

Real Estate # 1st
(MED)

NADEN-B(30 June 64) 1st Ind
SUBJECT: Kettle Creek Reservoir, Pennsylvania; Design Memorandum
No. 9B, Master Plan


U.S. Army Engineer Division, North Atlantic, New York, New York
11 August 1964

TO: Chief of Engineers, ATTN: ENGCW -O, Washington, D.C.

Subject Master Plan is forwarded recommending approval.

FOR THE DIVISION ENGINEER:

1 Incl
Cy w/d


PAUL H. JAENICHEN
Chief, Engineering Division

ENGW-OM (30 Jun 64) 2d Ind
SUBJECT: Kettle Creek Reservoir, Pennsylvania; Design Memorandum
No. 9B, Master Plan

HQ, DA, CofEngrs, Washington, D. C., 20315, 23 December 1964

TO: Division Engineer, U. S. Army Engineer Division, North Atlantic

The subject Master Plan is approved.

FOR THE CHIEF OF ENGINEERS:



MARK S. GURNEE
Chief, Operations Division
Civil Works

1 Incl n/c
(3 cys w/d)

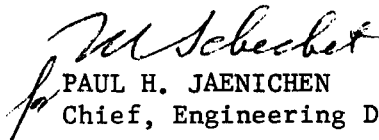
NADEN-B(30 June 64) 3d Ind

U.S. Army Engineer Division, North Atlantic, New York, New York
12 January 1965

TO: District Engineer, U.S. Army Engineer District, Baltimore
NABEN-R

Forwarded for your information.

FOR THE ACTING DIVISION ENGINEER:



PAUL H. JAENICHEN
Chief, Engineering Division

1 Incl n/c
2 Cys DM No. 9B
Master Plan

SUSQUEHANNA RIVER BASIN

ALVIN R. BUSH DAM

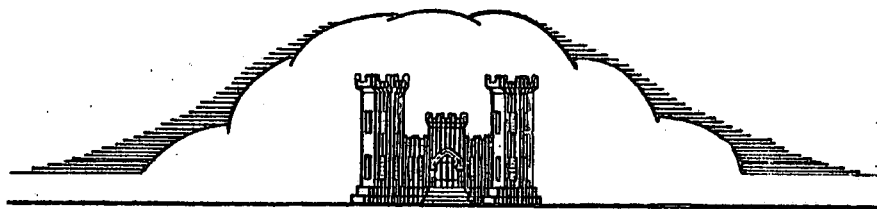
DESIGN MEMORANDUM NO.9B

MASTER PLAN

FOR

ALVIN BUSH
~~KETTLE CREEK~~ RESERVOIR

~~KETTLE CREEK~~
PENNSYLVANIA



U. S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

JUNE 1964

ADDRESS REPLY TO
THE DISTRICT ENGINEER

U. S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
P. O. Box 1715
Baltimore, Maryland 21203

REFER TO FILE NO.

NABEN-R

30 June 1964

SUBJECT: Kettle Creek Reservoir, Pennsylvania; Design Memorandum
No. 9B, Master Plan

TO: Division Engineer
U. S. Army Engineer Division, North Atlantic
ATTN: NADEN-R

1. References:

- a. Subparagraph 9b, EM 1130-2-302, change 3, 1 April 1960.
- b. Subparagraphs 3a and 5b, ER 405-2-835, 24 March 1964.

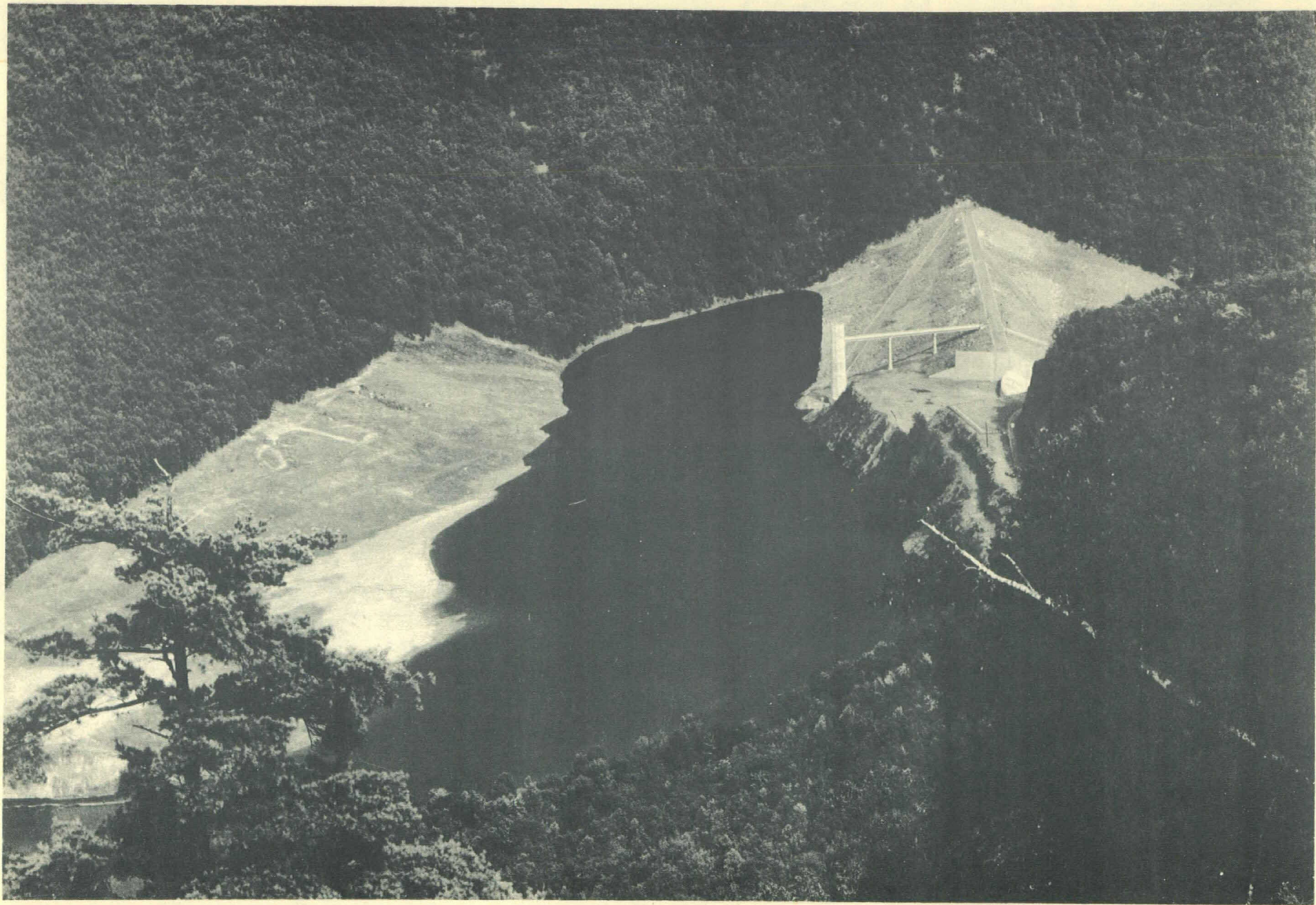
2. In compliance with the provisions of reference 1a, forwarded for review and approval are six copies of subject design memorandum, three each for NAD and OCE.

