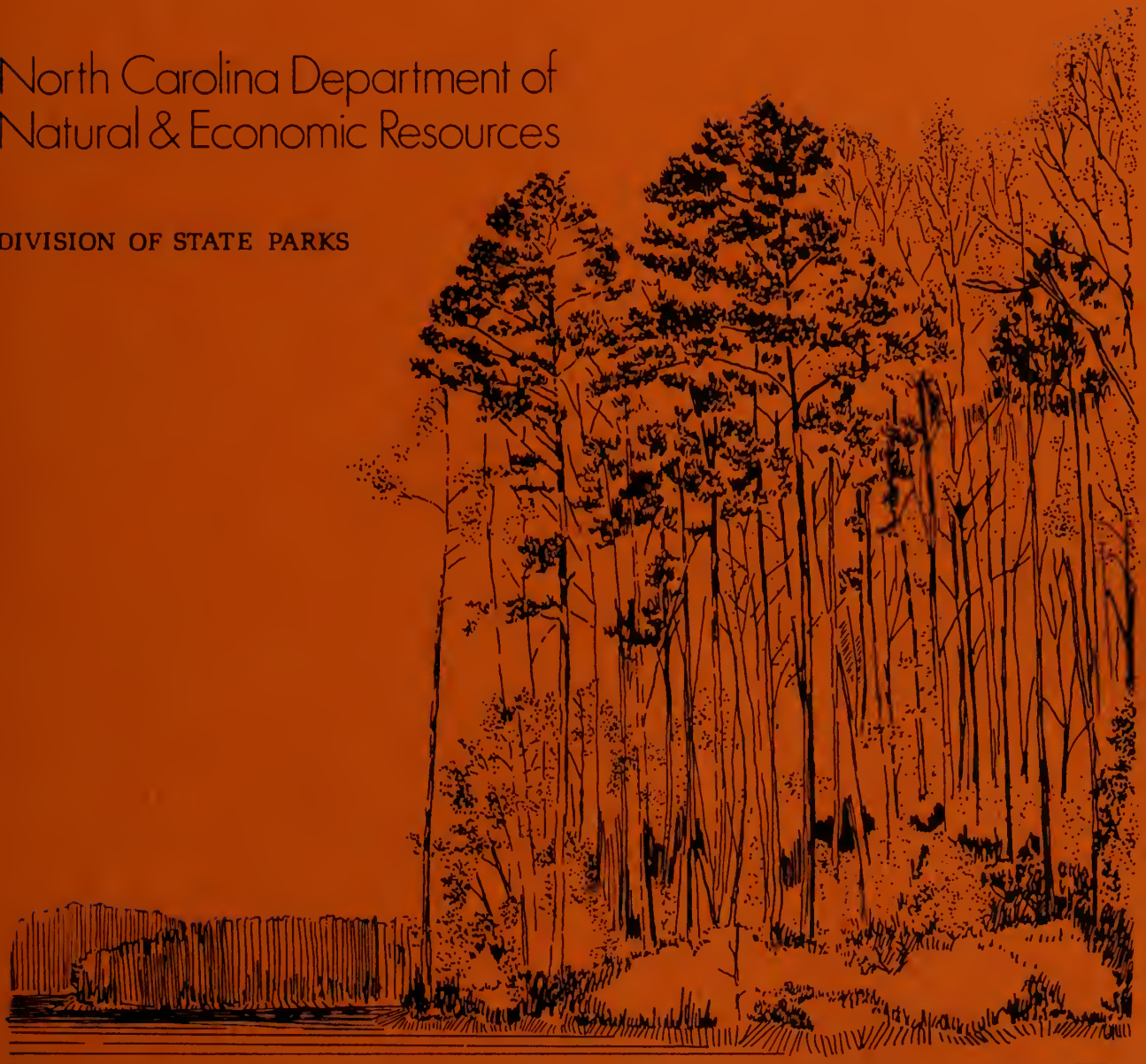
MASTER PLAN

DUKE POWER STATE RECREATION AREA

North Carolina Department of
Natural & Economic Resources

DIVISION OF STATE PARKS



CHAS. T. MAIN, INC.
BOSTON CHARLOTTE DENVER PORTLAND

MAIN
Engineers

MASTER PLAN

DUKE POWER STATE RECREATION AREA

STATE OF NORTH CAROLINA

Department of Natural and Economic Resources
Division of State Parks

Chas. T. Main,Inc.
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CHAS. T. MAIN, INC.
SOUTHEAST TOWER, PRUDENTIAL CENTER, BOSTON, MASSACHUSETTS 02199 • TELEPHONE 617-262-3200

May 17, 1974 1909-3

Mr. Thomas C. Ellis
Director of State Parks
Division of State Parks
Department of Natural and Economic Resources
P.O. Box 27687
Raleigh, North Carolina 27611

Dear Mr. Ellis:

In accordance with our agreement, we have prepared the master plan for Duke Power State Recreation Area. We are pleased to submit this master plan to you.

This plan presents the orderly development of the State Recreation Area and will serve the Division of State Parks as a unified set of guidelines to accomplish the purpose set forth in the "Principles for the Establishment of State Recreation Areas".

We would like to express our appreciation for your cooperation and the opportunity to work with you and your staff on this project.

Very truly yours,

CHAS. T. MAIN, INC.

William N. Neil

W. N. Neil
Vice President

J. W. Conover

J.W. Conover

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CHAPTER 1

SUMMARY

Duke Power State Recreation Area is located in Iredell County on the east side of the upper reaches of Lake Norman, about 32 miles north of Charlotte, North Carolina. Presently the State Recreation Area consists of about 1401 acres of land and recreation facilities for swimming, picnicking, camping and related activities. The master plan, which is the first step in the orderly development of the Recreation Area, serves as a unified set of guidelines for preservation and sequential development of the State Recreation Area based on optimum public use. The plan for full development of Duke Power State Recreation Area entails the expansion of lands to 3356 acres by the acquisition of 1063 acres of lands to form a contiguous, comprehensive recreational facility and another 940 acres for scenic easements. The plan provides for the expansion of swimming, picnicking and camping facilities and the development of facilities for nature interpretation, vacation cabins, boat launching, corral and bridle trails, bicycle trails, viewing of scenic Lake Norman and administration and maintenance of the State Recreation Area. The ultimate development of the Duke Power State Recreation Area will provide recreation facilities for 7760 visitors, 5800 in day use facilities and 1960 in overnight facilities.

The master plan for the Duke Power State Recreation Area was based on an ecological and resource analysis of the land by assessing its potential to sustain intense recreational development and by an analysis of the needs of the potential recreation visitors for facilities. The demands of this region for recreation facilities exceed the capability of any one area to fully satisfy. The uniqueness of this State Recreation Area is its location on Lake Norman, its prime resource and its proximity to the population in the Charlotte Metropolitan area.

The present lands of Duke Power State Recreation Area are inadequate to sustain a viable State Recreation Area in future years and this restraint has been recognized and documented since the area was first developed after the creation of Lake Norman. A program of land acquisition has been started and it is imperative that it continue until the primary acquisition lands recommended are obtained. Presently the State land is primarily located on a peninsula adjacent to the west side of a bay of Lake Norman known as Hicks Creek. Acquiring all of the Hicks Creek shoreline and adjacent lands to the ridge line is included in this plan to preserve one part of Lake Norman as the focal point of the State Recreation Area.

The topography of the lands within and surrounding the State Recreation Area may be characterized as a series of peninsulas extending into Lake Norman. Generally the shoreline rises steeply from Lake Norman to the high ground of the peninsulas. The area suitable for development is, therefore, limited and is generally on the relatively flat high ground and along a few selected areas adjacent to the lake. Only about 17 percent of the existing lands are suitable for intense recreation development or 253 acres. Fully implementing the land acquisition program will increase the usable land for intense recreation facilities to 405 acres. Although the character of the topography within the State Recreation Area restricts the amount of usable land, it is ideal for separating the various recreation functions and providing natural, scenic easements and boundaries.

The existing facilities are seriously restricted by the road system available within the area. The two existing entrances are to be replaced by one entrance and a main park road system which will effeciently service all the areas on both the east and west side of Hicks Creek. An improved road system outside of the State Recreation Area is also needed and should be implemented by either the county or state highway agencies. With the completion of these improvements and the completion of Interstate 77 to Charlotte, a safe convenient road system will be available.

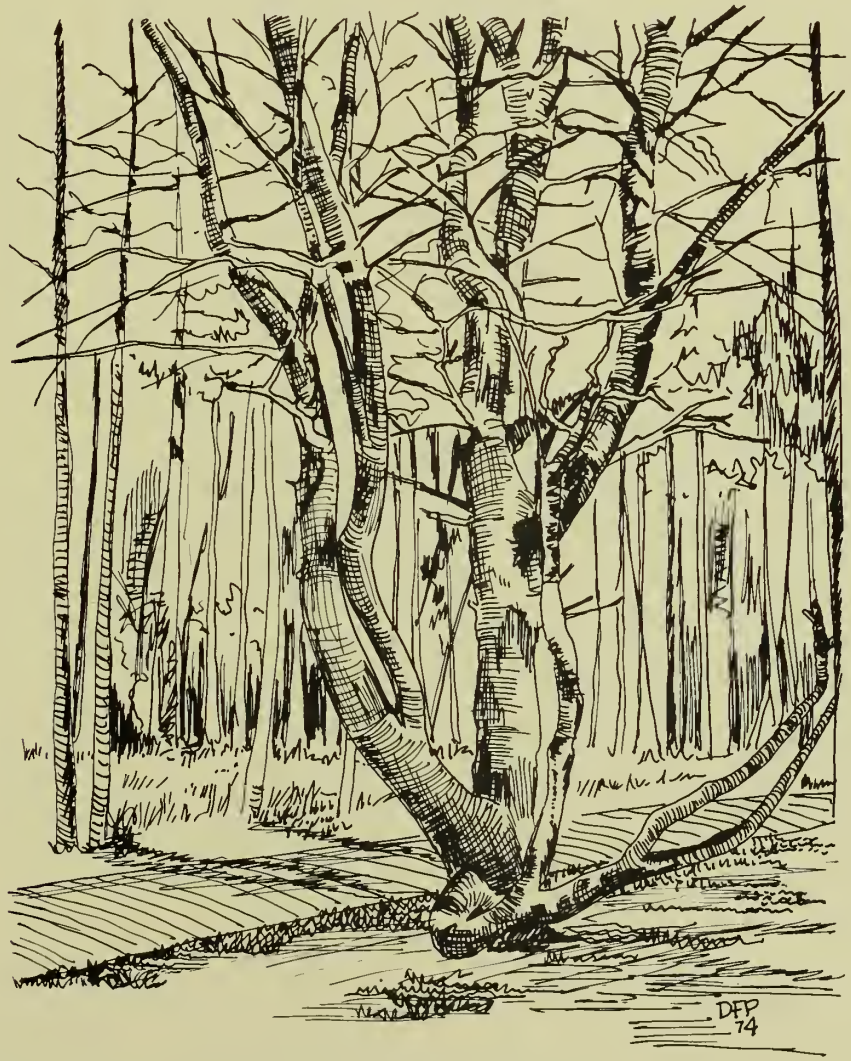
The existing facilities within the State Recreation Area are not oriented to the prime asset of the area - Lake Norman. The present swimming area is on a constant level lake created by a small dam. This location is not suitable for expansion of beach facilities. This plan provides for the development of a large beach and swimming complex on the east side of Hicks Creek. At this selected location 2450 visitors may be accommodated.

The present camping area will be expanded to not only provide additional family camping facilities, but also group wilderness and boat access camping. The overnight facilities will be further expanded by the development of vacation cabin areas which are in high demand throughout the entire Lake Norman area. Both the camping and the cabin areas will be developed with individual swimming beaches and boat launching facilities. Other camping and cabin facilities will be developed including a community center, amphitheater and court game areas for the enjoyment of the recreator. The ultimate development of the cabin and camping areas will provide facilities for 1960 visitors.

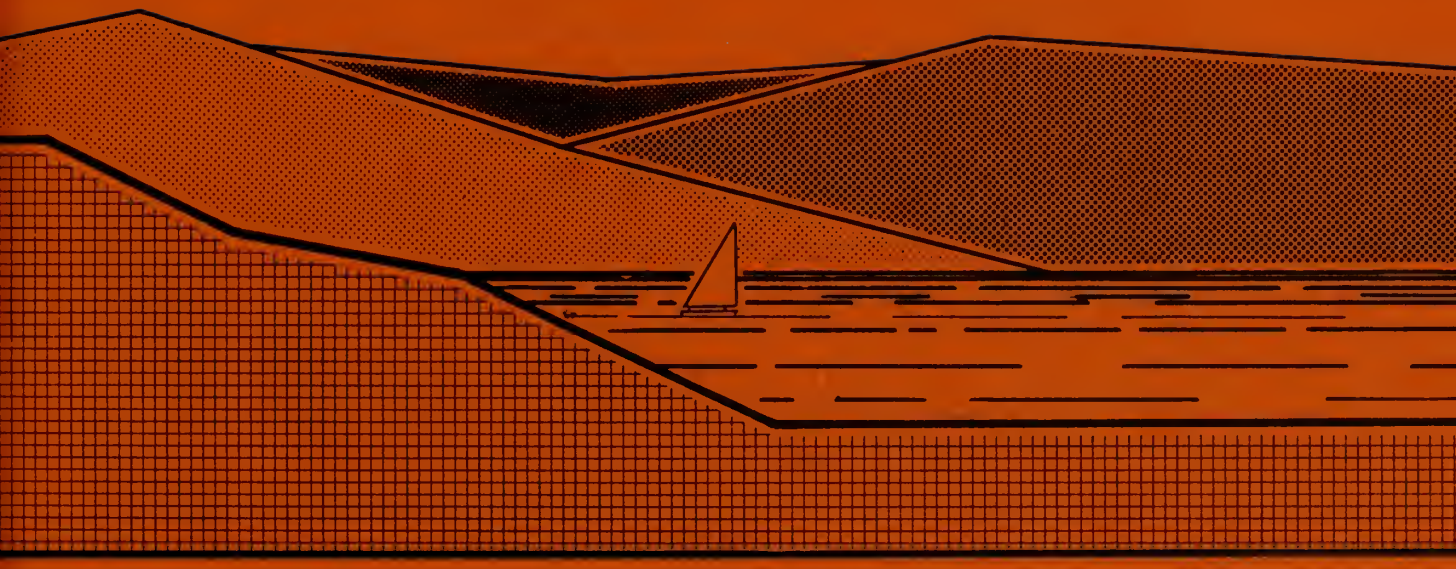
A Nature Interpretation area will be located on a 200 acre site having the most interesting plant materials and substantial areas of wetland. A nature center building will be provided for nature interpretation programs and displays. An outside amphitheater and more than six miles of trails for observing the natural environment will loop through the area.

Other recreation facilities which will be developed within the State Recreation Area will include greatly expanded picnic facilities for both families and groups, a corral area and extensive bridle trails, a system of bicycle trails, a boat launching area to Lake Norman for the day use visitors and a viewing area of Lake Norman for the casual sightseeing visitors.

For efficient operation an administration center and superintendent's residence will be developed at the entrance to the State Recreation Area. The present maintenance center will be expanded and a seasonal employees' barracks will be constructed. Additional permanent employee residences will be constructed within the State Recreation Area near East Monbo.



A Tree in the Camping Area



PURPOSE AND OBJECTIVES

CHAPTER 2

STATEMENT OF PURPOSE:

The purpose of Duke Power State Recreation Area is based upon the "Principles for the Establishment of State Recreation Areas" and on the suitability of the existing land and water features of the State Area itself.

The State Recreation Area should serve the people of North Carolina and their visitors by providing outdoor recreation areas, in locations conductive to use, with high quality recreation facilities, operated and maintained to insure standards of quality.

Duke Power State Recreation Area should preserve and protect the land and the Lake Norman shoreline; it should have recreation facilities compatible with the natural resources; and it should provide nature oriented interpretative facilities and programs that will help recreators gain a better knowledge of the natural environment.

Pathway to the Future

CHAPTER 3

MANAGEMENT OBJECTIVES:

The ability to carry out the stated purpose and to insure the proper development of the Duke Power State Recreation area will be accomplished by following clear planning and management objectives.

The recommended planning and management objectives for Duke Power State Recreation Area are:

Master Plan

Prepare a master plan before any further development is implemented. The plan is to serve as a unified set of guidelines for preservation and sequential development of the State Recreation Area based on optimum public use. This long range, comprehensive plan will provide the planners, administrators and field personnel with guidelines and standards to prepare the more detailed recreation facilities.

Periodic review should be accomplished to reflect changing environmental and recreation demands.

Land Acquisition:

Acquire all land described in this master plan for the protection of shoreline, watershed, access, control and visual quality.

Programmed Facility Development:

Provide appropriate facilities (to be developed sequentially) in suitable locations to protect the natural character of the area. Provide public access, protect the public health, safety and welfare and provide for additional outdoor recreational uses of the natural resources.

Prepare detailed plans and specifications for the construction of the facilities recommended in this master plan.

Satellite Commercial Recreation

Encourage and in other ways guide development on private land with appropriate facilities and services to complement those provided in the State Recreation Area. (Riding stables, commissaries, and restaurants are examples of such complimentary facilities).

Interpretation and Education:

Develop programs for the interpretation of the geology, vegetation, fish, wildlife and archaeology of the State Recreation Area consistant with natural history research.

Encourage the voluntary assistance of individuals and groups in conducting research and in planning and executing interpretive programs.

Develop the comprehensive interpretative program so that it will effectively convey to the recreationists a knowledge and understanding of the State Recreation Area.

Provide the facilities and services necessary to acquaint the public with the State Recreation Area facilities.

Public Relations

Establish and maintain cooperative programs and liaison with appropriate public and private educational institutions in the region, as well as with nature study and other local chapters of state and national organizations interested in preserving a quality environment; also, camping, hiking, biking and similar clubs; local historical societies; and well qualified individuals who express a concern for preserving and maintaining the State Recreation Area.

Establish and maintain good relations with the immediate neighbors of the State Recreation Area, with the governing bodies of Iredell County, with the Centralina Council of Governments, the Lake Norman Marine Commission and with the National Park Service.

Establish and maintain good working relations with the news media in the area.

Personnel Administration:

Staff the State Recreation Area with qualified employees and organize this staff into an efficient public service department.

Plan and execute the necessary training programs required to maintain a competent staff who are proud of their duties and responsibilities and discharge them effectively and efficiently.

The basic administrative objective is to give the people the best public service available, while protecting the natural resource base.

Protection, Law Enforcement and Public Safety:

Construct facilities, acquire the equipment, employ and train personnel and prepare and execute the plans and programs required to:

1. Protect the natural and man-made features of the State Recreation Area from fire, vandalism and adverse use.

2. Protect the fish and wildlife from unauthorized activities by humans and domestic animals.

3. Maintain law and order within the State Recreation Area.

4. Provide adequate measures for the safety and protection of users.

Operation and Maintenance:

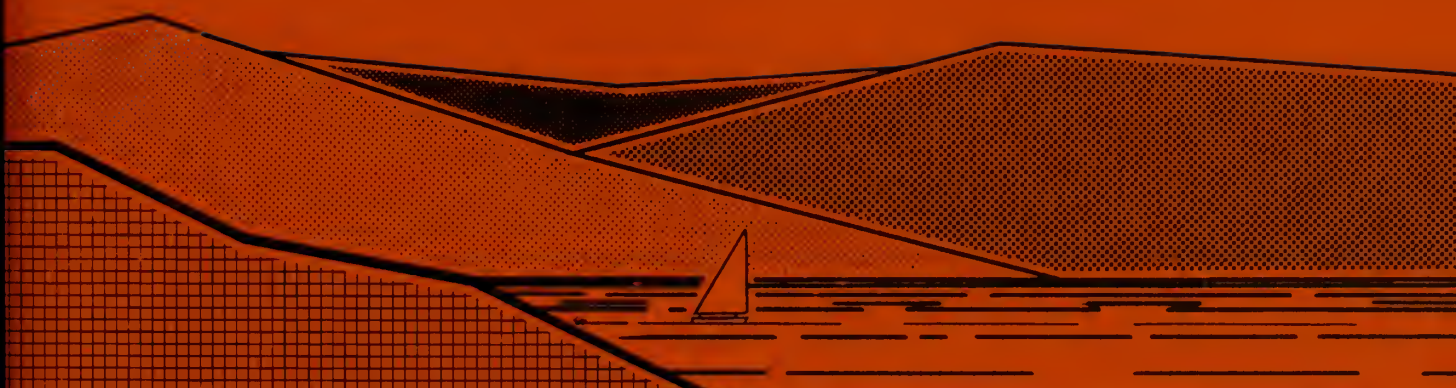
Maintain all public and staff facilities neat, clean and in good working condition.

Encourage city, county and regional park and recreation departments, when appropriate, to utilize the State Recreation Area facilities in their programs.

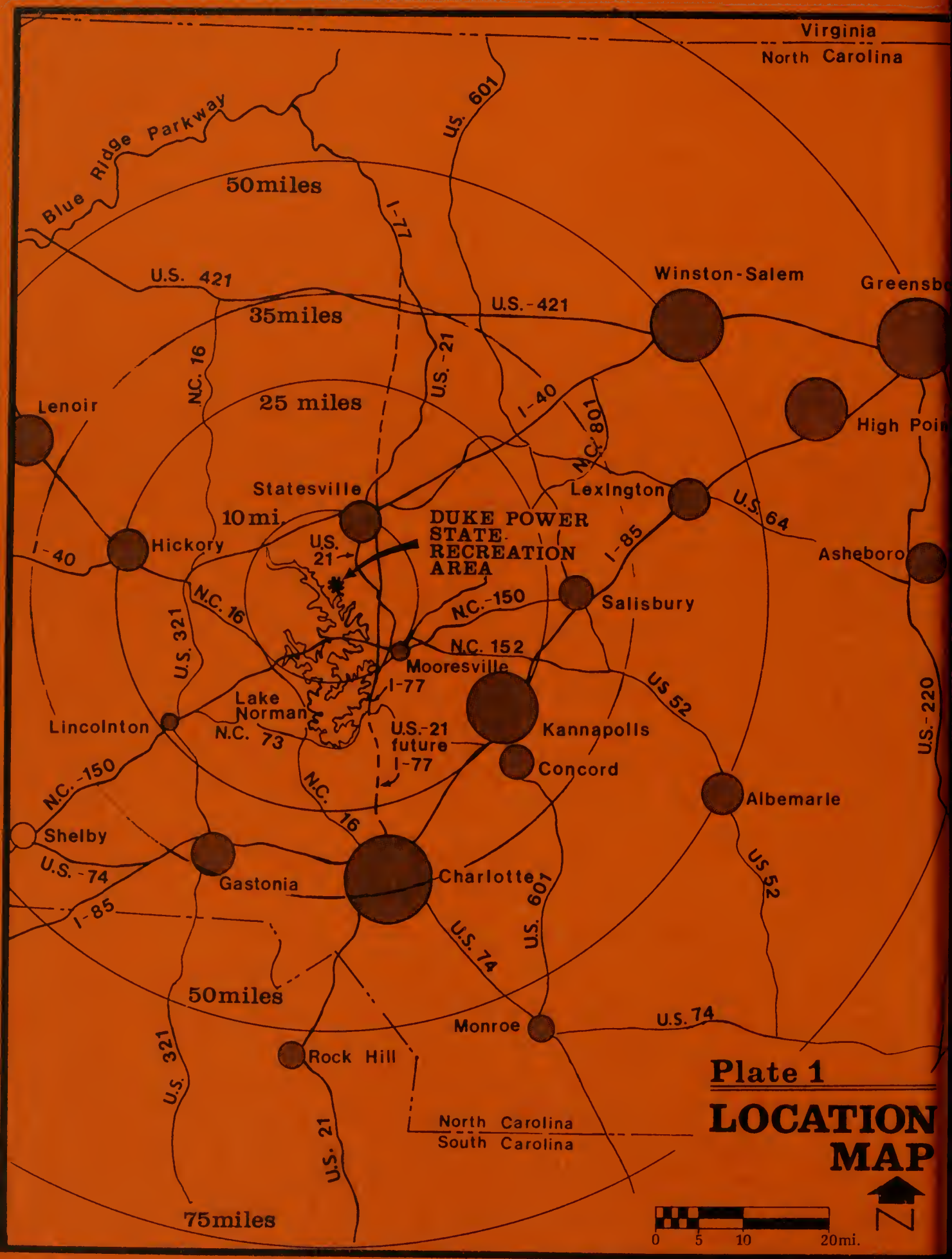
Initiate and continue a program to emphasize the recreational use of the natural resources through such activities as interpretation, hiking, group camping and organized meetings.

