

operations document

9

BUCK CREEK RESERVOIR

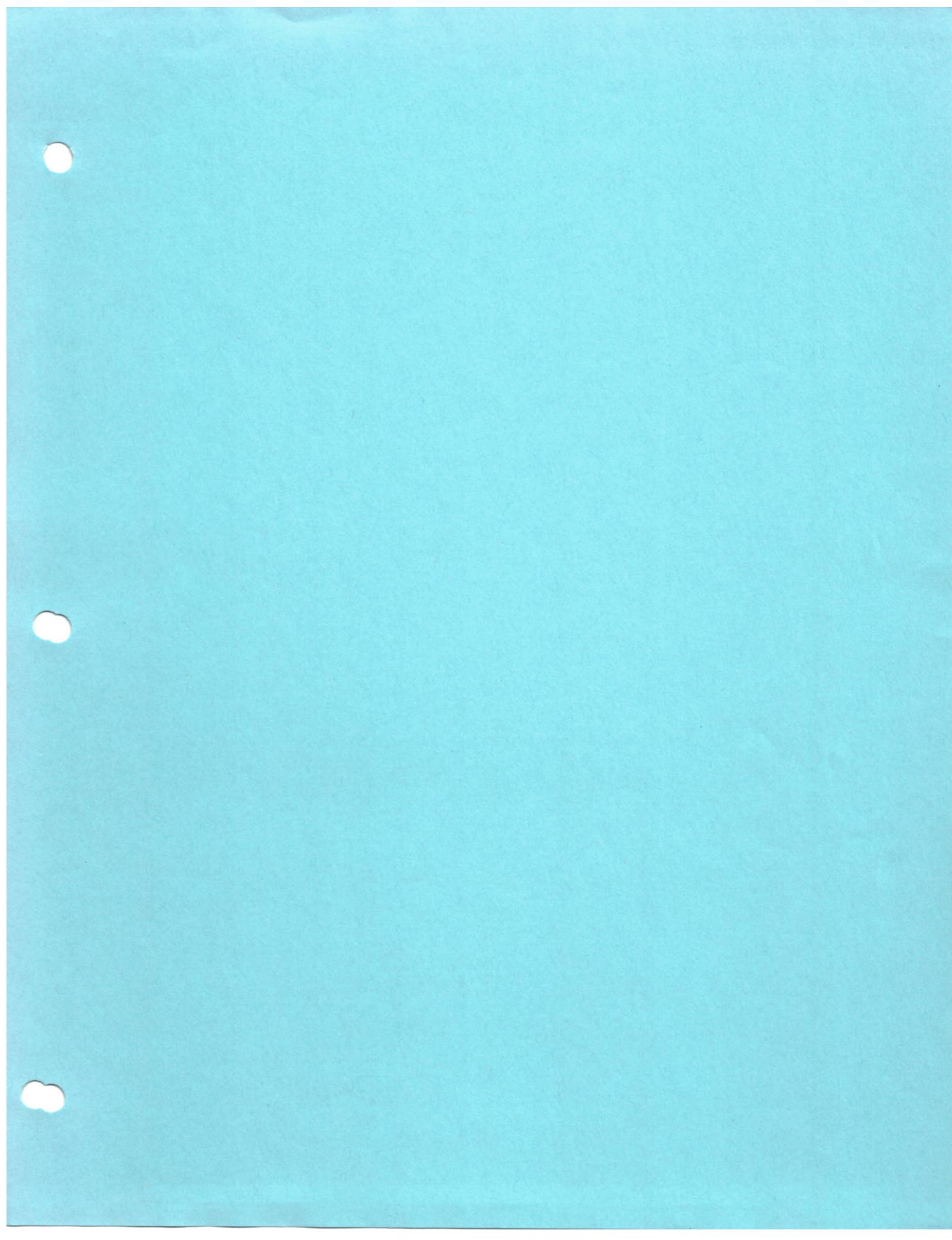
BUCK CREEK, MAD RIVER BASIN
OHIO

DESIGN MEMORANDUM NO. 6A

PRELIMINARY MASTER PLAN



LOUISVILLE DISTRICT
CORPS OF ENGINEERS U. S. ARMY
1966





DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
P. O. BOX 59, 830 WEST BROADWAY
LOUISVILLE, KENTUCKY 40201

IN REPLY REFER TO: ORLED-P

1 March 1966

SUBJECT: Preliminary Master Plan, Design Memorandum No. 6A, Buck Creek Reservoir, Ohio

TO: Division Engineer
U.S. Army Engineer Division, Ohio River
ATTN: ORDED

1. Herein is submitted the subject design memorandum for review. This memorandum has been coordinated with the Real Estate Division in accordance with EM 405-2-835.

2. Land selection for public use has been coordinated with the State of Ohio, Department of Natural Resources, which has formally indicated that it will apply for a lease to manage the recreation lands at Buck Creek Reservoir. The State of Ohio has shown on the inclosure to the letter dated 11 January 1966 (see appendix A) those lands which it deems necessary for a State Park complex, and which is about 500 acres more than that proposed for acquisition by the Corps. Based on information available at the present time, we believe our recommendation represents the maximum lands which can be supported by water related recreational development. The State, however, has stated that they will furnish additional information regarding their land requirements which may provide adequate justification for additional land acquisition by the Federal Government, particularly between Grant Road and the Merrit site. A copy of the State's correspondence will be furnished when received, along with our views.

FOR THE DISTRICT ENGINEER:

1 Incl (sex)
DM No. 6A

R. H. Hayes
R. H. HAYES
Chief, Engineering Division

DESIGN MEMORANDUM NO. 6A
PRELIMINARY MASTER PLAN, BUCK CREEK RESERVOIR
BUCK CREEK
MAD RIVER BASIN
OHIO

Prepared by
U. S. Army Engineer District, Louisville
Corps of Engineers
Louisville, Kentucky 40201

1966

BUCK CREEK RESERVOIR
BUCK CREEK
MAD RIVER BASIN
OHIO

DESIGN MEMORANDUM NO. 6A
PRELIMINARY MASTER PLAN

PREVIOUSLY ISSUED DESIGN MEMORANDA

1. Structure Site Selection
2. General Design Memorandum
3. Concrete Aggregate and Riprap Sources
4. Reservoir and Spillway Capacities, Flood Control, Seasonal Regulation, Hydroelectric Power
5. Embankment, Spillway and Outlet Works
7. Real Estate for Construction Area
8. Relocation of NYC RR

U. S. Army Engineer District, Louisville
Corps of Engineers
Louisville, Kentucky 40201

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BUCK CREEK RESERVOIR
BUCK CREEK
MAD RIVER BASIN
OHIO

DESIGN MEMORANDUM NO. 6A
PRELIMINARY MASTER PLAN

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DESIGN MEMORANDUM NO. 6A

SECTION I

DESCRIPTION OF THE PROJECT

1-01. Authorization. The Buck Creek Reservoir project was authorized for flood control and recreation by the Flood Control Act approved 23 October 1962 (Public Law 87-874, 87th Congress, 76 Stat. 1190). Under purview of the Water Pollution Control Act of 1961 (Public Law 87-88), action has been initiated to include water quality control as a project purpose.

1-02. Project Location. The project is located in west central Ohio, approximately 40 miles west of Columbus and 25 miles northeast of Dayton. It is about 70 air miles northeast of Cincinnati, Ohio. The damsite is on Buck Creek, a tributary of the Mad River, about 7.3 miles above the confluence of the two streams. The Mad River is one of the eastern tributaries of the Miami River which enters the Ohio River at the southwestern corner of the State of Ohio. The reservoir area lies entirely within Clark County, abutting the north-east edge of Springfield, Ohio.

1-03. Summarized Project Data.

<u>Pool</u>	<u>Elevation</u> (Ft. msl)	<u>Surface</u> <u>Area</u>	<u>Storage</u>	
			<u>Capacity</u> (Acre-Ft.)	<u>Runoff</u> (Inches)
Minimum	995	1010	10,000	0.87
Water Quality Pool	1009	1940	30,800	2.28
Seasonal	1012	2120	36,900	3.64
Flood	1023	2720	63,700	9.44

Dam

Type	Earth fill
Length, feet	6,200
Top elevation, feet, msl	1,035
Maximum Height, feet	67

Spillway

Type	Open cut through glacial till on right abutment ridge
Crest Elevation	1,023
Base Width of Cut, feet	475

Outlet Works

Type	Circular conduit, with control gates in headworks intake
Diameter, feet	11

1-04. Schedule of Construction. Construction has not been initiated but is scheduled to be initiated early in 1966. Closure of the dam is scheduled for FY 1969. With this schedule, impoundment could begin in the spring of calendar year 1969, permitting initial recreational use during the 1969 recreation season.