3. As required by reference 1b, the Master Plan has been reviewed by the Real Estate Division of the District, and the recommendations of that Division have been incorporated in the plan.

FOR THE DISTRICT ENGINEER:

Incl
as (cys 1 thru 6)

Wayne W. Bridges
WAYNE W. BRIDGES
Lt. Col., Corps of Engineers
Deputy District Engineer



KC-63-2

ALVIN R. BUSH DAM

28 August 1963

SUSQUEHANNA RIVER BASIN

A L V I N R. B U S H D A M

DESIGN MEMORANDUM NO. 9B

MASTER PLAN

FOR

KETTLE CREEK RESERVOIR

KETTLE CREEK

PENNSYLVANIA

U. S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND

SUSQUEHANNA RIVER BASIN

A L V I N R. B U S H D A M

K E T T L E C R E E K R E S E R V O I R

KETTLE CREEK, PENNSYLVANIA

DESIGN MEMORANDUM NO. 9B

MASTER PLAN

Related Reports

<u>Design Memorandum No.</u>	<u>Title</u>	<u>Submission Date</u>	<u>Approved by OCE</u>
1	Hydrology and Hydraulic Analysis	May 1957	Oct. 1957
2	General Design Memorandum	July 1957	Oct. 1957
3-A	Real Estate - Construction Area	Sep. 1957	Feb. 1958
3-B	Real Estate - Reservoir Area	Sep. 1958	Dec. 1958
3-C	Real Estate - Public Access	Nov. 1958	Dec. 1958
4	Relocations	Mar. 1958	June 1958
5	Concrete Aggregates	May 1958	June 1958
6	Spillway	Aug. 1958	Oct. 1958
7	Embankments	Oct. 1958	Dec. 1958
8	Outlet Works	Apr. 1958	June 1958
9	Preliminary Master Plan	Sep. 1958	Nov. 1958
9-B	Master Plan	June 1964	

:	:	:	:
:	Revisions	:	:
:	:	Date Approved	:
:	Date	by C. of E.	:
:	:	:	:
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SUSQUEHANNA RIVER BASIN
ALVIN R. BUSH DAM
KETTLE CREEK RESERVOIR

KETTLE CREEK, PENNSYLVANIA

DESIGN MEMORANDUM NO. 9B

MASTER PLAN

1964

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SUSQUEHANNA RIVER BASIN

A L V I N R. B U S H D A M

K E T T L E C R E E K R E S E R V O I R

KETTLE CREEK, PENNSYLVANIA

DESIGN MEMORANDUM NO. 9B

MASTER PLAN

1964

A. GENERAL INFORMATION

1. Project authorization. Kettle Creek Dam and Reservoir project was authorized by the Flood Control Act of 3 September 1954 in accordance with House Document 29, 84th Congress, 1st session, as a unit of the comprehensive flood control plan for the protection of communities in the West Branch Susquehanna River basin. Public Law 87-434, approved 21 April 1962 (76 Stat. 54), changed the name of Kettle Creek Dam to Alvin R. Bush Dam. This act affected the dam only, and the project will continue to be known as the Kettle Creek Reservoir.

2. Project purpose. Kettle Creek Reservoir is a unit in the comprehensive flood control plan for the West Branch Susquehanna River. This project has the primary objective of reducing flood heights at Renovo, Lock Haven, and Williamsport, Pennsylvania, as well as at other localities on the West Branch Susquehanna River. The project will also reduce flood heights on the main stem of the Susquehanna River downstream from Sunbury, Pennsylvania.

3. History. The Kettle Creek Reservoir project was designed and constructed under the direction of the U. S. Army Engineer District, Baltimore. Construction of the dam and associated works commenced in May 1959, and the dam was operationally complete in January 1962.

4. Purpose of Master Plan. The purpose of this Master Plan is to present a guide for the administration of the project; to assure preservation of its scenic, biological, and recreational resources; and to assure coordination with interested Federal, State, and local agencies. This Master Plan supplements the Preliminary Master Plan, Design Memorandum No. 9, dated September 1958.

B. GENERAL CHARACTERISTICS OF THE PROJECT

5. Location. Alvin R. Bush Dam, which forms the Kettle Creek Reservoir, is located in Clinton County, Pennsylvania, on Kettle Creek, a tributary of the West Branch Susquehanna River. The dam is located 8.4 miles upstream from the confluence of Kettle Creek with the West Branch at Westport, as shown on plate 9B-1.

6. Topography. The reservoir is located in a narrow valley with steep slopes surrounded by high ridges. The surrounding slopes and ridges are heavily forested. The valley floor is moderately wooded and consists primarily of abandoned farms and pasture. The surrounding area is densely forested, mountainous, and exceptionally scenic. The West Branch Valley, westward from Lock Haven to Emporium along U. S. 120, has been designated the Bucktail State Park Scenic Area.

7. Engineering features.

a. The dam is of rolled earthfill with a concrete chute spillway in the right abutment. The dam is about 1,350 feet long and 165 feet high. It has a maximum base width of 850 feet and a top width of 25 feet. The outlet works consist of an intake structure, gate structure, transition section, tunnel, outlet structure, and outlet channel. Flow through the outlet works is controlled by three hydraulically operated slide gates.

b. At spillway crest the reservoir inundates 1,430 acres and extends 8.8 miles upstream from the dam. The drainage area controlled by the dam is 226 square miles or 92 percent of the drainage area of Kettle Creek.

c. Engineering data pertaining to the dam and reservoir are given in table 1.

8. Reservoir ownership. Plates 9B-2 thru 9B-2c show: tracts acquired in fee or by flowage easement; the bounds and acreage of individual tracts; and the name or names of former owners. All property below elevation 892, as well as the construction and recreation areas, was acquired in fee. Flowage easements were acquired between elevations 892 and 945. The Department of Forests and Waters, Commonwealth of Pennsylvania, has acquired fee title to all lands lying between the Government-owned lands and State Forest Lands from the dam to the head of the conservation pool. This acquisition is shown on plate 9B-2.