Construct the State Recreation Area facilities with durable materials that will require minimum maintenance and operating cost.

Prepare and keep up-to-date programmed annual maintenance programs.



THE REGION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Lexington
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DUKE POWER
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Asheboro
N.C. 16
N.C.-150
Salisbury
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N.C. 152
Mooresville
I-77
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Norman
Lincolnton
N.C. 73
U.S.-21
future
I-77
Kannapolis
U.S.-220
Concord
N.C.-150
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16
Albemarle
Shelby
U.S.-74
Gastonia
Charlotte
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Rock Hill
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CHAPTER 4

GENERAL INFORMATION

Location:

Duke Power State Recreation Area referred to as the "State Recreation Area" consists of approximately 1401 existing acres and is located in the west central section of North Carolina and in the south central part of Iredell County on Lake Norman. It is approximately 32 miles north of Charlotte and 10 miles south of Statesville (see Plate 1).

General Characteristics and History:

A review of the existing state park system within the Piedmont region indicates that this State Recreation Area with the exception of Morrow Mountain State Park has the most varied intense recreational development possibilities of the western state parks, (see Plate 2) including Boone's Cave, Mount Mitchell, Mount Jefferson, Stone Mountain, and Pilot Mountain. Morrow Mountain State Park has more development and ranks second in attendance according to state figures. This State Recreation Area ranks ninth in attendance out of the total 19 state parks. The 1973 figure of 82,137 visitors to the State Recreation Area is compared to 2,800,847 total number of visitors to all state parks in North Carolina. Mount Mitchell and Pilot Mountain achieved greater visitation than the State Recreation Area. This is due to their location to transportation corridors or centers of population and their natural attractions. Mount Mitchell is near the Blue Ridge Parkway and Pilot Mountain is near Winston-Salen.

The State Recreation Area's existing facilities consist of two non-contiguous use areas. The first includes a paved access road and entrance to a small constant level lake for swimming with an associated picnic and parking area. The second contains picnic and camping facilities and requires a 20 minute drive over paved and unpaved secondary state roads outside the State Recreation Area.

The original 1326 acres creating the State Recreation Area was donated to the State in September, 1962, for park purposes by the Duke Power Company.

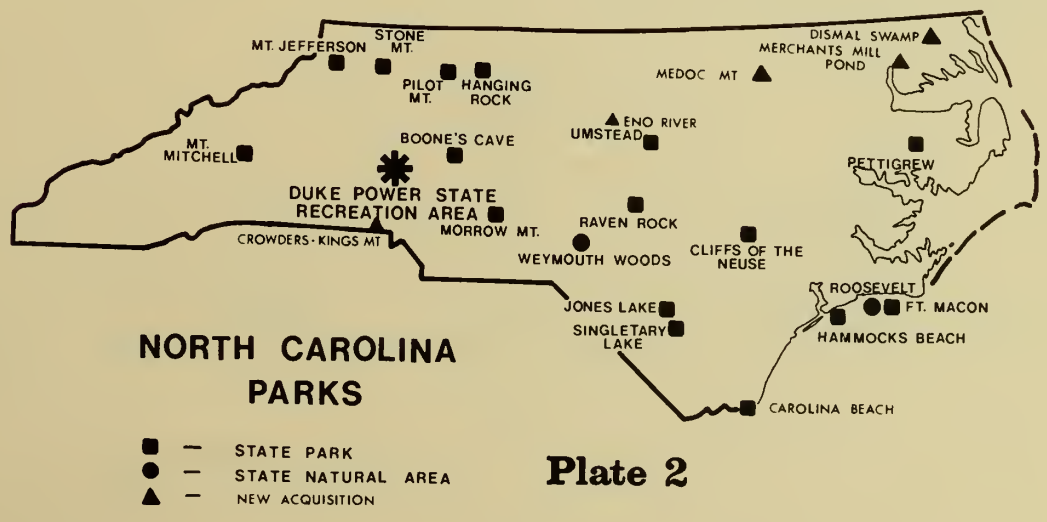


Plate 2

CHAPTER 5

REGIONAL CHARACTERISTICS

Access and Circulation:

Access to the general area from the north and south is by Interstate 77 and U.S. 21. Interstate 40, north of Lake Norman, and Interstate 85, south of Lake Norman are the major east-west connectors to Interstate 77 and U.S. 21. State routes 16, 150, 73, 152 and 801 complete the circulation pattern to and around Lake Norman. Direct access to the State Recreation Area is from two sides with State roads 1328 or 1324 leading directly to the existing service and camping area and 1322 and 1330 to the swimming area.

Interstate 77 has not been completed between Charlotte and Lake Norman. Upon completion, this highway will allow much faster and safer access from Charlotte to the State Recreation Area. The major problem of the existing State Recreation Area is its inaccessibility from major roads and its disjointed and inadequate internal road circulation.

Population:

The region of significant influence surrounding the State Recreation Area is within a 35 mile radius. This radius includes Charlotte (population 256,000) the closest metropolitan center to the State Recreation Area and also the major source of visitors. This radius also includes recreators who will participate in the after work and one day outing type of recreational experience. The counties which will contribute the major number of recreators to the State Recreation Area and are entirely within this radius are Alexander, Cabarrus, Catawba, Davie, Gaston, Iredell, Lincoln, Mecklenburg and Rowan.

These counties (see Plate 3) had a 1973 population of almost one million, while the Charlotte Standard Metropolitan Statistical Area (SMSA) had a population of 409,370 in 1970. The population density surrounding the State Recreation Area is between 50 and 100 persons per square mile.

The following population figures were compiled from the 1973 census and include all counties within the thirty-five mile radius.

TABLE ONE
POPULATION WITHIN 35 MILES

Alexander	20,400
Burke	2,800
Cabarrus	76,000
Catawba	94,500

Caldwell	8,000
Cleveland	500
Davidson	10,500
Davie	19,400
Gaston	159,500
Iredell	74,600
Lincoln	33,700
Mecklenburg	387,600
Rowan	92,000
Wilkes	3,500
Yadkin	1,000
TOTAL	984,000

Source: U.S. Census and Commercial Atlas and Marketing Guide, Rand McNally Company.

Also significant are the actual mileages from the State Recreation Area to the following metropolitan centers.

TABLE TWO
MILEAGE TO METROPOLITAN CENTERS

City	Miles	Approximate One Way Traveling Time
Asheville, N.C.	132	2½ hours
Atlanta, Ga.	260	5 hours
Charleston, S.C.	144	3½ hours
Charlotte, N.C.	32	45 minutes
Columbus, S.C.	122	3 hours
Durham, N.C.	133	2½ hours
Fayetteville, N.C.	173	3¾ hours
Greensboro, N.C.	79	1½ hours
Hickory, N.C.	38	45 minutes
High Point, N.C.	72	1½ hours
Knoxville, Tenn.	247	5½ hours
Nashville, Tenn.	409	8 hours
Raleigh, N.C.	156	3 hours
Richmond, Va.	269	5 hours
Washington, D.C.	399	8 hours
Wilmington, N.C.	242	5 hours
Winston-Salem, N.C.	52	1 hour

Source: American Automobile Association Road Map for Southeastern United States.

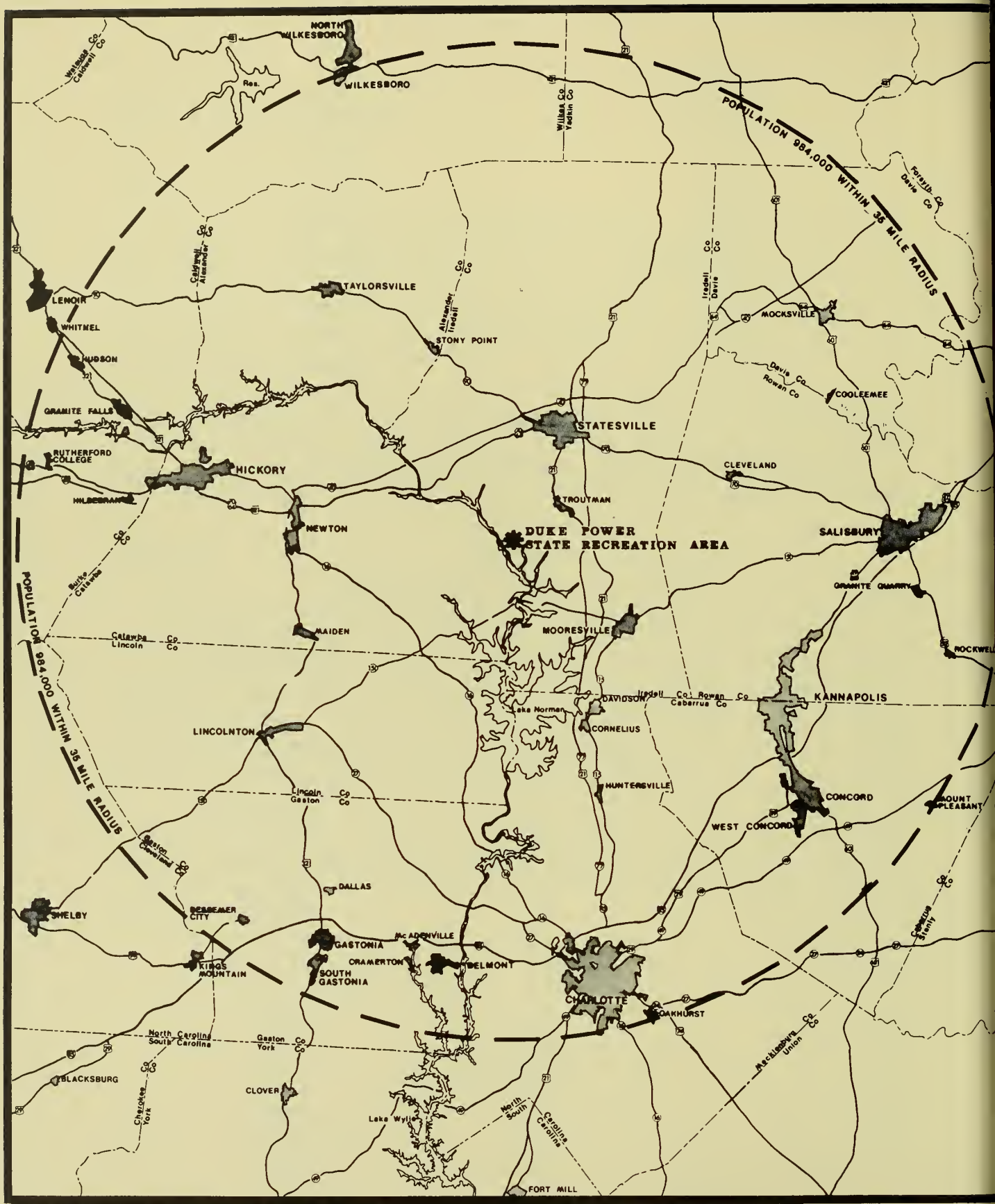


Plate 3 - POPULATION STUD

Services

Transportation:

Historically, transportation in the area gained importance and generated economic growth with the induction of the railroad in the mid-nineteenth century. Of the ten early railroads in the region, only five remain; the Southern, Seaboard Coast, Carolina and Northwestern, and Piedmont and Northern lines. The Southern Railroad has a freight line which parallels U.S. 21, passes through Troutman and is the closest rail service to the State Recreation Area; however, no passenger service is available.

Highways were the next means of transportation to develop throughout the region and are now the major means of access and circulation. Interstates and hard surface state roads provide a good highway network from out-of-state metropolitan areas to Charlotte and Statesville and to the general region of the State Recreation Area.

Charlotte provides the nearest commercial air service to the State Recreation Area; however, there are small private air strips, one to the northwest and the other to the south of the State Recreation Area.

Utilities:

Petroleum and natural gas pipelines originating at Texas and Louisiana refineries, pass through the region to the New Jersey terminals. A natural gas line goes under Lake Norman approximately twelve miles from the State Recreation Area. Marshall Steam Station, a fossil fuel steam plant, is located 2½ miles from the State Recreation Area. Cowens Ford Dam, a hydroelectric plant, and the McGuire Nuclear Station, under construction, exist on the shores of Lake Norman (see Plate 4). Power companies in the region include Duke Power, Rural Electrification Authority, Cresent Electric Company, (which service the State Recreation Area) and Carolina Power and Light. Telephone service is provided by seven separate companies in the region, the largest being Southern Bell Telephone and Telegraph Company which serves the State Recreation Area.

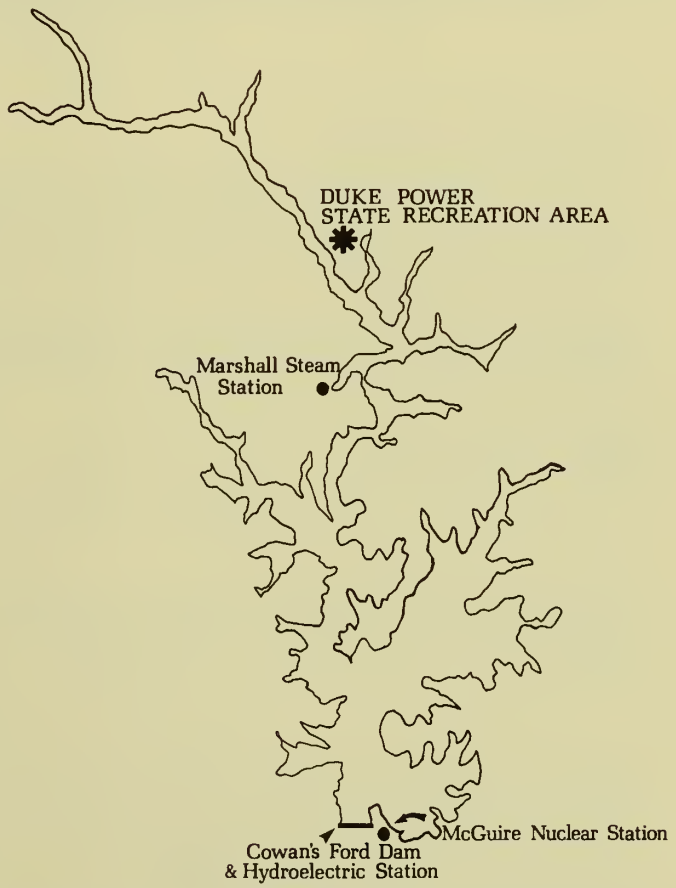


Plate 4 **LAKE NORMAN**

Water sources are usually from drilled wells although municipal water sources for Statesville and Mooresville are from nearby rivers. Sewage disposal is by septic systems except in the urban areas where sewage treatment systems have been established. The nearest municipal water and sanitary systems to the State Recreation Area are located in Troutman.

McGuire Nuclear Station

Communication Resources:

The Charlotte Observer is the most widely circulated newspaper throughout the region. The Statesville Record and Landmark, is the most widely read newspaper in Iredell County. The five major television stations in Charlotte cover a radius of up to 85 miles. Radio stations in Charlotte and many more in the region provide communication for the State Recreation Area. Hickory and Charlotte are the two regional postal centers.

Economic Resources:

Most central business districts in the region are remaining attractive despite the competition from the construction of new shopping centers in the suburbs. Charlotte obviously dominates the entire region in retail sales. Troutman and Statesville are becoming increasingly influenced by the economic growth and development of Charlotte.

Textiles are the major regional industry. The manufacturing history of the region began in 1880 with the birth of the textile mills near the cotton fields. Only since 1960 has there been any attempt at industrial diversification. In Iredell County 50 percent of the workers are employed in manufacturing, while 20 percent provide services and are in miscellaneous occupations. Ten percent of the employees are in the trades, 10 percent in government and 10 percent in agriculture.

Social Services:

The Iredell Memorial and Davis Hospitals in Statesville are the nearest hospitals to the State Recreation Area. The Lowrance Hospital in Mooreville is also reasonably close.

Mitchell Junior College in Statesville and Davidson College, a private four-year college, located in northern Mecklenburg County, are the nearest institutions of higher education.

Police protection to the State Recreation Area is provided by the North Carolina State Highway Patrol and the Iredell County Sheriff's office. Fire departments are mostly volunteer organizations. Statesville, 10 miles from the State Recreation Area, has the nearest organized fire department.

Organizations serving the region around Iredell County include the Metrolina Environmental Concern Association, Centralina Council of Governments, Lake Norman Marine Commission, North Carolina Soil and Water Conservation Area 8, Metropolitan Charlotte Interstate Air Quality Control Region, Piedmont Area Development Association and Metrolina Coordinating Committee.

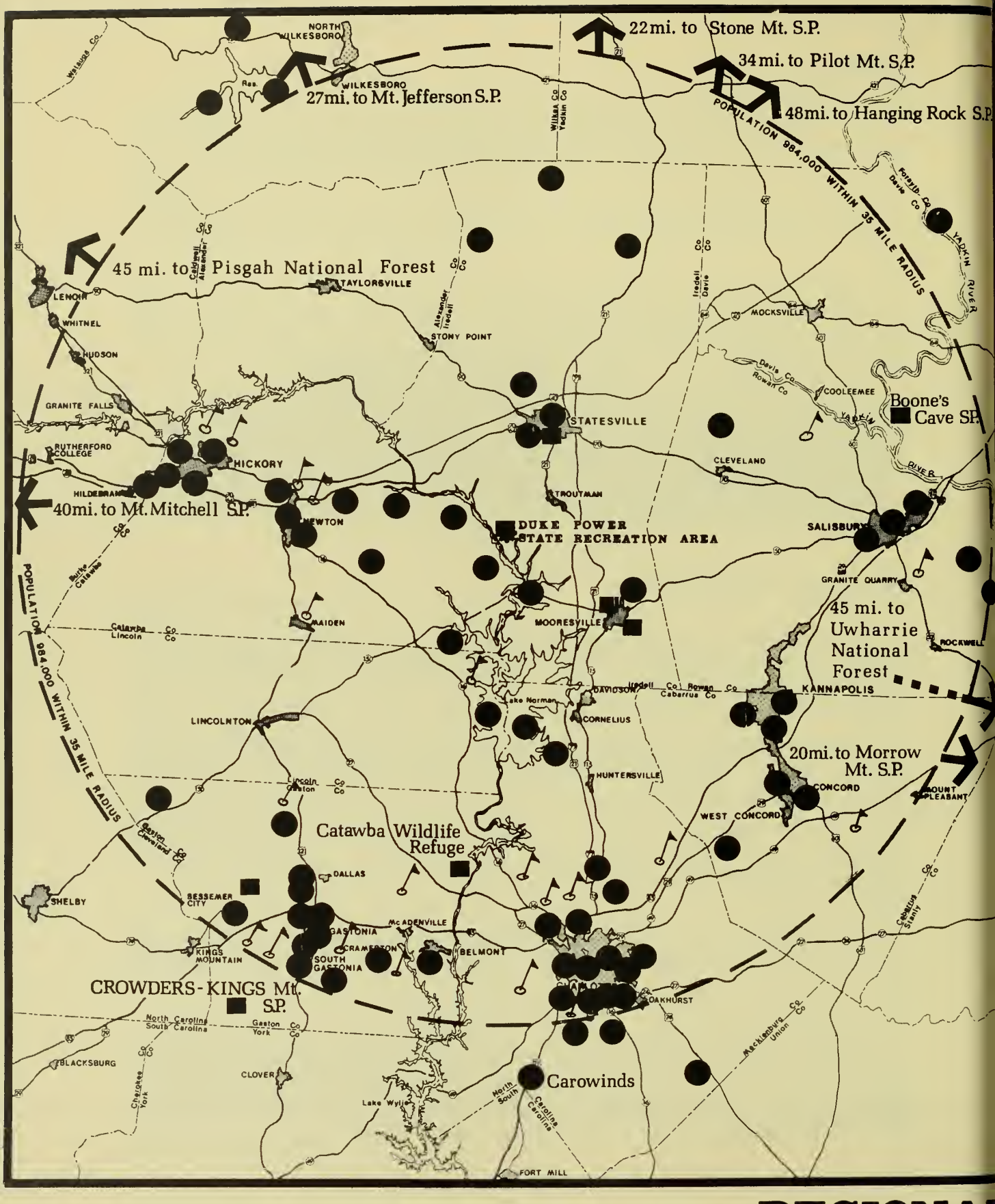
Regional Park and Recreation Areas:

State Parks within the Piedmont region include Mount Mitchell, Mount Jefferson, Stone Mountain, Pilot Mountain, Hanging Rock, Morrow Mountain, Boone's Cave and Crowder Mountain (see Plate 5).

Twenty miles south of the State Recreation Area is the 1000 acre Catawba Wildlife Refuge on Mountain Island Lake and leased by Duke Power Company to the North Carolina Wildlife Commission. Further south on the Catawba River is Lake Wylie, having 325 miles of shoreline with many boating facilities. Carowinds, a major amusement resort area, with campground, and allied light industry is a complex on the North and South Carolina State line, south of Charlotte.

Within the region are many county and city parks and open spaces which provide high density recreation. Private enterprise also contributes to the regional recreational facilities. There are no Federal recreation or forest areas within the region.

The focal point of all recreation in the region is Lake Norman (see Plate 6). The lake is surrounded with boat launching ramps with car and trailer parking, and general stores furnishing marina supplies, boat sales, services, rental and groceries. There are also several picnic areas and campsites. A few restaurants cater to the lake users.



RECREATION AREA

PARK-OPEN SPACE

GOLF COURSE

Plate 5 - REGIONAL RECREATION AREAS

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Recreation Needs:

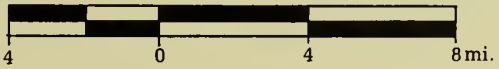
The Outdoor Recreation Resources Review Commission has predicted that the population should double and that recreation demand should triple by the year 2000. The major portion of this demand will need to satisfy the after work and weekend recreators. North Carolina expects a moderate growth rate in population from 1970 increasing 7.39 percent by 1976, 20.7 percent by 1986 and 87.4 percent by 2020. The greatest concentrations are found in the Piedmont region. Recreation demand in North Carolina can also be expected to increase significantly. It should be mentioned that with the current (1974) energy crisis, recreation demand may decrease regarding vacation trips requiring traveling; however, this should increase demand for local and regional recreational facilities.

The classification used for the State Recreation Area is the Bureau of Outdoor Recreation (BOR) Class II and the North Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP) Subclass 11, specialized outdoor recreation areas (medium intensity use). The Piedmont Region is divided into six regions with the State Recreation Area falling into Region F. Region F includes the counties of Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly and Union.

There is a need for additional recreation lands of 14,968 acres by 1976 and 17,377 acres by 1986 according to SCORP for designated classifications in the Piedmont Region F. These needs represent the additional quantity of recreational acres that should be provided by some management level prior to the dates selected. It is not expected that the Division of State Parks supply this entire need but the recommendations in SCORP indicate that the State should substantially help in satisfying this need.

Plate 6

LAKE NORMAN RECREATION AREAS



Recreation facility needs for 1970 and 1981 have also been determined by the Lake Norman Marine Commission and are summarized below:

TABLE THREE
RECREATION NEEDS

	Average Daily Use		Peak Day Use	
	1970	1980	1970	1981
Lake surface area in acres	-	-	(-) 3,500A.	(-) 10,000A.
Boat launching ramps	-	(-) 40 ramps	(-) 173 ramps	(-) 218 ramps
Swimming beaches Shoreline in Linear Feet	(-) 386 ft.	(-) 638 ft.	(-) 1,750 ft.	(-) 2,200 ft.
Swimming beaches in acres	(-) 5A.	(-) 6A.	(-) 11A	(-) 13A
Campgrounds	-	-	(-) 70 sites	(-) 250 sites
Picnic Tables	(-) 112 tables	(-) 275 tables	(-) 1000 tables	-
Picnic Area in Acres	-	-	(-) 70A.	(-) 100A.

NOTE: (-) indicated deficiency by quantity mentioned.