SECTION II

FACTORS INFLUENCING RECREATIONAL DEVELOPMENT

2-01. General. The project area is primarily agricultural in nature except in the central part of Clark County near the City of Springfield. This highly industrialized city, located just south of the reservoir, is the principal urban center in the zone of influence. The city has diversified industries, producing finished goods such as machinery, trucks, and a variety of metal products. Progressive farming is practiced in the project area. The principal crops are corn, wheat, rye, oats and potatoes. Livestock and livestock products are also an important source of farm income in the area.

2-02. Recreational Features. The proposed impoundment is located in a heavily-populated area which is nearly devoid of water-oriented recreation outlets. There are no public swimming facilities within the City of Springfield. The nearest existing lake is Clark Lake of approximately 100 surface acres about 5 miles away, featuring fishing, boating and hunting. Other pools in the vicinity which provide the only major outlets for water-oriented sports, their respective distance in air miles from Buck Creek Reservoir and recreational opportunities offered are:

<u>Area</u>	<u>Air Miles from Buck Creek Reservoir</u>	<u>Activities</u>
Kiser Lake	20	Picnicking, fishing, boating and camping
Madison Lake Reserve	22	Picnicking, swimming, fish- ing, boating and camping
Spring Valley Lake	30	Fishing and camping
Lake Loramie	40	Picnicking, swimming, fish- ing, boating and camping
Scioto River	40	Picnicking, fishing and boating
Hoover Reservoir	45	Picnicking, fishing and boating
Delaware Reservoir	50	Picnicking, fishing and boating
Rocky Fork Lake	55	Picnicking, swimming, fish- ing, boating and camping
Lake St. Marys	55	Picnicking, swimming, fish- ing and boating

Other Authorized Corps of Engineer Projects

Caesar Creek Reservoir	30	-
Deer Creek Reservoir	35	-
Alum Creek Reservoir	55	-
East Fork Reservoir	65	-

The dam is situated on the edge of the City's 340-acre Reid Memorial Park which will be displaced by the reservoir project. Existing park facilities include an 18-hole golf course, a children's zoo and play-ground apparatus, extensive picnicking facilities, and play areas and ball fields. The 1963 visitation was estimated at 102,000 for the portion of the park to be inundated by the project. The lands and facilities inundated by the project have been purchased and the City is now replacing the golf course at another location.

2-03. Accessibility. Interstate Route 70, a major east-west route, passes approximately 2 miles south of the damsite location. This highway intersects Interstate Route 75, a major north-south route approximately 20 miles west of the reservoir area. The overall road network in the immediate vicinity of the reservoir is well developed, in good repair, and will allow easy access to the proposed public use areas.

2-04. Population. The City of Springfield had a 1960 population of 83,500. The 1960 population of Clark County and the counties contiguous thereto was 882,000. The majority of the anticipated annual visitor use will originate in these counties. It is expected that Columbus and Franklin Counties (1960 population of 683,000) will also contribute considerably to the visitation at Buck Creek due to the ease of access on U.S. 40 (I-70) which allows a driving time of about one hour from downtown Columbus to the proposed reservoir site. The population within 50 miles of the reservoir was 1,173,000 in 1960 and is expected to reach 2,517,000 by the year 2000.

2-05. Attendance. The estimated annual visitation for the initial period of reservoir operation (3-5 years after completion) is 629,000 and the estimated ultimate visitation is 962,000. These estimates appear to be conservative in view of the population within 50 miles of the reservoir, the excellent road network, and the general lack of similar recreational opportunities in the area. Accordingly, project visitation is considered to be limited only by the project's capability to satisfy the large demand. A breakdown of the 629,000 anticipated initial annual attendance by site, including sightseers, is as follows:

<u>Recreation Areas</u>	<u>Annual Attendance (Visitor Days)</u>
Croft (includes sightseers at dam overlook)	300,000
Merrit	<u>329,000</u>
	629,000

SECTION III

PLAN FOR RECREATIONAL DEVELOPMENT

3-01. General. The seasonal pool will contain 2,100 surface acres at elevation 1012 feet m.s.l. and will be characterized by steep slopes on the west bank and moderate to slight slopes on the east bank. Existing roads will provide access to all proposed sites.

3-02. Coordination With Other Agencies. The Ohio Department of Natural Resources has indicated by letter (Appendix A) that they intend to apply for a license to manage and further develop the recreational facilities at Buck Creek Reservoir.

The U. S. Fish and Wildlife Service has submitted a report entitled "Detailed Report on Buck Creek Reservoir" which is inclosed as Appendix B.

The Bureau of Outdoor Recreation has furnished this office a report of its views on the recreation potential of Buck Creek Reservoir. This report is inclosed as Appendix C.

3-03. Land and Water Administration. As indicated above, the Department of Natural Resources, State of Ohio expects to make application for a lease to manage and further develop the recreational facilities at Buck Creek Reservoir. Informal contacts with that Department indicate that in view of the local nature of the expected recreational use of the reservoir and the high level of use that is expected to develop, it would be appropriate for the City of Springfield to carry out the management of some of the recreational aspects through a third party agreement with the State. The City's management capability has been satisfactorily demonstrated in the operation of Reid Memorial Park. It is reasonable to expect that the project area, with its potential for a wide variety of water-oriented recreational pursuits, can become a major playground for the Springfield area.

3-04. Areas Selected. Two areas have been selected for public access based on topographic and cover features, and ease of access on existing and relocated roads. Based on studies to date, the sites designated for development of launching ramps will have a minimum of disturbance from sedimentation and wave and wind action. A total of 648 acres measured above the estimated 300' taking line, in addition to those lands required for other project purposes under present criteria, are included in the two sites. The sites are considered to be sufficient in size to adequately serve the present and anticipated future public visitation to the project. Approximate acreage figures are as follows:

Site	Above Seasonal Pool (elev 1012 ft msl)	Above Flood Control Pool (elev 1023 ft msl)	Above Estimated 300' Taking Line
Merrit	868	813	570
Croft	<u>510</u>	<u>477</u>	<u>78</u>
	1378	1290	648

Public Use Area Description

a. Merrit. This area which generally encompasses the entire eastern shoreline at the reservoir's seasonal pool, is well suited to day use activities, particularly swimming. It is believed that a supervised swimming beach will be heavily utilized because of the lack of similar public facilities in Springfield and its immediate area. Facilities planned, in addition to a swimming beach, include a bath change house, launching ramps, loading dock, water-borne sanitary facilities, picnic units, picnic shelter, circulation and access roads, parking, hiking and bicycle trails, and extensive site improvement through tree planting and grading. Access to this site will be from Old Columbus Road. Future access will also be provided by the acquisition of lands adjacent to Grant Road at the northeastern extremity of the site.

b. Croft. This area is located just north and west of the dam and spillway and would be bordered on the west by the tentative relocation route of the New York Central Railroad. The site is ideally suited for development as a day-use area for picnicking, hiking, bicycling, nature study, and related activities. Facilities planned for this area include picnic units, water-borne sanitary facilities, circulation roads, parking, hiking and bicycle trails, and extensive site improvement. The latter will include tree and shrub plantings to form an aesthetic and noise buffer between the railroad and the public use areas. A visitor-overlook shelter is proposed in the area just south and slightly east of the spillway. Access to this site from the west will be SR 4 via Croft Road, and from the south via Croft Road.

3-05. Development of Public Access Sites. Initial development as outlined in this memorandum will be by the Corps of Engineers. Future development will be provided by local interests in accordance with 2nd Indorsement Supplement No. 1 to Design Memorandum No. 2, 30 November 1965.

3-06. Preliminary Cost Estimates. A preliminary cost estimate of recreation facilities required at Buck Creek Reservoir, including contingencies, but exclusive of engineering and design, and supervision and administration is \$996,500 for initial development, \$572,000 for future work and \$64,000 for visitor facilities at the dam which is chargeable to Feature 19. The estimate for initial development exceeds the currently approved cost estimate of \$783,000 (PB-3, dated 1 July 65) by approximately \$213,500. However, the \$783,000 estimate was for an effective recreation pool at elevation 995.0, as presented in GDM No. 2, dated 31 March 1964, whereas the \$996,500 estimate exceeds by \$46,500 the revised estimate of \$950,000 set out in GDM No. 2, Supp. No. 1, dated 8 July 1965 for an effective recreation pool at elevation 1009.5. The increase of \$46,500, which is the estimated cost of a buffer planting along the N.Y.C. RR, was added in accord with OCE letter of 1 October 1965, subject "Beautification Aspects of Engineering Design for Civil Works Projects." The project cost estimate (PB-3) will be revised to reflect this increase upon approval of this design memorandum. A detailed estimate is given in Table 1 for complete recreational development. A breakdown of estimated cost of the visitor overlook at the dam (Feature 19) is given in Table 2.