TABLE 1

PERTINENT DATA

<u>Drainage areas</u>	<u>Sq. mi.</u>	<u>% Controlled by dam</u>
Kettle Creek at damsite	226	100
Kettle Creek at mouth	246	92
West Branch Susquehanna River - at Renovo	2,975	7.6
at mouth	6,990	3.2
<u>Elevations (feet above mean sea level)</u>		
Top of dam		967.7
Reservoir, flood control (spillway crest)		937.0
Conservation pool		840.0
Gate sills		810.0
<u>Dam</u>		
Type		Earthfill
Length		1,350 feet
Maximum height above streambed		165 feet
<u>Spillway</u>		
Type	Uncontrolled chute w/concrete weir	
Location	Right abutment	
Crest length	250 feet	
Height above streambed	135 feet	
Type weir	Uncontrolled ogee	
<u>Outlet works</u>		
Type	Gated tunnel	
Location	Right abutment	
Length (entrance to outlet portal)	950.0 feet	
Low-flow regulation	Two 24-inch bypass lines	
Gates		
Number	3	
Type	Hydraulic slide	
Size	5 X 10 feet	
Tunnel	13 X 13 feet, horseshoe	

TABLE 1 (Cont'd)

Reservoir

Length of shoreline at elev. 840.0 (conservation pool)	4.5 miles
Length at elevation 937.0 (spillway crest)	8.8 miles
Length at elevation 840.0 (conservation pool)	2.2 miles
Area of conservation pool	160 acres
Area of flood pool at spillway crest	1,430 acres
Storage:	
Conservation pool (elevation 840.0)	1,590 acre-feet
Flood control pool (elevation 937.0)	73,410 acre-feet
Spillway surcharge (elevation 962.7)	42,000 acre-feet
Total storage	<u>117,000</u> acre-feet
Lands acquired	
In fee	1,273 acres
By easement	603 acres
Total	<u>1,876</u> acres

9. Accessibility. U. S. Highway 120, running between Ridgway, Pennsylvania, on the west and Lock Haven, Pennsylvania, on the east, serves this area. Proposed Interstate Route 80 passes within 12 miles of Lock Haven and will provide ready access to the area from the east and west. From U. S. Highway 120 at Westport, a low class township road runs northwesterly along Kettle Creek and along the west edge of the reservoir. To the north, the area is served by U. S. Highway 6 which runs between the eastern and western State borders. From U. S. Highway 6 at Galeton, Pennsylvania, State Route 144 runs south to intersect the township road at the north edge of the reservoir.

10. Population of surrounding area (1960 census). The surrounding area is sparsely populated, with Clinton County having a population density of 41.7 persons per square mile. Adjoining counties have densities as follows: Centre County, 70.5; Potter County, 15.1; Cameron County, 19.0; Tioga County, 31.8; and Lycoming County, 90.1. The major urban communities in the area are relatively small and scattered. The major population centers within a 50-mile radius of the reservoir are shown in table 2.

TABLE 2

POPULATION CENTERS

<u>Community</u>	<u>Population</u>	<u>Airline mileage from reservoir</u>
Renovo	3,316	10
Emporium	3,397	18
Lock Haven	11,748	28
Coudersport	2,889	29
Bellefonte	6,088	32
St. Marys	8,065	33
Phillipsburg	3,872	34
Clearfield	9,270	35
Port Allegany	2,742	36
Jersey Shore	5,613	37
State College	22,409	38
Johnsonburg	4,966	39
Ridgway	6,387	41
Brockway	2,563	44
DuBois	10,667	45
South Williamsport	6,972	48
Williamsport	41,967	48
Tyrone	7,792	49
Kane	5,380	50

11. Existing recreational developments. Kettle Creek Reservoir is located in a region containing many recreational areas within a 50-mile radius of the site; few of which, however, provide the expanse of water available at Kettle Creek Reservoir. These areas, together with facilities available and 1963 attendance, are shown in table 3. The locations of these areas are shown on plate 9B-3.

TABLE 3

PUBLIC RECREATION AREAS
WITHIN 50-MILE RADIUS OF RESERVOIR

<u>Facility</u>	<u>Airline mileage from reservoir</u>	<u>Facilities available</u>					<u>Water areas, acres</u>	<u>1963 attendance (1,000)</u>
		<u>Bathing</u>	<u>Boating</u>	<u>Camping</u>	<u>Fishing</u>	<u>Picnicking</u>		
<u>State Parks</u>								
Sinnemahoning	6	X	X		X	X	142	23.0
Ole Bull	16	X		X	X	X	.75	51.4
Sizerville	21	X		X	X	X	Pool	26.5
Lyman Run	25	X	X		X	X	40	107.6
Black Moshannon	30	X	X	X	X	X	250	326.1
Parker Dam	31	X	X	X	X	X	19	357.9
Colton Point	33			X		X	-	160.9
Leonard Harrison	33					X	-	415.4
Little Pine	34	X	X	X	X	X	90	71.0
S. B. Elliot	35			X		X	-	43.4
Bendigo	37	X			X	X	Pool	70.4
Ravensburg	38	X			X	X	3	29.9
Poe Valley	43	X	X	X	X	X	24.6	190.6
Raymond B. Winter	45	X		X	X	X	7	142.8
Whipple Dam	45	X		X	X	X	21.5	148.1
Reeds Gap	48	X		X	X	X	-	6.4
Susquehanna	48	X	X		X	X	River	257.6
Greenwood Furnace	49	X		X	X	X	5	93.4
Snyder-Middleswarth	49				X	X	Stream	24.3*
Hills Creek	50	X	X	X	X	X	137	67.2

* 1962 attendance

TABLE 3 (Cont'd)