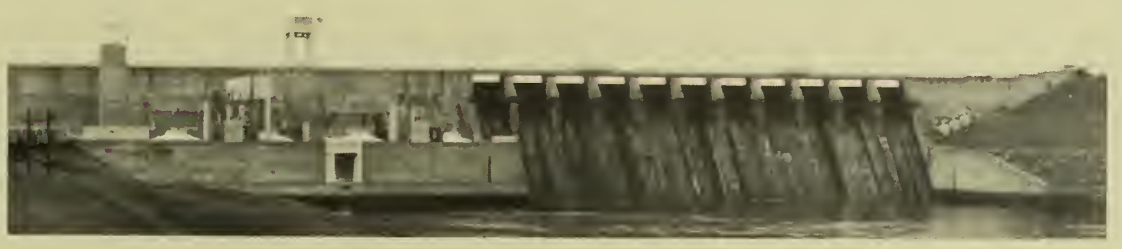
Marina on Lake Norman

The Lake Norman Marine Commission has offered the following suggestions:

To meet existing needs, four additional public beaches are required. Only the State Recreation Area provides a complete swimming facility with life guards, a bathhouse and rest rooms. Some of the swimming demand may be met at the commercial campgrounds, although at present, the facilities are minimal. The need for additional campsites could be met through the expansion of the existing State Recreation Area facilities and also the commercial campgrounds. Most of the commercial campgrounds are overcrowded and could be improved by adopting a more desirable standard of four sites per acre. There is also a current need for picnic areas and it is anticipated that the future demand will make the situation acute. Except for several cabins near the south end of Lake Norman, there are no public indoor, overnight accommodations for visitors. Therefore resort facilities have the greatest need for future development. Full service marina development is expected to be handled by private enterprise with two existing marinas almost meeting the qualifications.

Completion of Interstate 77 north from Charlotte will improve accessibility to Lake Norman, subsequently increasing its popularity and enforcing its claim as one of the major recreation centers in the state. There will be a special need for family oriented day use facilities such as swimming, picnicking, boating and fishing. Not only will more facilities be required in number, but the need and demand for higher quality recreation will also increase.* Of the 35 outdoor recreation activities participated in by North Carolina residents (Table IV.2, page 4-9 SCORP) in 1971, 20 are included in the State Recreation Area.

*Lake Norman Marine Commission, Lake Norman Development Impact Study, June, 1972.



Cowans Ford Dam

CHAPTER 6

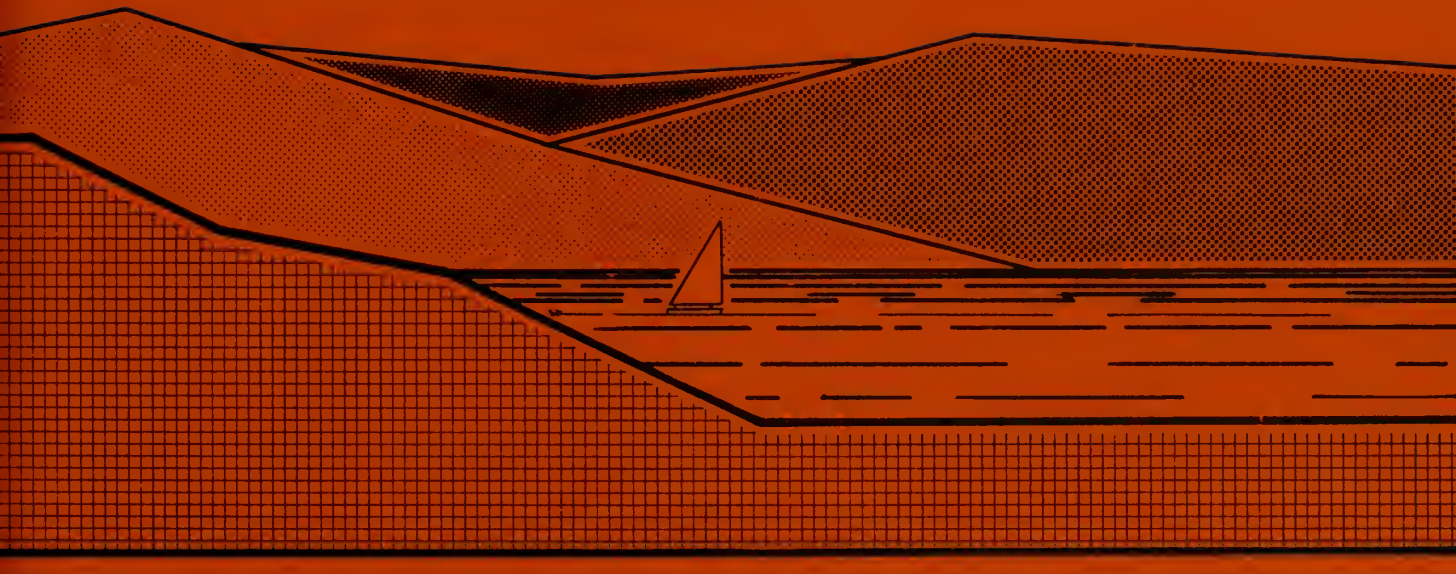
THE ROLE OF DUKE POWER STATE RECREATION AREA IN THE PIEDMONT REGION

Duke Power State Recreation Area, the first North Carolina State Recreation Area, will add greatly to the recreation opportunity found in the Piedmont and greater Charlotte region. Its major role will be to provide a diversified, intense recreation experience and to serve the large population within this region. A vital part of this role will be the opening of public access to Lake Norman, the State Recreation Area's most important resource. In addition to a more varied camping experience and more intense day use, the other recreation facilities including cabins and trails will be developed for all of the state's citizens to use and enjoy. The State Recreation Area will also set an example for protection of environmental quality, while serving to illustrate proper land use for intense recreation facilities.

Of equal importance will be an interpretation center which will provide an opportunity for nature study and appreciation of the natural environment as well as serving as an outdoor laboratory for nearby schools and colleges, thus providing a greater interface for understanding the interrelatedness of man and nature.

The archaeological and historical studies currently underway will provide valuable information regarding life styles of the Catawba Indians and of the early settlers in the area.

Through the planned development and growth of the State Recreation Area, the quality of life for the citizens of the region and state will be enhanced.



EXISTING FEATURES

CHAPTER 7

DESCRIPTION OF THE RESOURCES

Land and Water Area:

Duke Power State Recreation Area currently contains approximately 1,318 acres of land along the shore of Lake Norman. Within this area there are over 13 miles of shoreline and a 33 acre constant level lake. Lake Norman itself is 34 miles long and contains approximately 32,510 acres. It has over 520 miles of shoreline. The State Recreation Area is basically divided into two peninsulas located west and east of Hicks Creek.

Climate:

The climate in the State Recreation Area is fairly mild. The mountains to the north and west provide shelter from intense storms and hold back the weaker ones. The Atlantic Ocean, 225 miles to the east, also tempers the climate but is responsible for the few coastal storms reaching the area. The rolling topography, characteristic of the region, cause wide variations in the climate; temperatures in particular.

The summers are long and hot. The average temperature in July is 78^{o} (with a range of 70^{o} to 90^{o}). Night temperature is usually 20^{o} cooler year round. The average rainfall during the summer is 4 to 5 inches per month. The prevailing summer breezes are from the southwest.

The autumn season (which extends into November) is clear and calm with mild temperatures. Rainfall is less than 3 inches per month, while the average 7½ miles per hour winds prevail from the northwest.

Winter begins in mid-December with frequent changes in the weather. The temperature averages 42^{o} with a range from 35^{o} to 50^{o}. The winds in winter average 8½ miles per hour from the southeast although the few major storms come from the northeast. Snow and sleet are recorded only once or twice per year with a 5 inch average accumulation. Winter is usually over by mid-March.

Spring is long, mild and pleasant. The winds peak in March at an average of 9½ miles per hour and originate from the south. The last probable fost is May 1 and the first frost in the fall is approximately October 15.

TABLE FOUR

SOIL SURVEY SERIES 1960, NO. 11

Temperature and precipitation for Iredell County, N.C.

[Elevation, 950 feet]

data except that for snowfall are from records of U.S. Weather Bureau at Statesville; data on snow are from the records at Winston-Salem in Forsyth County]

Month	Average daily maximum temperature	Average daily minimum temperature	Two years in 10 will have at least 4 days with—		Average monthly total precipitation	One year in 10 will have—		Days with snow cover	Average depth of snow on days with snow cover
			Maximum temperature equal to or higher than	Minimum temperature equal to or lower than		Precipitation less than	Precipitation more than		
	°F.	°F.	°F.	°F.	Inches	Inches	Inches	Number	Inches
ary	53	32	69	15	4.0	1.8	7.1	4	1
uary	56	33	70	18	3.7	1.3	6.2	2	2
ch	62	38	77	22	4.6	2.2	6.8	2	5
l	72	47	85	31	3.7	1.7	5.4	0	0
	80	56	91	44	3.5	.8	5.5	0	0
	87	65	96	54	3.6	1.0	7.5	0	0
	89	68	97	61	5.1	2.3	8.2	0	0
ist	87	67	96	59	4.8	2.3	7.5	0	0
ember	83	61	92	48	3.7	1.0	9.0	0	0
ber	74	49	88	35	3.2	.7	7.0	0	0
mber	62	39	76	24	3.1	1.2	6.8	0	0
mber	53	32	68	16	3.9	1.8	7.0	1	1
ar	71	49	[1] 99	[2] 9	46.9	36.3	61.2	9	2

[1] Average annual highest maximum.

[2] Average annual lowest minimum.

While yearly prevailing winds from the southwest average eight miles per hour, an extreme wind of 50 to 70 miles per hour may occur only one or two times every twenty years. There has only been one severe tornado in Iredell County in the past 50 years. There have been several hurricanes, however, bringing heavy rains and moderate winds. Average rainfall of 43 inches is generally well distributed throughout the year.

The sun shines approximately 60 percent of all daylight hours throughout the year. Skies are clear 42 percent and partly cloudy 15 percent of the year. The region does experience one of the highest incidences of stagnating air inversions on the east coast; however, except for Duke Power's steam plants, the State Recreation Area lies in the lowest problem area.

Geology:

The region is on the Piedmont Province of the Appalachian Highlands. Most rocks are among the oldest in the United States and were formed in Precambrian times.

Bedrock in the region is divided into four lithological belts: Carolina State Belt; Charlotte Belt; Kings Mountain and Inter-Piedmont Belt. The State Recreation Area is within the Charlotte Belt which is composed of igneous and metamorphic rock. The basic rocks are granite, granodiorite, diorite and gabbo.

The old sedimentary and igneous rocks were folded and faulted. Heat and pressure were added to metamorphose the rock into schists. The igneous rock then intruded into the existing rocks to form granite, dikes and sills.

The basic unit of rock in the State Recreation Area is granite. The texture and composition of this granite is not uniform with quartz veins and pegmatite stringers occurring throughout. There is also mixed gneiss.

The region is rich in many types of minerals and semi-precious gems. Today granite is the major mineral product followed by sand and gravel, mica clay, lithium, kyanite, traprock and feldspar.

The region is characterized by a series of rounded, rolling hills with a northeast-southwest trend. The region was basically a flat peneplane, which has been eroded by the major rivers. The peneplane elevations vary 2000 feet with several monadnocks scattered throughout the region.

Soils:

The basic soil type in and around the State Recreation Area is the Cecil series. These soils are deep with varying slopes and are well drained. The surface layer of soil is grayish-brown, sandy loam between 3 and 15 inches deep. The subsoil is red, firm clay, 18 to 60 inches deep and moderately permeable. The bedrock varies from 5 to 15 feet below the surface. These soils are low in natural fertility and are strongly acid (pH of 5.1 to 5.5); however, they are excellent crop soils if fertilizer and lime are added. Over half the Cecil soils outside the State Recreation Area are under cultivation at the present time. These soils are susceptable to erosion but respond well to proper soil management.

The water table is below 10 feet even at high seasons. The soil is well suited to highway grading. The soil is also a good source of topsoil and core material for earth dams but only a fair to good source of borrow material for homogeneous earth dams and shells. The soil is suitable for farm ponds, dam foundations and terraces although rock outcrops occur in some places. The soil also provides good drainage for septic systems. Agricultural drainage is usually not needed to improve the soil conditions.

The topography is generally rolling and hilly with natural drainage having moderate runoff. The landscape results from the water dissection of a south-easterly tilted peneplane. Slopes are moderate except in the steep, narrow valleys made by streams cutting through resistant rocks.

Soil types having some restrictions to recreation development are the Louisburg, Louisa and the moderately gullied soils.

Water:

The Catawba and Yadkin Rivers are the major rivers in the region. Due to the rapid flow and good dam sites, many hydroelectric projects have been built on these rivers. The water in the lakes behind them is used for power production, recreation and potable water supply. These two rivers are not seriously polluted although many smaller streams are. Lake Norman on the Catawba River ranges between Class A and Class B water. Class A water is suitable as a source of drinking water and Class B is suitable for outdoor bathing. Much of the water is soft due to the insoluble crystalline rocks that underlie the waters.

Lake Norman is the largest man-made lake in North Carolina and has been nick-named the "Inland Sea." The construction of the Cowan's Ford Dam began in 1959 and was finished in 1964. The water level normally fluctuates up to two feet with a maximum 15 foot fluctuation permitted. All types of boating can be found on the lake, with sailing being very popular. The boating season is from March to October.

The ground water is a very important natural resource that is abundant and high in quality. Most wells supply adequate water within 300 feet. Wells yield approximately 26 gallons per minute and have a water temperature of between 50^{o} and 61^{o}.

The State Recreation Area has Norwood Creek running through the site separating the existing swimming area from the existing camping area. Hicks Creek is the flooded section of Lake Norman and separates the State Recreation Area into two peninsulas. Rocky Creek forms the next cove southeast of Hicks Creek. There are many small and intermittent streams feeding these major creeks.

Lake Norman

Vegetation:

The original forest of this region was primarily the hardwoods consisting of oak, hickory, gum, walnut, sycamore, beech, elm, and birch. There were a few scattered pockets of pine and red cedar. There was almost no undergrowth, except a few small trees, primarily dogwood and sourwood. The early settlers cleared the forests and farmed the land and after the usefulness of these fields ended, natural seeding to Shortleaf and Virginia Pine occurred. Upon subsequent reclearing, use, and depletion of the land, plantations were created consisting of pine stands mixed with naturally occurring hardwoods. The Southern Pine Beetle is causing extensive mortality to the pines of this region and is very noticeable in the State Recreation Area.

Plants and Forest Types:

Most of the forested areas of Duke Power State Recreation Area are in mid-successional stages with Virginia Pine being the most common forest type. Although this type of overstory is found in many areas, it is particularly prevalent along ridgetops and dryer hillsides. Shortleaf Pine is usually found interspersed within the Virginia Pine forest type. Loblolly Pine is an introduced species in this area and has been planted in plantations. Scattered pockets of upland hardwood species occur throughout the Virginia Pine forest type. Their composition is usually predominated by oak, hickory, sourwood and dogwood. For an area with such a vast shoreline, bottomland hardwood forest types are sparce. Such species as beech, gum, ironwood, birch and other moisture loving species are limited to coves, the banks of small creeks and the borders of intermittent streams. The area's shorelines are vegetated with many species of sedges and rushes, thickets of alders and many different tree sprouts. Floodplains have infrequent, dense holly thickets. Mountain Laurel is found frequently along steep banks, under fairly old stands of upland hardwood species. The understory species are typical Upper Piedmont representatives. Scattered through the forest types are such common species as Spotted Wintergreen, Heartleaf, Eastern Redcedar, Trailing Arbutus, Red Maple and others. Common along borders of pine forests are numerous species of grasses, such as Broomsedge, Plume Grass, Purple Top and many others. Within most pine stands there is usually little understory. Predominant in these stands is Japanese Honeysuckle. Understories of upland hardwood stands contain numerous hardwood sprouts, ferns, shrubs, and herbacious species. Wild Hydrangea, Boxelder, Christmas Fern, Grape Fern, Reed, and Strawberrybush are representative species. Lichen flora is common as are the other forms of lower plants.

Fish and Wildlife:

Lake Norman's fish population is one of the best anywhere in North Carolina. Largemouth bass, crappie, bream, white bass, sauger, catfish, carp, threadfin shad, striped bass, yellow perch and bluegill are the most important game fish inhabiting the lake.

The Catawba River is a major flyway for waterfowl during migration. Mallards, wood ducks and green winged teal are common water fowl in the State Recreation Area. Another water oriented bird frequently observed is the blue heron. Woodland birds include mourning dove, chipping sparrow, pileated woodpecker and quail. Birds of prey known to the area are the sparrow hawk, red-tailed hawk and osprey.

Woodland animals vary from the small animals such as the cottontail rabbit, fox, opposum and gray squirrel to the larger deer. Reptiles including the copperhead are plentiful. All the animals require suitable food and cover to survive and would probably exist in greater numbers if they were given adequate protection.

Lists of over 60 reptiles, 200 birds, 35 mammals and over 800 probable plants for this section of Iredell County are available from the Chief Park Naturalist.

Special Scenic Features:

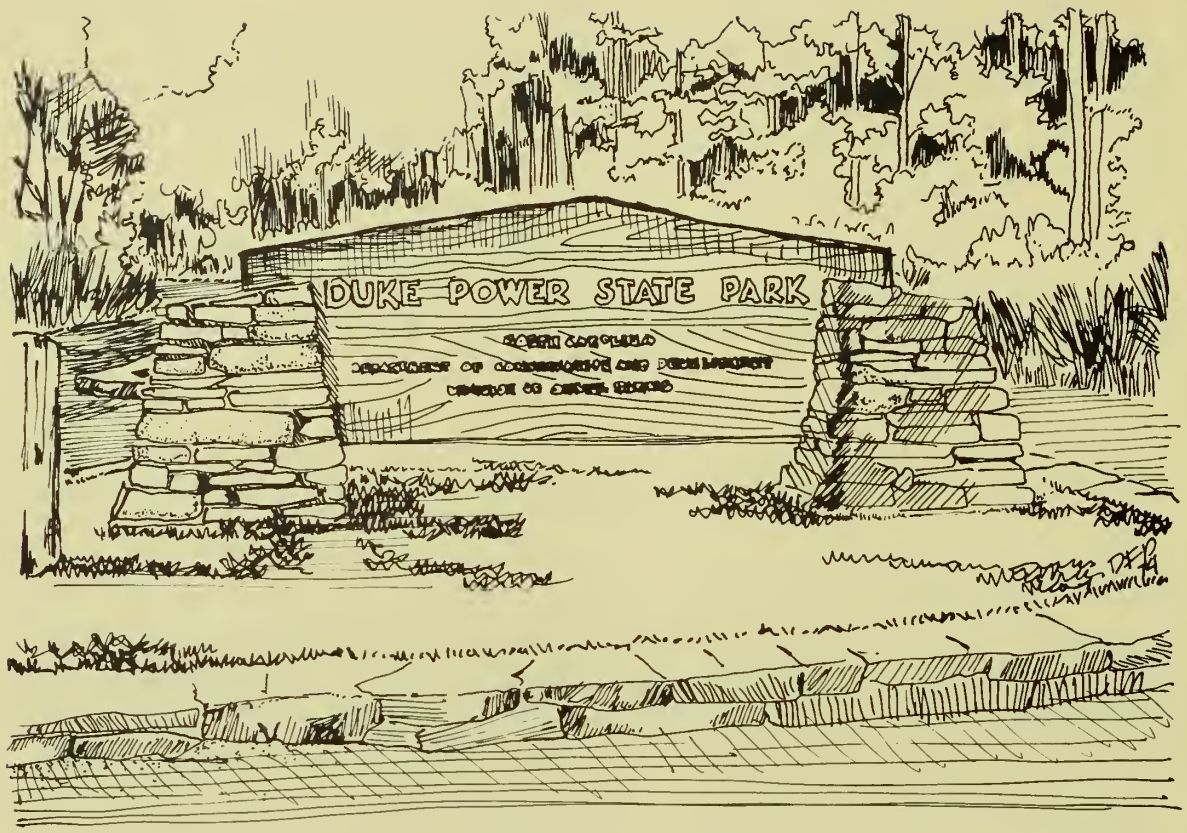
Although the State Recreation Area does not have a unique natural feature to qualify it as a state park, it does have the scenic value and recreation potential of Lake Norman. The State Recreation Area provides many attractive views of the lake and adjacent islands.

One of the highest points in the vicinity is adjacent to the State Recreation Area. The elevation point provides the opportunity for spectacular views of the lake and countryside.

Man-made Features:

The State Recreation Area is located in a rural area with a small surounding population. The existing roads have been modified and improved only slightly since the construction of Lake Norman. These roads were originally farm roads and, as a rule, followed the ridges. Most of the permanent homes in the area do not exceed 100 years in age with most in the 20 year or younger category. New homes are being built. Vacation cabins dot the shoreline of Lake Norman and there are also many mobile homes being used as residences. The primary use of the homes within a mile of the Lake Norman shoreline are vacation or summer homes. Most of the homes beyond this one mile zone and outside of towns and villages are agriculturally oriented. The Town of East Monbo, an old mill town, is located adjacent to the State Recreation Area. It contains several homes and two churches.

Country stores, usually near the Lake Norman shoreline, a chicken farm and other scattered light businesses complement the agriculture community.



Existing Entrance Sign

There are two entrances to the State Recreation Area. The entrance from the southeast (by way of State Road 1321 from Troutman) serves only the swimming and picnic area. Although the administration and camping area is approximately 0.6 miles from the swimming area, one must drive nearly eight miles between the areas. The present route is by secondary state roads, outside of the State Recreation Area, to the second entrance. This entrance is from the northeast by way of State Road 1328.

The southeast entrance road passes an existing entrance sign and continues across the upper reaches of Lake Norman's Hicks Creek and terminates at the existing swimming and picnic area.

The existing swimming-picnicking area was created by the construction of a dam and the buildings were completed in 1965. The circulation patterns around the complex are confusing and the parking lot is much too steep. Access to the beach and constant level lake is not adequate. Stairs and walks need to be constructed in many areas. A detailed description of these existing facilities is as follows:

a. Three paved parking lots with a 300 car capacity.

b. The bathhouse consists of three attached structures of stone and wood construction. A fee collection and basket checking area in the center separates the men's and women's bathhouse. The change areas include showers and toilets. A utility area and first aid room are provided.

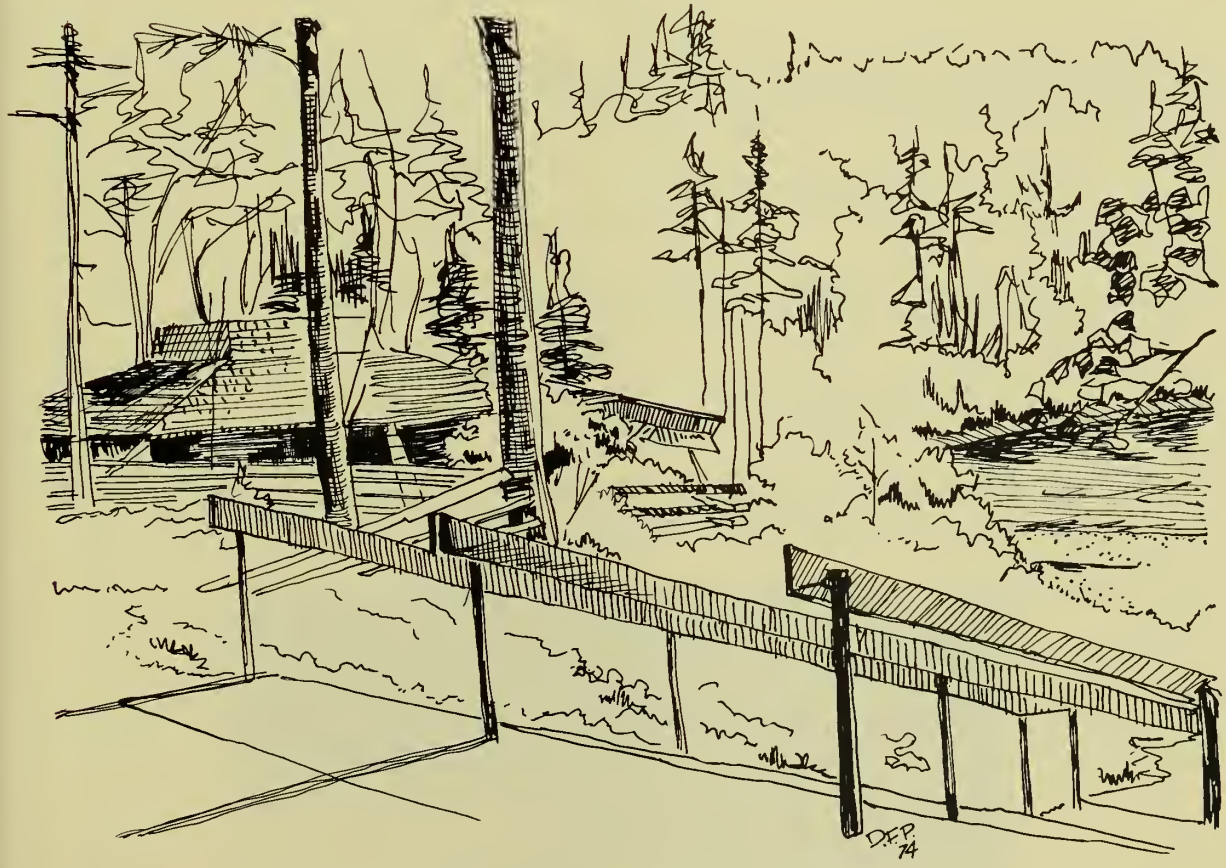
c. The stone and wood picnic shelter overlooks the beach and is located to the right of the bathhouse.

d. Another similar shelter on the left of the bathhouse is the food concession and contains public toilets.

e. The bathing beach is covered with white sand and a diving platform is located in the center of the swimming area.

f. A picnic area with tables and grilles is located east of the beach and includes a trail for hiking and service access.

g. A gravity type concrete spillway and earth dam maintain the constant level lake on Norwood Creek. The spillway has two channels controlled by gates through the concrete spillway. One channel is two feet deep and the other is four feet deep. The spillway crest elevation is 762 feet which is two feet higher than the normal high water level of Lake Norman.