TABLE I
BUCK CREEK RESERVOIR
PRELIMINARY COST ESTIMATE

	UNIT COST	INITIAL COST		FUTURE INCREMENT ^{1/} COST		TOTAL COST (OVER LIFE OF PROJECT) INCLUDING INITIAL DEVELOPMENT BY THE CORPS OF ENGINEERS	
		UNITS	COST	UNITS	COST	UNITS	COST
Ramp (12' units)	4,500.00	5	22,500.00	2	9,000.00	7	31,500.00
Boat Loading Platform	5.00	500	2,500.00	200	1,000.00	700	3,500.00
Circulation Road 20' / 23' - prime and seal	10.00	25,000	250,000.00	15,000	150,000.00	40,000	400,000.00
Parking - prime and seal	4.50	25,000	112,500.00	15,000	67,500.00	40,000	180,000.00
Water Supply & Distribution	-	L.S.	30,000.00	L.S.	30,000.00	L.S.	110,000.00
Drinking Fountains	500.00	6	3,000.00	4	2,000.00	10	5,000.00
Sewage Disposal	-	L.S.	120,000.00	L.S.	45,000.00	L.S.	165,000.00
Toilets (flush)	12,000.00	6	72,000.00	4	52,000.00	10	130,000.00
Electrical Distribution	-	L.S.	15,000.00	L.S.	10,000.00	L.S.	25,000.00
Picnic Facilities	150.00	250	37,500.00	150	22,500.00	400	60,000.00
Picnic Shelter	15,000.00	1	15,000.00	2	30,000.00	3	45,000.00
Beach Development	3.00	7,500	22,500.00	7,500	22,500.00	15,000	45,000.00
Change House	35,000.00	1	35,000.00	1	35,000.00	2	70,000.00
Site Improvement	-	L.S.	17,500.00	L.S.	7,500.00	L.S.	25,000.00
Buffer Planting - N.Y.C. R.R.	-	L.S.	40,000.00	-	-	L.S.	40,000.00
Bicycle & Hiking Trails	3.00	4,000	12,000.00	4,000	12,000.00	8,000	24,000.00
Signs	-	L.S.	3,500.00	L.S.	1,500.00	L.S.	5,000.00
			666,500.00		497,500.00		1,364,000.00
			130,000.00		74,500.00		204,500.00
			996,500.00		572,000.00		1,568,500.00
			99,500.00		57,250.00		156,750.00
			99,500.00		57,250.00		156,750.00
			\$1,195,500.00		\$686,500.00		\$1,882,000.00

^{1/} Future development will be provided by local interests in accordance with 2nd Indorsement Supplement No. 1 to Design Memorandum No. 2, 30 November 1965.

TABLE 2

BUCK CREEK RESERVOIR
PRELIMINARY COST ESTIMATE
FEATURE 19

	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Units</u>	<u>Total Cost</u>
Overlook building, observation deck, flush toilets, sewage treatment	L.S.		L.S.	\$40,000
Parking (35 autos) 2" bituminous	S.Y.	4.50	1,225	5,500
Utilities (water, underground electric)	L.S.		L.S.	5,000
Site improvement (seeding, planting, benches, walks, miscellaneous)	L.S.		L.S.	<u>5,000</u>
				\$55,500
				<u>Contingencies (15%) 8,500</u>
				Feature 19 \$64,000
				E & D (10%) Feature 30 6,500
				S & A (10%) Feature 31 <u>6,500</u>
				TOTAL CONSTRUCTION COST \$77,000

SECTION IV

REAL ESTATE REQUIREMENTS

4-01. Lands to be Acquired. The lands required for public use purposes have been determined in accordance with the joint Army-Interior Land Acquisition Policy as clarified in EM-405-2-150. The extent of these lands, subject to later taking line adjustments to conform with sound real estate practices, are shown on Plate 1.

4-02. Real Estate Costs. An estimate of the costs of lands required for public access based on examination of recent sales in this area are shown below.

<u>Site</u>	<u>Acreage Above Estimated 300' Taking Line</u>	<u>Approx Value per Acre</u>	<u>Total</u>
Merrit	570	\$ 940	\$535,800
Groft	<u>78</u>	1480	<u>115,400</u>
	648		\$651,200

4-03. Special Provisions for Wooded Areas. The lands required for public use as outlined herein, together with other land to be acquired for project purposes, constitute an important aesthetic resource, the value of which is proportionate to the quality and quantity of tree cover. To enable retention of as much of the existing tree cover as possible, landowners will be assured, during advance contacts, that compensation for wooded land will include the full market value of all merchantable timber left standing. (Para 22, EM 405-1-300).

SECTION V

MANAGEMENT AND OPERATION

5-01. Preliminary Criteria for Resource Administration. Until more detailed planning is conducted, preliminary administrative efforts will be made toward the prevention of despoilment of the existing resources. All project-acquired land which is presently under cultivation or in pasture will be considered for interim agricultural outleasing until required for more intensive uses. Preference will be given to uses such as haying and grazing which maintain a permanent grass cover. This program will prevent soil erosion and eliminate excessive re-seeding costs by the Corps of Engineers.

5-02. Operation and Maintenance. The State of Ohio has expressed a formal interest in the management of all project lands. Initial recreation management costs (within 3 - 5 years after the project goes into operation) could however, be chargeable to the Corps of Engineers, entirely or in part. These initial Corps of Engineers costs are therefore shown on the following page in two ways: one reflecting management entirely by the Corps of Engineers; the second reflecting management of the recreation areas by the State of Ohio.

INITIAL CORPS OF ENGINEERS ANNUAL OPERATION, MAINTENANCE &
REPLACEMENT COSTS CHARGEABLE TO RECREATION

Item	Management of Recreation Areas by the Corps of Engineers	Management of Recreation Areas by the State of Ohio
PERSONNEL:		
Area Res. Mgr.	\$ 2,100	\$ 600
Proj. Res. Mgr.	5,450	0
Res. Ranger	6,125	6,125
Area Clerk	1,550	1,100
Maintenance Man	4,600	0
Maintenance Man	0	1,000
Maintenance Man	700	0
Maintenance Man	0	600
Maintenance Man	700	0
Temporary Laborers	<u>15,600</u>	<u>0</u>
SUB-TOTAL - PERSONNEL	\$36,825	\$ 9,425
Adjustment for Cost Rate: Retirement, Ins., etc. - 27%	<u>9,700</u>	<u>2,500</u>
TOTAL PERSONNEL	\$46,525	\$11,925
OPERATION & MAINTENANCE		
Real Estate Mgt. Serv.	\$ 2,000	\$ 2,000
Radio Maintenance Serv.	1,000	1,000
Master Plan (Up dating)	2,000	2,000
Hydraulics, Res. Reg., etc.	1,000	1,000
Supplies, Materials, Utilities, Travel, etc.	15,000	5,000
Repair and Replacement of Public Use Facilities	<u>15,000</u>	<u>5,000</u>
TOTAL O&M	\$36,000	\$16,000
TOTAL PERSONNEL AND O&M	82,525	27,925
OVERHEAD - 10%	8,200	2,700
PERMANENT OPERATING EQUIPMENT (Average annual replacement cost)	<u>5,800</u>	<u>3,500</u>
TOTAL ANNUAL COST	\$96,525	\$34,125

SECTION VI

CONCLUSION AND RECOMMENDATION

6-01. Conclusion. The selection of land for public access as recommended in this report was coordinated with Real Estate Division in accordance with EM 405-2-835. Based on the needs outlined herein, a total of 648 acres above the estimated 300-foot taking line will be required to satisfy ultimate single-purpose recreational requirements for the project.

6-02. Recommendation. It is recommended that this Preliminary Master Plan be approved for basic guidance in land acquisition for recreation purposes and as a basis for detailed Master Plan studies, including the preparation of individual site plans. Authority is requested to acquire the additional lands above the guide taking line necessary to implement the proposed plan with adjustments as may be necessary or desirable due to finalization of project plans or for other reasons.