PUBLIC RECREATION AREAS
WITHIN 50-MILE RADIUS OF RESERVOIR

<u>Facility</u>	<u>Airline mileage from reservoir</u>	<u>Facilities available</u>					<u>Water areas, acres</u>	<u>1963 attendance (1,000)</u>
		<u>Bathing</u>	<u>Boating</u>	<u>Camping</u>	<u>Fishing</u>	<u>Picnicking</u>		
<u>State Forest Picnic Areas</u>								
Jesse Hall	9					X	--	5.5
Wayside Memorial	16					X	--	2.4
Hynner View	18	X				X	Pool	43.3
Prouty Place	21					X	--	8.1
Cherry Spring	21					X	--	55.8
Patterson	23					X	--	18.1
Upper Pine Bottom	26					X	--	.36
Fahnestock	27				X	X	--	23.6
Bradley Wales	30					X	--	22.4
Stoney Fork	33					X	--	3.3*
Long Run	34				X	X	--	1.4
Old Town Tower	35					X	--	1.8
Morris	37					X	--	21.2
Asaph Run	42				X	X	--	7.6
Bear Meadows	43					X	--	4.0
Poe-Paddy	44					X	--	46.5
McCall Dam	44				X	X	--	3.6
Penn Roosevelt	44	X			X	X	3	10.9
Hairy Johns	44					X	--	11.2
Alan Seeger	46					X	--	19.3
Laurel Run	46				X	X	--	7.6
Bear Gap	48					X	--	1.0
Sand Bridge	48				X	X	--	8.2
Pine Hill	49					X	--	5.7

C. RECREATIONAL DEVELOPMENT

12. Local recreation potential. The area of Pennsylvania in which Kettle Creek Reservoir is located is highly scenic and receives heavy tourist visitation. The West Branch Valley westward from Lock Haven to Emporium has been designated the Bucktail State Park Scenic Area by the Commonwealth of Pennsylvania. The local chamber of Commerce at Renovo, Pa., sponsors an annual "Flaming Foliage" festival in October which results in a heavy influx of tourists. The area is noted for its excellent deer and bear hunting and for stream fishing.

13. Anticipated reservoir attendance. The Commonwealth of Pennsylvania, prior to completion of the reservoir, estimated the attendance at:

Average annual use 30,000
Peak day use 2,500
Peak month use 12,500

The actual attendance at the reservoir in 1963, was reported to be:

Average annual use 25,000
Peak day use 500
Peak month use 5,200

The Department of Forests and Waters, Commonwealth of Pennsylvania, which operates the recreational facilities at this reservoir in conjunction with an established State park a short distance downstream from the dam, reports attendance for both areas as a unit. The total attendance for this State park for four years prior to opening of the reservoir to the public in August 1961 to date, is as follows:

<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
21,310	18,061	16,002	8,958	11,866	30,014	88,411

Prior to construction of the reservoir, the maximum annual attendance was in 1955 when attendance was reported to have been 28,269.

14. Present and proposed recreational development.

a. Federal. The contract for construction of the dam included the construction of certain basic recreational facilities in the reservoir. This construction included: the grading of access roads and a

parking area; the construction of a boat-launching ramp and dock; grading of the beach area; and clearing of the pool area to elevation 845. Details of construction are shown on plate 9B-4.

b. State. The Department of Forests and Waters, Commonwealth of Pennsylvania, has developed a picnic area with drinking water and sanitary facilities, and a beach area with dressing stockade, including sanitary facilities. The Department is developing a camping area on State Park lands adjacent to the reservoir. The locations of these facilities are shown on plate 9B-5. A program of fish stocking has been initiated by the Pennsylvania Fish Commission.

15. Proposed land use. The Department of Forest and Waters has requested that all Federal lands in the reservoir, excepting those required for operation of the dam, be leased to it for recreation, game management, and fishery development. As previously indicated, the Commonwealth has acquired additional lands in fee to permit the development of an integrated land-use program. This program will include forest management, game management, wilderness demonstration areas, and so-called "put-and-take" fishing areas.

16. Expenditures for recreation.

a. Capital improvements to 30 June 1963

(1) Federal - \$13,300

(2) State - \$64,000

b. Operation and maintenance to 31 December 1963

(1) Federal - None

(2) State - \$14,000

17. Future development. Future development is expected to be confined to increasing the capacity of the picnic and parking areas, improving the boat dock area, and expanding the camping area. The increased capacity will be provided as the attendance demands. The development of hiking trails, wilderness demonstration areas, and related programs will be undertaken by the State.

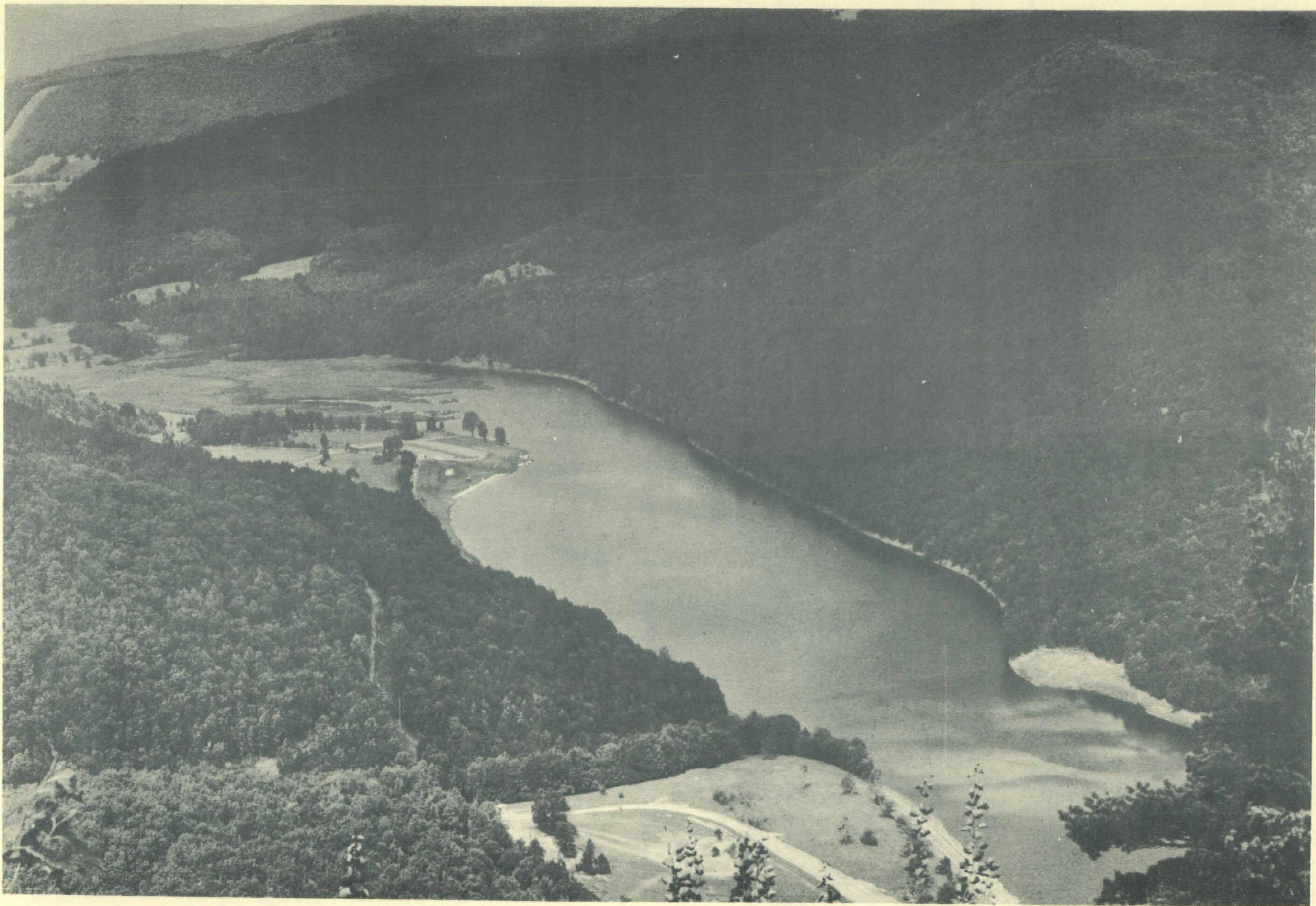
18. Proposed land use. All reservoir lands held in fee, excepting the area required for operation and maintenance of the dam as shown on plate 9B-2, are designated priority one public use in accordance with the provisions of EM 1130-2-302. All such lands will be leased to the Department of Forests and Waters, Commonwealth of Pennsylvania, for development, operation and management as a unit in the