Existing Swimming-Picnicking Area

h. The potable water supply consists of a deep well with a six inch casing and produces approximately 36 gallons per minute.

i. Sewage treatment is handled by a 10,000 gallons per day capacity steel prefabricated extended aeration plant. The chlorinated effluent is discharged into Lake Norman.

j. Electric service is by the R.E.A. Cresent Electric Co. in Statesville. Power to the complex is underground near the complex but overhead beyond.

k. Boat rental at the constant level lake incudes rowboats; no motors are permitted.

l. Bank fishing is allowed.

The northeast entrance serves the administration, service, picnic and camping areas. A description of these facilities follows:

Camping Area:

a. The camping area was opened on July 16, 1971 and consists of 33 sites, most of which are paved. The camping road was paved in 1972 and the area will accommodate many more sites than are presently installed with the construction of additional comfort facilities.

b. The one washhouse contains showers and comfort facilities. Outside, there is a covered laundry area with two wash sinks and a small utility area.

c. Each campsite has one picnic table and a steel grill. There are seven hose bibs spaced around the area.

d. A trailer waste station is located in the center of the camping area road.

e. The water supply for this area consists of a deep well with a six inch casing and pumps approximately 20 gallons per minute.

f. The sewage treatment plant is a 15,000 gallons per day capacity steel fabricated aeration unit. Chlorinated effluent is piped into Lake Norman.

g. Electric service is provided by Duke Power Company, with overhead lines to the area and underground lines within the area. The transformer and switches are housed in a shelter.

h. Firewood concession with an honor system coin box is opposite the trailer waste station on the main road.

The picnic facilities include:

a. A paved entrance road and central parking lot with a capacity for 75 cars.

b. 75 picnic sites with about 60 tables.

c. A comfort station with a septic tank and leaching field disposal system.

d. Water supply from a six inch asbestos cement pipe originating at the administration area.

The administration area includes the service area and the park superintendent's residence. The facilities in more detail are as follows:

a. A gravel entrance road and parking lot.

b. The administration building is a wood frame building with office space for the park superintendent, a workshop area, a two bay garage and a storage area. A gasoline pump is nearby.

c. The park superintendent's residence is a wood frame house.

d. Water is supplied by a 130 gallon per minute well with a six inch casing pipe within a concrete block pumphouse.

e. Sewage disposal consists of septic tank and leaching fields.

f. Power is supplied by the R.E.A. Crescent Electric Co.

g. The interim personnel barracks, off State Road 1402, is a one story wood frame house in disrepair.

h. A new barracks is scheduled for construction in the immediate future in the administration area.

The old home at the intersection of State Roads 1402 and 1404 is in disrepair and has the widest variety of plant material on any one site in the State Recreation Area. The outbuildings are made from hand hewn beams with wood pegs. Every effort should be made to preserve the vegetation and outbuildings.

The road to inholding properties is unpaved and needs beautification with plant materials due to the logging of the area in 1970. The cabins and houses on the inholdings are in good repair.

Archaeology:

The first known Indians in the area were the Cherokee Indians, according to early explorers John Lawson and John Lederer. By the 1700's, small tribes had been weakened by war and disease and the Catawba Indians took over the area. They were enemies of the Cherokee and were an agricultural people, friendly to the whites. During the 1800's, the tribe declined and was located on a reservation near the Catawba River. In 1848, the United States Congress moved the tribe to a reservation west of the Mississippi River.

The State Recreation Area has little or no known archaeological data; however, several Indian graves are located on a former hillside near the existing camping area, overlooking the Catawba River. Flint chips, arrowheads and fragments of pottery can still be found along the shoreline of Lake Norman.

History:

The first settlers in the area were Germans who migrated from Chesapeake Bay in the late 1740's. The Scotch-Irish joined the settlement in the 1750's and settled along the Catawba River.

During the Revolutionary War, British General Lord Cornwallis' army marched from Camden to Charlotte and set up camp there. His army and its flanks were subject to many small battles in his marches, including a battle as the British crossed Cowan's Ford of the Catawba River in pursuit of Colonial frontiersmen. General Cornwallis soon left North Carolina and moved to Yorktown where he remained until his surrender.

In 1789, the settlers established a county capital called Fourth Creek Community. This community was incorporated into a town in 1847 and was named Statesville. The county capital was just outside the stockade of Fort Dobbs. Daniel Boone helped to defend this fort from the Cherokee Indians and this was the beginning point for his trip to Kentucky. Kit Carson was born near the State Recreation Area and later became the famous Indian fighter and pioneer.

During the Civil War the region was more important as a source of manpower than a battleground, yet because of the German population and their anti-slavery sentiments, this manpower source was minimal. Salisbury manufactured arms and had a major war prison located there. Statesville was the temporary capital of North Carolina while Federal troops occupied Raleigh.

Originally, Mecklenburg County was a major agricultural area with grain and grist mills in abundance. Surrounding counties became industrialized from the river power sources. This eventually led to the growth of Charlotte as a trade and transportation center.

Also of early historical importance are the graves of white settlers found in the State Recreation Area. Near the Indian graves, is the tombstone of Julia, wife of Alexander Clark, who died on July 7, 1849 in the 22nd year of her life. At the end of State Route 1331 there is a small cemetery on State lands. The tombstones are those of early settlers along the Catawba River, but the bodies remained under Lake Norman, by permission of their heirs.

Fire History:

According to the District Forester at Mount Holly, there have been no recent fires in the State Recreation Area. There have been fires within a five mile radius and are described below:

TABLE FIVE
FIRE FREQUENCY

Year	Number of Fires	Acres Burned
1968	12	173
1969	5	67
1970	0	0
1971	3	4
1972	2	111

There is a total of 67 critical areas in the State Recreation Area and range in size from one to 21 acres. They consist mostly of pine plantations and should be closely watched and protected due to their high fire susceptability.

CHAPTER 8

EVALUATION OF THE RESOURCES

Adequacy of the Land and Water Area:

The current land area of Duke Power State Recreation Area is not adequate to meet the standards set forth in the "Principals for the Establishment of State Recreation Areas" or to achieve the purpose and objectives for which the State Recreation Area is intended. The acquisition of land adjacent to rivers, lakes and streams is an objective of the Division of State Parks and additional acreage on Lake Norman is vital to the future of the State Recreation Area. The water areas around the State Recreation Area are adequate to meet planned development.

Surrounding Land Use:

Generally the lands north of the site (Plate 7) are farmed while most other nearby land is used for primary residences, vacation homes and water oriented recreation development. Most shoreline homes have boat access to the lake and vary greatly in quality from expensive houses to mobile homes.

State Road 1321 rides the ridge of the peninsula formed by Hicks Creek and Rocky Creek. Several private clubs also have lake access. Besides private owernship, Duke Power Company has leased lots along the shoreline to various individuals. Constructed on these lots is a wide range of permenent structures, mobile homes, tents or other temporary cottages.

State Road 1330, on the eastern peninsula, leads to a private fish and game club and various private ownerships. This area has great potential for the development of a complete day use area. At the end of this peninsula there is a pavilion, picnic area and beach, currently leased to a college faculty, which has the potential for a major swimming area. A boat launch site is also possible into Hicks Creek from this peninsula.

Farm land north of the State Recreation Area is generally well kept and displays good farm management. New homes are being built and the older residences are well maintained. A chicken farm appears to be thriving. Troutman, the closest town other than East Monbo, is a small farm community. The Southern Railroad runs through the town. Several light business' exist in the locale but are several miles from the State Recreation Area. The country stores and marinas provide water oriented services.

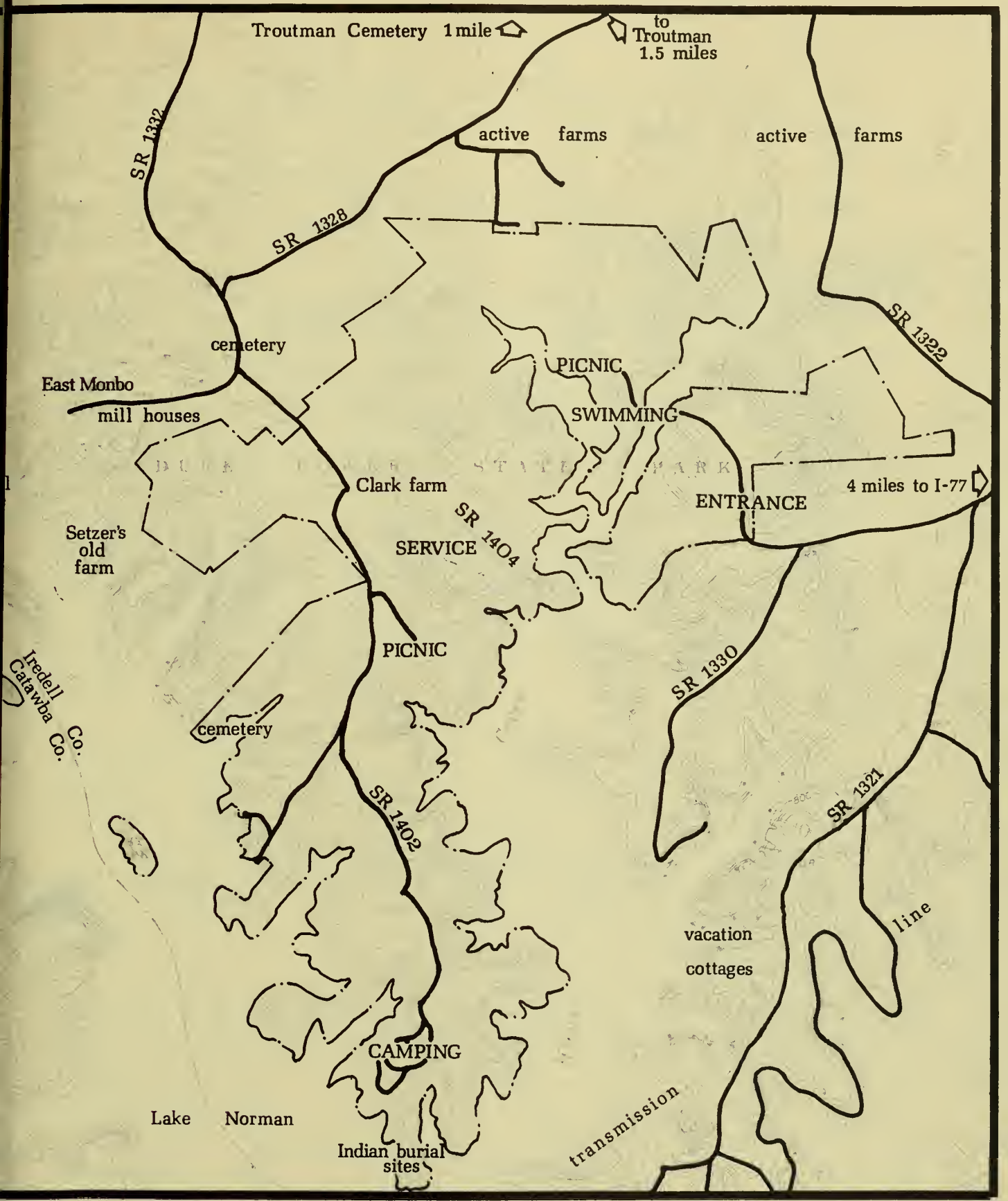


Plate 7 LAND USE

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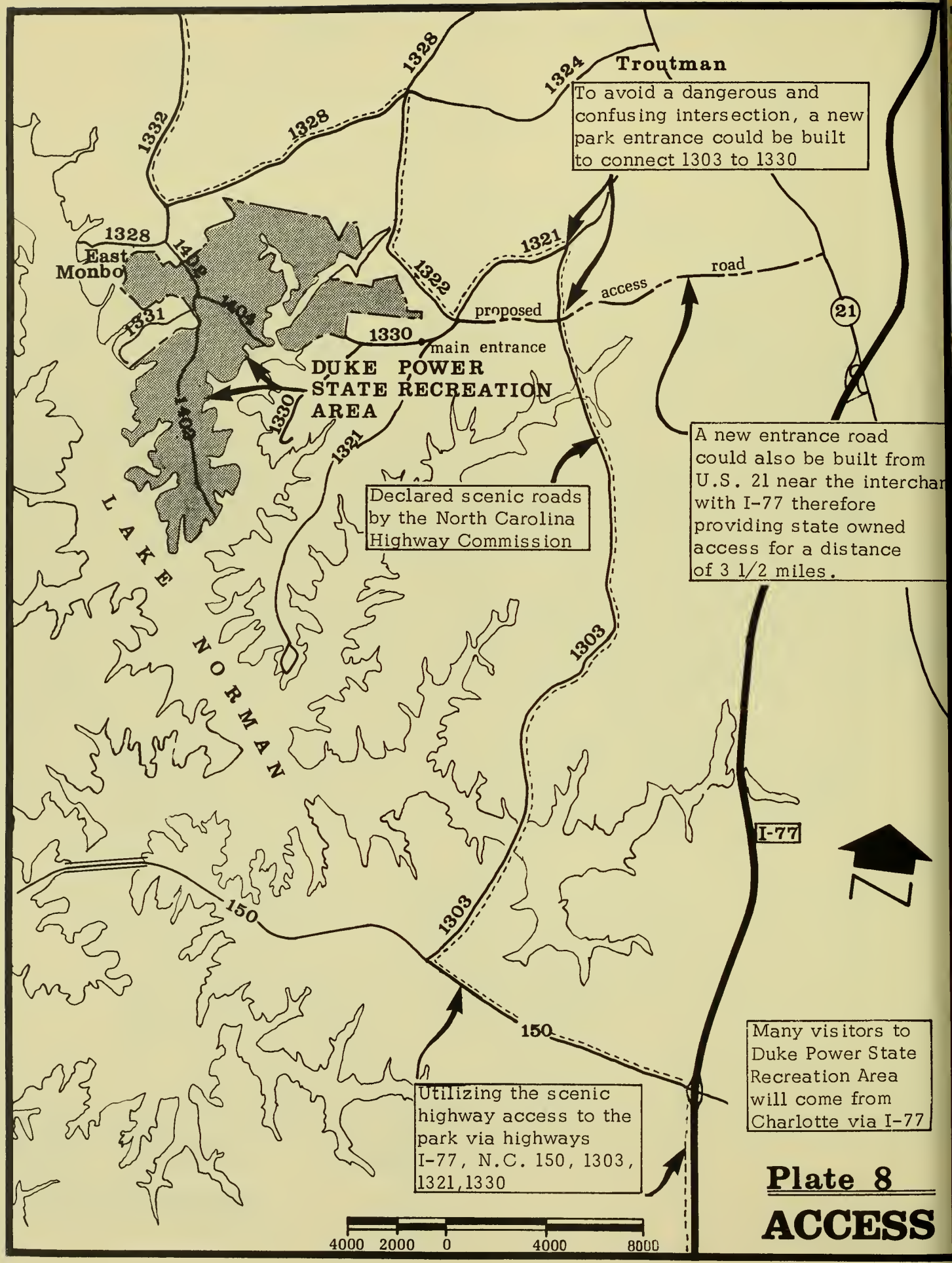


Plate 8

ACCESS

Access to the State Recreation Area is by interstate and state routes, requiring many sharp turns and some backtracking (see Plate 8). New access routes and a good sign program are recommended to provide a safe and pleasant drive to the State Recreation Area.

There is a major transmission line corridor bisecting the peninsula east of Hicks Creek. The corridor has been clear cut and then reforested with pine seedlings. Another corridor north of this line has been clear cut and reforested but no construction has occurred.

Monbo and East Monbo located northwest and adjacent to the State Recreation Area were formerly tied together as an old mill town. A dam crossed the Catawba River and provided power to operate the flour mills. Monbo was flooded by Lake Norman and only several houses built by the mill owners still survive in East Monbo. Only minimum new development is occurring. Bethel Church in East Monbo, is well maintained and used each Sunday. A well kept cemetery is located next to the church. St. John's Church, also in East Monbo, is used once a month. Although posted to prohibit dumping by the State Health Department, an area near the end of State Route 1328 in East Monbo has been used for a dump.

The old home at the intersection of State Roads 1402 and 1404 near the service area, has the widest variety of plant material of any in the State Recreation Area. This site includes native specimens as well as a variety of shrubs that are of mature size. Of special significance are the two large oaks estimated to be 125 years old and have a crown of over 70 feet.

Quality of Natural Features

Climate:

The climate in the State Recreation Area presents no adverse impact on the quality of the recreation experience and, in fact, extends the primary season from April to November.

Geology:

The geology of the State Recreation Area presents no adverse impact to the development of the facilities and in most cases where rock is exposed creates an interesting feature. Certain shallow bedrock conditions do restrict construction but this is not extensive.

Soils:

The soils are characteristically well drained with depths up to 10 feet and have varying slopes. The subsoil is reddish clay on granite or gneiss and shist bedrock. These soils, while susceptible to erosion, do respond well to good management and are suitable for recreation development. The lands having soils suitable for recreation development and subsurface sewage treatment are approximately 80 percent of the total area. These soils offer only minor problems to the development and construction of the State Recreation Area with shallow bedrock and water tables the only constraints. (See Plate 9).

Hydrology:

The State Recreation Area is entirely within the Catawba River Basin watershed. Stream patterns around and within the State Recreation Area, both perennial and intermittent, indicate that the entire area has excellent surface drainage. There appear to be no swamps in the region. Any recharge areas will be under the lakes and ponds. The water table is generally below 10 feet and water of good quality is available in sufficient quantities.

The only lands not having any visible runoff are the small, near level areas and tend to be the ridges between drainage basins.

Protection by land acquisition in fee of either the Hicks or Norwood Creek watersheds, although desirable from an ecological standpoint, would be prohibitive due to the large land area involved.

According to the North Carolina Water and Air Resources, water quality is Class A to B on Lake Norman. Hicks Creek has not been classified and Norwood Creek is Class C. Water quality testing for the State Recreation Area constant level lake indicates an absence of coliform bacteria.

Water quality should be protected and the B or higher classification should be maintained. This water quality standard must be maintained for the constant level lake.

Topography:

The slopes around and within the State Recreation Area may be classified into two categories: less than 10 percent which are most suitable for most intensive recreational activities and greater than 10 percent which are less suitable for recreational activities except cabin and nature interpretation areas. Underwater slopes of Lake Norman have also been identified from the Iredell County Soil Survey. Slopes less than 10 percent underwater are desirable for beach areas while slopes greater than 10 percent are desirable for boat landings. Both underwater use categories should have back-up areas for support facilities on slopes 10 percent or less.

In general, most of the shorelines have slopes greater than 10 percent; however, several areas of less than 10 percent slopes do exist and can be utilized for boat landings or beaches. Basically the land studied is divided into two peninsulas divided by Lake Norman to the west and Hicks, Norwood and Rocky Creeks to the east. The existing State Recreation Area land is primarily on the west peninsula. Less than 25 percent of its total area has slopes of 10 percent or less. The east peninsula has over 50 percent of its total land area in slopes 10 percent or less. Underwater slope evaluation indicates that the west peninsula has less potential for beaches while the east peninsula has less potential for boat landings.

Areas having south slopes are also important for the south slope receives the optimum sun angle for those wishing to sit in the sun and are the first to be cooled by the predominantly southwest summer breezes. Views of the lake from almost anywhere on the two peninsulas will be best toward the south, thus giving added significance to any high point and south slope combination. Shorelines with southern exposures may have some disadvantage by being debris collecting points due to wind and water movement.

The State Recreation Area was analyzed using 50 feet contours from the U.S.G.S. maps (See Plate 10) to determine the character of the land and to identify areas suitable for intense recreation facilities. It was found that on the east peninsula from Norwood Creek to Rocky Creek the land is basically steep with slopes greater than 10 percent between the lake elevation 760 and 800 contours. Above the 800 contour, the land levels off with only a few high points and ridge lines. The west peninsula is steep, usually to the 850 contour. Above that the land has many high points and pronounced ridge lines. These land forms require careful alignment of roads and sensitive location of the various recreation facilities. With these many factors as determinants, the State Recreation Area has approximately 17 percent of its total area available for optimum intense recreation experiences.

Vegetation:

The State Recreation Area is mostly wooded with only a few, small open areas. Many more openings exist north and east of the site. Generally this is a desirable pattern although considerable clearing will be required to develop the facilities. Sensitive design and a good landscape planting program will help to soften the effect of the required clearing. There are many existing pine plantations already in need of considerable thinning.

Fish and Wildlife:

The fish and wildlife resources are adequate to initiate and develop a comprehensive nature interpretation program for the State Recreation Area. Fishing in the lake and streams is considered good.

Archaeology:

While there appears to be only small archaeological significance to the State Recreation Area, the indian graves and other indian artifacts found on the site would be useful in developing more knowledge of the Catawba Indians who inhabited the area.

Historical:

Historical significance is limited. The life style of the early settlers, participation in North Carolina and United States early history and early mill operation would add a further dimension to the recreation experience.

Quality of Existing Man-Made Features:

The State Recreation Area road system is a pleasant, winding, hard surface roadway which functions reasonably well except at two locations where grades are in excess of 10 percent. The major handicap is the lack of road connections between the swimming and camping areas which forces the use of roads, some unimproved, outside the State Recreation Area. This presently creates many administrative and maintenance problems.

The swimming-picnic complex is reached by passing through an attractive entrance. This roadway includes the excessive grades mentioned above. The parking lot also has excessive slope problems and the pedestrian circulation from the parking to the beach is confusing. The building complex and the adjacent picnic area compliment the facility. Swimming in the constant level lake is satisfactory; however, a monitoring program must be established on the water quality.

The picnic area near the administration area is not used to its capacity.

The camping area creates a pleasant experience despite the fact that the sites are somewhat close together. The washhouse is new and in good condition. The trailer waste station located in the center of the main road is not desirable.

