either a garbage can or a dumpster to serve several sites. A turnaround about mid-point on the road would have parking for 30 cars to serve day-users. The area will be regraded and seeded. Native species of trees which are tolerant of occasional flooding will be planted to further enhance the area.



f. Austin, Site 8 (Plate 8). Development and use of this 64-acre site has been hindered both by its topograph and access. Visitation in 1987 was 7,757. Because of the difficulty of managing and patrolling this site and the small usage experienced, the site was scheduled to be closed. In a letter, dated 15 September 1982 (Exhibit F), the County Judge/Executive of Barren River expressed the interest of the Barren County Fiscal Court in leasing a portion of the site and then sub-leasing to a group of local residents who have formed the "Austin Board Ramp Association." The group wants to lease only the ramp and half of the parking lot. They have agreed to maintain the security light at the ramp and another at the top of the steps. Mowing along the access road and trash pickup are included in the plan. A 5-year lease has been negotiated with Barren County Fiscal Court and was signed by the County Judge/Executive on 23 April 1983. A copy of the lease is included in Appendix F. A sign stating "Area Leased to Barren County for Management" will be erected. If the lease is relinquished in the future, the site will be closed. Barriers will be erected to preclude access to the remainder of the site, and the land will be used in the wildlife management program.

The picnic sites presently located at this site will be moved to the day-use area at Bailey's Point. Camping usage will be transferred to The Narrows and Beaver Creek.

g. Brown's Ford, Site 9 (Plate 8). This site contains approximately 48 acres. Visitation in 1984 was 38,437. Minimum development of a two-lane ramp, parking and vault toilet are located on the site. The lake divides the ramp area from the rest of the site, which is again divided by State Route 98. Some camping has been permitted at this site, however, this will no longer be allowed under present operating policy. A small area between the lake and S.R. 98 is used for bank fishing and would be enhanced by improvement of parking and picnicking. The remainder of the site will be held for future development with interim use in the wildlife management program.

h. Walnut Creek, Site 10 (Plate 9). The Walnut Creek site has been leased to the Allen County Fiscal Court under a long-term lease. Initial Corps construction consisted of an access road, two-lane ramp and vault toilet. The Fiscal Court subleased the site to the Allen County Fish and Game Club for management. The Club developed additional roads, a 102-slip marina, 32 campsites and a picnic shelter. The Fish and Game Club, in 1982, sold their interest in the marina to a private operator and the Fiscal Court has negotiated a new third-party agreement, whereby the operators will continue management of the site. The present operator has expressed the intention of continuing development. Permission has been granted to erect an archery range in a hollow near the marina parking lot. Further development of this site is hampered by the lack of potable water, which should be considered the first priority to further development. Two possible sources have been

j. State Park, Site 12 (Plates 11 and 12). Management of this site is under long-term lease to the Kentucky Department of Parks. U.S. Highway 31E, a major north-south artery, traverses the area providing excellent access to the 1,476-acre park. 1984 visitation was 371,967, which represents about 30 percent of the total project visitation. The site has been developed into a major resort park with facilities including a lodge, cottages, golf course, riding stable, marina, beach and bathhouse, swimming pool, campsites, picnicking and boat ramp.

Facility development is coordinated between the Corps of Engineers and Parks Department. Present plans include an addition to the camp area and a launch ramp for use by campers. Plans and specifications have been approved by this office, but construction has been delayed indefinitely due to State budgetary restrictions. Present emphasis is directed toward maintenance and improvement of existing resources and no capital expenditures are anticipated in the near future. No specific plans for future resource development have been evolved at present, and any future facility construction will be dependent on needs and availability of funds.

k. Port Oliver Yacht Club. Although not a designated public use site, the Port Oliver Yacht Club area is considered because of its function as a sailboat launching and storage area. The Club has constructed a one-lane ramp and a dry-sail storage area which permits launching and storage of sailboats without removing the mast. Only the land around the ramp and a small strip of Federal land where the entrance road crosses Government property have been licensed to the club. The Club has cited the difficulties in launching at other sites because of the hazard of contracting overhead wires when masts are raised as reason for developing this site. The Club, which represents 80 family units, has requested permission to construct a dock and a storage area in the water at the site. This permission has not been granted because of the private nature of the club and the exclusivity of use even though the club does allow nonmembers to use the facilities. If a public body could be identified willing to sponsor this site, further development should be considered.

## IX. ADMINISTRATION AND MAINTENANCE

9-01. Legislative Constraints. Barren River Lake was authorized prior to the enactment of Public Law 89-72. Therefore, no local sponsor was required to participate in the initial development of the recreational facilities or in their management and operations. Four sites at this project were leased. The Kentucky Department of Parks has leased and operates the State Park and Peninsula Sites. The Allen County Fiscal Court operates the Walnut Creek Site through a third-party agreement with a concessionaire, and Barren County Fiscal Court has leased a portion of the Austin Site. Administrative policy provides that after 1980, all additional work and all new development except sanitary facilities, will be cost-shared under the same conditions as apply to Public Law 89-72 projects. In such areas, the cost-sharing partner has 100 percent responsibility for operation, maintenance and replacement costs of recreation facilities. The operation of Barren River Lake for flood control, water supply and low flow augmentation is the responsibility of the Federal Government. Since no further participation by State or local agencies has been identified at this time, other than as noted above, the Federal Government will continue to assume responsibility for management of a significant portion of the recreation facilities at the lake.

9-02. Regulations. Barren River Lake will be administered in accordance with the provisions of "Title 36, Chapter III, Part 327, Federal Code of Regulations," and applicable Federal and State policies.

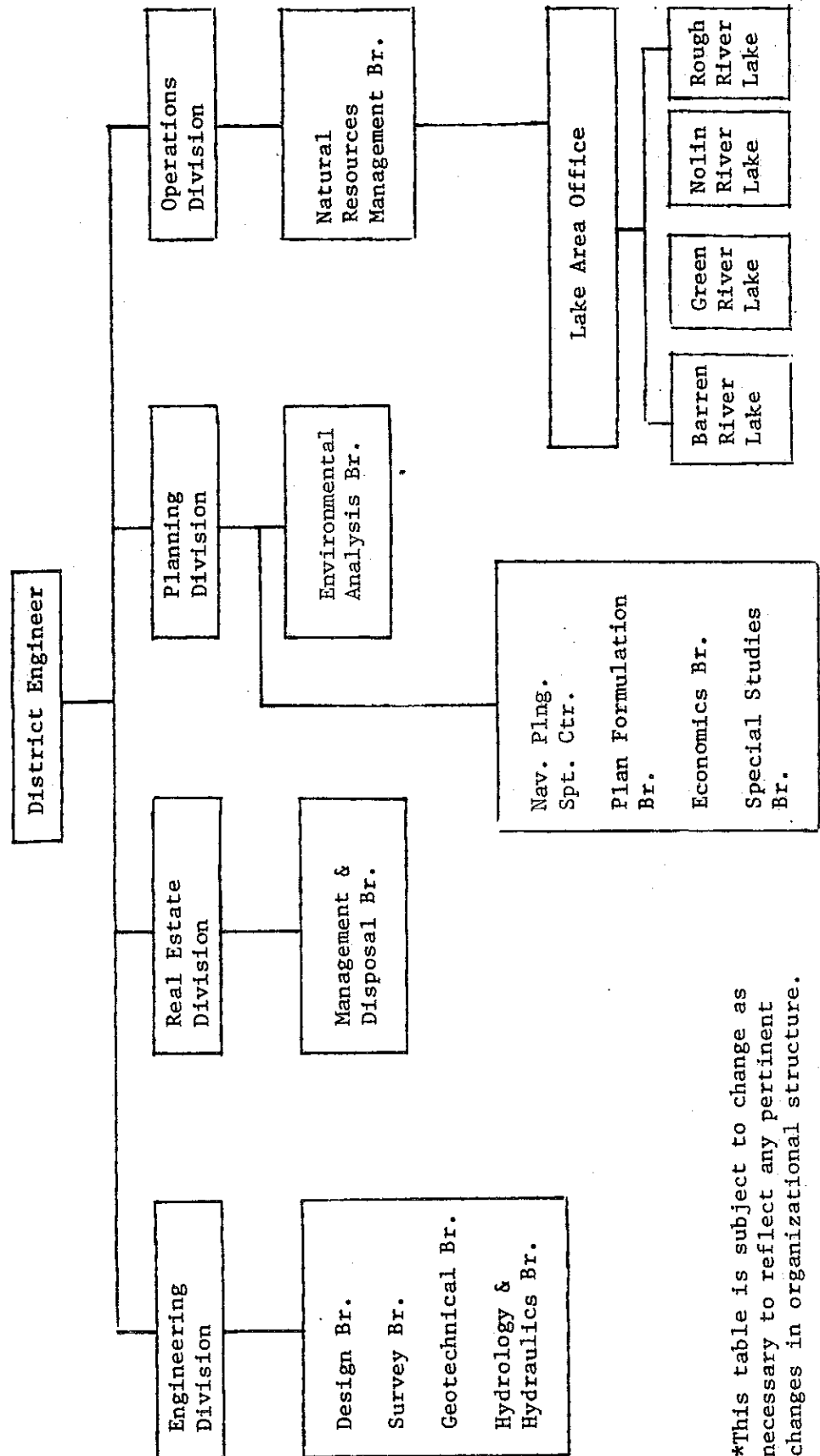
### 9-03. Administrative and Management Organizations.

a. Corps of Engineers. The chart on Page 9-2 depicts the organizational arrangement of those elements within the Louisville District, Corps of Engineers, which have administrative and management responsibilities. The basic responsibilities of these organization elements will be in general accord with ER 1130-2-400 and specifically in Louisville District Regulation DR 405-2-1. The District Engineer will vest appropriate responsibility and authority with the Resource Manager for implementation of the District Regulations at the field contact level.