State Park system. The Commonwealth will, under this lease, develop, maintain, and operate public recreational facilities, and will develop fish and wildlife management programs. The forests and wooded areas of the reservoir will be managed by the Commonwealth in a manner similar to the management practices on adjoining State forest lands.

19. Federal Register. The regulations governing the public use of reservoir areas, Title 36, Chapter III of Code of Federal Regulations, are compatible with the development and planned use of the Kettle Creek Reservoir, and it has been recommended that these rules be prescribed for this project.

D. RECOMMENDATION

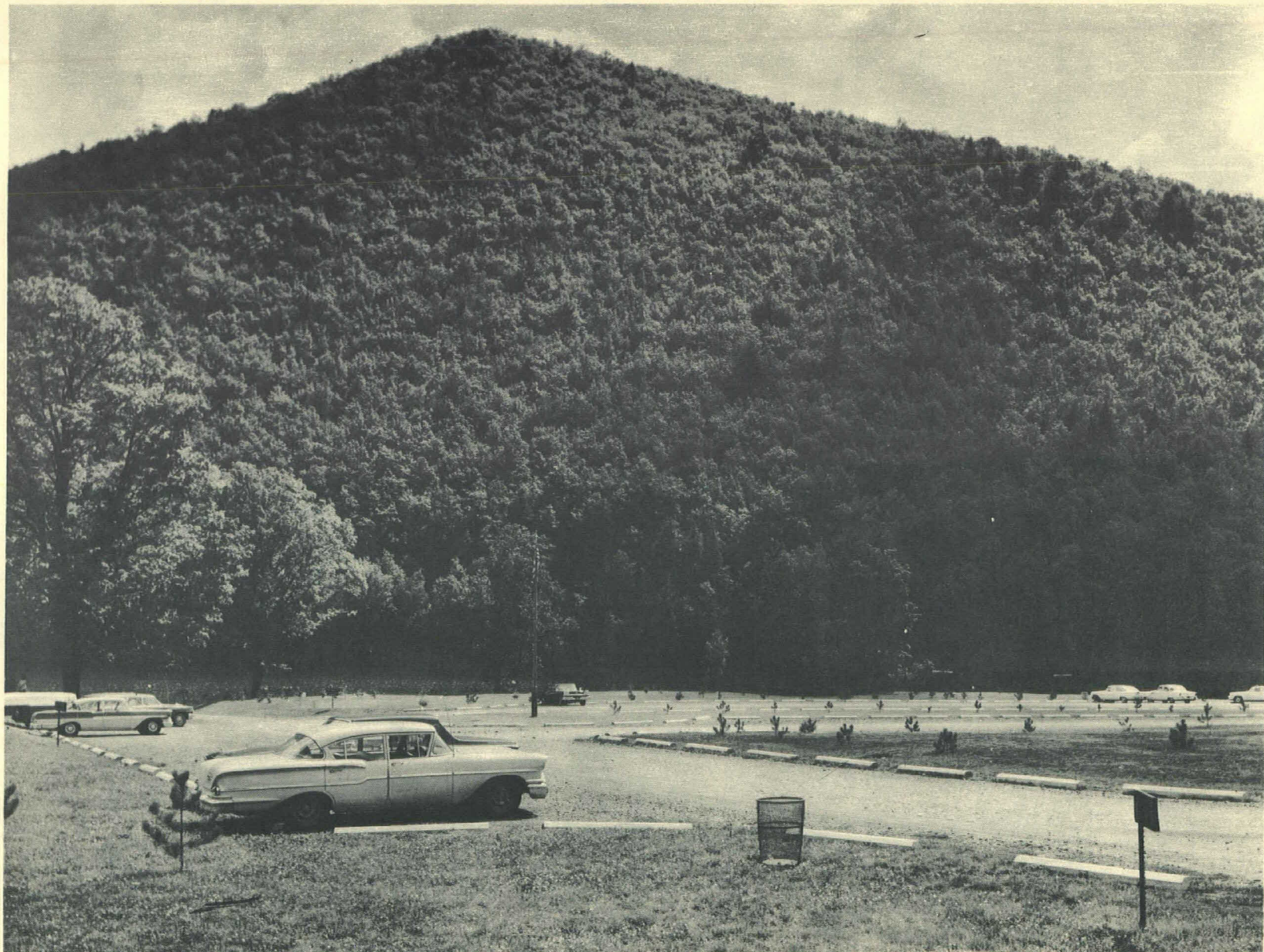
20. Approval of Master Plan. It is recommended that this Master Plan be approved and adopted as the official plan for the management and future development of the Kettle Creek Reservoir area.



KC-63-3

Kettle Creek Reservoir Area showing recreation areas. Bathing, boating, picnic and parking areas can be seen in left center; access road to camping area is in the foreground.