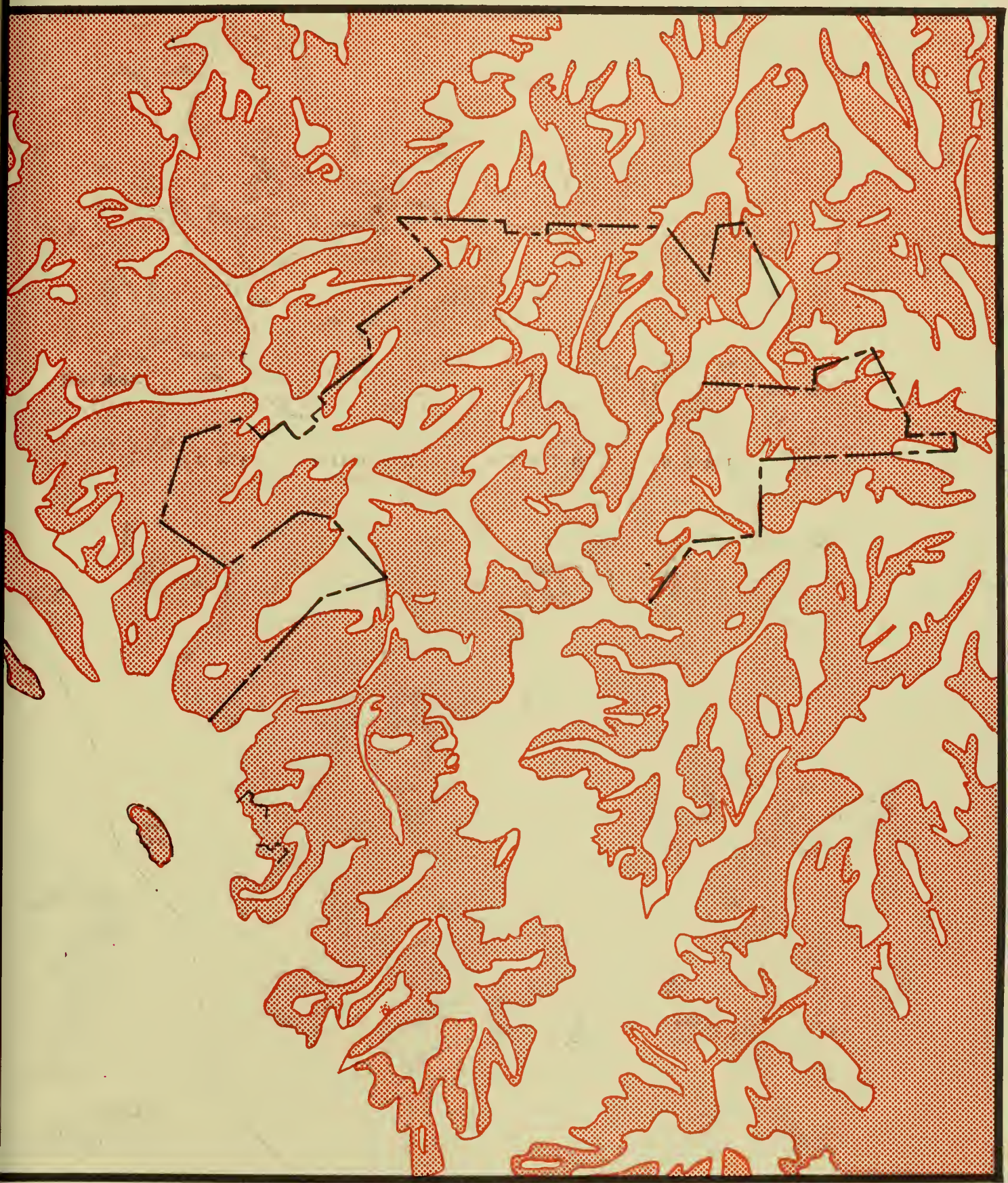


Plate 11

RECREATION POTENTIAL

NO LIMITATIONS

SOIL, WATER, OR SLOPE LIMITATIONS

2000 1000 0 2000 feet

N

SUITABLE FOR RECREATION
HIGH WATERTABLE
SHALLOW BEDROCK

Plate 9 - SOILS STUDY

2000 1000 0 2000 feet

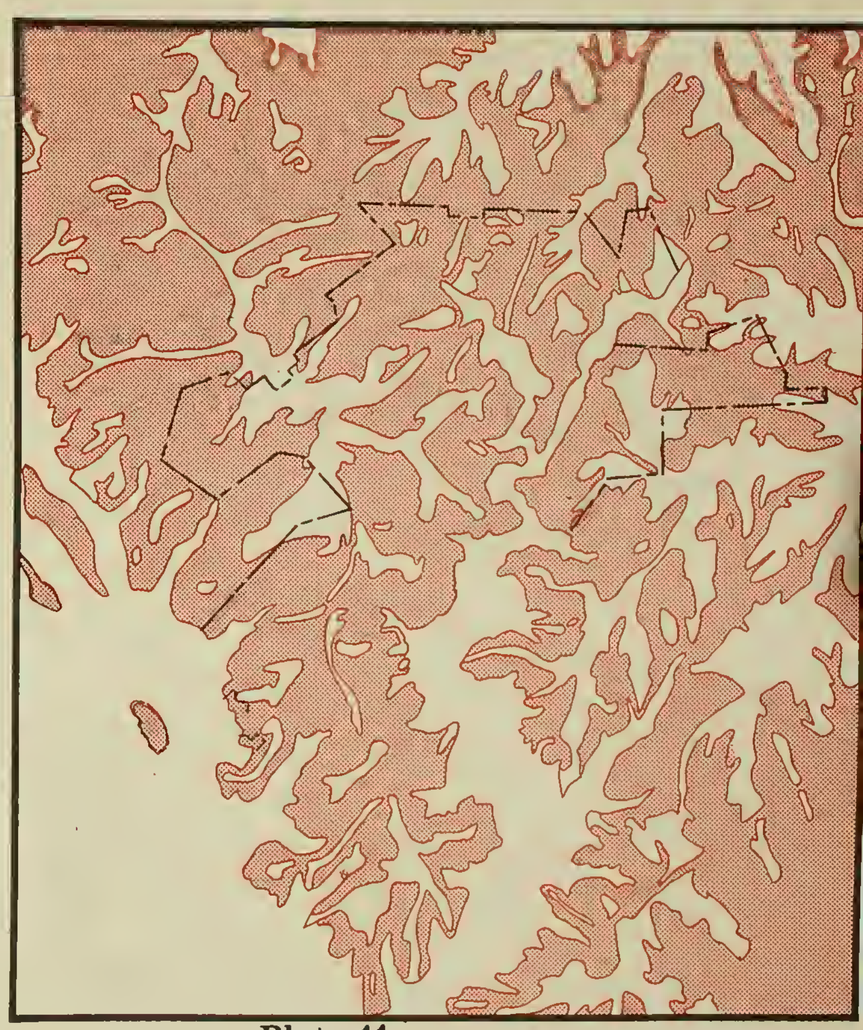
N

SLOPES LESS THAN 10%
UNOERWATER SLOPES +10%
SLOPES GREATER THAN 10%

Plate 10 - SLOPE STUDY

2000 1000 0 2000 feet

N



NO LIMITATIONS
SOIL, WATER, OR SLOPE LIMITATIONS

Plate 11
RECREATION POTENTIAL

2000 1000 0 2000 feet

N

The administration area is, at present, well located for servicing the camping and picnic area; however, the road system prevents easy maintenance of the day use area. The maintenance building and residence are new and satisfactory for the present conditions.

The interim barracks used by seasonal employees is very old, in poor condition and improperly located.

The old house near the intersection of State Road 1402 and 1404 is in poor condition and is not worth saving. The old outbuildings constructed of beams and wooden pegs should be preserved and incorporated into the interpretive program.

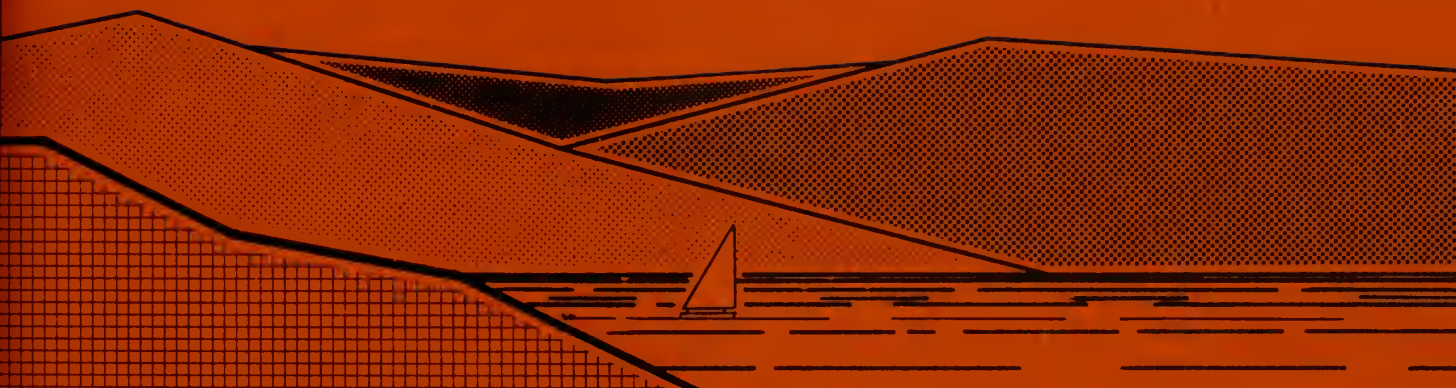
Recreation Potential Analysis:

Duke Power State Recreation Area is well suited for development as the first state recreation area if the land acquisition program is vigorously pursued. Without the additional land areas and development, intense recreation use of the existing acreage will be severly diminished.

The lands suitable for intense use recreation (see Plate 11) are limited by slopes greater than 10 percent, shallow bedrock, wet soil conditions and the utility's right-of-way. The acreage of these areas are estimated and used to determine the appropriate recreation facility capacities.

As shown in plan the available land on the west peninsula tends to follow all the ridge lines with occasional wide areas at junctions of ridge lines. The east peninsula has almost one third of its total area suitable for recreation activities.

State Recreation Area Roadway



THE PLAN

CHAPTER 9

APPROPRIATE PUBLIC USE

Purpose:

The definition of a State Recreation Area, as defined in Chapters 2 and 3, provides guidelines for the appropriate public uses for the State Recreation Area. By evaluating the land capability, land use constraints, population distribution and recreation needs of the area, the following categories have been established:

Day Use

- Picnic
  - Family
  - Group
- Swimming
- Boating
  - Boat Launching
  - Fishing
- Viewing
- Informal Activities
- Day Camp
- Bridle Trails
- Play Areas
- Natural Interpretation
  - Nature Center
  - Nature Trails
  - Hiking Trails
  - Archaeology
  - History

Overnight Use

- Cabins
- Camping
  - Family
  - Group
  - Wilderness
  - Adirondack

Administration

Information
Maintenance
Service
Employee Residence
Permanent
Seasonal

Optimum Use Capacity:

To determine instant use capacity of the State Recreation Area as well as insuring the optimum number of users, the following standards have been used. These standards are based upon U.S. Bureau of Outdoor Recreation standards and MAIN's experience.

Picnicking:

8 tables per acre x number of acres x 4 people per table = total users ÷ 4 people per car = maximum number of cars in the parking lots.

Day Use Beach:

Linear feet of shoreline x 50 feet wide = square feet of beach ÷ 100 square feet (10' x 10' per user) = number of users on beach + 1/3 of the total number which are people in the water or at the bathhouse or concession = total day users area ÷ 4 people per car = maximum number of cars in the parking lot.

Boat Launching:

Lake capacity for boats = 75 boats per 160 acres of usable water. Number of acres for the various zones (motor, sail and canoe) x 65 cars and trailers per acre = Maximum number of cars in the parking lot x 3 people per car = number of users.

Viewing:

Maximum number of cars for a desirable recreation experience = 20 cars x 4 people per car = 80 persons maximum.

Nature Interpretation:

Number of acres x .5 users per acre = number of users plus 100 users in the interpretation center = total number of users ÷ 4 people per car = maximum number of cars in the parking lot.

Cabins:

Linear feet of roads in the cabin area x 2 cabins per 100 linear feet = total number of cabins x 4 people per cabin = total number of users in the area.

Family Camping:

Number of acres x 4 sites per acre x 4 people per site = total number of users.

Group Camping:

Number of acres x 8 sites per acre x 4 people per site = total number of users.

Wilderness Camping:

Number of acres x 1 site per acre x 3 people per site = total number of users.

Other More Specific Standards:

A twenty minute walk = ½ mile (2,640 feet) which is the maximum distance a person carrying gear will walk from swimming area to a picnic area. Beyond this distance people will tend to drive.

Bathhouse to parking lot	=	800 feet maximum
Bathhouse to beach	=	800 feet maximum
Beach to rest rooms	=	100 to 300 feet
Beach to drinking water	=	300 feet maximum

Optimum Intense Use Acreage:

The State Recreation Area capacity has been determined by the land constraint analysis in Chapter 8. These constraints indicate that 253 acres of land are presently suitable for most forms of intense recreation on the existing 1401 acres of land. This amount of suitable land increases to 404.5 acres when the proposed acquisition lands are included.

CHAPTER 10

THE MASTER PLAN

Acquisition:

The existing unconnected land areas are not sufficient to develop the initial intense use recreation facility of the State Recreation Area. To provide for a contiguous, comprehensive recreation facility, additional land must be acquired.

Control of the State Recreation Area is the key factor in the land acquisition program. (See Plate 12). To insure this control of the entire western peninsula, the remaining 11 parcels in the subdivision inholding one-quarter mile north of the camping area must be acquired. These are the top priority parcels. To fulfill the master plan concept and to insure a viable recreation development, the remaining parcels on the western peninsula and the entire eastern peninsula must be acquired as shown on the Land Acquisition Map, Plate 13. This primary acquisition program will increase the State Recreation Area acreage by 1,063.

It is desirable to acquire the lands within the scenic easement classification (with option for purchase) for their suitability as audio-visual buffers, nature interpretation and future expansion as need develops. The amount of land involved is a total of 940 acres.

The total State Recreation Area acreage, existing and primary acquisition, will be 2,464 acres. Scenic easements will bring the total to 3,404 acres.

Acquisition for the proposed entrance road should be by the North Carolina Highway Commission. The road will be 16,000 feet long within a 400 feet wide right-of-way. This extra width will be for scenic preservation on this road which should be declared a scenic highway.

State Recreation Area Development Plan

Concept:

The primary objective of the master plan is to achieve the orderly development of an intense use recreation area around a nucleus of existing State owned land and facilities. The acquisition program will allow expansion as the demand increases and to insure optimum public benefit. Natural and historical values have been incorporated in the plan but are not the dominant influence.

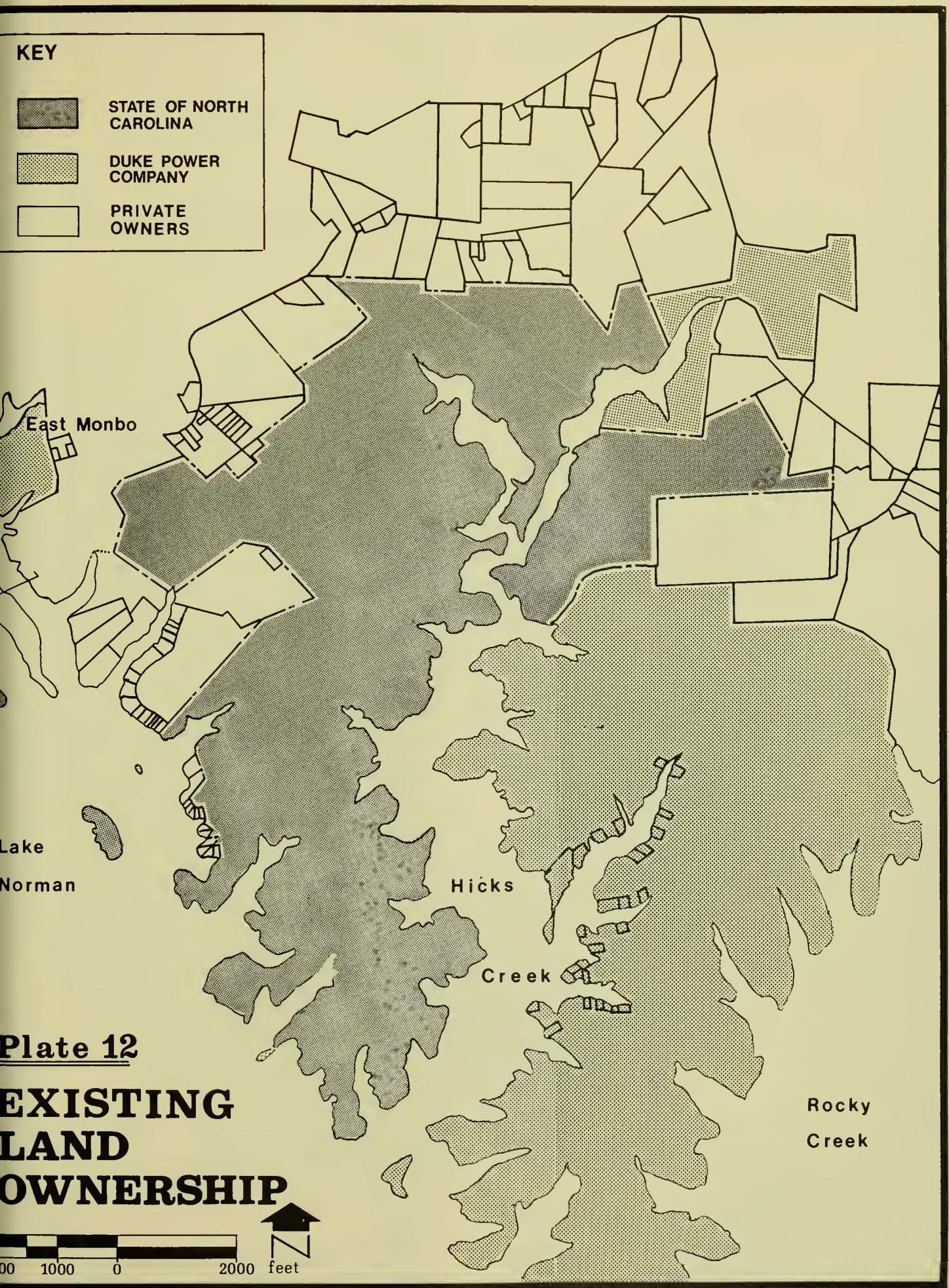


Plate 12

EXISTING LAND OWNERSHIP

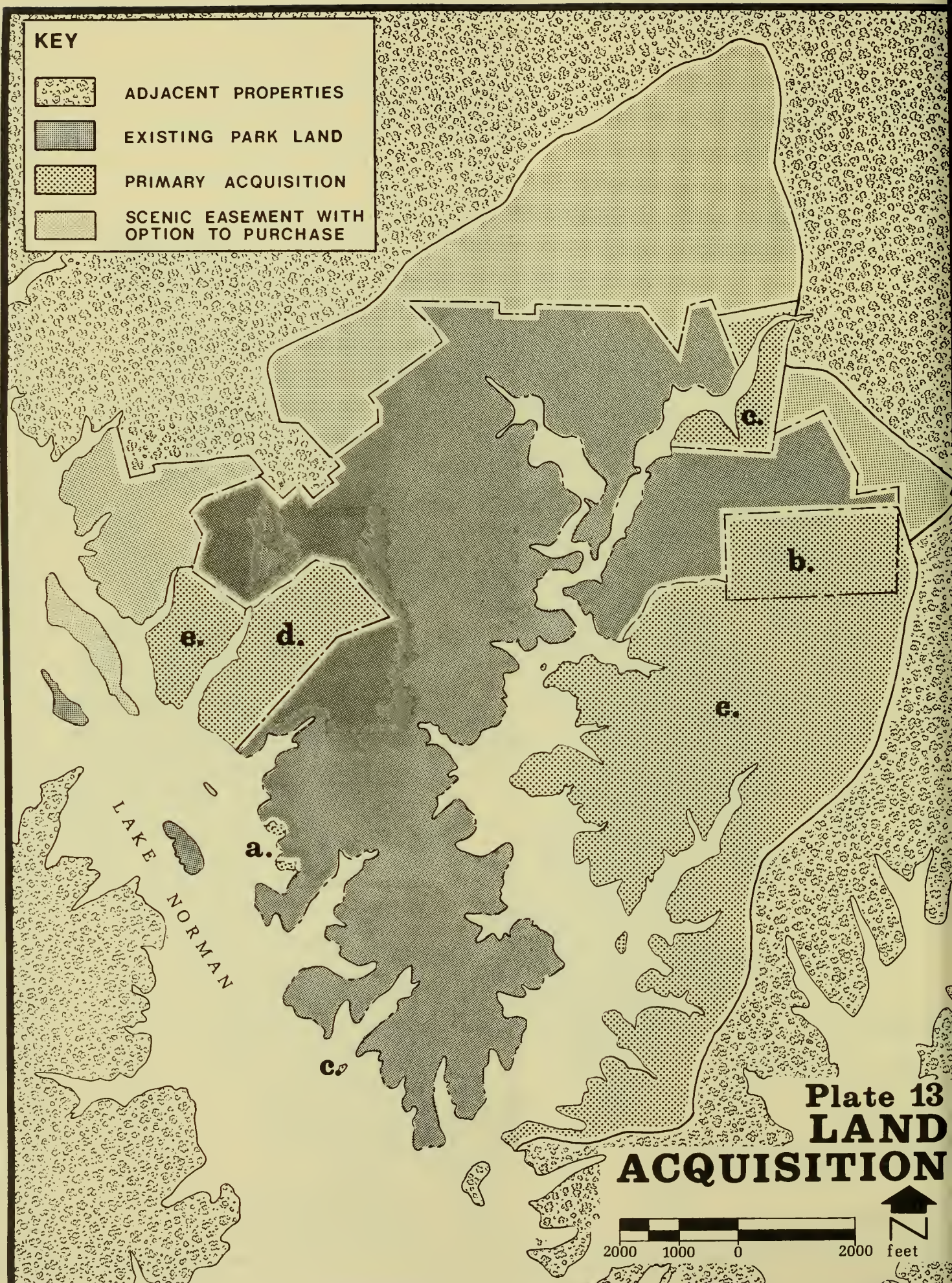


Plate 13
LAND ACQUISITION

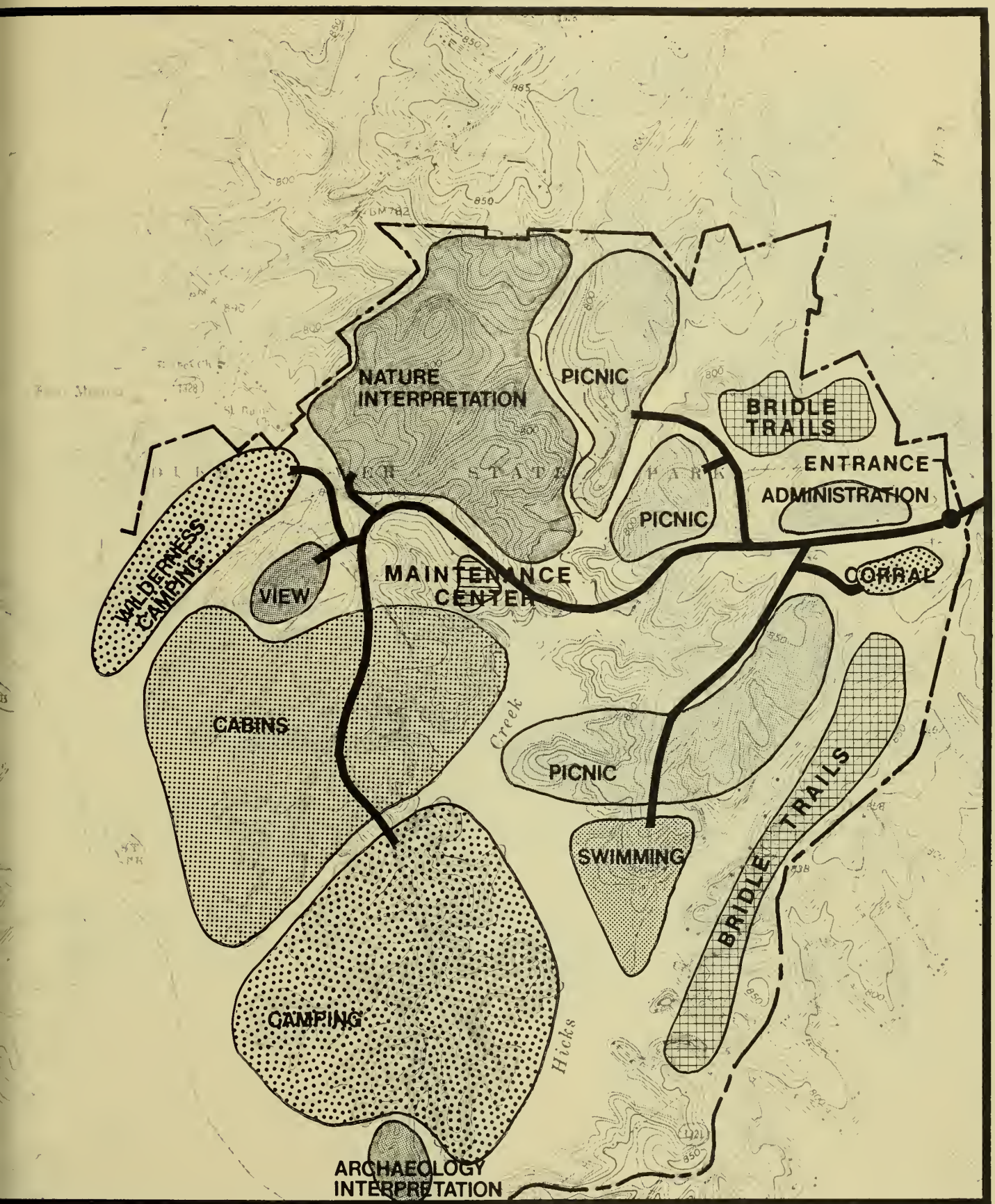


Plate 14 - CONCEPT

Two factors are important to the concept: (See Plate 14) the proximity to a large regional population and access to Lake Norman. The State Recreation Area provides the basis for high recreational opportunity in attractive surroundings and within easy reach of the people.