Coordination with Ohio Department of Natural Resources
APPENDIX A



STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OHIO DEPARTMENTS BUILDING
COLUMBUS 43215

January 11, 1966

Mr. R. E. Karlen
Assistant Chief, Engineering Division
U. S. Army Engineer District, Louisville
Post Office Box 59
Louisville, Kentucky 40201

Re: Buck Creek Reservoir Project -
Land Acquisition Programs

Dear Mr. Karlen:

Reference is made to Colonel Roper's letter of 27 October 1965 and your letter of 12 November 1965 concerning the land acquisition program for the Buck Creek Reservoir project. Reference is also made to our letter of 16 December 1965 to James Caplinger, City Manager, Springfield, Ohio, copy of which with the enclosed map of the Buck Creek Reservoir showing the preliminary land use plan was furnished to your office.

The above-mentioned land use plan indicates our concept of the potential for a reservoir of this size and especially in this urban area. We believe there will be tremendous daily pressure on this project due to its proximity to a relatively large metropolitan area, in addition to its drawing power within a 60-mile radius.

Sincerely,

A handwritten signature in dark ink, appearing to read "C. T. Foust", written over a light-colored background.

C. T. Foust
Staff Coordinator

CTF:bg
2 encl-Ltr w/map

APPENDIX A

DIVISIONS

LANDS AND SOIL • WATER • FORESTRY AND RECLAMATION • WILDLIFE • GEOLOGICAL SURVEY • PARKS AND RECREATION • WATERCRAFT

December 16, 1965

Mr. James Caplinger
City Manager
City of Springfield
City Hall
Springfield, Ohio

Dear Mr. Caplinger:

Please find enclosed a copy of the map of the Buck Creek Reservoir project which was used for discussion purposes in your office on Tuesday, 14 December 1965.

It is understood that you desire to further discuss the features of the proposed plan of development, as shown on this map, with other members of your coordinating committee.

Your comments are requested at the earliest practicable time.

Sincerely,

C. T. Foust
Staff Coordinator

CTF:bg

1 encl-Map

bcc: Parks & Recreation

W. E. Leegan- Corp of Engrs. -Louisville w/map

APPENDIX A

12 November 1965

Mr. C. T. Foust
Staff Coordinator
Ohio Department of Natural Resources
65 South Front Street
Columbus, Ohio 43215

Dear Mr. Foust:

As per your 8 November telephone conversation with Mr. Leegan, we are furnishing the additional information requested on Buck Creek Reservoir.

1. Complete set of reproducible prints showing topography, scale 1" = 200', including index.
2. Complete set of aerial mosaic prints showing ownerships, scale 1" = 400'.
3. Reservoir area map, showing our latest thinking on lands to be acquired specifically for recreation, scale 1" = 600'. Our planning is not sufficiently advanced to enable a definite presentation of the land to be acquired except as shown. It is anticipated that the acquisition would generally follow the current joint policy of the Secretaries of the Army and Interior. Under that policy we would acquire land up to elevation 1028 or if this does not provide a strip of land 300 feet horizontally from the flood control pool (elevation 1023) then we acquire to the 300 foot line.

In the conversation you indicated that the State of Ohio may wish to supplement the Corps of Engineers land acquisition program. We would appreciate knowing of specific locations when they have been determined.

Thank you for your interest in the Buck Creek Project.

Very truly yours,

3 Incl

1. Topography reproducible (14 sheets)
2. Aerial mosaic prints (5 sheets)
3. Reservoir area map

R. E. KARLEN
Asst Chief, Engineering Division

APPENDIX A

27 October 1965

Mr. C. T. Foust
Staff Coordinator
Ohio Department of Natural Resources
Room 815 - Ohio Departments Bldg.
65 S. Front St.
Columbus, Ohio 43215

Dear Mr. Foust:

Inclosed for your review is a map showing those lands being considered for acquisition for public use and access at Buck Creek Reservoir. A similar map is being furnished Mr. James Caplinger, City Manager at Springfield, Ohio for review.

Any comments that you may have would be appreciated. A review at your earliest convenience will aid us in completing the Preliminary Master Plan which is scheduled for submission to our higher authority late this month or early in November.

Very truly yours,

1 Incl
Buck Creek Res
Area Map

W. ROPER
Colonel, Corps of Engineers
District Engineer

APPENDIX A

COPY

State of Ohio

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes
Governor

Columbus 15

Fred E. Morr
Director

Room 1106 - Ohio Departments Building

December 16, 1964

Colonel Willard Roper
District Engineer
U. S. Army Engineer District, Louisville
Post Office Box 59
Louisville, Kentucky 40201

Dear Colonel Roper:

I regret that I was unable to attend the public hearing concerning land acquisition for the Buck Creek Reservoir which you held in Springfield last night. Colonel Foust, my coordinator for Corps of Engineer projects, has advised me of the excellent conduct of the meeting. I appreciate your assistance in the development of the water resources of this region.

It is my intent and the general policy of the Ohio Department of Natural Resources to undertake by license agreement with the Corps of Engineers, the management and further development of the recreational facilities at the Buck Creek Reservoir project. In this connection, it is also our intent to assist in the development of the recreation master plan for this project.

Sincerely,

FRED E. MORR
Director

FEM:bg

APPENDIX A

Fish and Wildlife Service Report
APPENDIX B



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
1006 WEST LAKE STREET
MINNEAPOLIS, MINNESOTA 55408

In reply refer to:
RB

February 18, 1966

District Engineer
U. S. Army Engineer District
Louisville
P. O. Box 59
Louisville, Kentucky 40201

Dear Sir:

This is a supplementary report on the Buck Creek Reservoir Project, Mad River Basin, Ohio, prepared in response to your letter of September 30, 1965, requesting our comments on the effects of additional storage for water quality control.

This report has been prepared in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). It has been reviewed by the Ohio Department of Natural Resources, as evidenced by the attached letter from Director Fred E. Morr.

The project, as presently proposed, will have a 1,012-acre minimum pool at elevation 995; a 1,940-acre water-quality pool at elevation 1009; a 2,120-acre seasonal pool at elevation 1012, and a 2,720-acre flood-control pool at elevation 1023.

Our detailed report of June 1961 considered a permanent pool at elevation 984, and a subsequent special report in May 1964, considered the effects of pool elevations of 984 and 990 on the fish and wildlife resources of the proposed project areas.

The addition of the water-quality, storage feature to the project will result in a seasonal pool which will inundate approximately five miles of stream with an attendant loss of 400 man days of stream fishing annually.

The combination of increased flows and an impassable barrier will promote a moderate-sized, tailwater fishery below the dam. This fishery should sustain an estimated use of 3,000 angler days annually, valued at \$4,500.

The seasonal pool, with its drawdown features, will approximate 1,900 acres during the bulk of the fishing season, except during extremely dry years. A pool of this size and location would sustain 28,500 angler-days use per year valued at \$28,500.

The commercial fishery potential of a single project such as Buck Creek Reservoir is limited under present conditions of market availability, harvesting and processing technology, legal restrictions, and relatively small pool size. However, the commercial fishery potential of the entire

APPENDIX B

Ohio Basin is currently under study by the Bureau of Commercial Fisheries. Should this study indicate future promise from an integrated basinwide approach to the harvesting, processing, and marketing of commercial fish, intermittent utilization of even the smaller reservoirs may be feasible. Therefore, this reservoir's commercial fishing potential should be retained as an open item for future planning consideration.

The net fishery benefits of this project, as it is presently being considered, amount to \$32,600 annually.

These benefits are conditional, subject to: (1) the provision of adequate public tailwater access and parking for 20 angler cars in the reach of Buck Creek from the toe of the dam to its junction with Beaver Creek; (2) the provision of adequate access, parking and launching facilities capable of supplying the design load requirements of 170 angler cars and/or boat trailers on the impoundment proper, in addition to those needed for other water-oriented use; (3) the incorporation of a multiple-level-outlet system with portals capable of passing at least 100 c.f.s. each, located at elevations 1,000 and 980, to provide flexible water quality for fishing, pollution control, and low-flow, reservoir releases; (4) the prevention of conflict between recreational boaters and anglers. Boat speeds should be limited according to policies of the Ohio Department of Natural Resources within prescribed distances of the shore and in waters above the present Buck Creek Lane crossing; and (5) the provision of bank fishing opportunity from the face of the dam.