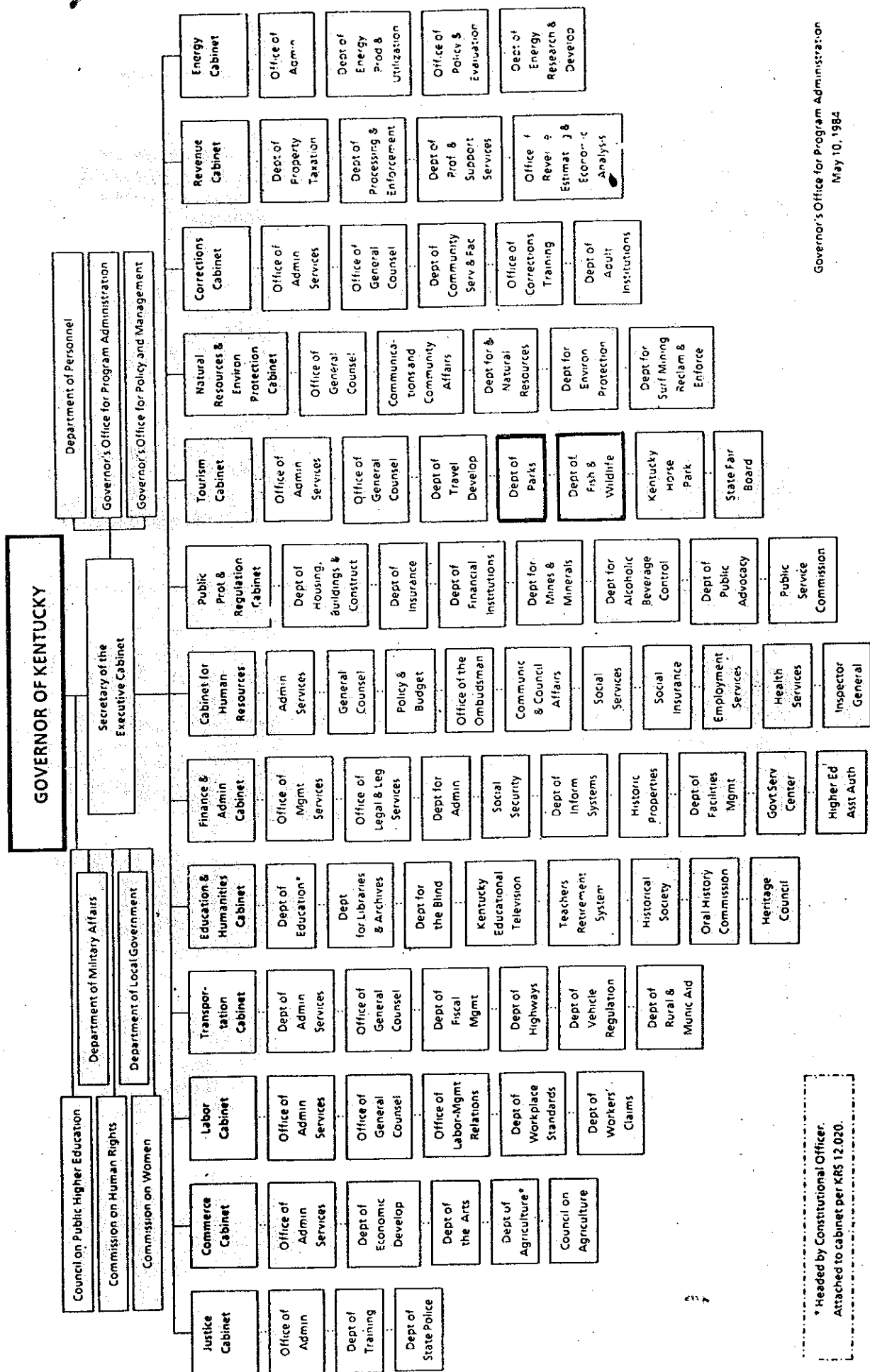
b. State of Kentucky. The charts on Page 9-3 depict the organization of those elements for the State of Kentucky having administrative and management responsibilities. The Department of Parks and Department of Fish and Wildlife Resources have basic responsibility but will call on other State Departments as needed.

c. Allen County Fiscal Court. The Fiscal Court has delegated responsibility for the Walnut Creek Site to concessionaire. A resident manager is responsible for operation and maintenance under the supervision of the County's officers.

LOUISVILLE DISTRICT  
CORPS OF ENGINEERS  
DISTRICT ORGANIZATIONAL CHART FOR ADMINISTRATION  
BARREN RIVER LAKE, KENTUCKY\*



\*This table is subject to change as necessary to reflect any pertinent changes in organizational structure.



Governor's Office for Program Administration  
May 10, 1984

h. Debris Control. Debris in the lake is dangerous to pleasure craft and makes the shoreline and beach areas unsightly and unusable. If debris becomes a problem, a definite program of debris removal and disposal will be formulated and implemented by lake management personnel.

i. Law Enforcement. An effective program of land and water management is impossible without law enforcement. The Commonwealth of Kentucky has assigned law enforcement personnel from the Departments of Parks, Fish and Wildlife Resources and Natural Resources, Division of Water Enforcement, to the project. In addition to this, the Louisville District has entered into contracts with the Barren and Allen Counties Sheriff's offices for law enforcement at the Corps-managed recreation areas.

j. Health, Sanitation, and Pollution Control. All development for public use is thoroughly coordinated with the Kentucky Department of Health and the U.S. Department of Health and Human Resources.

k. Resources on Project Lands. Resources on project lands such as timber and gravel are managed for recreation and/or fish and wildlife purposes.

9-05. Fish and Wildlife Conservation and Management. Lands not shown for recreational development are designated for fish and wildlife development of shoreline access. The Kentucky Department of Fish and Wildlife Resources, in its application for license of project lands, submitted a general development and management plan for certain portions of these lands.

The recreational areas which are reserved for future development or will serve as buffer areas are managed for limited wildlife purposes. Specific wildlife management practices on these lands will restrict:

(1) Any practices or developments which would interfere with general public recreation use;

(2) Any development which could permanently alter the landscape, such as roads, parking lots, ponds or marshes, etc.;

(3) The planting of any permanent vegetation in areas other than the outer boundary.

All Federal lands and waters within the project area will be open to hunting and fishing so long as title to the lands and structures remains with the Federal Government, except for areas reserved for safety, efficient operation, or protection of public property. Hunter and fisherman utilization of general recreation land will be allowed according to the policies of the Kentucky Department of Fish and Wildlife Resources. However, no hunting will be allowed on lands leased to the Department of Parks.

## X. COST ESTIMATES

10-01. Development Funding. Barren River Lake was authorized prior to the enactment of Public Law 89-72, therefore, a local sponsor was not required to participate in the funding of initial recreation facility development or in their management and operation. Under administrative policy, the cost-sharing provisions of Public Law 89-72 will be applied to this project, and where a site is leased to a managing agency under a long-term agreement, a 50-50 cost-sharing contract will be required before the Government can participate in any continuing development of those lands. The only plans for current development at any of the leased sites is the previously approved campground expansion and campers' launching ramp at the State Park Site. This work has been deferred indefinitely.

In those areas where no managing agency has been identified, upgrading of sanitary facilities was accomplished at some sites under the Code 711 program. The work proposed in this report includes improvement of and additions to the sanitation facilities at the Dam and Tailwater Site.

The following areas are recommended for closure with facilities relocated to other tracts:

- a. Day-use area on the left abutment.
- b. Day-use area near right side of dam (Quarry Road).
- c. Facilities outside leased area of the Austin Site.
- d. Day-use area between maintenance building and equipment storage area on tailwater road.
- e. Maintenance area and equipment storage area below the dam.

These areas are recommended for rehabilitation and upgrading:

- a. Tailwater camping area.
- b. Beaver Creek Site.
- c. Bailey's Point day-use area.

10-02. Cost Estimates. The detailed cost estimates presented herein are only for those items currently proposed. Long-range estimates are not given as any future facility expansion would need to be re-evaluated as to design and extent of development. The detailed cost estimates show a construction cost of \$2,587,000 including contingencies for the proposed development. Figures used are for October 1982 price levels.

BEAVER CREEK - SITE 5A  
OCTOBER 1982 PRICE LEVELS

Item	Unit	Unit Cost	Units	Cost
Camp Sites, Primitave	Ea	2,500	42	\$105,000
Comfort Station, Vault	EA	40,000	1	40,000
Road, Class B	LF	50	1,850	92,500
Road, Class D	LF	40	500	20,000
Parking, Bituminous	SY	12	35	420
Landscaping	Job	-	-	18,500
Trees, Planting	Ea	60	100	6,000
Signs	Job	-	-	7,500
				<u>\$289,920</u>
		Contingencies		<u>57,980</u>
				\$347,900



## XI. CONCLUSIONS AND RECOMMENDATIONS

### 11-01. Conclusions.

- a. Barren River Lake will continue to experience steady growth.
- b. Since recreation lands at this lake are limited and are needed to meet current and future demands, they should be retained.
- c. No public agency has been identified willing to operate and manage any of the sites presently managed by the Corps.

11-02. Recommendations. It is recommended that this Design Memorandum be approved as the basis for continued development of the Barren River Lake. Following are the principal recommendations:

- a. The tailwater area be upgraded to waterborne sanitary facilities. Camping be restructured to prevent further degradation of the site.

- b. The picnic area on the left abutment be closed and facilities moved to the Tailwater area.