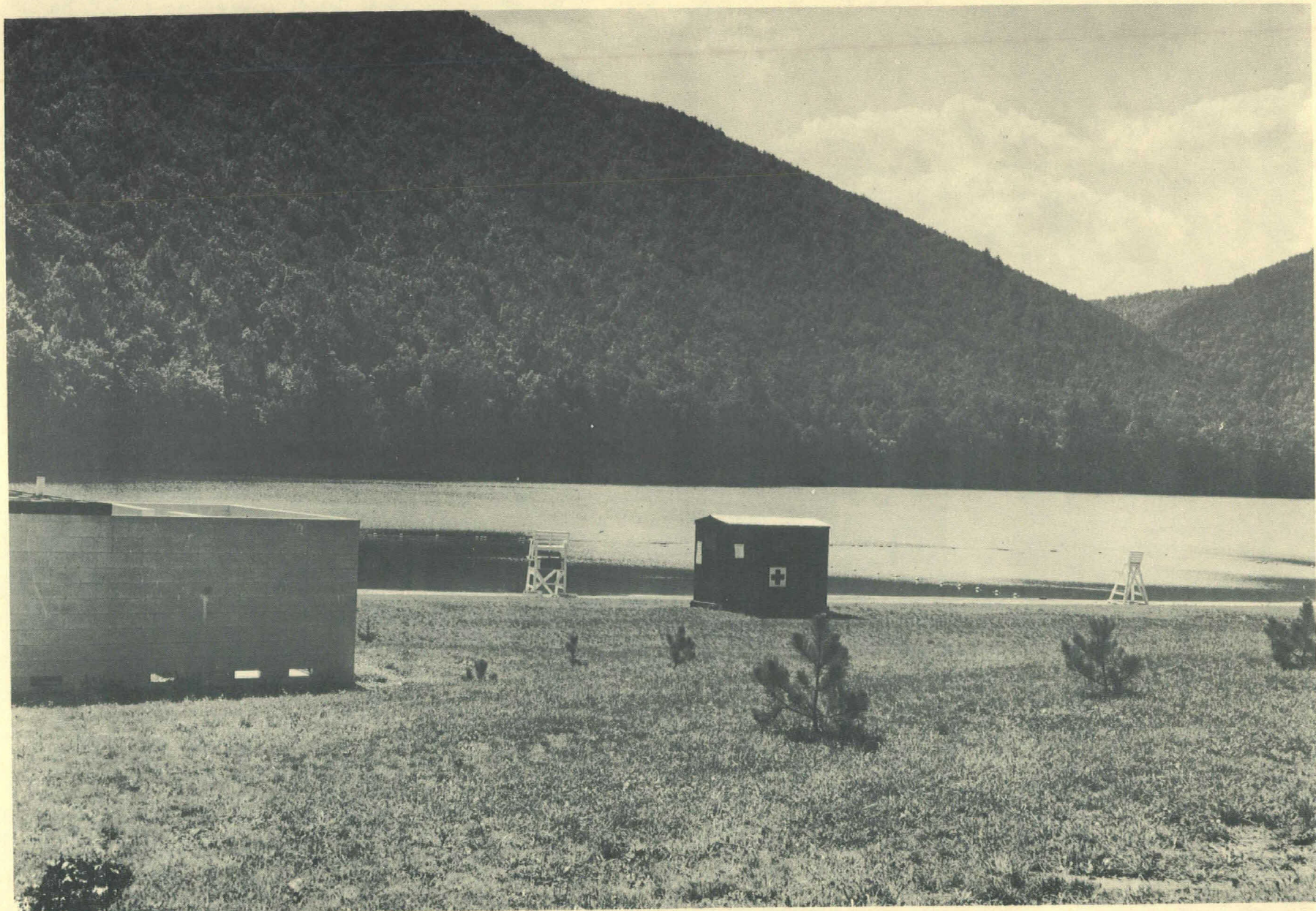
28 August 1963



KC-63-9

28 August 1963

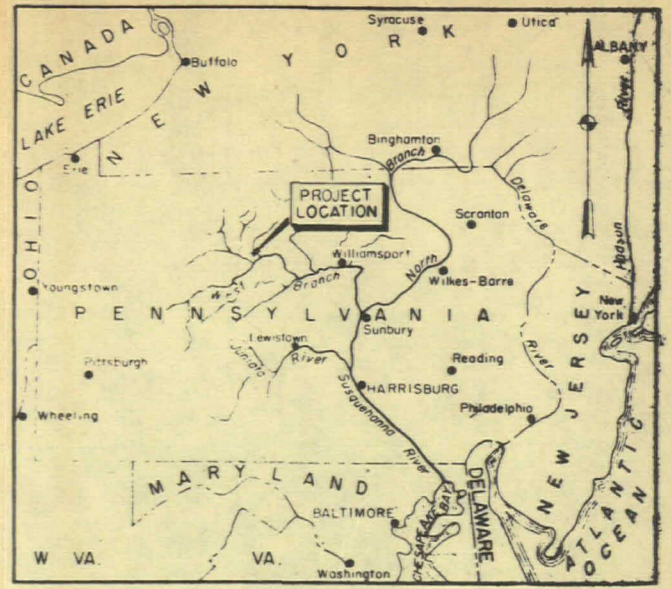
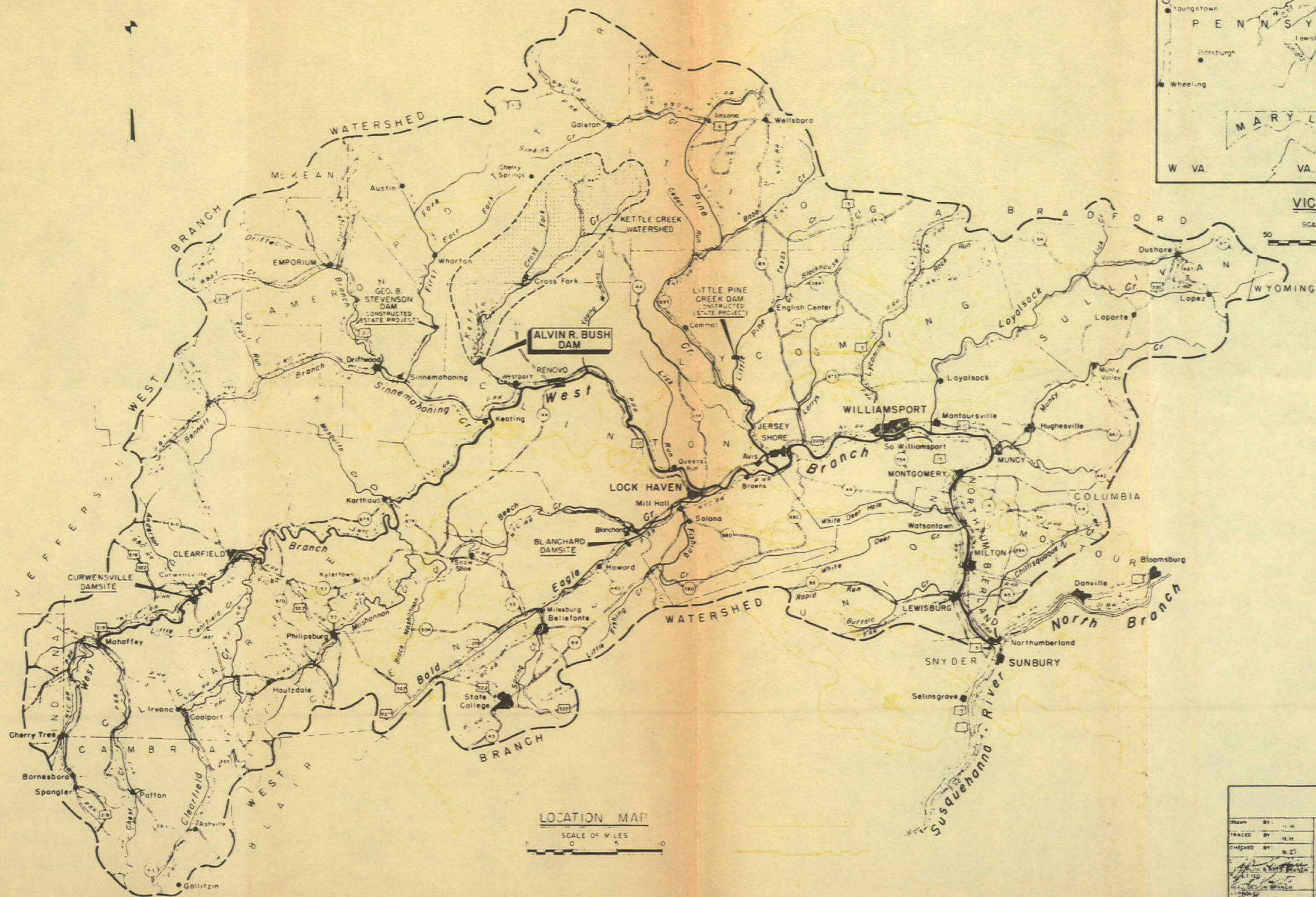
Kettle Creek Reservoir Area. Parking area. Boat launching ramp and dock can be seen in left center.