The initial costs of the tailwater facilities are estimated to amount to \$3,700 (annual equivalent of \$121). The angler facilities on the reservoir are estimated to cost \$22,800 initially (annual equivalent of \$748). Annual operation and maintenance of these fisheries facilities would be at the expense of the Ohio Department of Natural Resources.

The cost of the multiple-level-outlet feature, since it is a joint-use feature, should be borne by the project.

Consideration is being given to purchasing, in fee title, a total of 2,910 acres for project purposes. Approximately 250 acres within the fee-taking line is in Reid Memorial Park. Presently, these lands are unavailable to the hunter. Upland hunting on the remaining acreage inside the proposed fee-taking line is estimated to amount to 590 trips per year valued at \$900. Waterfowl hunting in the proposed project area is insignificant.

The imposition of the seasonal pool will destroy or adversely alter the wildlife potential of 2,100 acres of land. There is a wildlife potential on the remaining 560 acres of project land. However, with the general-recreation developments anticipated on this remainder and the generally steep gradient and lack of manageability of portions of this perimeter strip, it is estimated that only 470 hunter trips will accrue annually to the project, despite its location. There will be an annual net loss of 120 man-days use of upland hunting attributable to the project.

To compensate for this loss it is recommended that the annual O&M costs for routine upland game management on remaining project lands, estimated to amount to \$250 annually, be considered a project cost and that the annual transfer of such funds to the Ohio Department of Natural Resources be effected.

There will be an increase in waterfowl hunter use attributable to the project in the amount of 570 days annually, valued at \$1,100.

Hunting and fishing benefits are predicated on the assumption that the Division of Wildlife, Ohio Department of Natural Resources will assume management of all project lands and waters upstream from the present Buck Creek Lane Road crossing (under the terms of a Fish and Wildlife General Plan).

Please notify this Bureau of your proposed actions regarding these recommendations and plans. We would appreciate being informed of any significant changes or refinements in project plans in order that we may submit additional comments.

Thank you for the opportunity to study and comment on your most recent project specification changes on Buck Creek Reservoir.

Sincerely yours,



W. P. Schaefer
Acting Regional Director

Attachment

JAMES A. RHODES
GOVERNOR

FRED E. MORR
DIRECTOR

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OHIO DEPARTMENTS BUILDING
COLUMBUS 43215

January 11, 1966

Mr. W. H. Nord, Regional Supervisor
Branch of River Basin Studies
U. S. Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
1006 West Lake Street
Minneapolis, Minnesota 55408

Dear Mr. Nord:

Reference is made to your fish and wildlife report on the Buck Creek Reservoir project furnished for our review and comments with your letter of December 8, 1965.

We have reviewed this report and concur in general with its content. Our specific comments are as follows:

- (a) Page 2. Tailwater fishery. We concur in providing for a tailwater fishery from the toe of the dam to the confluence of Beaver Creek, if considered feasible.
- (b) Page 2. Bank fishing from the face of the dam. It must be realized that this part of the project lands will not be under lease to the Ohio Department of Natural Resources. Furthermore, for reasons other than actual fishing, we do not believe the face of the dam is a desirable place for bank fishing.

With reference to your comments concerning the management of all project lands and waters upstream from the existing Buck Creek Lane crossing under the terms of a Fish and Wildlife General Plan, we wish to mention some of the factors which must be considered:

DIVISIONS

Lands and Soil - Water - Forestry and Reclamation - Wildlife - Geological Survey
Parks and Recreation - Watercraft

APPENDIX B

January 11, 1966

- (a) The location of this reservoir on the edge of a city the size of Springfield indicates an intensive use for general recreation.
- (b) It can be expected that the reservoir will encourage growth of the city in its direction and that it will soon be surrounded by urban development.
- (c) The preliminary Master Plan indicates considerable general recreation development on the reservoir lands above Buck Creek Lane.

In preparation of the Master Plan, as well as the Fish and Wildlife General Plan, all factors must be considered in order to best serve all recreation needs of the area.

We appreciate the opportunity to review this report on the Buck Creek Reservoir project.

Sincerely,

/s/ Fred E. Morr

FRED E. MORR
Director

FEM:bg

APPENDIX B

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
1006 West Lake Street
Minneapolis, Minnesota 55408

In reply refer to:
RB

May 27, 1964

District Engineer
U. S. Army Engineer District
Louisville
P.O. Bos 59
Louisville 3, Kentucky

Dear Sir:

This is our special report on the Buck Creek Reservoir project, Mad River Basin, Ohio, prepared in response to your letter of November 8, 1963. You requested preliminary values for fish and wildlife associated with a minimum pool at each of two elevations. The report has been prepared in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661, et seq.).

Studies were carried out in cooperation with the Ohio Department of Natural Resources, Division of Wildlife. Approval of the report by that agency is indicated by the appended copy of a letter from Director Fred E. Morr of March 2, 1964.

Buck Creek Reservoir is an authorized project to be constructed two miles above Springfield, Ohio. Project purposes are flood control and recreation.

Our detailed report of June 1961 contained recommendations based upon the establishment of a permanent pool at elevation 984 and a flood control pool at elevation 1,010. The two sets of pool levels now under consideration are:

	Minimum Pool Elevation (m.s.l.)	Minimum Pool Acreage	Flood Control Pool Elev. (m.s.l.)	Flood Pool Acreage
Alternate #1	984	407	1,012	2,000
Alternate #2	990	705	1,015	2,113

The fish and wildlife values in this report are based on additional information received after June 1961.

Wildlife values are based, in part, on the same features of planning that were recommended in our 1961 report. These values are contingent upon intensive wildlife management, by the State of Ohio, of land abutting

APPENDIX B

the minimum pool in the upper end of the reservoir under the provisions of a Fish and Wildlife General Plan. They are also based on the assumption that fee acquisition will include the flood pool plus a 300-foot strip around its perimeter.

Fisheries evaluations are conditional, subject to the provision of adequate access, parking and boat-launching facilities where applicable and an adequate fishery management program.

Construction of the project according to alternate #1, with the minimum pool at elevation 984 and the flood control pool at 1,012 will provide potential for a reservoir fishery and tailwater which, when developed, will receive about 20,500 fisherman-days use annually, and which will have an annual value of \$20,500. The project will provide 6,589 hunter-days use annually, valued at \$15,500.

With alternate #2, having the minimum pool at elevation 990 and the flood control pool at elevation 1,015, potential will be created for a fishery which, when developed, will receive about 35,500 fisherman-days use annually, valued at \$35,500. The project will provide 7,685 hunter-days of use annually, valued at \$18,354.

Alternate #2, with a minimum pool at elevation 990 and flood control pool at elevation 1,015, is preferable from the fish and wildlife standpoint provided that the provisions of our June 1961 report are incorporated into overall project planning.

Please advise us which alternate is selected for construction.

Sincerely yours,

Sgd/W. P. Schaefer

W. P. Schaefer
Acting Regional Director

APPENDIX B

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
1006 West Lake Street
Minneapolis 8, Minnesota

Address only the
REGIONAL DIRECTOR

NORTH CENTRAL REGION
(Region 3)
Illinois
Indiana
Iowa
Michigan
Minnesota
Missouri
Nebraska
North Dakota
Ohio
South Dakota
Wisconsin

Refer to: RB

Jun 7 1961

District Engineer
U. S. Army Engineer District
Louisville
P. O. Box 59
Louisville 3, Kentucky

Dear Sir:

This is our revised report on Buck Creek Reservoir, Mad River Basin, Ohio, as requested in your letter of April 14, 1961. Revision of our September 13, 1960 report is necessary because land-taking plans for the project have been changed. In addition, you have now advised that a substantial portion of the project area has been requested for general recreational purposes and have suggested a division of project lands and waters to serve both general recreational and fish and wildlife uses at Buck Creek Reservoir.

Studies leading to this report were conducted with personnel of the Division of Wildlife, Ohio Department of Natural Resources. This report has been reviewed and approved by the Ohio Department of Natural Resources as indicated in a letter from Director H. B. Eagon, dated May 18, 1961. A copy of Director Eagon's letter is attached.

Buck Creek Reservoir project data were originally provided by your office on June 20, July 12 and July 27, 1960. Revised project data and suggestions were received in your letter of April 14, 1961. This report is based on our understanding of pertinent features of the project, as summarized below.

THE PROJECT

Buck Creek Reservoir is proposed to provide flood protection to residential and industrial properties adjacent to lower Buck Creek in Springfield, Ohio. It also will afford some flood protection to urban and agricultural properties in that segment of the Mad River Valley between the mouth of Buck Creek and Huffman Reservoir as well as to Wright-Patterson Air Force Base.