- c. Day-use area (Quarry Road) on the right side of the dam be closed and use transferred to Bailey's Point.

- d. Maintenance facilities be consolidated at the right abutment and additional covered storage provided and repair facilities enlarged. An office/interpretive center be constructed across the road from the maintenance center.

- e. Camping be reconstructed along a realigned, paved road and the remaining area landscaped and trees planted at Beaver Creek. Until this is accomplished, camping will be restricted to designated sites and parking will be limited to designated parking areas and the shoulders of the road.

- f. That part of Austin not leased to Barren County Fiscal Court be used in the wildlife management program. If Barren County should relinquish their lease, the site will be closed and the additional land included in the wildlife program.

- g. Day-use facilities at Bailey's Point be enhanced by the addition of a beach, change house, day-use ramp, and additional picnic units to accommodate those people presently using Bailey's Point and the users from the Quarry Road area at the dam site. Upon completion of these facilities the existing ramp at Bailey's Point would be designated as a camper's ramp during the recreation season.

**EXHIBIT A**

**U. S. FISH AND WILDLIFE  
SERVICE**



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Lexington Blue Grass Army Depot  
Lexington KY 40511  
May 18, 1981

LTC Bruce M. Cowan  
Acting District Engineer  
Corps of Engineers  
Louisville District  
PO Box 59  
600 Federal Place  
Louisville KY 40201

Dear Colonel Cowan:

Your letter regarding the updating of the Barren River Lake Recreation Master Plan has been referred to my office.

This office would primarily be concerned with wildlife management and the effect other recreational activities would have on wildlife. I would be most happy to meet with you to discuss these matters.

I should also like to meet with you to discuss the provisions of the Sikes Act as they apply to Corps lands.

I will be looking forward to meeting with you in the near future at your convenience.

Sincerely,

James Karrenbrock  
District Supervisor



Save Energy and You Serve America!

EXHIBIT A

**EXHIBIT B**

**COMMONWEALTH OF  
KENTUCKY**



DEPARTMENT OF THE ARMY  
LOUISVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 59  
LOUISVILLE KENTUCKY 40201

ORLPD-K

Mr. James Karrenbrock  
District Supervisor  
U.S. Department of Interior  
Fish And Wildlife Service  
Lexington Bluegrass Army Depot  
Lexington, KY 40511

Dear Mr. Karrenbrock:

Reference your letter of 18 May 1981 regarding Barren River Lake. As you know, Kentucky Department of Fish and Wildlife Resources manages lands other than intensive use recreation and operations areas for fish and wildlife purposes. They would need to be included in any discussions on the effects of recreational activities on wildlife.

A staff attorney in my Real Estate Division has reviewed the Sikes Act and is of the opinion that its provisions do not apply to Corps of Engineers lake projects.

As the master plan is further developed, members of my staff will contact you and arrange a meeting with your agency and the Kentucky Department of Fish and Wildlife Resources to discuss the fish and wildlife aspects of the project.

Sincerely,

C. E. EASTBURN  
Colonel, Corps of Engineers  
Commander and District Engineer



JOHN Y. BROWN, JR.  
GOVERNOR

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF PARKS  
FRANKFORT

LOU KARIBO  
COMMISSIONER

May 17, 1983

C. E. Eastburn  
Colonel, Corps of Engineers  
Department of the Army  
P. O. Box 59  
Louisville, Kentucky 40201

Dear Col. Eastburn:

We have reviewed the draft copy of the Barren River Lake updated Master Plan and were happy to see that every effort was made to solicit input from all concerned. We were particularly interested in the comments made in reference to our state park. As time goes by and funds become available it is hoped that we will be able to implement some of the suggestions.

It is felt that the report is well written, comprehensive in its coverage and we look forward to receiving a copy of the final document for our files and future reference. Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in cursive script that reads "Lou Karibo".

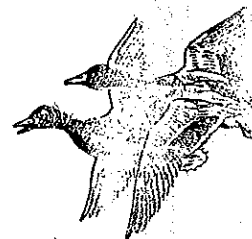
Lou Karibo  
Commissioner

DP:bdh

cc: Don Penegor  
Walt Gaffield

FISH & WILDLIFE  
COMMISSION

HENRY S. FRITZ, JR., CADIZ  
DR. WILLIAM H. FUNK, BOWLING GREEN  
JAMES D. WILKERSON, JR., LOUISVILLE  
DR. JAMES C. SALATO, COLUMBIA  
DR. JAMES R. RICH, TAYLOR MILL  
CHARLES E. PALMER, JR., LEXINGTON  
TIM DASH, JENKINS  
DR. ROBERT C. WEBB, GRAYSON  
DANNY K. COFFEY, JAMESTOWN



PHONE 564-3400

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF FISH & WILDLIFE RESOURCES  
CARL E. KAYS, COMMISSIONER

June 13, 1983

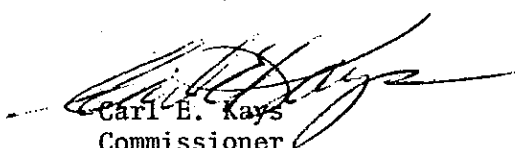
Colonel E.C. Eastburn  
Department of the Army  
Louisville District, Corps of Engineers  
P.O. Box 59  
Louisville, Kentucky 40201

Dear Col. Eastburn:

Reference is made to the updated Barren Lake Master Plan and your request for review and comment by my agency.

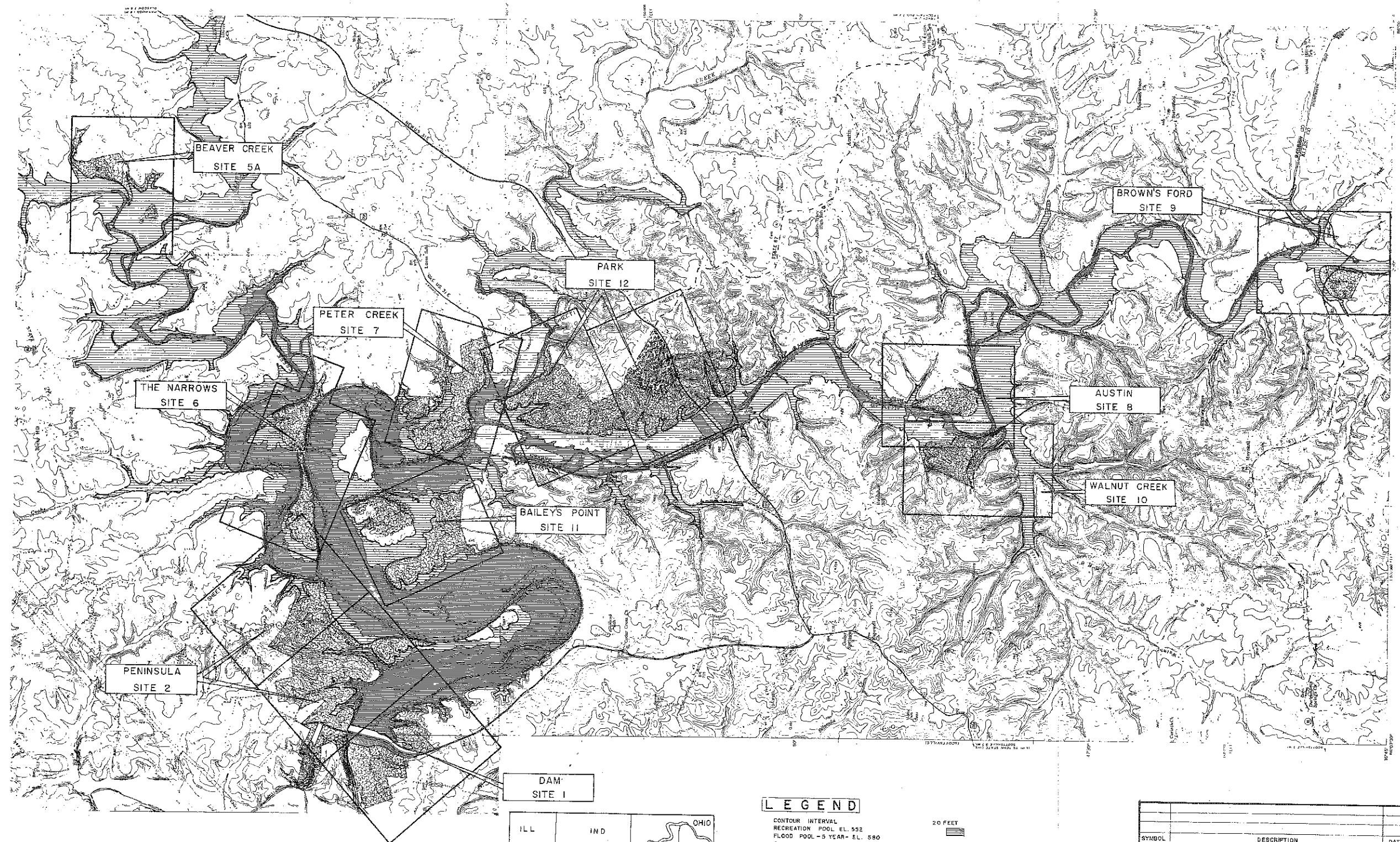
Appropriate members of my staff have reviewed the updated plan and find it in keeping with the fish and wildlife management goals of our agency, and we are in agreement with the conclusions and recommendations concerning the continued development of the project.