KC-63-6

Kettle Creek Reservoir Area. Beach and bathing area showing dressing stockade and portable first aid hut.

28 August 1963



LOCATION MAP

SCALE OF MILES
0 5 10

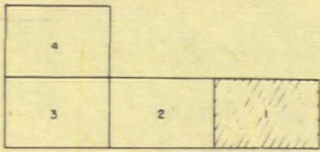
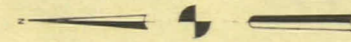
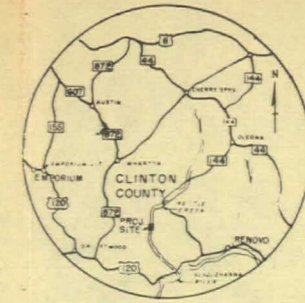
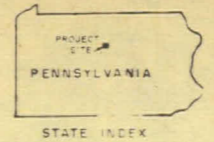
VICINITY MAP

SCALE OF MILES
0 50 100

CORPS OF ENGINEERS, U. S. ARMY OFFICE OF THE DISTRICT ENGINEER BALTIMORE DISTRICT BALTIMORE, MARYLAND	
SUSQUEHANNA RIVER BASIN ALVIN R. BUSH RESERVOIR KETTLE CREEK, PA.	
LOCATION MAP	
DRAWN BY: H. H.	DATE: MARCH 1934
TRACED BY: H. H.	
CHECKED BY: N. Z.	
APPROVED FOR: [Signature]	
DATE: [Blank]	

TRACT REGISTER OF ACQUISITION AFTER 1 JAN. 1943 (CIVIL)

TRACT NO.	LAND OWNER	ACREAGE		REMARKS	TRACT NO.	LAND OWNER	ACREAGE		REMARKS
		FEE	PERMIT				FEE	PERMIT	
100	BENJAMIN E. ARNOLD	136.50			127	GEORGE C. BROOKS, ET UX	12.51		
101	COMMONWEALTH OF PENNSYLVANIA	37.04			128	VERGAL D. MILLER, ET AL	0.75		
102	JOHN F. PERRY, ET UX	147.65			129	BUCK TAIL CAMP	.61		
103	WILLIAM T. DOWNS	4.48			1,83 130	DAVID A. DOEBLER, ET AL	2.87		
104	R. E. BENNETT, ET AL	0.90			131	PINE HEM LODGE	1.64		
105	DAVID A. DOEBLER, ET UX	59.91			132-1	GEORGE C. BROOKS, ET UX	5.12		
106	LENA M. BROOKS	21.10			132-2	GEORGE C. BROOKS, ET UX	5.51		
107	CHARLES R. ROSAMILIA, ET AL	0.79			132E	GEORGE C. BROOKS, ET UX	1.33		
108	ANDREW E. NELSON, ET AL	0.75			1,82 33	CATHARINE C. GOODMAN, ET AL	102.67		
109C	JOHN F. PERRY, ET AL	0.08			134	HELEN B. SCRIMSHAW	4.72		
110	R. E. BENNETT, ET AL	15.98			135	ISOLA K. CROSS	10.54		
111	JOHN F. FOLEY, ESTATE	5.90			1,82 136	LEWIS S. KUNKEL, ET UX	00.00		
112	CAMP JEFFERSON	0.78			1,82 137	EMANUEL F. KENTURA, ET AL	24.78		
113	L. B. KEISER, ET AL	0.08			1,82 138	EARL W. SUMMERSON, ET UX	50.15		
114	WELLINGTON W. GLASS, ET AL	16.64			1,139E	ARTHUR G. SUMMERSON		0.54	
115	DELLOS C. SCHOONOVER, ET UX	43.87			1,83 140	DAVID A. DOEBLER, ET AL	5.61		
116	GEORGE S. STICK, ET AL	1.97			1,82 141	WEN D. FOLEY, WIDOW, ET AL	14.85		
119	CHARLES CROSS, ET UX	0.29			138C	EARL W. SUMMERSON, ET UX	0.07		TOTAL 0.0240 CONTAINED IN TR. 105
120	BERNARD M. GUILLES, ET AL	0.16			105CA	DAVID A. DOEBLER, ET UX			
121	JAMES E. DEJOICE, ET UX	0.18							
122	FRANK L. ALTERIA	0.16							
123	PARKWOOD SPORTSMAN CLUB	0.36							
124	ALBERT B. AGNEW, ET UX	2.07							
125	CLYDE H. STYLES, ET AL	0.55							
126	SAMUEL J. ROSAMILIA, ET UX	1.70							



LEGEND

RESERVED FOR MAINTENANCE AND OPERATION OF DAM

STATE PARK LANDS - ACQUIRED IN FEE BY COMMONWEALTH FOR PARK PURPOSES

PROJECT MAP

DEPT. OF THE ARMY
USING SERVICE

LOCATION OF PROJECT

STATE PENNSYLVANIA
COUNTY CLINTON
DIVISION NORTH ATLANTIC
DISTRICT BALTIMORE
ARMY AREA SECOND
11 MILES N.W. OF RENOVÓ, PA.
18.5 MILES S.E. OF EMPORIUM, PA.