Development Plan:

The development of an energetic land acquisition program and pursuing expansion of recreation facilities on existing lands are the controlling factors in the formation of this master plan. All areas are designed so that stage development can occur as the need arises. This plan is intended to be a long range comprehensive set of guidelines based on the optimum public use and benefit while preserving the natural resource base and providing quality recreation experiences.

The State Recreation Area entrance and road system has been redesigned to create an attractive experience for the recreator as well as to provide efficiency in maintenance and security. Day use facilities have been expanded to offer the public a wide variety of experiences in various surroundings. Intense use facilities such as tennis, play fields, horseshoes and picnicking are a part of the activities.

Overnight visitors have the opportunity to select an accommodation that suits their needs and their means, ranging from wilderness camping to the more sophisticated cabin environment.

The natural environment has been protected and a heightened personal awareness is provided at the nature interpretation center with ample room for expansion.

Maintenance and security must be expanded so that a financial investment of this magnitude will be protected for the public benefit. Full time and seasonal employee residences have been incorporated into the overall plan to aid in this function.

The water, sanitary and electrical utilities are a vital part of the overall State Recreation Area plan. In the immediate future these services must be supplied within the State Recreation Area boundaries; however, consideration must be given to connection to a regional system when it develops.


KEY:
PINES
HARDWOODS
MIXED PINE & HARDWOODS
OPEN FIELDS
N
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
Plate 15
VEGETATION
500 0 500 1000
scale
feet

BOTTOMLAND MEADOW

HOLLY SPECIMENS

BOTTOMLAND MEADOW

KEY:

- PINES
- HARDWOODS
- MIXED PINE & HARDWOODS
- OPEN FIELDS

N

CONTOUR INTERVAL 10 FEET

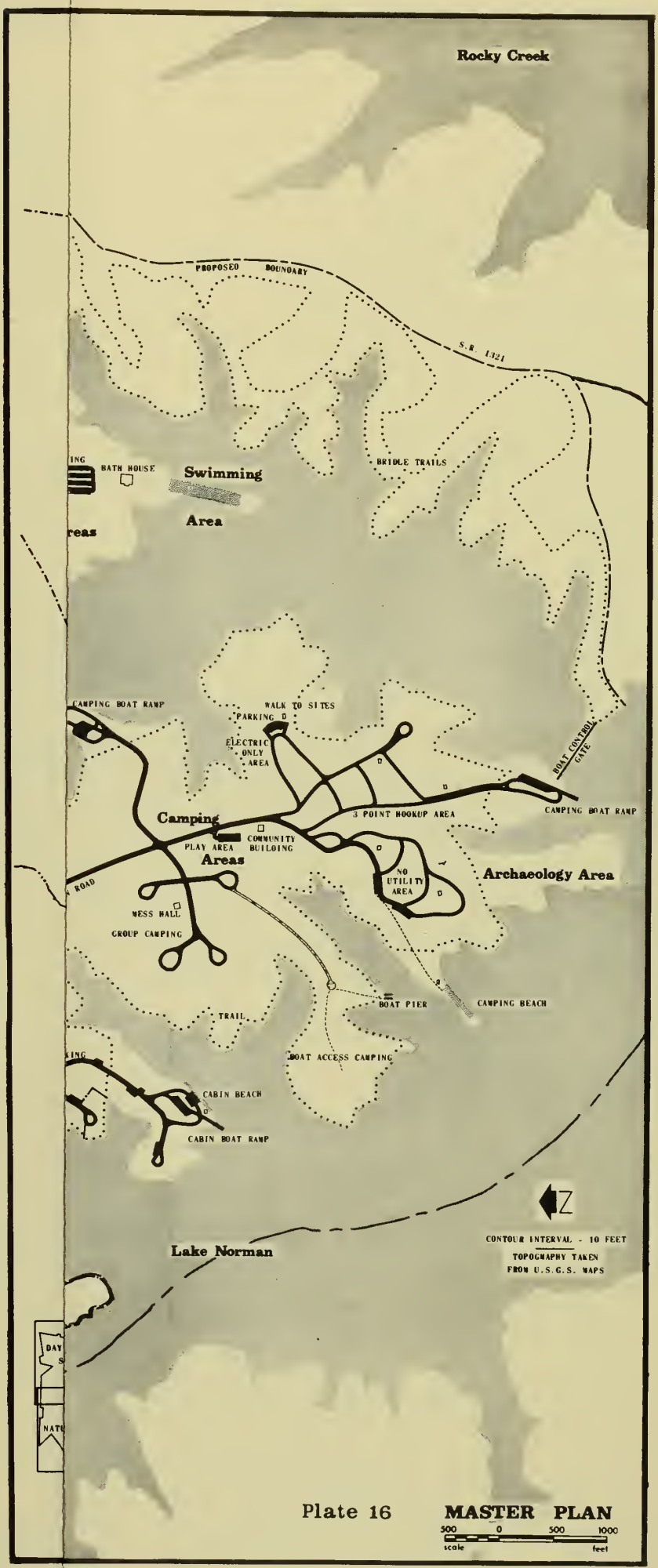
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS

Plate 15

VEGETATION

500 0 500 1000

scale feet


Rocky Creek
PROPOSED BOUNDARY
S.R. 1321
BRIDLE TRAILS
BATH HOUSE
Swimming
Area
CAMPING BOAT RAMP
WALK TO SITES
PARKING
ELECTRIC ONLY AREA
BOAT CONTROL GATE
3 POINT HOOKUP AREA
CAMPING BOAT RAMP
Camping
Areas
PLAY AREA
COMMUNITY BUILDING
NO UTILITY AREA
Archaeology Area
MESS HALL
GROUP CAMPING
BOAT PIER
CAMPING BEACH
TRAIL
BOAT ACCESS CAMPING
CABIN BEACH
CABIN BOAT RAMP
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
Lake Norman
Plate 16
MASTER PLAN
500 0 500 1000
scale
feet

Rocky Creek

TO INTERSTATE 77
4 MILES

Corral
PARKING - 20 CARS

Entrance

ULTIMATE BOUNDARY

SCENIC EASEMENT

EXISTING BOUNDARY

SUPERINTENDENT'S RESIDENCE

ADMINISTRATION CENTER

S.R. 1322

BRIDLE TRAILS

Picnic
PARKING
Areas

PROPOSED BOUNDARY

S.R. 1121

EXISTING BOUNDARY

BRIDLE TRAILS

PARKING

Picnic

Areas

MAIN ROAD

PARKING

BATH HOUSE

Swimming
Area

BRIDLE TRAILS

Picnic

Areas

Boat Launch
Area

Picnic
Areas

EXISTING BEACH
AND DAY USE FACILITIES

EXISTING DAM
CONSTANT LEVEL POND

NEW BRIDGE

SCENIC EASEMENT

PROPOSED BOUNDARY

S.R. 1128

CABIN AND CARPING BOAT RAMP

Hicks Creek

WALK TO SITES
PARKING
ELECTRIC ONLY AREA

BOAT CONTROL GATE

CAMPING BOAT RAMP

J POINT HOOKUP AREA

Camping
Areas

PLAY AREA
COMMUNITY BUILDING

Archaeology Area

NO UTILITY AREA

MESS HALL
GROUP CAMPING

MAIN ROAD

MAINTENANCE CENTER

TRAILS

Nature
Study
Area

PARKING

PLAY AREA
GROUP A

REGISTRATION CENTER

Cabin
Areas

COMMUNITY BUILDING

GROUP E

PARKING

NATURE INTERPRETATION CENTER

EMPLOYEE RESIDENCES

OVERFLOW AREA

BOAT PIER

CAMPING BEACH

TRAIL

BOAT ACCESS CAMPING

Norwood
Creek

ULTIMATE BOUNDARY

Viewing
Area

GROUP C

GROUP D

PARKING

CABIN BEACH

CABIN BOAT RAMP

EXISTING BOUNDARY

PARKING - 15 CARS
WILDERNESS CAMPING

GROUP B

PARKING

East Mombo

Lake Norman

S.R. 1325

ULTIMATE BOUNDARY

SCENIC EASEMENT

IREDELL COUNTY
CATAWBA COUNTY

SCENIC EASEMENT

CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN
FROM U.S.G.S. MAPS

DAY USE AREA
SHEET 1

DAY USE
AREA
SHEET 2

NATURE STUDY
AREA

CABIN
AREA

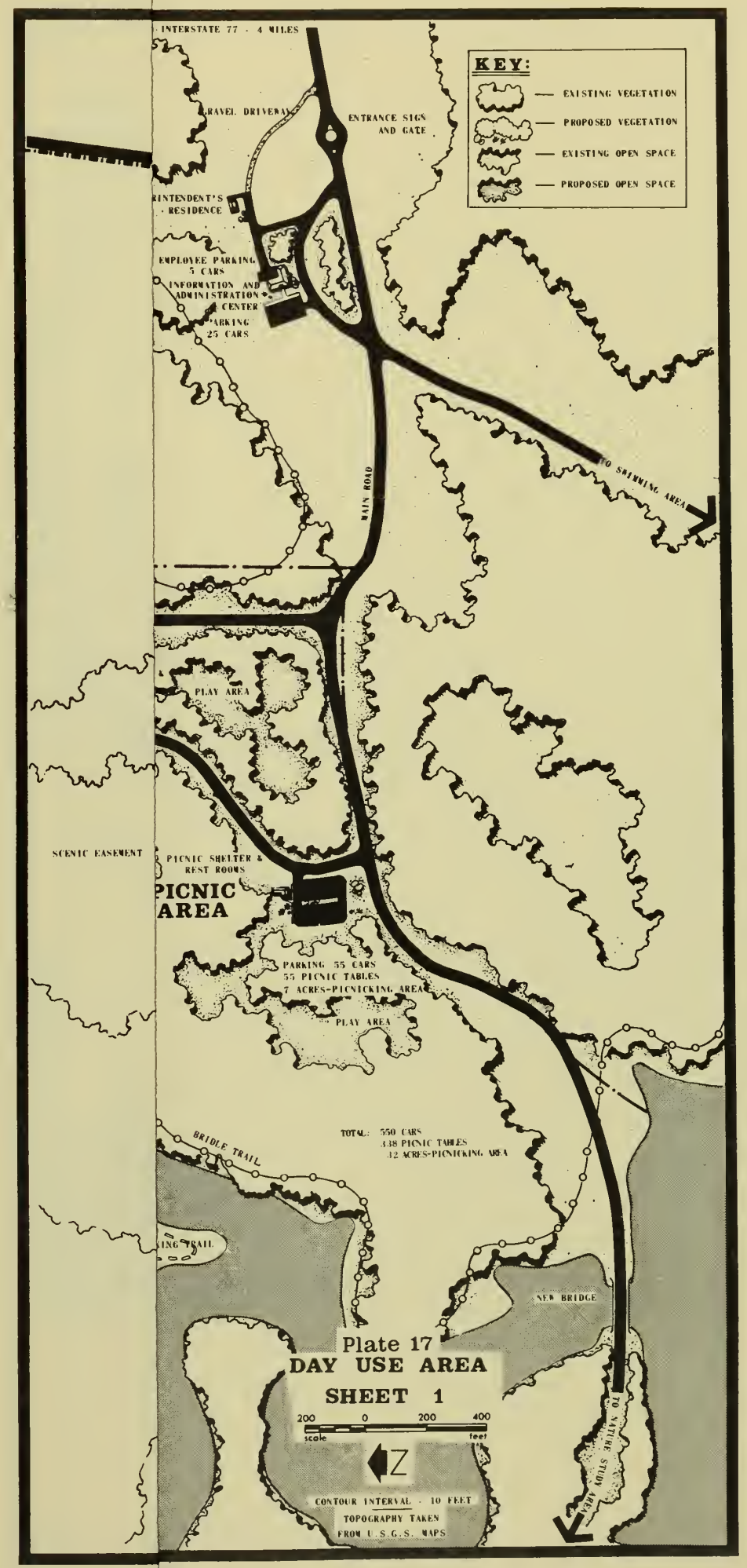
CAMPING
AREA

KEY

Plate 16

MASTER PLAN

500 0 500 1000
scale feet


INTERSTATE 77 - 4 MILES
KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
GRAVEL DRIVEWAY
ENTRANCE SIGN AND GATE
RINTENDENT'S RESIDENCE
EMPLOYEE PARKING 5 CARS
INFORMATION AND ADMINISTRATION CENTER
PARKING 25 CARS
TO SWIMMING AREA
MAIN ROAD
PLAY AREA
SCENIC EASEMENT
PICNIC SHELTER & REST ROOMS
PICNIC AREA
PARKING 55 CARS
55 PICNIC TABLES
7 ACRES-PICNICKING AREA
PLAY AREA
TOTAL: 550 CARS
438 PICNIC TABLES
32 ACRES-PICNICKING AREA
BRIDLE TRAIL
NEW BRIDGE
TO WATER STUDY AREA
Plate 17
DAY USE AREA
SHEET 1
200 0 200 400
scale feet
N
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS

KEY:
- EXISTING VEGETATION
- PROPOSED VEGETATION
- EXISTING OPEN SPACE
- PROPOSED OPEN SPACE

S R 1122
EXISTING BRIDGE
BRIDLE TRAIL
PROPOSED BOUNDARY
BRIDLE TRAIL
BRIDLE TRAIL
BRIDLE TRAIL
SCENIC EASEMENT
RICKS CREEK
Existing Boundary
Existing Boundary
TO INTERSTATE 77 - 4 MILES
GRAVEL DRIVEWAY
ENTRANCE SIGN AND GATE
SUPERINTENDENT'S RESIDENCE
EMPLOYEE PARKING 5 CARS
INFORMATION AND ADMINISTRATION CENTER
PARKING 25 CARS
MAIN ROAD
TO SWIMMING AREA
PICNIC SHELTER & REST ROOMS
PLAY AREA
PARKING 95 CARS
95 PICNIC TABLES
12 ACRES-PICNICKING AREA
PLAY AREA
PICNIC SHELTER & REST ROOMS
PICNIC AREA
PARKING 55 CARS
55 PICNIC TABLES
7 ACRES-PICNICKING AREA
PLAY AREA
EXISTING BRIDGE
PARKING - 50 CARS
50 PICNIC TABLES
6 ACRES - PICNICKING AREA
PLAY AREA
PICNIC SHELTER & REST ROOMS
PLAY AREA
PICNIC SHELTER & REST ROOMS
PARKING - 50 CARS
50 PICNIC TABLES
6 ACRES - PICNICKING AREA
PLAY AREA
IMPROVED EXISTING PARKING - 100 CARS
88 PICNIC TABLES
11 ACRES - PICNICKING AREA
PICNIC AREA
EXISTING CATHOUSE
EXISTING CONCESSION
EXISTING SEWAGE TREATMENT PLANT
EXISTING PICNIC AREA
BRIDLE TRAIL
TOTAL 550 CARS
138 PICNIC TABLES
12 ACRES-PICNICKING AREA
EXISTING PAVILION
SWIMMING BEACH
HIKING TRAIL
CONTROL FENCE
EXISTING DAM & SPILLWAY
USER BRIDGE
EXISTING SMALL BOAT RENTAL
CONSTANT LEVEL POND
BRIDLE TRAIL
TO VISITOR STUDY AREA

Plate 17
DAY USE AREA
SHEET 1

200 0 200 400
scale feet

N

CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS


KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
TO INTERSTATE 7
MAIN ROAD
PROPOSED BOUNDARY
BRIDLE TRAIL
CONTROL FENCE
BATHHOUSE
TERRACE
FOOD CONCESSION
DAY USE BEACH
LAY AREA
WIMMING AREA
AREA
KING AREA
Plate 18
DAY USE AREA
SHEET 2
200 0 200 400
scale feet
N
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN
FROM U.S.G.S. MAPS

TO INTERSTATE 77 — 4 MILES

MAIN ROAD

PLAY AREA

PICNIC SHELTER & REST ROOMS

55 CARS
55 PICNIC TABLES
7 ACRES-PICNICKING AREA

PLAY AREA

26 CARS

PLAY AREA

66 PICNIC TABLES
8 ACRES-PICNICKING AREA

40 CARS

PICNIC SHELTER & REST ROOMS

25 CARS
25 PICNIC TABLES
1 ACRES-PICNICKING AREA

BICYCLE TRAIL

PICNIC AREA

51 CARS

PLAY AREA

100 PICNIC TABLES
11 ACRES-PICNICKING AREA

PLAY AREA

47 CARS

PICNIC SHELTER & REST ROOMS

PLAY AREA

EXISTING VACATION HOMES TO BE MOVED

BRIDLE TRAIL

PROPOSED BOUNDARY

BRIDLE TRAIL

BRIDLE TRAIL

BRIDLE TRAIL

BRIDLE TRAIL

CONTROL FENCE

BATHHOUSE

TERRACE

FOOD & CONCESSION

DAY USE BEACH

PLAY AREA

66 CARS
66 PICNIC TABLES
8 ACRES-PICNICKING AREA

PICNIC SHELTER & REST ROOMS

PLAY AREA

5 BUSES

400 CARS

PLAY AREA

SWIMMING AREA

PICNIC AREA

88 PICNIC TABLES
11 ACRES - PICNICKING AREA

PICNIC AREA

BOAT LAUNCH AREA

32 CARS AND TRAILERS

BOAT RAMP

BOAT & BICYCLE RENTAL

BOAT PIER

21 CARS

PICNIC SHELTER & REST ROOMS

21 PICNIC TABLES
2½ ACRES-PICNICKING AREA

PLAY AREA

TOTAL 411 CARS
421 PICNIC TABLES
52.5 ACRES-PICNICKING AREA

HICKS CREEK

NEW BRIDGE

MAIN ROAD

TO NATURE STUDY AREA

Existing Boundary

BRIDLE TRAIL

BRIDLE TRAIL

KEY:

— EXISTING VEGETATION
— PROPOSED VEGETATION
— EXISTING OPEN SPACE
— PROPOSED OPEN SPACE

Plate 18

DAY USE AREA

SHEET 2

200 0 200 400
scale feet

N

CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS

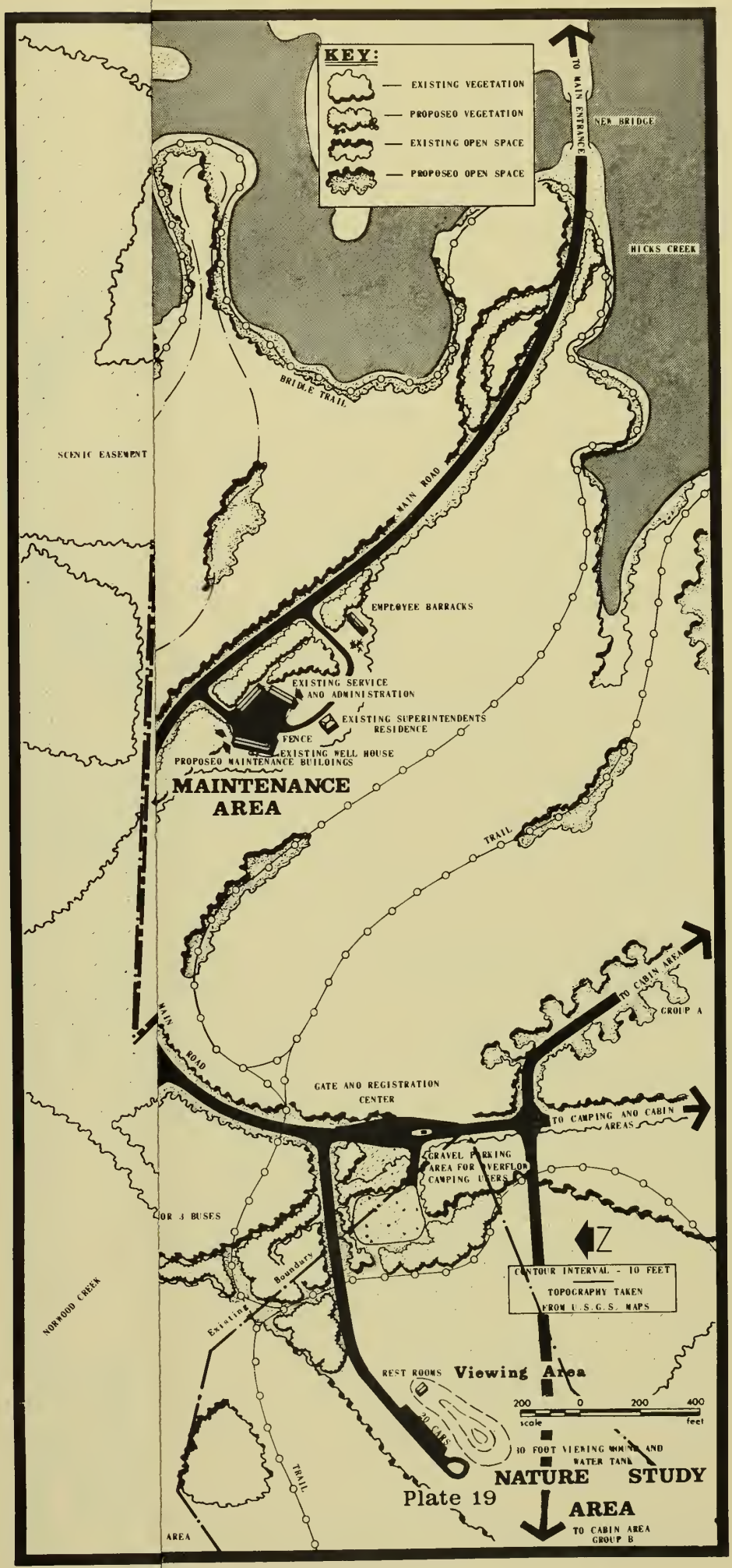

KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
TO MAIN ENTRANCE
NEW BRIDGE
HICKS CREEK
BRIDGE TRAIL
SCENIC EASEMENT
MAIN ROAD
EMPLOYEE BARRACKS
EXISTING SERVICE AND ADMINISTRATION
EXISTING SUPERINTENDENTS RESIDENCE
FENCE
EXISTING WELL HOUSE
PROPOSED MAINTENANCE BUILDINGS
MAINTENANCE AREA
TRAIL
TO CABIN AREA GROUP A
MAIN ROAD
GATE AND REGISTRATION CENTER
TO CAMPING AND CABIN AREAS
GRAVEL PARKING AREA FOR OVERFLOW CAMPING USERS
OR 3 BUSES
NORWOOD CREEK
Existing Boundary
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
REST ROOMS
Viewing Area
200 0 200 400
scale feet
30 CARS
30 FOOT VIEWING MOUND AND WATER TANK
NATURE STUDY AREA
TO CABIN AREA GROUP B
TRAIL
AREA