Sincerely,

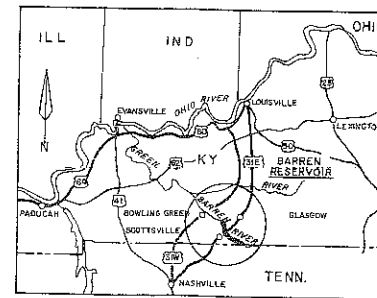
  
Carl E. Kays  
Commissioner

CEK:PWP:blg

cc: Wm. Graves, Dir. of Wildlife



NORTH



LOCALITY MAP

## LEGEND

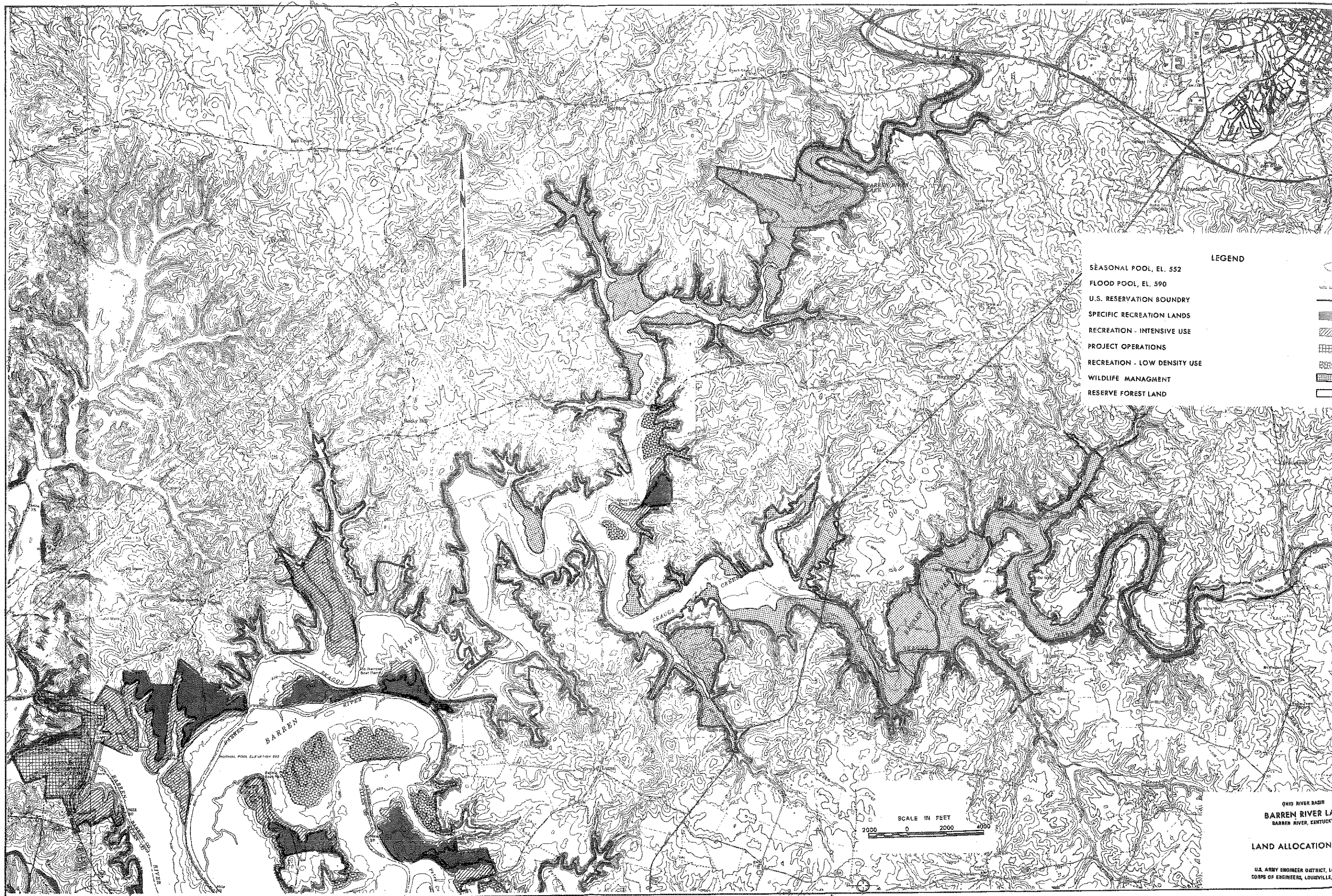
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FLOOD POOL - 50 YEAR - EL. 590  
MINIMUM POOL EL. 520  
RECREATION SITE

20 FEET

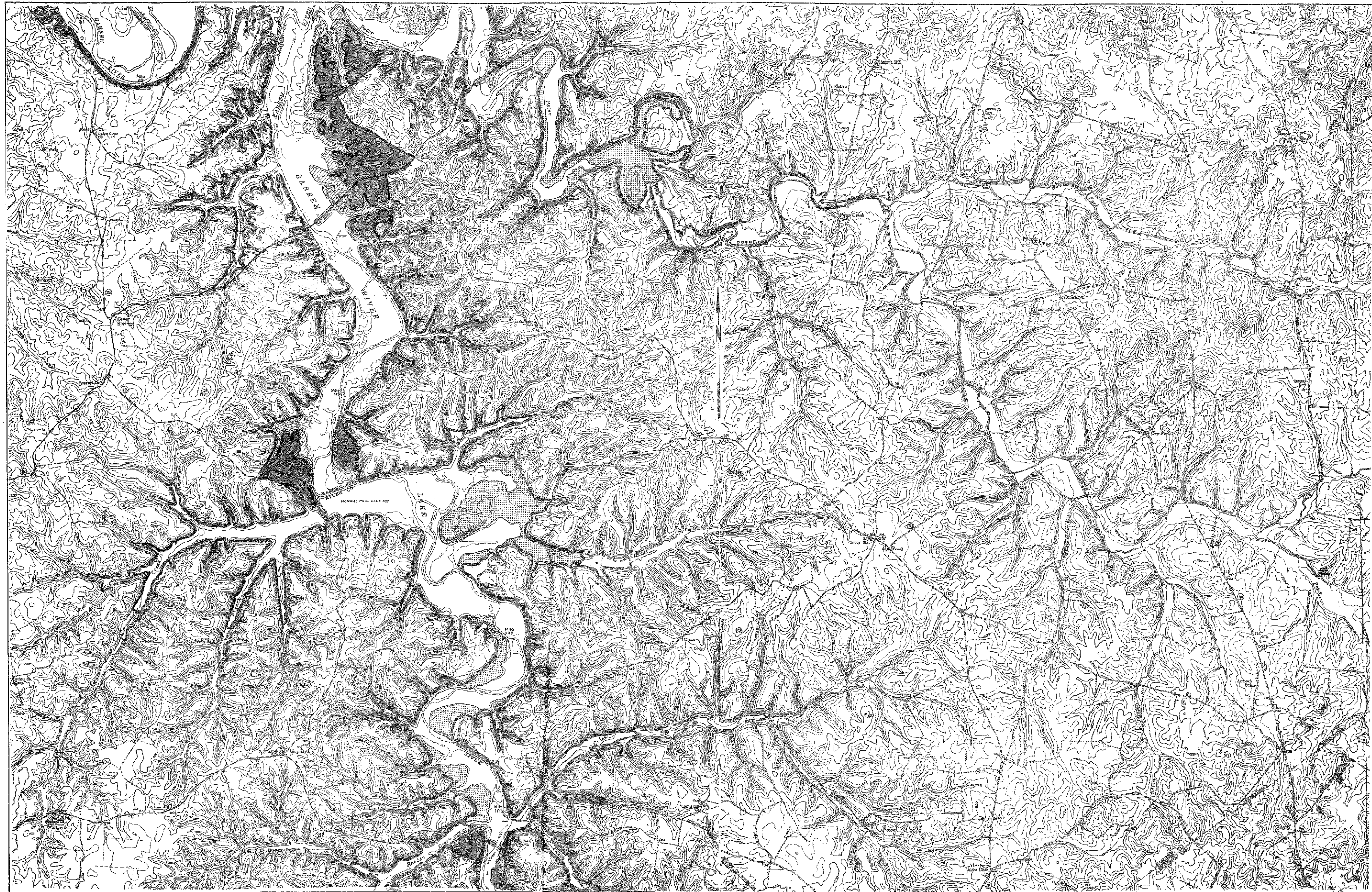
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OHIO RIVER BASIN BARREN RIVER LAKE KENTUCKY KEY MAP			
APPROVED:	APPROVED:	DATE:	
CHIEF ENGINEERING DIVISION	COL. CORPS OF ENGINEERS	DISTRICT ENGINEERS	
APPROVED FOR:	SHEET		DRAWING NUMBER
DATE:			