APPENDIX B

The damsite is on Buck Creek at mile 7.3, two miles above Springfield. Major features of the project are: (1) a rock fill dam 68 feet high and 6,200 feet long with top elevation at 1,032*; (2) an open cut spillway with a crest width of 400 feet at elevation 1,010 discharging from the reservoir north of the damsite; (3) primary outlet works consisting of a control tower with a circular conduit through the dam 500 feet south of present stream channel; and (4) a stilling basin below the dam.

Flood storage to spillway crest would inundate about 2,000 acres. A 410-acre permanent pool would be maintained at elevation 984. No sustained minimum flow is planned other than normal inflow minus evaporation losses. Clearing is planned to elevation 987.

A total of about 1,700 acres of land will be purchased in-fee, including: 410 acres in the permanent pool zone to elevation 984; 740 acres between elevation 984 and elevation 997, the 5-year flood frequency line; about 250 acres between the 5-year flood frequency elevation and the full flood pool elevation of 1,010 along the lower eastern side of the reservoir; and about 300 acres in the damsite-spillway area. Flowage easements will be taken on about 800-1,000 acres lying above the 5-year flood frequency elevation.

You have proposed a division of nonflood control uses of project lands and waters between general recreational development and fish and wildlife management as follows: (1) approximately 500 acres of land, located primarily in the 5-year flood zone and generally abutting the upper end of the minimum pool, for wildlife management purposes; (2) approximately 500 acres of land, (240 acres in the 5-year flood zone and 250 acres above elevation 997 along the lower eastern side of the reservoir) for general recreational development; (3) use of the 410-acre permanent pool for both fishery and general recreational use.

Fish and wildlife conservation and development can be accomplished at Buck Creek Reservoir as now planned through intensive management of that portion of the project area designated for such use.

The remainder of this report includes the pertinent evaluations, discussions, and recommendations regarding fish and wildlife resources for use in your Survey Report.

* All elevations refer to feet above Mean Sea Level.

WITHOUT-THE-PROJECT

Buck Creek is a smallmouth bass - rock bass stream, having a relatively stable flow of good quality water. Fishery habitat has been damaged by channel straightening and dredging in major reaches of the stream by destruction of pool areas and bank cover. It is estimated that fisherman utilization of the 2.2 mile reach of Buck Creek within the project area will be 500 fisherman days annually.

Farm game species consisting of pheasants, rabbits, and quail are the most significant wildlife resources of the project area. Under without-the-project conditions, about 1,300 acres of the 1,700 acre in-fee project zone are of importance in providing excellent habitat and supporting a significant amount of hunting. The remaining 400 acres, which are of negligible value as wildlife habitat and on which little or no hunting is expected to occur, are mainly those lands included in the city park and golf course. It is estimated that total without-the-project hunting use on the 1,300 acres of farm game habitat will average 433 hunter days per year.

WITH-THE-PROJECT

Buck Creek Reservoir, as planned, will result in destruction of 2.2 miles of stream fishery habitat and 350 acres of farm game habitat consisting of 200 acres in the permanent pool zone and 150 acres in the damsite area. In addition, unfavorable alteration of wildlife habitat will occur on that major portion of the 740-acre 5-year flood zone that is not currently in park or golf course and also on the 200 acres above the 5-year flood zone where new with-the-project park development is planned. The permanent pool of the project will present 410 acres of new fishery habitat and, in shallower portions, 50 to 100 acres of potential waterfowl habitat.

The losses to stream fishing occasioned by the project will be more than offset by new pond-fishing opportunity provided by the project permanent pool without management, so long as free public use is assured. Hunting losses will not be capable of adequate mitigation merely by assuring public use to nonpark portions of the project area of influence. The quality of farm game habitat, without management, would rapidly deteriorate due to loss of agricultural practices in the 5-year flood zone. Deterioration would be expected to reach a point where game production would no longer result in harvestable surpluses sufficient to provide more than a few hunting days a year. Without wildlife management, average annual hunting losses will be 400 man days.

DISCUSSION

Significant with-the-project fishery benefits, as well as adequate mitigation, plus incidental game resource net benefits can be realized at Buck Creek Reservoir within the framework of your proposal of April 14. Basic requirements to attain this would include: (1) intensive fish and wildlife management on the 500 acres of project land abutting the upper end of the permanent pool and on the adjoining 50 to 100 acres of water at the upper end of the pool; (2) free public fishing privileges on all waters of the project permanent pool; and (3) regulation against any motorboat use exceeding 3.5 horsepower on the permanent pool.

Requirement (1) can be met by inclusion of provisions for fish and wildlife management by the Ohio Department of Natural Resources under a General Plan on the aforementioned 550 to 600 acres of land and water. This could be within the master recreational plan or license for the entire reservoir. You have indicated that requirement (2) should be acceptable. Requirement (3) would appear to be a reasonable measure to allow the maximum benefit to the greatest number of people on a reservoir of this small size, and is considered necessary if fishery benefit potentials are to be realized.

Fulfillment of the requirements mentioned in the previous paragraph would permit about 30,000 fisherman days' use of the pool annually with the project. Also, 3,000 days of farm-game hunting plus 300 waterfowl hunting days could be supported on the management unit. Net annual increase in fishery use would be 29,500 days valued at \$29,500. Net increase in farm-game hunting expected would be 2,567 days valued at \$6,420 per year. Some 300 days of new waterfowl hunting would also be provided having an annual worth of \$900.

Fish and wildlife management and development necessary to attain mitigation, compensation and net benefits as visualized would represent a total initial cost to the Ohio Division of Wildlife of about \$39,000, plus annual costs of \$8,000.

Initial access and control measures needed on the management unit would include: a parking lot at the upper end of the permanent pool for fishermen and hunters with access road, launching ramp, boat mooring pegs, signs and trash cans at a cost of \$9,570, a parking lot at Buck Creek Lane crossing of Buck Creek in the upper portion of the 5-year flood zone costing \$5,090, and some 5 miles of line fence with appropriate signs costing \$4,035.

First costs specifically for fishery resource development would entail construction of fish attractors at a cost of about \$750 for labor and material plus initial expenditures to establish the following fish species in the permanent pool; walleyes at \$2,250; largemouth bass at \$12,300; bluegills at \$1,640; crappies at \$1,640; and channel catfish at \$725. Measures needed specifically for game resource development during the first year include special planting and seeding plus installation of wood duck nesting boxes at an estimated total cost of \$1,250.

Annual costs for fish and wildlife management would include \$3,000 for specific fishery measures such as surveys, weed and rough fish control, and estimated averaged cost of restocking the permanent pool. Recurring costs for special habitat management and pheasant stocking would total \$2,500 annually. General costs for supervision of management, enforcement and patrol, and negotiation of sharecropping as necessary would have an average annual cost of \$1,000. Manpower, materials, and equipment required to operate, maintain and replace access and control facilities would have an estimated average annual cost of \$1,500.

RECOMMENDATIONS

We believe that hunting and fishing losses resulting from the project can be mitigated and that habitat losses can be more than compensated through development of portions of Buck Creek Reservoir lands and waters to increase opportunity for hunting and fishing. This fish and wildlife conservation and development can be accomplished on a segment of project lands and waters where fish and wildlife use would predominate. To insure mitigation and compensation for fish and wildlife losses and a reasonable amount of related incidental benefits to the public, it is recommended that:

- a. Within the master recreational plan or license for secondary uses at Buck Creek Reservoir, approximately 500 acres of project land generally abutting the upper end of the permanent pool and some 50 to 100 acres of adjoining water of the pool be made available to the Ohio Department of Natural Resources for fish and wildlife management purposes in accordance with a General Plan prepared under authority contained in Section 3 of the Fish and Wildlife Coordination Act, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.

- b. Excepting zones reserved for public safety and protection of public property, all waters and adjoining lands of the project be open to free public fishing use.
- c. Motor boat use be restricted to 3.5 horsepower or less on all waters of the Buck Creek Reservoir project.

Please notify us regarding your proposed action on these three recommendations.

If significant changes in project plans or in proposed division of secondary uses occur, please advise so that we may revise our report. We request an opportunity to assist in specific planning for fish and wildlife during formulation of final project plans if this project is authorized.