Plate 19

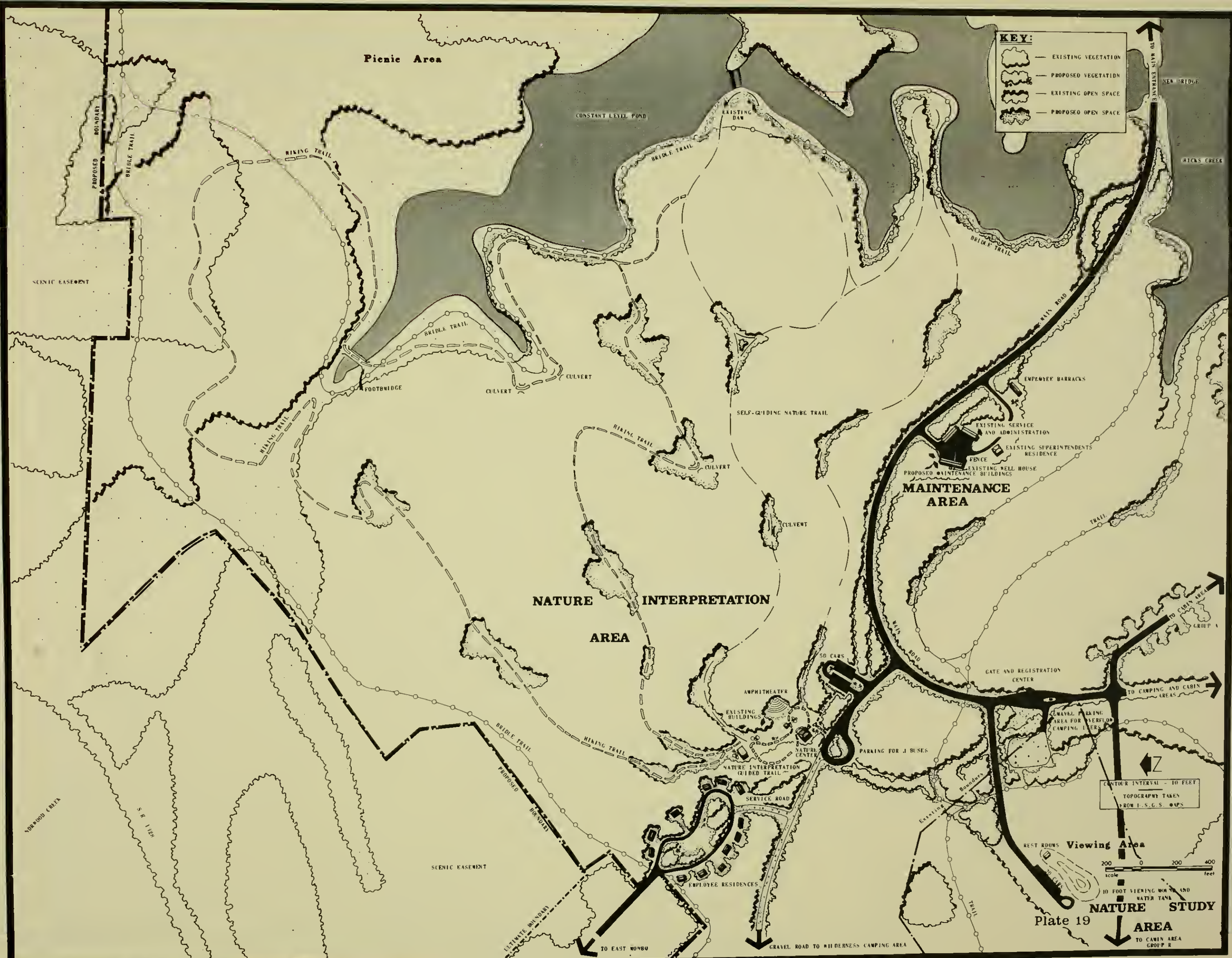
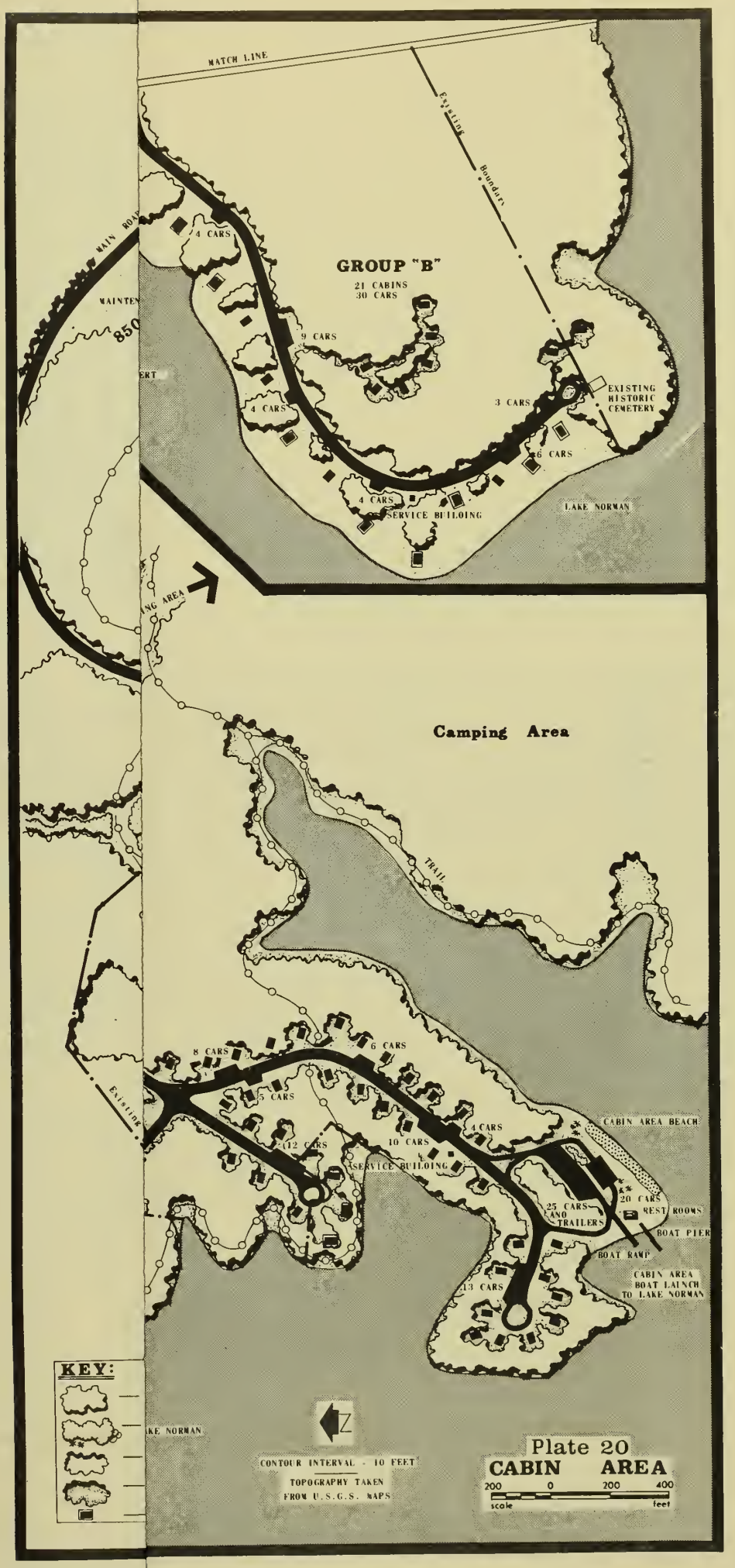
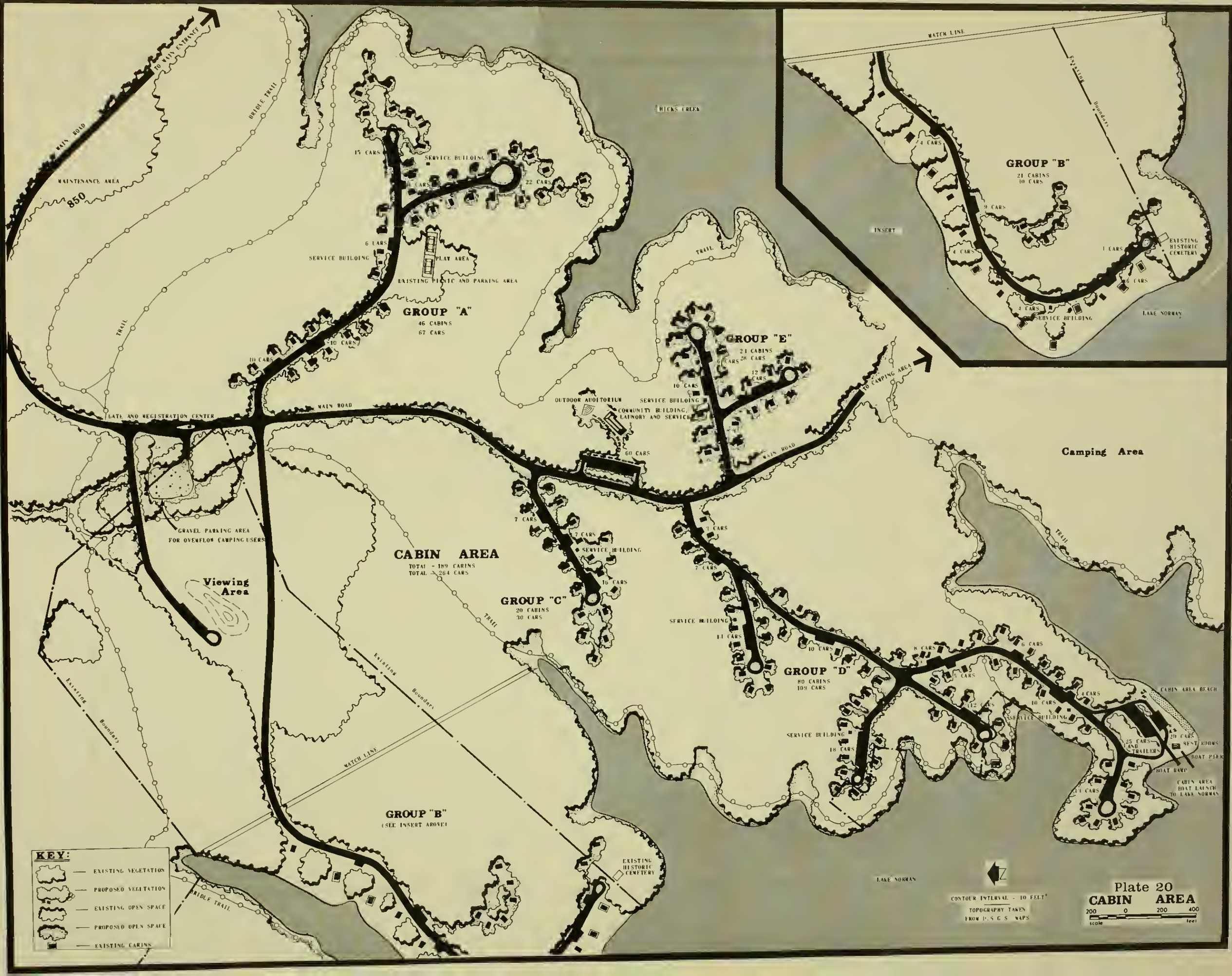

KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
Picnic Area
CONSTANT LEVEL POND
EXISTING DAM
BRIDLE TRAIL
HIKING TRAIL
PROPOSED BOUNDARY
SCENIC EASEMENT
FOOTBRIDGE
CULVERT
SELF-GUIDING NATURE TRAIL
TO MAIN ENTRANCE
NEW BRIDGE
HICKS CREEK
MAIN ROAD
EMPLOYEE BARRACKS
EXISTING SERVICE AND ADMINISTRATION
EXISTING SUPERINTENDENTS RESIDENCE
FENCE
EXISTING WELL HOUSE
PROPOSED MAINTENANCE BUILDINGS
MAINTENANCE AREA
NATURE INTERPRETATION AREA
50 CARS
AMPHITHEATER
EXISTING BUILDINGS
NATURE CENTER
NATURE INTERPRETATION GUIDED TRAIL
SERVICE ROAD
PARKING FOR 3 BUSES
GATE AND REGISTRATION CENTER
TO CAMPING AND CABIN AREAS
GRAVEL PARKING AREA FOR OVERFLOW CAMPING USERS
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
REST ROOMS
Viewing Area
10 FOOT VIEWING MOUND AND WATER TANK
NATURE STUDY AREA
TO CABIN AREA GROUP R
NORWOOD CREEK
S.R. 1129
ULTIMATE BOUNDARY
TO EAST NOMBO
GRAVEL ROAD TO WILDERNESS CAMPING AREA
EMPLOYEE RESIDENCES
CULVERT
TRAIL

Plate 19


MATCH LINE
Existing Boundary
MAIN ROAD
MAINTEN
850
ERT
4 CARS
GROUP "B"
21 CABINS
30 CARS
9 CARS
4 CARS
3 CARS
EXISTING HISTORIC CEMETERY
6 CARS
4 CARS
SERVICE BUILDING
LAKE NORMAN
NG AREA
Camping Area
TRAIL
8 CARS
6 CARS
5 CARS
Existing
CABIN AREA BEACH
4 CARS
12 CARS
10 CARS
SERVICE BUILDING
20 CARS
25 CARS
CAND TRAILERS
REST ROOMS
BOAT PIER
BOAT RAMP
CABIN AREA
BOAT LAUNCH
TO LAKE NORMAN
13 CARS
KEY:
KE NORMAN
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN
FROM U.S.G.S. MAPS
Plate 20
CABIN AREA
200 0 200 400
scale feet


MAIN ROAD
TO MAIN ENTRANCE
BRIDLE TRAIL
MAINTENANCE AREA
850
TRAIL
GATE AND REGISTRATION CENTER
MAIN ROAD
GRAVEL PARKING AREA
FOR OVERFLOW CAMPING USERS
Viewing Area
Existing Boundary
WATCH LINE
BRIDLE TRAIL
KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
EXISTING CABINS
HICKS CREEK
15 CARS
SERVICE BUILDING
22 CARS
6 CARS
SERVICE BUILDING
PLAY AREA
EXISTING PICNIC AND PARKING AREA
GROUP "A"
46 CABINS
67 CARS
10 CARS
10 CARS
CABIN AREA
TOTAL - 189 CABINS
TOTAL - 264 CARS
GROUP "C"
20 CABINS
30 CARS
7 CARS
7 CARS
SERVICE BUILDING
16 CARS
GROUP "B"
(SEE INSERT ABOVE)
EXISTING HISTORIC CEMETERY
TRAIL
OUTDOOR AUDITORIUM
SERVICE BUILDING
COMMUNITY BUILDING, LAUNDRY AND SERVICE
60 CARS
GROUP "E"
21 CABINS
28 CARS
12 CARS
10 CARS
MAIN ROAD
7 CARS
7 CARS
7 CARS
7 CARS
SERVICE BUILDING
11 CARS
GROUP "D"
80 CABINS
109 CARS
10 CARS
8 CARS
6 CARS
5 CARS
12 CARS
10 CARS
SERVICE BUILDING
SERVICE BUILDING
18 CARS
TO CAMPING AREA
Camping Area
TRAIL
CABIN AREA BEACH
4 CARS
20 CARS
REST ROOMS
25 CARS AND TRAILERS
BOAT PIER
BOAT RAMP
CABIN AREA BOAT LAUNCH TO LAKE NORMAN
11 CARS
LAKE NORMAN
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
MATCH LINE
Existing Boundary
INSERT
GROUP "B"
21 CABINS
10 CARS
4 CARS
9 CARS
4 CARS
1 CARS
EXISTING HISTORIC CEMETERY
6 CARS
4 CARS
SERVICE BUILDING
LAKE NORMAN
Plate 20
CABIN AREA
200 0 200 400
scale feet


KEY:
EXISTING VEGETATION
PROPOSED VEGETATION
EXISTING OPEN SPACE
PROPOSED OPEN SPACE
TRAIL
8 SITES WITH
-POINT HOOKUPS
PLAY
AREA
WASH HOUSE
25 CARS AND
TRAILERS
BOAT CONTROL GATE
BOAT PIER
BOAT RAMP
CAMPING AREA BOAT LAUNCH
TO LAKE NORMAN
TRAIL
ARCHAEOLOGY AREA
INDIAN
BURIAL
SITES
EXISTING
WASH HOUSE
33 EXISTING SITES
TO CABIN AREA
ROOMS
CAMPING AREA BEACH
CESS
LAKE NORMAN
Cabin Ar
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN
FROM U.S.G.S. MAPS
CAMPING AREA
200 0 200 400
scale feet
Plate 21

KEY:

- EXISTING VEGETATION
- PROPOSED VEGETATION
- EXISTING OPEN SPACE
- PROPOSED OPEN SPACE

HICKS CREEK

CABIN AREA AND CAMPING AREA BOAT LAUNCH TO HICKS CREEK

BOAT PIER
REST ROOMS
BOAT RAMP
50 CARS AND TRAILERS
TRAIL

40 RAIN-TO ADIRONDACK SHELTERS
BATH HOUSE
40 CARS
27 SITES WITH ELECTRIC HOOKUPS
PLAY AREA

88 SITES WITH 3-POINT HOOKUPS
BATH HOUSE
PLAY AREA
BATH HOUSE
25 CARS AND TRAILERS
BOAT PIER
BOAT RAMP
BOAT CONTROL GATE
CAMPING AREA BOAT LAUNCH TO LAKE NORMAN

MAIN ROAD
PLAY AREA
EXISTING SEWAGE TREATMENT PLANT
RELOCATED TRAILER WASTE STATION
COMMUNITY BUILDING, LAUNDRY, REST ROOMS, FUNCTION ROOM
40 CARS
PLAY AREA
OUTDOOR AUDITORIUM

CAMPING AREA

TOTAL 240 CAMPING SITES

BATH HOUSE
PLAY AREA
55 SITES WITH NO UTILITIES
EXISTING BATH HOUSE
19 CARS
SWIMMING PARKING
20 CARS
31 EXISTING SITES

TRAIL
INDIAN BURIAL SITES

ARCHAEOLOGY AREA

MAIN ROAD
4 GROUP SITES
MESS HALL, LAUNDRY, FUNCTION ROOM, REST ROOMS
SERVICE ROAD
TO CABIN AREA
TRAIL
REST ROOMS
REST ROOMS
BOAT PIER
CAMPING AREA BEACH
10 ADIRONDACK SHELTERS WITH ACCESS FOR CAMPING BY BOAT
LAKE NORMAN
TRAIL

Cabin Area

N

CONTOUR INTERVAL - 10 FEET

TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS

CAMPING AREA

200 0 200 400
scale feet

Plate 21

Camping Area

Entrance and Road Systems:

The State Recreation Area's single entrance has been established on the eastern side of the site because of its relationship to Interstate 77, the major transportation corridor. Initially, through the effective use of signs and ultimately through the development of a new scenic road from Interstate 77 to the entrance, access will be simple, safe and a pleasant driving experience.

In the vicinity of the State Recreation Area entrance, an administration center will be established. This area will not only serve to introduce the visitor but also provide a convenient place to give information to the public. The administration building will include the superintendent's office, public lobby for displays, first aid room, rest rooms and storage. Parking will be provided for automobiles and buses. The superintendent's residence is located nearby with controlled access to his office as well as a private drive to the main road.

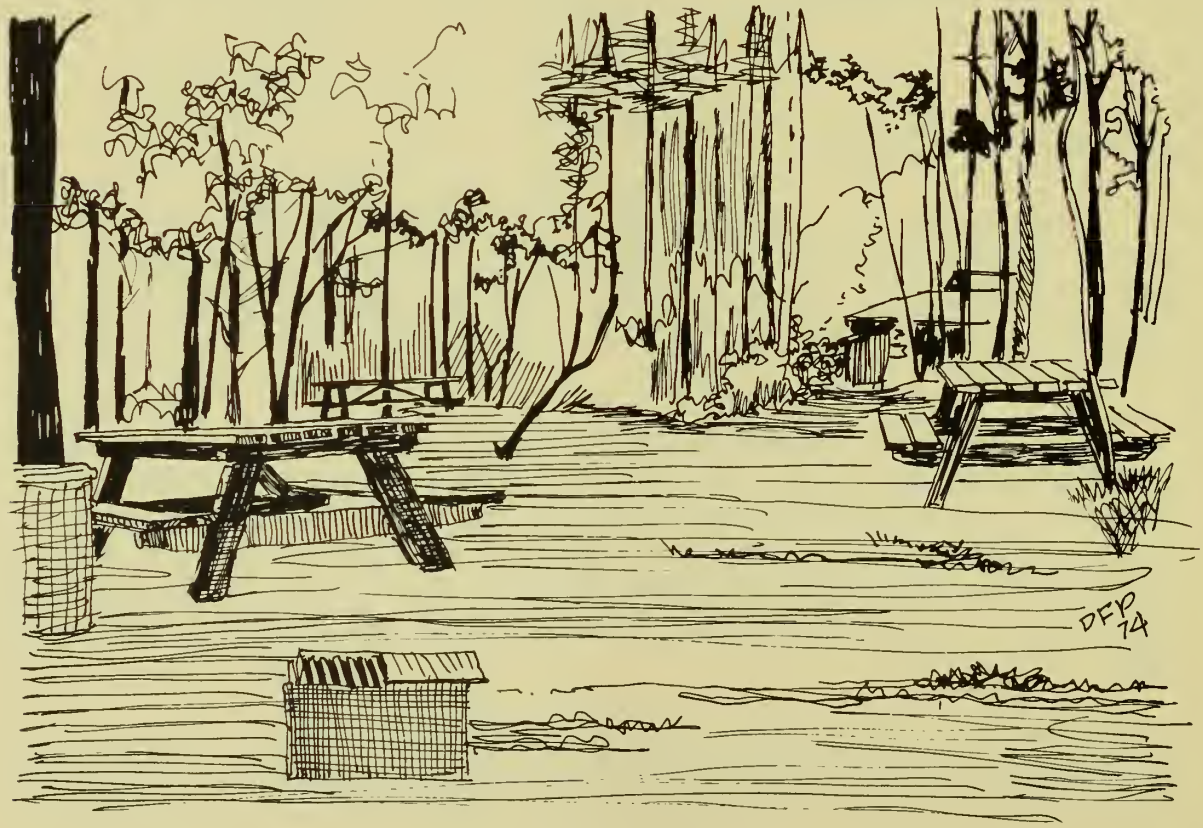
The State Recreation Area road system is designed to provide access to all areas within the existing boundaries, control vehicular traffic and create a safe driving experience. The main road continues past the administration center, bridges Hicks Creek and terminates at

the camping area. Roads branch off the main road to the day use or overnight facilities. Grades should be held to a maximum of eight percent. Care has been exercised to utilize existing pavement and to minimize the road's impact on the landscape while serving each facility in a functional, safe manner.

Day Use Area:

The major day use facility is located on the eastern peninsula south of the main road on primary acquisition land. The size was determined by site limitations and demand figures as well as the water quality. It is served by a central road starting near the administration center and ending at the main swimming area. Loop roads and dead end roads serve the various picnic areas and boat launching sites. However, the existing swimming areas and picnic areas located north of the main road and one mile from the administration center will serve the public until acquisition and development are complete.

The existing swimming area will be improved to provide easier and safer parking conditions. A complete new pedestrian circulation pattern will be established so that the complex will function according to its original design intent and for improved control. The existing picnic area will continue to be used. Two new picnic areas complete with parking, tables, grilles, shelters and rest rooms will be developed. The first with 150 picnic sites is located just past the existing entrance sign and west of the road, and the second with 100 sites is north of the swimming area. Appropriate facilities such as play fields and court games will be provided. Family and group picnicking will be accommodated.



Picnic Area

The new picnic areas south of the main road will provide the same type of facilities. Picnicking, family and group, will be established in three major areas. Loop roads with adjacent parking will be provided for each. The first area is east of the access road and will accommodate 246 sites. The second near the boat launching area has 87 sites and the third at the swimming area includes 88 sites.

The boat launching site into Hicks Creek is located about one mile south of the main road. It includes a single concrete ramp with boat pier, parking for 32 cars and trailers and rest rooms. This launching site will provide boat access for the general public. Boat and bike rental will be available with appropriate storage and maintenance facilities.

The new swimming area is located one mile from the main road and includes a 400 car - 5 bus parking lot, picnic area bathhouse and food concession building, 120,000 square foot sand beach and control fencing. The size of the facilities were determined by the land capacity and controlled by parking limitations of both cars and buses. The beach will have lifeguard stations and the water area will be designated by a buoy system. The bathhouse will include, office, first aid room, baskets, and change area, shower and comfort facilities and storage. The food concession will accommodate both swimmers and picnickers but with adequate control so that nonswimmers can purchase food without entering the beach area. Space for sunning will be available but shade will also be provided. Hard surface walks will be incorporated into the circulation patterns.

The corral area will be located south of the administration center and reached by way of the main road. This facility will include a corral, shelter and rest rooms and be the beginning point for all bridle trails. It is intended that overnight stabling will not be a State Recreation Area function but that private enterprise will provide this service. Horses would be brought to the corral area each day and rental handled by a private concessionaire.