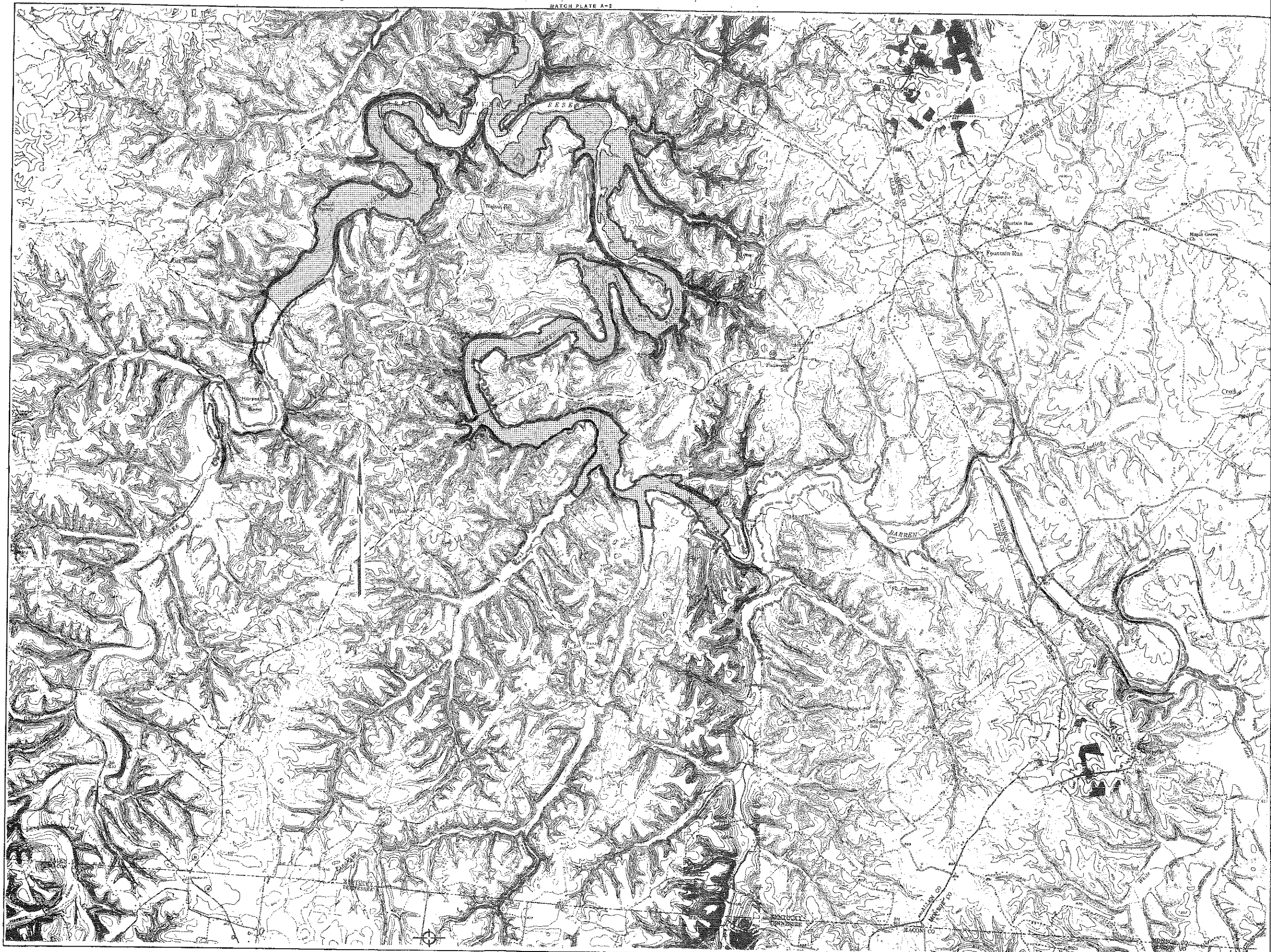


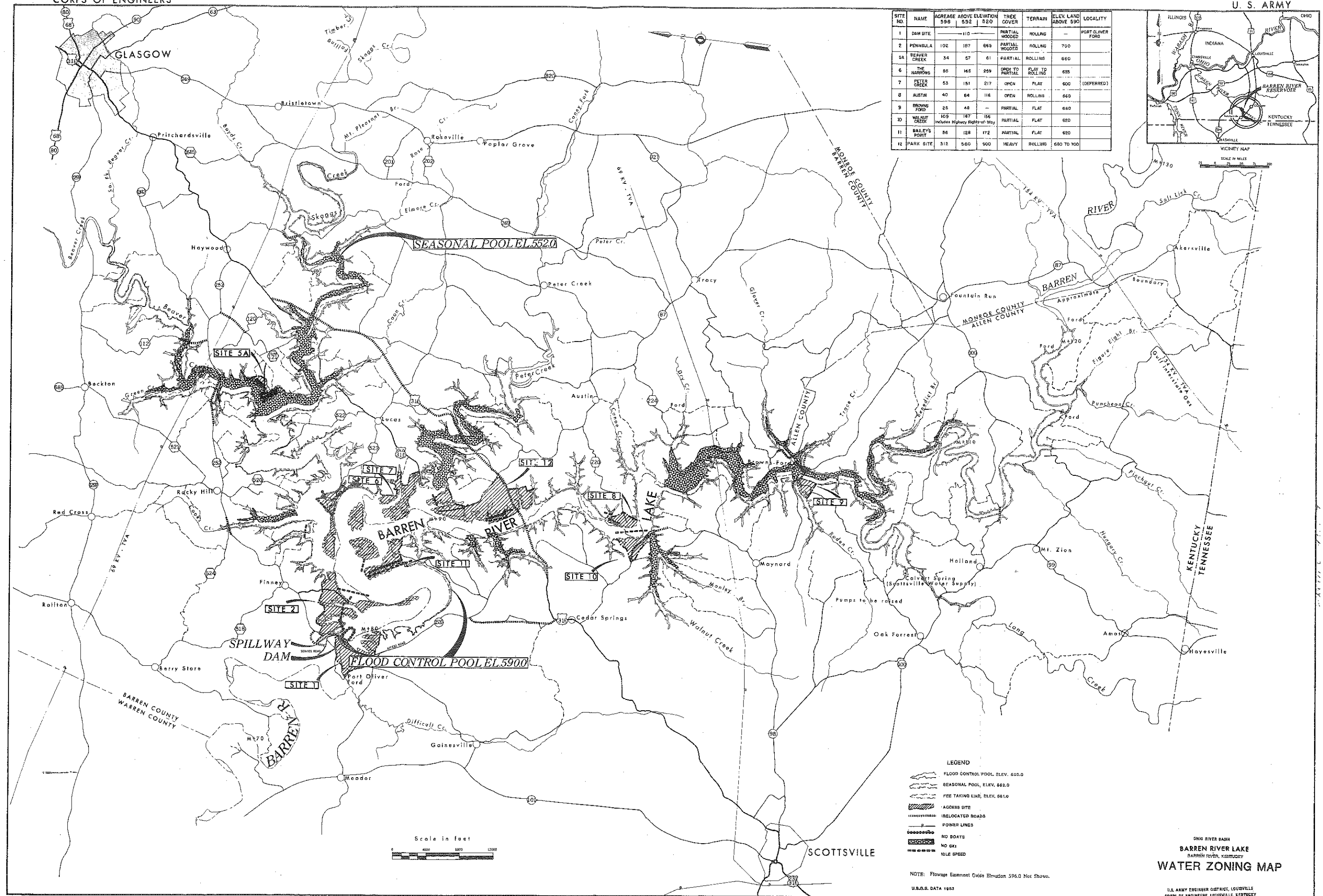


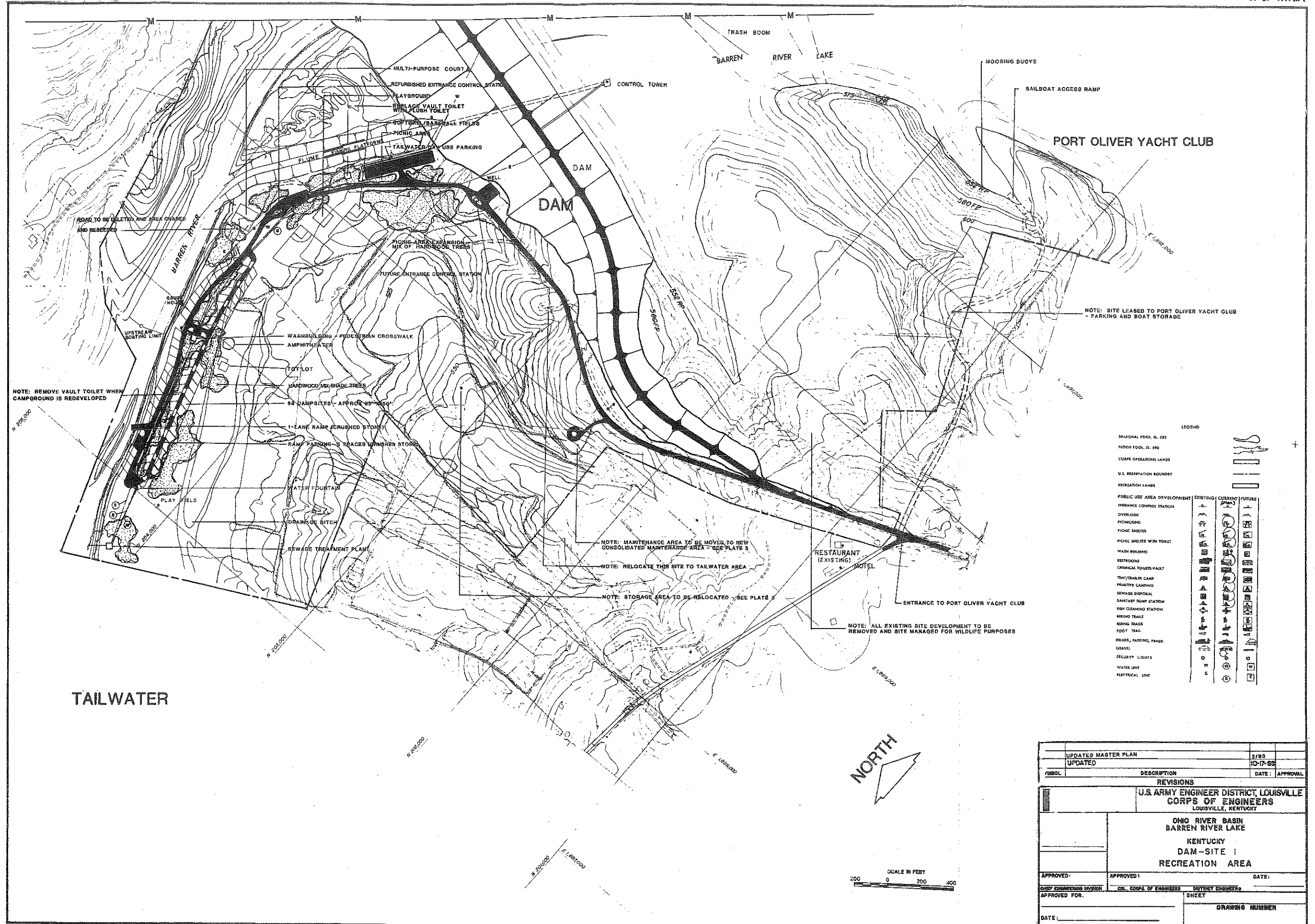




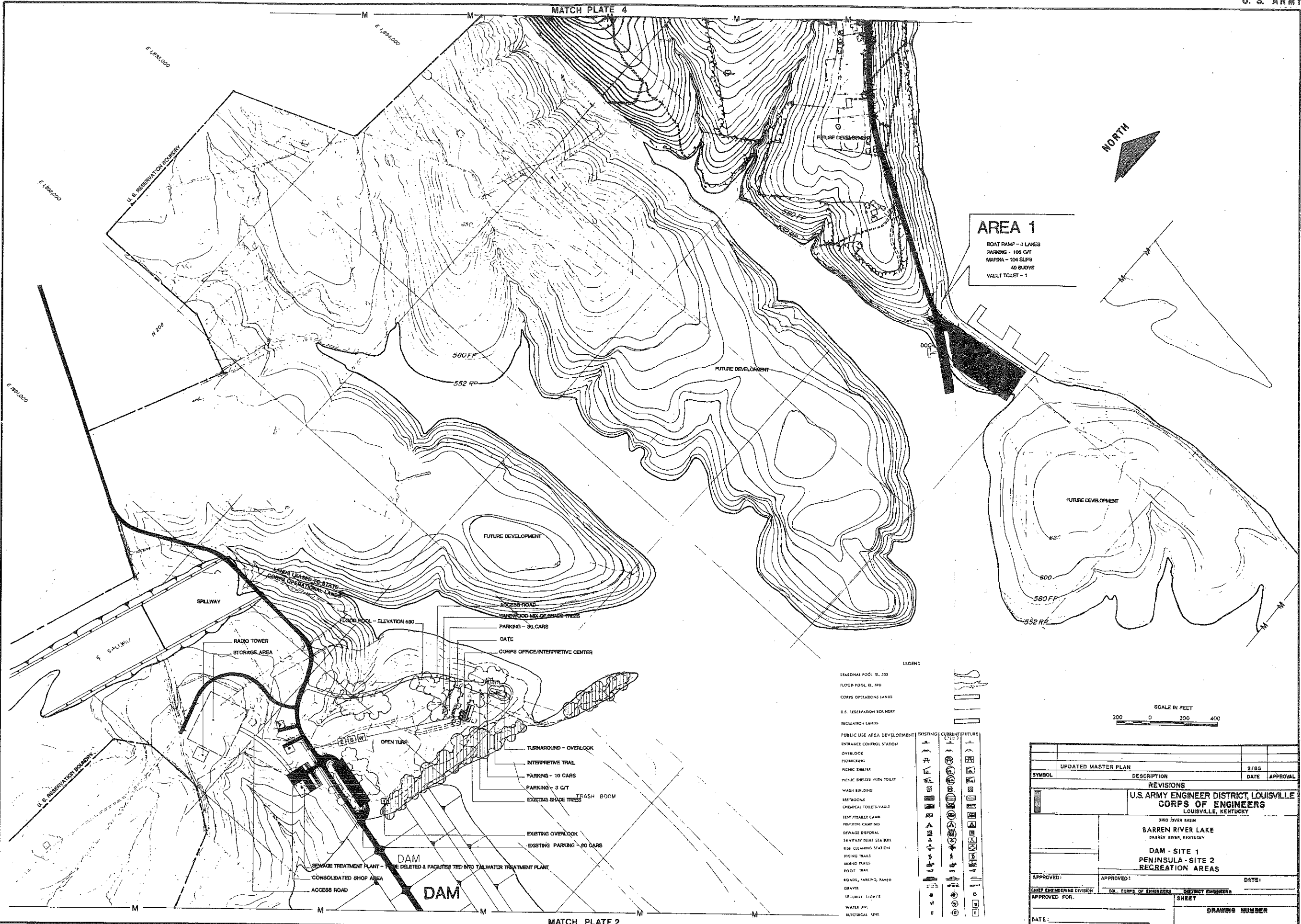


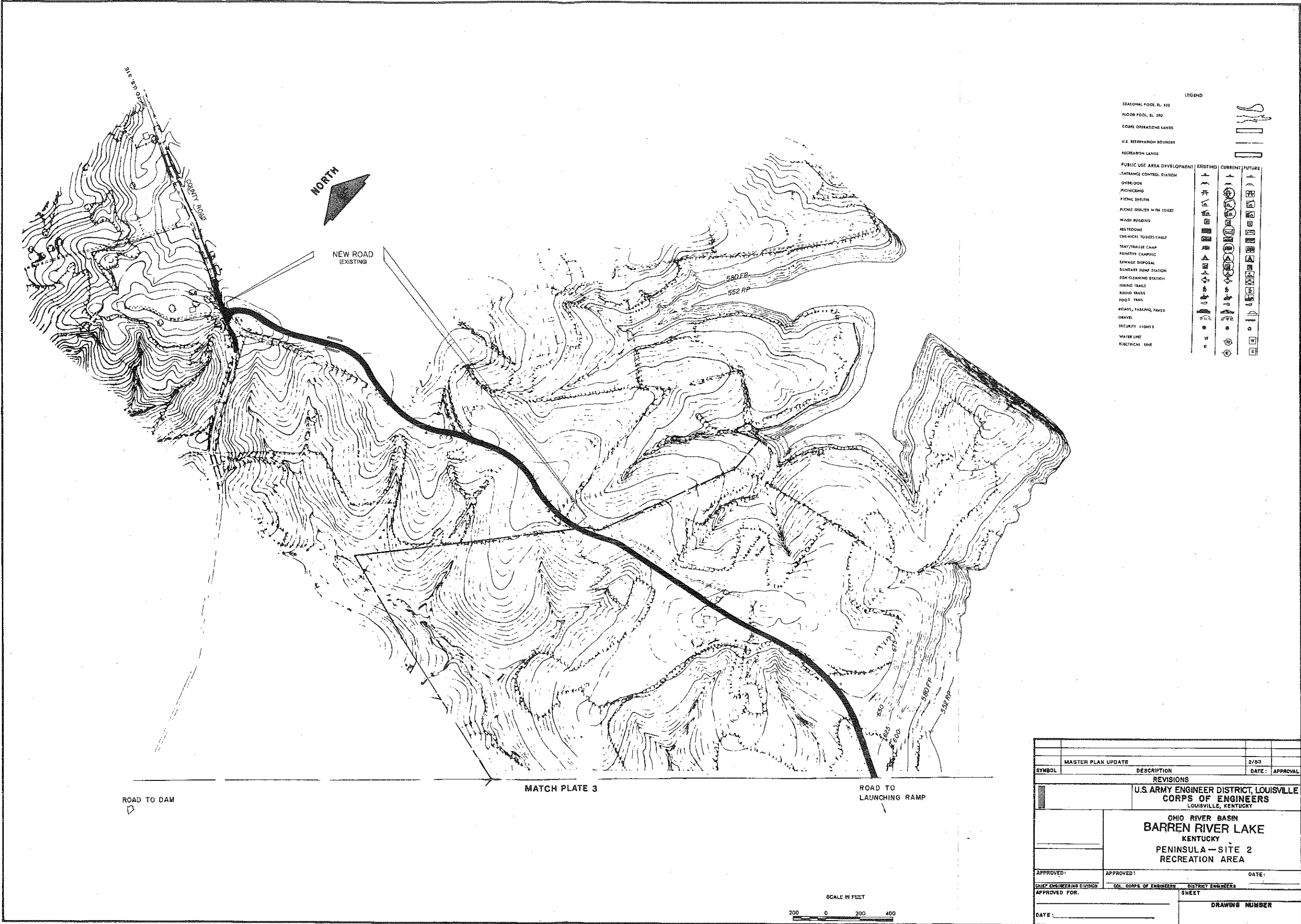


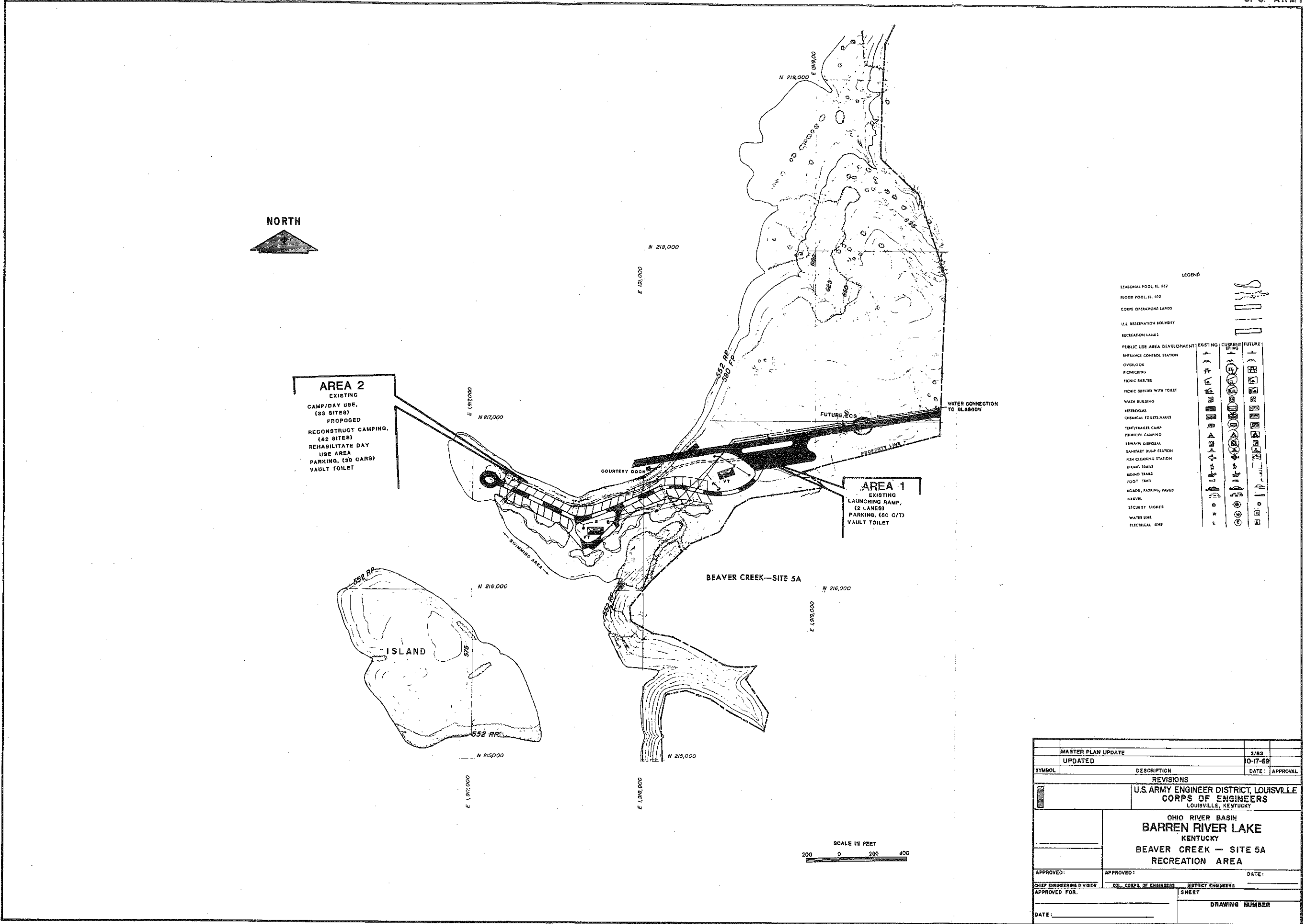






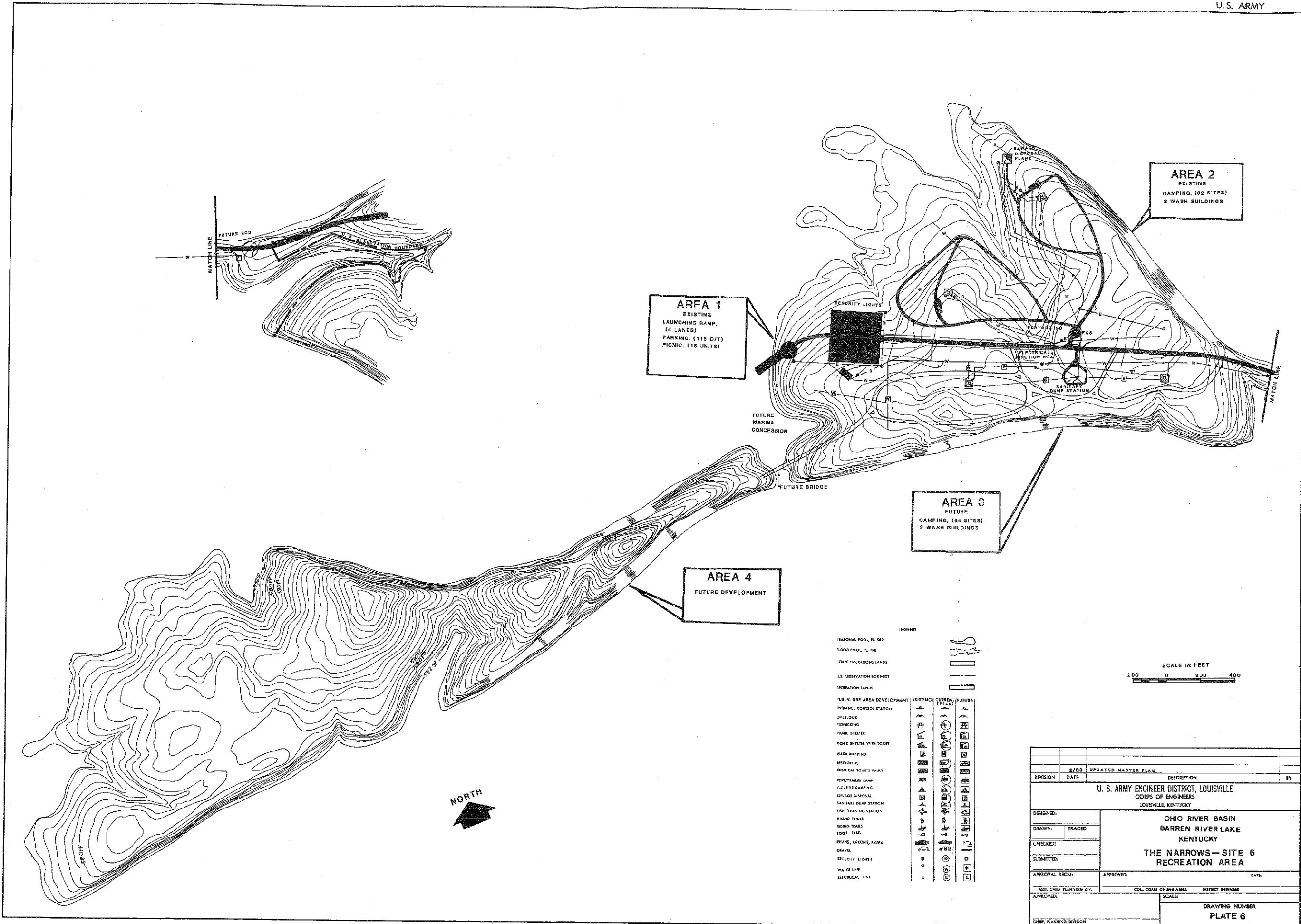




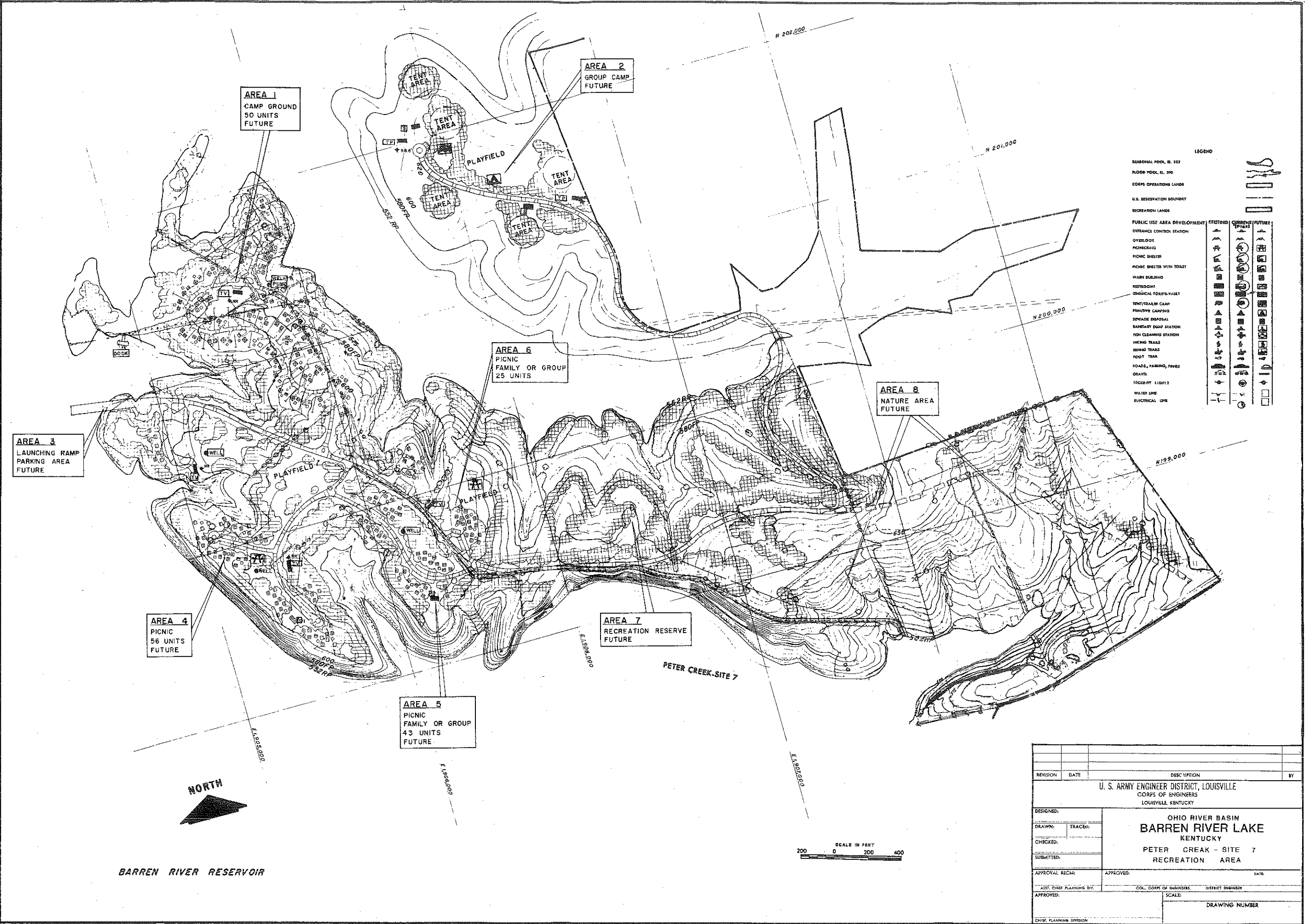


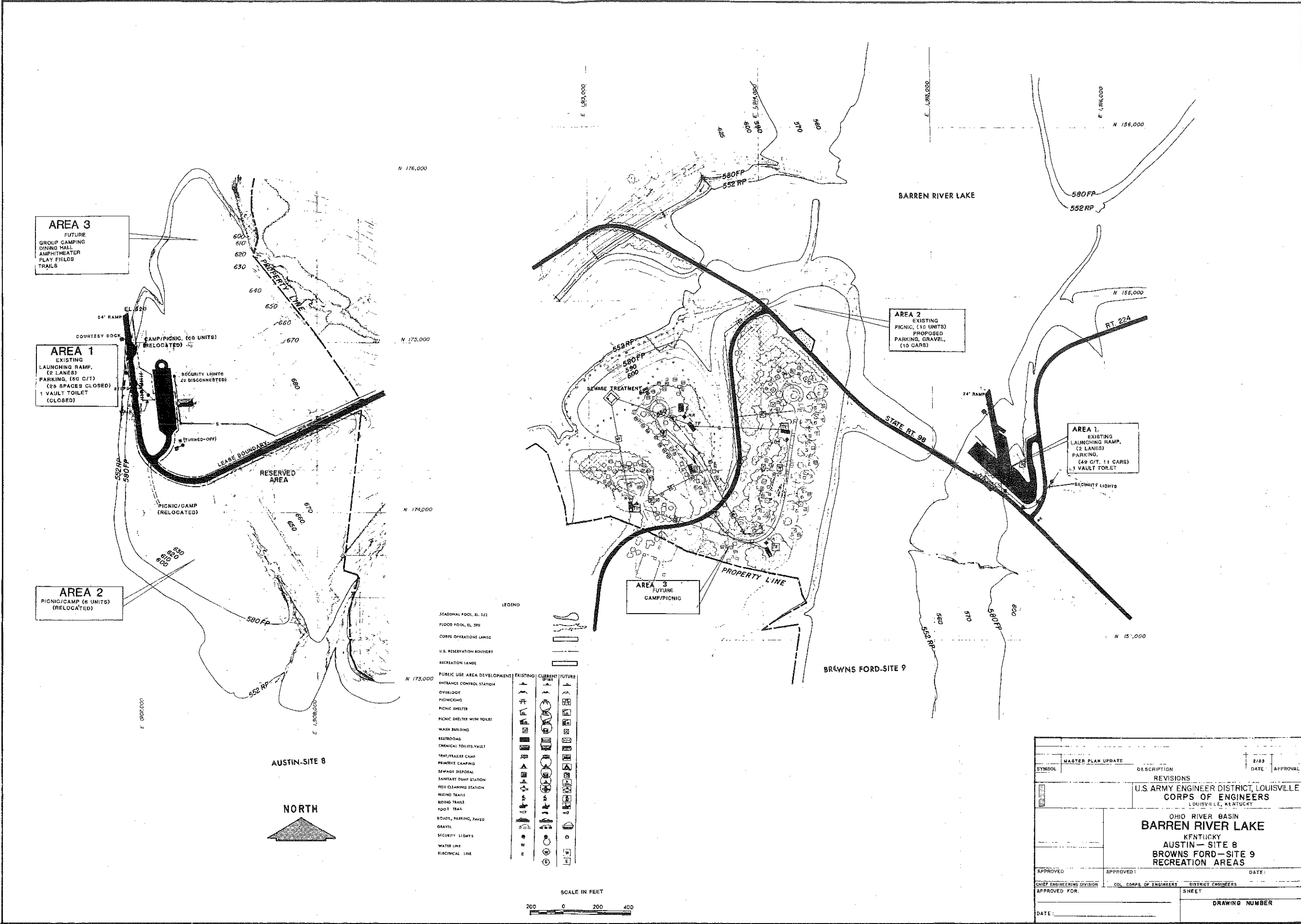