Sincerely yours,

Sgd/R. W. Burwell

R. W. Burwell
Regional Director

Bureau of Outdoor Recreation Report
APPENDIX C

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
Lake Central Region
15 Research Drive
Ann Arbor, Michigan 48103

September 17, 1964

District Engineer
U. S. Army Engineer District, Louisville
Corps of Engineers
830 West Broadway
Louisville, Kentucky 40201

Dear Sir:

Two copies of our report on the proposed Buck Creek Reservoir, Mad River Basin, Ohio are inclosed. This report has been prepared in accordance with your letter request (ORLED-P) of November 15, 1963.

The cooperation and assistance of you and your staff in the preparation of this report is appreciated.

Sincerely yours,

Sgd/Roman H. Koenings

Roman H. Koenings
Regional Director

Enclosures 2

APPENDIX C

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
LAKE CENTRAL REGION
15 Research Drive
Ann Arbor, Michigan 48103

District Engineer
U.S. Army Engineer District, Louisville
830 West Broadway
Louisville, Kentucky 40201

Dear Sir:

This constitutes our revised report on the proposed Buck Creek Reservoir, Mad River Basin, Ohio, prepared at the request of your letter (ORLED-P) of November 15, 1963 and revised as a result of subsequent discussions with representatives of your staff in May 1964. This preliminary report provides recreational values for a seasonal pool at elevation 995. This report has been prepared in accordance with Public Law 88-29 (88th Congress, S.20) approved May 28, 1963. The proposed reservoir is an authorized project with primary purposes of flood control and recreation.

INTRODUCTION

The original study on the Buck Creek project was carried out by the National Park Service in 1960. Our report is based on much the same data as were compiled by the National Park Service, but various changes in conclusions and recommendations are suggested as a result of this restudy.

The findings presented in this study are preliminary and furnished only for your planning use. We understand that a detailed report will be requested subsequent to the analysis and determination of project formulation.

This report has been coordinated with the Springfield Parks Department, State of Ohio, Division of Parks and Recreation, Bureau of Sport Fisheries and Wildlife, and personnel of your district.

DESCRIPTION

The proposed reservoir site is situated in the center of Clark County, approximately one mile northeast of Springfield, Ohio. It is bordered on the west by Ohio Route #4 and is accessible by various secondary roads.

APPENDIX C

The project study on Buck Creek is a part of a survey report of the Mad River Basin above Huffman Dam for flood control and allied purposes. The primary purpose of the project is for flood control, to reduce flood damages in the vicinity of Springfield and on the lower Mad River above Huffman Dam.

The major features of the reservoir would consist of a rock fill dam, having a top elevation of 1031 feet and maximum height of 65 feet above stream bed with a spillway crest at 1010 feet. The proposed reservoir would have a conventional type outlet structure consisting of a control tower, conduit through the dam and a stilling basin.

The tentative pool elevations which were requested to be evaluated for general recreation are as follows:

	Elevation (MSL)	Area ^{1/} Acres
Minimum Pool	987	540
Seasonal Pool	995	1040

^{1/} Pool area determined from Corps of Engineers area-capacity curve dated June 1963.

For the purpose of this report it is assumed the seasonal pool would be maintained on or near the indicated elevation during the recreation season with gradual drawdown beginning after September 1.

The proposed dam, its appurtenant structures and the resulting impoundment would displace the Reid Memorial Park, a 340-acre area owned and operated by the City of Springfield. The park consists of a highly developed out-of-city recreation area incorporating extensive picnic facilities, an 18-hole golf course, children's zoo and play-ground apparatus, play areas and ballfields. In 1963 the park experienced some 102,000+ visitations. It is expected that annual use would reach 175,000 in 1968.

Due to the fact that Reid Memorial Park would be displaced, this agency considers it necessary to conduct a with-and-without-the-project type of analysis of this project.

NEED FOR RECREATION DEVELOPMENT

The City of Springfield Metropolitan Statistical Area (Clark County) had a population of about 131,000 in 1960. The only lake of any appreciable size in Clark County is Clark Lake. It has a water surface of about 100 acres and was constructed by the state to provide public sport fishing. Facilities for general recreation are minimal. Although a few sizable impoundments are located in Western Ohio, a need clearly exists for more water-based recreation in the Springfield area. A reservoir with an effective summer pool in excess of 1000 acres is in demand and will be heavily patronized.

RECREATION PLAN

The location of the project will be most conducive to day-use facilities, the rather intensive development of facilities will be needed to accommodate the estimated visitation. The Buck Creek reservoir would be a complementary facility to the Springfield park system, and provide the residents of the city with needed water-oriented recreation opportunities.

Attendance figures and benefits estimates, contained later herein, are dependent upon adequate land acreage (approximately 688 acres as specified in the attached drawing, BS being acquired in the initial

BC-7000
state of project development and the provision of adequate public use facilities. It is understood by this Bureau that the Springfield Parks Department has indicated their interest in administration of the area upon completion. We feel this would be highly desirable.

We also conclude that the administration of the project would be adversely affected by the proposed relocation of the New York Central Railroad tracks to the west side of the reservoir. This relocation, as proposed, would lower the scenic and recreation value of Site "A" (approximately 578 acres) as shown on the attached map. This site offers the prime opportunity for recreation development at the project. Relocation of the railroad would prevent the realization of the optimum value of the site by dividing the area and creating an unsightly safety hazard. It is therefore urged that your agency relocate the railroad bed further west of this site, provided abandonment cannot be achieved.

PROJECT EVALUATION

This agency is currently using the methods contained in Supplement No. 1 to Senate Document 97, "Evaluation Standards for Primary Outdoor Recreation Benefits" in order to estimate the value for a day of water-related recreation on proposed reservoir projects. The estimated net annual attendance (in recreation days) is multiplied by a unit benefit value ranging from \$.50 to \$1.50 for a day of general recreation activity. A range of \$2.00 to \$6.00 is applied to a day of specialized recreation activity. In arranging benefit estimates, these basic assumptions are made: (1) Water quality would be adequate for all water-oriented recreation activities; (2) Land sufficient for optimum development of facilities would be acquired in the initial stages of the project; (3) Adequate facilities would be provided for public use and access; and (4) A sufficiently financed program of operation and maintenance would be initiated and continued.

Without-The-Project

If Reid Memorial Park were to continue to function without construction of the proposed Buck Creek Reservoir, the following evaluation of recreation visitation and benefits would apply.

ESTIMATES OF RECREATION VISITATION
& BENEFITS - WITHOUT-THE-PROJECT

<u>Year</u>	<u>Type</u>	<u>Recreation Days</u>	<u>Benefit Value</u>	<u>Average Annual Recreation Benefits</u>
1	General	61,000	\$1.25	\$76,250
1	Specialized (Golf)	41,000	2.00	82,000
5	General	105,000	1.50	157,500
5	Specialized (Golf)	70,000	2.25	157,500
20	General	120,000	1.50	180,000
20	Specialized (Golf)	80,000	2.50	200,000

The above figures would be applicable if the Reid Memorial Park continued to be maintained by the City of Springfield and were expanded to optimum capacity without deterioration of natural features.

With-The-Project

If the Buck Creek Reservoir project were constructed with a seasonal pool at elevation 995 and a surface area of 1040 acres, the following evaluation would be applicable.

ESTIMATES OF RECREATION VISITATION
& BENEFITS - WITH-THE-PROJECT

<u>Year</u>	<u>Type</u>	<u>Recreation Days</u>	<u>Benefit Value</u>	<u>Average Annual Recreation Benefits</u>
1	General	200,000	\$0.75	\$150,000
5	General	300,000	1.00	300,000
20	General	500,000	1.50	750,000*

*This annual value of \$750,000 is estimated to continue through the economic life of the project

It is understood the without-the-project facilities at Reid Memorial Park are to be replaced in kind and this replacement is included as a project cost. Therefore, assuming equal value for this replacement, the without-the-project value of the project area would not be

sacrificed by project development. However, the reconstruction of Reid Memorial Park elsewhere would represent a replacement cost, not a project benefit.

VIEWS OF OTHER INTERESTS

This report has been reviewed by the Bureau of Sport Fisheries and Wildlife, the Ohio Department of Natural Resources and the Springfield Board of Park Trustees. These agencies are generally in agreement with this report at this time as is indicated in the inclosed copies of correspondence.

CONCLUSIONS AND RECOMMENDATIONS

It has been concluded that the Buck Creek Reservoir Project would be a valuable and much-needed addition to the recreation complex of west-central Ohio. Provided adequate lands are secured and well developed and the railroad relocation problem is solved, this will be a most valuable day-use area, particularly for the citizenry of Springfield, Ohio and environs.