Maintenance Center:

The key to the success of the State Recreation Area will be the ability of the personnel to maintain all facilities in a respectable and neat condition. The maintenance center located 1¼ miles from the administration center and south but adjacent to the main road will provide the heart of the operation. Supplementing the existing office and storage building and residence will be a seasonal employees' barracks, shop and repair center, vehicle maintenance and storage, general supply and equipment storage and large outside yard for storage of lumber and fuel. These facilities will be housed in three or more buildings and constructed as the State Recreation Area develops. The complex will be fenced for security and properly screened from view on the main road. A sanitary landfill operation will be located nearby; however, it must be recognized that as development continues, a regional solution to the trash and garbage disposal problem may need to be found.

Nature Interpretation:

The second major State Recreation Area use is found 1¾ miles from the administration center. The nature interpretation center is reached by way of the main road and a short loop road with a 50 car - 3 bus parking lot. The nature center building will be large enough to include offices, first aid room, display areas, working areas, auditorium, rest rooms and storage. Additional functions may be provided as the State's nature interpretation program is developed. An old farm with interesting outbuildings can be utilized. Outside uses will include guided and selfguided trails and an amphitheater. The plant material in this location is the most interesting and varied in the area. The designated 200 acres will contain at least 6 miles of trails. The number of users is controlled by the car and bus parking capacities.

Old Farm Outbuilding

Wilderness Camping:

Wilderness camping will be located on a 100 acre tract close to the northwest State Recreation Area boundary. It is reached by a gravel road which connects to the nature center loop road. Informal parking will be provided in a lot at the end of the gravel road. Facilities will include a hand operated pump-well and a pit type toilet. Campers may choose to tent as far from or as close to these facilities as they desire.

Permanent Employee Residences:

The permanent employee residence area is located just inside the State Recreation Area boundary on State Road 1402 near East Monbo. It will consist of a hard surface loop road with a central mall and residences located around the periphery. Access to and from the residences is not affected when the State Recreation Area is closed. A gated, gravel road, which provides employee access, connects the loop with the wilderness camping road.

Viewing Area:

The highest point of land, elevation 944, is located 2 miles from the administration center and just beyond the nature interpretation center. It is currently outside the State Recreation Area boundaries but is within the primary acquisition lands. It is reached by a loop road with a 20 car parking lot. To enjoy the panoramic view of the entire area, primarily Lake Norman, a minimum 30 foot high observation tower will be built. It may be possible to combine this with a water tank which could serve the entire area. Rest room facilities will be provided.

Registration Center:

The third and fourth major State Recreation Area functions, cabins and camping, begin at this point. The registration center is located 2 miles from the administration center and includes a building, gate and gravel overflow parking area. The building located in the center of the main road will have drive-up access and include office, lobby and rest rooms. Cabin and camping site assignments and information fee collection will be made here. Overflow parking is provided for those users wishing to wait for a site, especially during the peak season.

Cabin Area:

The third major State Recreation Area facility is the vacation cabins divided into five groups. These are located south of the registration center on a loop road system off the main road. The following facilities are included: 189 cabins, service buildings, beach, separate boat launching ramps into Lake Norman and Hicks Creek and a community center.

Group A has 46 cabins and is located east of the main road just beyond the registration center. Group B has 21 cabins and utilizes existing road and structures. They are located west of the main road and opposite the Group A entrance. Group C contains 20 cabins and is west of the main road 1/3 mile from the registration center. Group D, with 80 cabins, is located west of the main area ½ mile from the registration center. The beach and boat launching into Lake Norman are located within this cabin group. Group E has 23 cabins and is east of the main road just beyond the Group D entrance.

Each completely furnished and equipped 865 square foot cabin has two bedrooms, bathroom, living room and kitchen with dining space and accommodates up to six persons. Eight, 150 square foot service buildings are located with the cabin groups and are large enough to store supplies for approximately 20 to 40 cabins. Parking is provided along the loop roads at staggered intervals and at the rate of one and one half cars per cabin.

The cabin area sand beach is for the exclusive use of the cabin renter. Parking for 20 cars and a rest room is provided. A lifeguard will be on duty and the water area buoyed.

The single, concrete boat launching ramp with boat pier, located on Lake Norman, accommodates 25 cars and trailers. Rest room facilities are provided. This area is for the exclusive use of cabin renters.

Another single, concrete boat launching ramp with boat pier is located on Hicks Creek 1-1/2 miles from the registration center and accommodates 50 cars and trailers. Rest room facilities are provided. This ramp is for the use of cabin renters and campers.

The community center is located 1/3 mile from the registration center. It consists of a community building, 60 car parking lot, amphitheater and court games area including such activities as tennis, shuffleboard and horseshoes.

The community building contains space for an office, first aid room, function rooms, auditorium, game rooms, comfort facilities, country store, laundry room and storage. It is intended that enough space be allocated for rainy day activities as well as planned programs. An existing parking lot near Group A will be utilized as a play area.

Camping Area:

The fourth and last major State Recreation Area development is the camping area. It is located one mile from the registration center and is the termination point for the main road. The camping experience is divided into four categories: group, family, boat access and walk-to types. Support facilities for the camping area include boat launching ramps and piers, beach, mess hall, wash houses, rest rooms, trailer waste station and community center.

The four group camping sites consist of a loop and cul-de-sac road system west of the main road. A centrally located mess hall provides a function room, rest rooms and laundry service besides a kitchen and dining room. Parking is expected to be along the edge of the road and each group will pitch camp wherever possible. Each group site can accommodate up to 50 people.

The 170 family camping sites are divided into three categories: existing, all utility hook-up and electric only.

The 33 existing camp sites will be expanded to 55 sites and will remain without any utility hook-up. One additional wash house will be provided and the existing trailer waste station removed and a new one provided.

The second category is an 88 camp site area with three point utility hook-up. Wash houses will be provided. The three utilities will be electric, water and sewage.

The third category is a 27 camp site area with only electric hook-up. A wash house will be provided.

Space for 30 camp sites by boat access only will be provided to the west of the main road and group sites on a peninsula jutting into Lake Norman. Adirondack type sleeping shelters, a rest room and two boat piers will be provided. Service will be provided by a gravel road from the southerly group camping site cul-de-sac.

Camping Area

The 40 walk-to-sites will also have Adirondack type sleeping shelters, rest rooms and parking for 40 cars. This area is located on Hicks Creek east of the 27 electric hook-up only sites.

The community center serving the entire camping area will be located west and adjacent to the main road at the beginning of the family camping area. The community building is similar in size and function to the cabin area building and has parking for 20 cars. Parking is provided for camp sites beyond a 20 minute walk. An amphitheater is a part of this facility.

A single, concrete boat launching ramp and pier into Lake Norman is located on the peninsula east of the existing camping area. Parking for 25 cars and trailers and rest rooms are provided. This ramp is for the exclusive use of the campers. The other launching ramp into Hicks Creek, described on page 65, is for campers and cabin users.

The trailer waste station will be relocated to a new loop road just north of the existing camping area.

The camping area road system is a one-way system except certain portions of road to the beach, boat launch into Lake Norman and the eastern cul-de-sac. Camping spurs should be paved.

An archaeological area where Indian graves are located will be restricted from public use until the proper investigations have beeen made by the State. The site is located on a peninsula south of the existing camping area. A grave site of an early settler will also be protected in this same general location.

Trails:

There are three primary types of trail systems to be developed in the State Recreation Area: hiking, bridle and bicycle. Trails shown on the plans are general and actual locations will be laid out in the field according to standard procedures. Trails will be along the Lake Norman shoreline as much as possible and include small bridges over narrow inlets of water. The possibility of a boat trail can be developed if the need arises.

Hiking trails will usually begin and end at the Nature Interpretation Center; however, these trails will be developed throughout the State Recreation Area for the public to enjoy on their own.

Bridle trails will begin and end at the corral area and can also be developed along the shoreline.

Bicycle trails will be developed throughout the State Recreation Area wherever the roads are not suitable. These trails are restricted to grades of five percent or less and should be hard surfaced. A natural starting point will be the bike rental at the boat launching site in the day use area.

Boat Control Gate:

It is proposed in this master plan to establish a boat control gate across the mouth of Hicks Creek. This gate would not be a dam but a portable boom which could be removed or lowered to the bottom if necessary. This gate would allow the State Recreation Area personnel complete control of Hicks Creek, a distinct advantage for security reasons. It will also permit control of the size and the number of boat users on the Hicks Creek body of water, providing added protection for the swimmers and other users.

Buffer Zones:

The primary reason for buffer zones is to protect the development from encroachment by elements which would inhibit the function of the State Recreation Area. This is the rationale for the scenic easement with option to purchase and the inclusion of the lands west of State Route 1321 in the primary acquisition program. In addition to a comprehensive tree planting program to increase the effectiveness of the buffers, specific areas will be planted with indigenous material to control circulation, screen activities and improve the beauty of the State Recreation Area. The two State owned islands in Lake Norman should be restricted from public use until archaeological investigations are complete.

Utilities:

The most important element to the success of the State Recreation Area is the development of practical and efficient water supply, sanitary treatment, electric distribution and telephone service. A detailed study must be made to determine the best systems for the short and long range plans and should include the following:

a. Existing systems must be inventoried and consideration given to their place in the proposed new systems.

b. An inventory of existing and proposed local and regional systems to determine the advantage, if any, of connecting to such systems outside the State Recreation Area boundaries.

c. A detailed tabulation of the total daily, weekly and seasonal requirements of the various systems based upon demand factors for recreational developments.

d. A comparison of central systems versus individual systems including initial construction cost, operating and maintenance cost and system reliability.

e. Consideration for providing adequate utility systems during phased State Recreation Area development.

f. Viable alternatives and costs.

Based on the limited information available and experience in similar recreational developments, a preliminary recommendation is possible for each of the four systems.

Water Supply and Distribution System:

Preliminary investigation and existing wells indicates that groundwater of sufficient quantity and quality can reasonably be expected to be found within the State Recreation Area. At this point there is no information available to indicate the economic feasibility of obtaining water from existing or proposed private or municipal supplies. The topography indicates a potential for providing a central, gravity type water distribution system. In MAIN's opinion, this is superior to other systems (i.e. individual and pressure boosting systems) since maintenance and operating costs are usually less and overall dependability is better.

The water system should consist of groundwater supplies within the State Recreation Area boundary and a gravity distribution system. The supply should include a multiple well system. A control system and a ground level storage tank are needed with at least one day's storage capacity to permit continued operation during periods of power loss or mechanical failure. This will also provide a limited supply of water for fire protection. Assuming the primary acquisition program is accomplished, the storage tank should be constructed at the viewing area which is located at the highest point of land adjacent to the existing State Recreation Area. If incorporated into the viewing platform described earlier additional pressure will be realized. Consideration should be given to using existing wells and distribution piping to the maximum possible extent.

Electric Distribution:

In the State Recreation Area overhead lines have been used to a certain extent with underground service extended to existing structures; however, it is recommended that the electrical distribution system be a complete underground installation consisting of a

combination of a loop feed system and a radial feed system. All transformers and switching facilities should be compad type in padlocked steel enclosures of low profile, mounted above ground on concrete pads for easy access and maintenance. Underground cable connections, terminations or taps should be done in manholes or in above ground compad type steel enclosures. It is expected that the system will be made as permanent and free of maintenance as possible.

A situation which must be resolved is the existence of two electric companies serving the State Recreation Area. It is preferable that only one service the entire area.

Telephone Service:

A State Recreation Area of this size and complexity will require extensive telephone service. The use of outside lines, intercom, tie-line to Raleigh, and public telephones can be expected. It is important that the Southern Bell Telephone Company be advised and consulted on the development so that an efficient system suitable for the State Recreation Area needs can be developed. Coordination is important so that telephone cable is placed underground in conjunction with other underground service.

Sewage Collection and Treatment System:

A regional sewerage study is being conducted by Centralina Council of Governments for the region. The study is not completed and the recommendations are not known. If a regional sewer system is to be constructed in the near future, serious considerations should be made to connect the State Recreation Area to the system. If the regional system is not available, treatment systems should be constructed within the State Recreation Area.

The topography of the State Recreation Area precludes the development of a totally gravity sewage collection system and also imposes severe economic restrictions upon the construction of a central treatment facility. Although lift stations will be required in the development of any system except individual septic systems for each facility, the number of lift stations and the amount of pressure piping required to construct a central treatment system appears to be unjustifiable. Therefore, the preliminary recommendation for sewage collection and treatment would be to construct a decentralized system of collection and treatment facilities determined by the topography and cost factors. The collection system would include gravity sewers, lift stations and pressure sewers. Experience in recreational development has shown that treatment by the extended aeration process is best adapted to such developments as extended aeration systems are least affected by daily and weekly variations of flow and are generally easiest to operate. In addition to the extended aeration plants recommended above, consideration should be given to subsurface disposal systems in isolated areas depending upon the suitability of the soil in each area. The existing collection and treatment facilities listed below should be retained and expanded upon if necessary:

	Location	Type of Treatment
1.	Camping area	Extended aeration type treatment plant
2.	Play area	Subsurface disposal system
3.	Maintenance area	Subsurface disposal system
4.	Existing day use area	Extended aeration type treatment plant

As an "underloaded" treatment facility is nearly as undesirable as an overloaded facility due to the effects on the biological process, the extended aeration treatment system for each area should ideally consist of duplicate interconnected units to provide for a planned start-up in the beginning of the recreation season and a phased shut-down at the end of the season.

The treatment units in addition to the desirability of duplication of units described above should include, aeration tanks with a froth spray system, settling tanks including a scum return system and sludge return system, aerated sludge holding tanks and time controls. At least one laboratory unit should be included to permit testing. If a higher degree of treatment is not required after the extended aeration unit, a chlorine contact chamber and chlorination equipment should be included to treat the effluent.

The trend in recent years has been to require a higher degree of treatment than provided with a standard extended aeration facility. Such additional treatment if required by regulatory agencies or desired for maintaining high quality lake water would possibly require an oxidation pond, installed to treat the effluent from the extended aeration units. If an oxidation pond is required the chlorination chamber would be located to treat the effluent from the pond.

Services to Park Users

Protection and Law Enforcement:

Visitor protection and law and order are important phases of the State Recreation Area administration. The major hazards are the large bodies of water, Lake Norman, Hicks Creek and the constant level lake. It becomes paramount that a water safety program be practiced both for swimmers and all types of boating.

Another major hazard is the bringing together of large groups of people and vehicles. Accidents do happen and safety cannot be stressed too much. All permanent personnel and key seasonal personnel should be trained in first aid and the proper procedures in emergency operations. A good working relationship should be established with the local medical services.

The need for enforcement of the rules and regulations and traffic control will increase tremendously as the development is completed. While the master plan has certain built-in control measures including a single entrance, adequate parking for optimum use and provision for live-in personnel, the staff should be properly trained in traffic control and include an on-going program of law enforcement practices. Patrolling by vehicle, foot or horseback and close cooperation with the North Carolina State Highway Patrol, Iredell County Sheriff and other nearby law enforcement agencies should also be emphasized.

Information:

Of equal importance is getting the regional recreators acquainted with the recreational facilities available and the easiest, safest route to the State Recreation Area. Highway signs should provide adequate direction and distance to the State Recreation Area and be installed at appropriate distances on Interstate 77 from Charlotte to Statesville and Interstate 40 from Hickory to Winston-Salem. U.S. 21 and State Routes such as 150 and 16 should be marked. Information should be provided at roadside rest areas also.

At the administration center, displays, maps and descriptive literature should be available describing all of the facilities. Included are such items as current programs, fees, opening and closing hours and rules and regulations. This material should be designed to be used with or without an attendant present. Detailed maps and descriptive material should be prominently displayed on all-weather bulletin boards in each of the specific areas. The registration center for the cabins and camping should also provide similar information.

Specific signs within each area should direct, regulate and provide information to the recreator with special emphasis on the trail system.

Personnel should be well versed in the details of all facilities and also be able to direct people to points of interest outside the State Recreation Area boundaries.

Interpretation:

The interpretation program being developed by the Division of State Parks should include not only natural history but also the archaeological and historical aspects of the State Recreation Area and the region.

Recreation Programs:

While it is not the intent of the Division of State Parks to provide organized, supervised recreational programs, a definite program should be established to effectively and efficiently utilize all available recreational facilities. The promotion of various hiking, camping, tennis and similar clubs and the teaching of the skills necessary to appreciate the activity are effective means of utilizing the facilities. Encouragement of large groups, schools and other recreation departments to use the State Recreation Area is important. Personnel should assist in helping recreators to use the State Recreation Area.

Management Programs:

Protection and preservation of the State Recreation Area is a major responsibility that will be required of the maintenance personnel. Proper care and use of equipment and buildings as well as preventive maintenance will serve to keep all facilities in first class condition. The practices set forth in the Division of State Parks "Administrative Manual" should also be followed. Being able to close the main entrance gate as well as the boat control gate, will provide complete control of the State Recreation Area. This is desirable in the off season or during periods of high fire risk.

Communication with the state fire observation tower on Anderson Mountain, 11 miles to the southwest, will provide additional forest fire protection.

Maintenance:

Maintenance of the State Recreation Area is a major task. With the acquisition of additional lands and the development of new and expanded facilities, a master maintenance program will need careful preparation to provide maximum efficiency. The superintendent should establish an annual maintenance program consisting of maintenance map, a calendar and an inventory. The map will locate and evaluate the amount and quality of maintenance in each portion of the State Recreation Area. The calendar should be a carefully written weekly schedule of maintenance projects both routine and special. The inventory will provide a list of men and equipment with the quality, number, and efficiency also indicated.

Maintenance methods should always be examined for improvement in techniques and personel suggestions encouraged. As the maintenance center is expanded, the necessary tools and equipment should be provided.

A neat, well groomed area discourages vandalism and misuse. Overuse of the facilities and equipment should be prevented. A good practice to follow is the careful study of how people use the State Recreation Area. Misuse of facilities will inevitably occur in the best designed facility. By studying abuses, methods to correct them will be discovered.

Priorities

Acquisition:

Primary acquisitions should include:

a. The 11 parcels including two residences on Lake Norman that are the remaining inholdings within the current State Recreation Area.

b. The large parcel north of the Duke Power Company land to be used for entrance and control.

c. The lands owned by the Duke Power Company on the east of Hicks Creek and terminating the leases that Duke Power has issued. This includes two adjoining parcels west of State Road 1322. The resolution of ownership of the nearby islands in Lake Norman, particularly the island to be used as part of the campers beach.

d. The high point, cabins and lots along Clark Road or State Road 1331.

e. The remainder of the wilderness camping area peninsula. The land owner of this peninsula may at the same time, sell the island and his other land holdings within the ultimate acquisition line.

The remaining land within the ultimate acquisition line should be purchased as scenic easement with option to acquire. This permits current land use to continue giving the State, if desired, the first option to acquire, when the land owner desires to sell.

Development:

Development priorities should begin with the construction of the new main road and the bridge. Once this has been completed, a gradual expansion of the camping and day use facilities, as well as the construction of cabins, ranger residences and the nature center can begin. The utilities to serve these areas should be developed at the same time. Upon completion of acquisition, the major day use and viewing areas can be constructed. At the same time the service, superintendent's residence and administration can be transferred to the new entrance location. Trails will be incorporated into the development of all day use and overnight facilities.

A more specific development calendar is as follows:

a. Construction of the new road and bridge and reconstruction of existing day use area parking lot.

b. Combined camping and cabin area boat ramp.

c. Camping beach and expansion of the existing camping area and associated trails.

d. Entrance information and administration area construction including temporary employee mobile homes.

e. Development of Group D cabin area complete with beach and boat ramp.

f. Nature interpretation center construction.

g. Picnic area expansion beyond existing day use area and near existing entrance area.

h. Expansion of maintenance center to full size.

i. Development of Group A, C and E cabin areas along with community building and play area facilities.

j. Swimming area development with the parking lot, nearby picnic areas and boat launch area including boat and bicycle rental facility.

k. Construction of viewing area, registration center and overflow area.

l. Complete camping area construction of the community building and the group area, walk-to areas, boat access area, and other family camping areas, including boat ramp.

m. Construction of boat control gate.

n. Completion of day use and picnic areas.

o. Permanent employee residence area construction along with the wilderness camping development and the corral area and associated trails.

p. Final cabin area, Group B construction.

Required Research and On-Going Studies:

Future research is necessary in several areas. The nature interpretation program will need detailed study and on-going research to determine specific features of the designated areas. Immediate research will determine if any sensitive areas will be destroyed in areas designated for intense use activities. Further archaeology and historical study will be necessary regarding the indian sites and early settlers.

During the summer months, on-going water quality testing will be necessary by the State Department of Health. These tests will determine any pollution in the swimming areas. Coordination will be required with regional officials as the recreation development progresses regarding the quality of the potable water supply and the operational status of the sanitary facilities provided.

More detailed engineering and economic studies are needed for the utility systems for the State Recreation Area. These studies should determine the economics of providing an integrated water supply system to the high use areas and the possibility of adapting or joining the several isolated systems into one or more of the central systems in the future.

Regional sewer studies are being conducted. In the future if a regional sewerage system is constructed, serious considerations should be made to connect the more intense recreation area facilities to such a system. To meet the stricter Federal Environmental Protection Agency requirements for obtaining permits to discharge effluents to streams or lakes, a higher degree of treatment than is now practiced on the State Recreation Area may be required. A study of these requirements should be made with the development of any future major recreation facility development.

A study should be made of the electrical distribution system for the expanded recreational facilities. This study should evaluate the economics of taking power at one metering point and distributing the power to the various recreation facilities by means of a State Recreation Area owned distribution system versus the several metering points and two power company sources now utilized. If a State Recreation Area owned distribution system is considered, a loop system should also be evaluated with the option of feeding power from two different power companies' circuits. Such a system will provide greater reliability and could avoid requirements for standby power sources at sewage treatment plants and possible water supply pumphouses. Maintenance of such a system should also be carefully considered.

A detailed study should also be made of a communication system for the State Recreation Area. This system could be by means of telephone or radio or a combination of both. This study should consider both the needs of the visitors to communicate outside of the State Recreation Area and the needs of the State personnel to communicate within the area.

Personnel Requirements:

Administration:	Superintendent II	P.
	Assistant Superintendent	P.
	Typist	P.
	Typist Clerk	S.
	*Labor Support	H.
Maintenance:	Maintenance Mechanic IV	P.
	Maintenance Mechanic II – (2)	P.
	*Labor Support	H.
Public Use:		
Interpretative Area:	Ranger-Naturalist	P.
	Naturalist – (3)	S.
	Recreator	S.
	Attendant	S.
Water Activity Areas:	Ranger II	P.
	Chief Life Guard – (2)	S.
	Life Guard – (10)	S.
	Bathhouse Manager – (2)	S.
	Bathhouse Operator – (4)	S.
	Boating Attendant – (2)	S.
	Lake Warden	S.
	*Labor Support	H.
Concession Areas:	Ranger II	P.
	Refreshment Stand Manager – (2)	S.
	Refreshment Stand Clerk – (6)	S.
	*Labor Support	H.
Camping Areas:	Ranger II	P.
	Attendant – (4)	S.
	*Labor Support	H.
Cabin Areas:	Ranger I	P.
	Attendant – (3)	S.
	*Labor Support	H.

Picnic Areas:	Ranger I	P.
	Attendant – (3)	S.
	*Labor Support	H.

*Labor support will be determined by specific needs and available funds, and will serve to complement the full-time permanent and seasonal staff.

LEGEND P. = Permanent Employment
S. = Seasonal Employment
H. = Hourly Labor Employment

Summary:

Permanent Employees

Superintendent II	1
Assistant Park Superintendent	1
Ranger II	3
Ranger-Naturalist	1
Maintenance Mechanic IV	1
Maintenance Mechanic II	2
Ranger I	2
Typist	1
	12

Seasonal Employees

Life Guard	12
Attendant	11
Naturalist	3
Refreshment Stand Manager	2
Refreshment Stand Clerk	6
Recreator	1
Bathhouse Manager	2
Bathhouse Operator	4
Typist Clerk	1
Boating Attendant	2
Lake Warden	1
	45

CHAPTER 11

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DEPARTMENT OF NATUSAL AND ECONOMIC RESOURCES
DIVISION OF STATE PARKS

DUKE POWER STATE RECREATION AREA

MAIN
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