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UPDATED		10-17-69
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OHIO RIVER BASIN BARREN RIVER LAKE KENTUCKY BEAVER CREEK — SITE 5A RECREATION AREA		
APPROVED:	APPROVED:	DATE:
CHIEF ENGINEERING DIVISION	COL. CORPS OF ENGINEERS	DISTRICT ENGINEERS
APPROVED FOR:	SHEET	
DATE:		DRAWING NUMBER

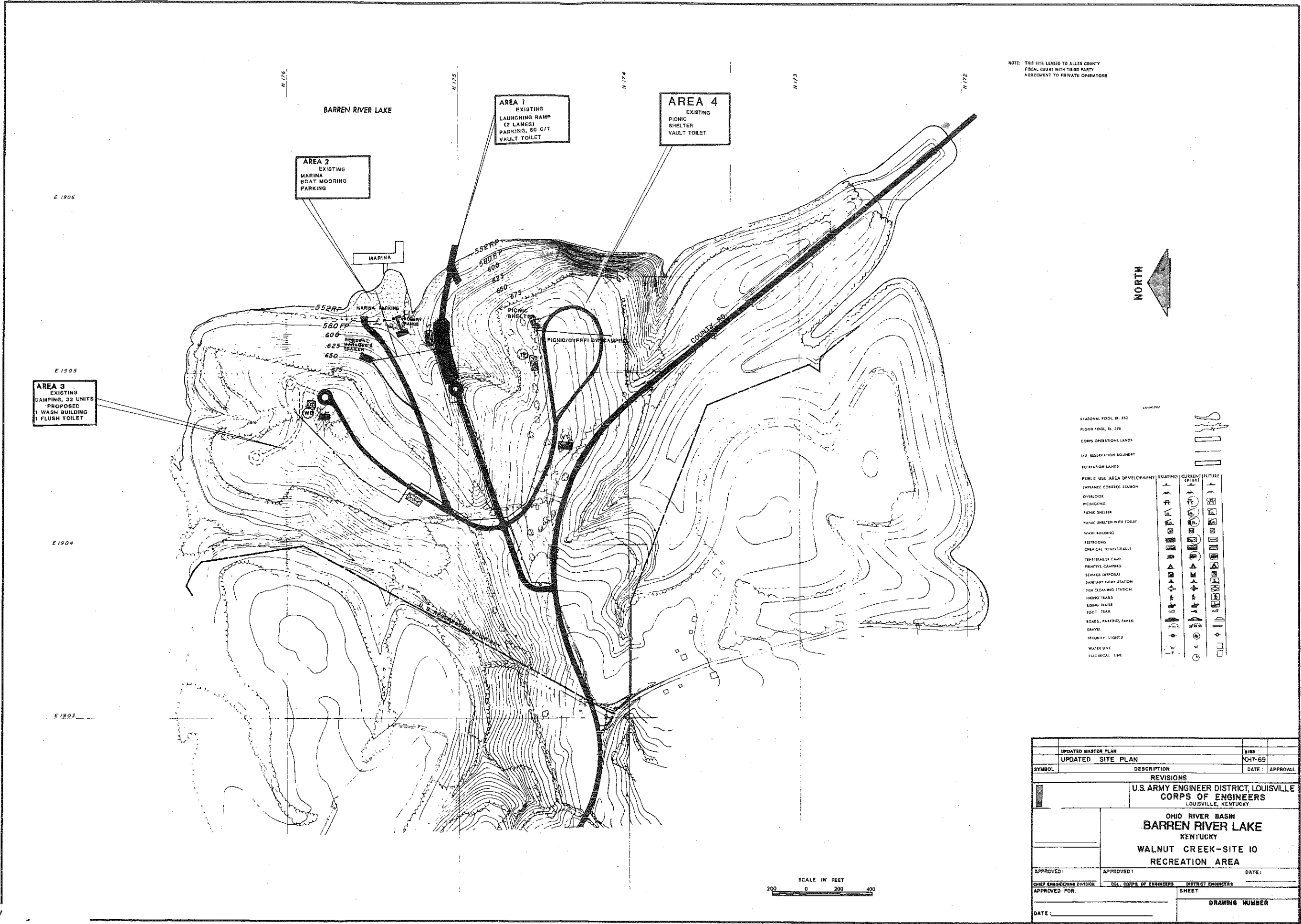




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OHIO RIVER BASIN BARREN RIVER LAKE KENTUCKY THE NARROWS - SITE 6 RECREATION AREA				
DESIGNED:				
DRAWN:	TRACED:			
CHECKED:				
SUBMITTED:				
APPROVAL RECM:	APPROVED:	DATE:		
ASST. CHIEF PLANNING DIV.	COL, CORPS OF ENGINEERS	DISTRICT ENGINEER		
APPROVED:	SCALE:		DRAWING NUMBER	
CHIEF, PLANNING DIVISION			PLATE 6	







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UPDATED SITE PLAN		10-17-69
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OHIO RIVER BASIN BARREN RIVER LAKE KENTUCKY WALNUT CREEK-SITE 10 RECREATION AREA		
APPROVED:	APPROVED:	DATE:
CHIEF ENGINEERING DIVISION	COL. CORPS OF ENGINEERS	DISTRICT ENGINEER
APPROVED FOR:	SHEET	
DATE:	DRAWING NUMBER	