It is recommended that:

- A. Recreation be included as a project purpose.
- B. Facilities and sites be developed to provide recreation opportunities for the estimated visitation.
- C. Interested state and federal agencies be kept informed to provide for coordinated development of resulting resources.
- D. Close liaison be maintained between the construction agency and the Springfield Parks Department with a view towards replacement of Reid Memorial Park as a project replacement cost item.
- E. A minimum 688 acres of land be acquired in fee adjacent to the project for recreation development as indicated on the attached map RS.
BC-7000
This acreage is inclusive of those lands within the 300-foot peripheral take-line.
- F. The Bureau of Outdoor Recreation be kept informed as studies proceed on the project in order that further recreation planning may be undertaken as needed.

Sincerely yours,

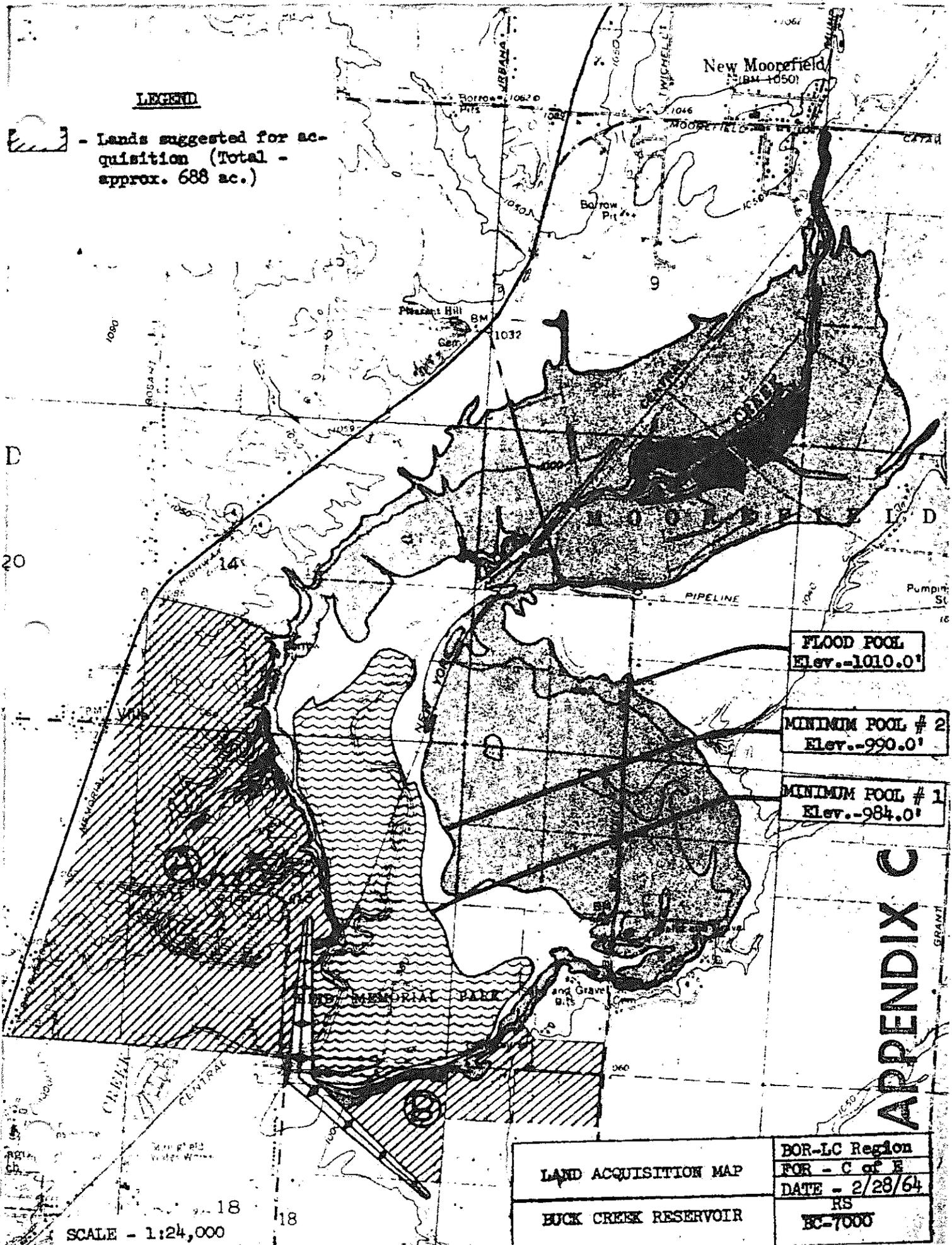
Sgd/Roman H. Koenings

Roman H. Koenings
Regional Director

Enclosures

LEGEND

 - Lands suggested for acquisition (Total - approx. 688 ac.)



FLOOD POOL
Elev.-1010.0'

MINIMUM POOL # 2
Elev.-990.0'

MINIMUM POOL # 1
Elev.-984.0'

APPENDIX C

LAND ACQUISITION MAP

BUCK CREEK RESERVOIR

BOR-LC Region
FOR - C of E
DATE - 2/28/64
RS
BC-7000

SCALE - 1:24,000

18 18

COPY

SEAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Bureau of Sport Fisheries and Wildlife
1006 West Lake Street
Minneapolis, Minnesota 55408

In reply refer to:
RB

April 23, 1964

Memorandum

To: Regional Director, Bureau of Outdoor Recreation, USDI
Ann Arbor, Michigan

From: Acting Regional Director, Bureau of Sport Fisheries
and Wildlife, Minneapolis, Minnesota

Subject: Buck Creek Reservoir, Mad River Basin, Ohio

We have reviewed the preliminary draft of your review report on the proposed Buck Creek Reservoir, Mad River Basin, Ohio as you requested in your letter of April 14, 1964.

This office is in agreement with your recommendation that the project be constructed with the minimum pool at elevation 990*instead of at elevation 984. We believe, however, that use of the alternate site, with a minimum pool at elevation 987, would be disadvantageous to fish and wildlife resources.

Thank you for the opportunity to review your preliminary draft on this project.

W.P. Schaefer (Signature)

W. P. Schaefer

*Pool levels have been revised since review comments were received. Present report reflects following pool elevations: Minimum - 987; Seasonal - 955; Flood - 1014.

APPENDIX C

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STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
COLUMBUS 15

1106 Ohio Departments Building

JAMES A RHODES
Governor

May 7, 1964

FRED E. MORR
Director

Roman H. Koenings, Regional Director
Bureau of Outdoor Recreation
Lake Central Region
15 Research Drive
Ann Arbor, Michigan 48103

Dear Mr. Koenings:

Subject: Review Report, Buck Creek Reservoir, Ohio

Reference is made to your letters of April 14, 1964, one addressed to Ernest Gebhart, Chief, Division of Parks and Recreation, and one addressed to me, which forwarded for our review and comment an advance copy of the preliminary draft of your Review Report on the subject reservoir.

After study by members of my staff, we find that we are in agreement with the findings contained in your preliminary report. Mr. Gebhart concurs.

We appreciate the opportunity to review your observations at this time. We also regret that the press of other matters, and the fact that our earlier studies of the Buck Creek project were based on different water levels than contained in your report, has delayed our reply.

Sincerely,

FRED E. MORR
Director

FEM:rs

cc: Col. C. T. Foust, Staff Coordinator, Corps of Engineers' Projects
Mr. E. J. Gebhart, Chief, Division of Parks and Recreation
Mr. K. J. McElroy, Chief Planner, Office of Chief Engineer

DIVISIONS

Lands and Soil, Water, Forestry, Wildlife, Geological Survey, Parks and Recreation, Reclamation, Watercraft

APPENDIX C

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BOARD OF PARK TRUSTEES

CITY OF SPRINGFIELD, OHIO

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Richard Spitler
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23 April 1964

Mr. Roman H. Koenings
Regional Director
Bureau of Outdoor Recreation
15 Research Drive
Ann Arbor, Michigan 48103

Dear Mr. Koenings

We have read with much interest your evaluation report of Buck Creek Reservoir Recreation Area. We concur in your evaluations and conclusions and would welcome the opportunity to work with your department and the Corps of Engineers in finalizing plans and coordinating our joint and individual efforts in this area.

Thank you for considering us at this level of your planning.

Sincerely

BOARD OF PARK TRUSTEES

Richard B. Spitler (Signature)

Richard B. Spitler
Superintendent of Parks

MEB

APPENDIX 5