TRANSPORTATION FACILITIES

RAILROADS
STATE ROADS PA. NO. 144
FEDERAL ROADS U.S. NO. 120
AIR LINES

ACQUISITION

TOTAL ACRES ACQUIRED

FEE _____
PUBLIC DOMAIN PERM. WITHDRAWAL _____
TEMP. WITHDRAWAL _____

USE PERMIT _____
TRANSFER _____
LEASE _____
LESSER INTERESTS _____

DISPOSAL

TOTAL ACRES DISPOSED OF

SOLD _____
PUBLIC DOMAIN PERM. WITHDRAWAL _____
TEMP. WITHDRAWAL _____

USE PERMIT _____
TRANSFERRED _____
LEASES TERMINATED _____
LESSER INTERESTS PERM. _____
REASSIGNED _____
OTHER _____

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE TECHNICAL MANUAL NO. 23.

RESERVATION LINE _____
RESERVATION LINE (Actual Survey) _____
TRACT BOUNDARY LINE _____
TRACT NUMBER _____
CONTOUR LINE _____
DISPOSAL _____

ACQUISITION AUTHORIZATION

(1) 2ND IND. O.C.E. DATED 19 FEB 1958
(2) 2ND " " " 10 DEC 1958
(3) 2ND " " " 19 DEC 1958

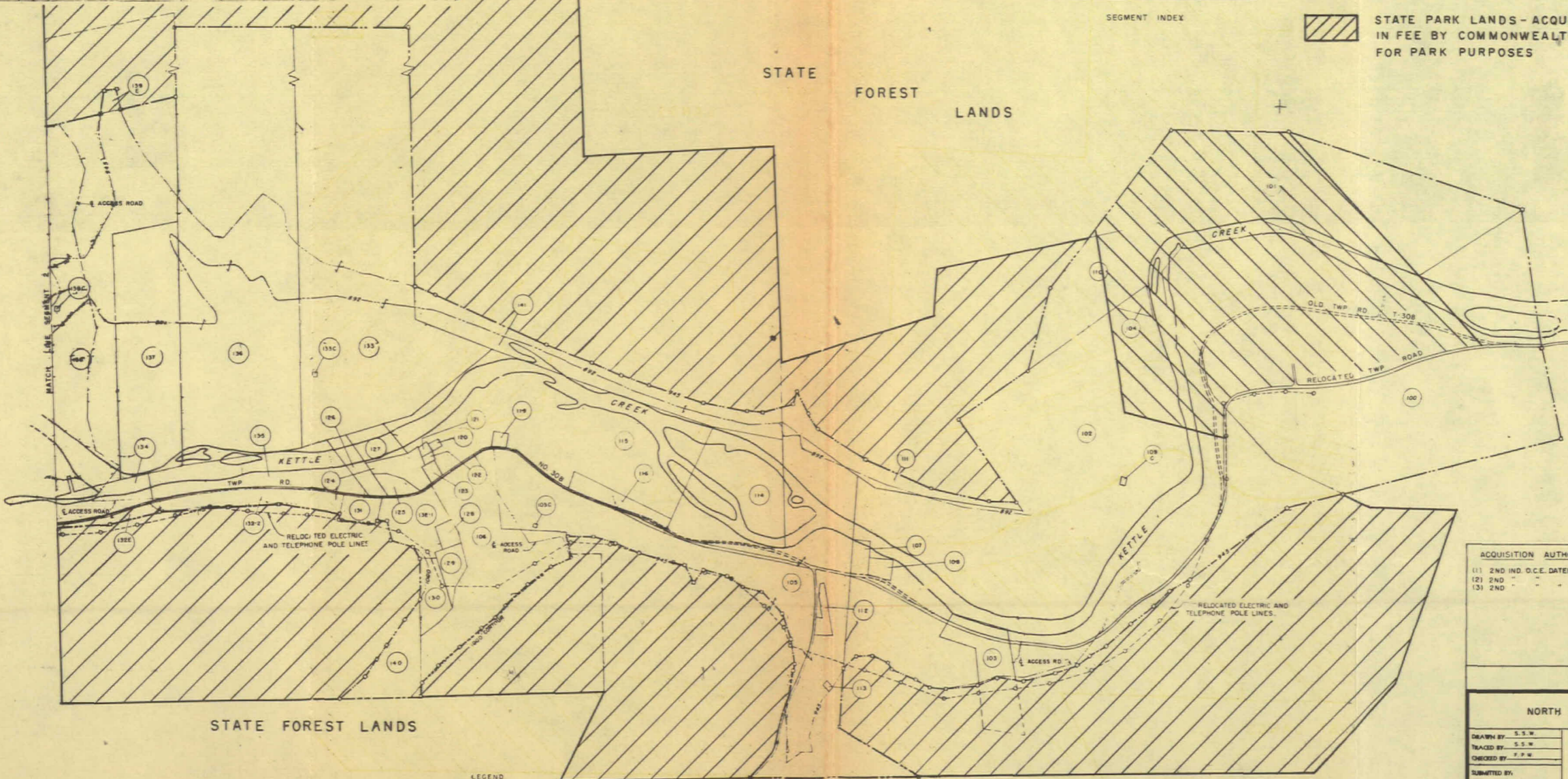
SEGMENT I

CORPS OF ENGINEERS, U.S. ARMY
NORTH ATLANTIC DIVISION, WASHINGTON DISTRICT

DRAWN BY: S.S.W.
TRACED BY: S.S.W.
CHECKED BY: F.P.W.
SUBMITTED BY:
RECOMMENDED BY:
DATE: 17 February 1958

REAL ESTATE
ALVIN R. BUSH DAM AND RESERVOIR

APPROVED BY: [Signature]
DATE: 17 February 1958
SHEET 1 OF 5
DRAWING NO. 5.8.8.80



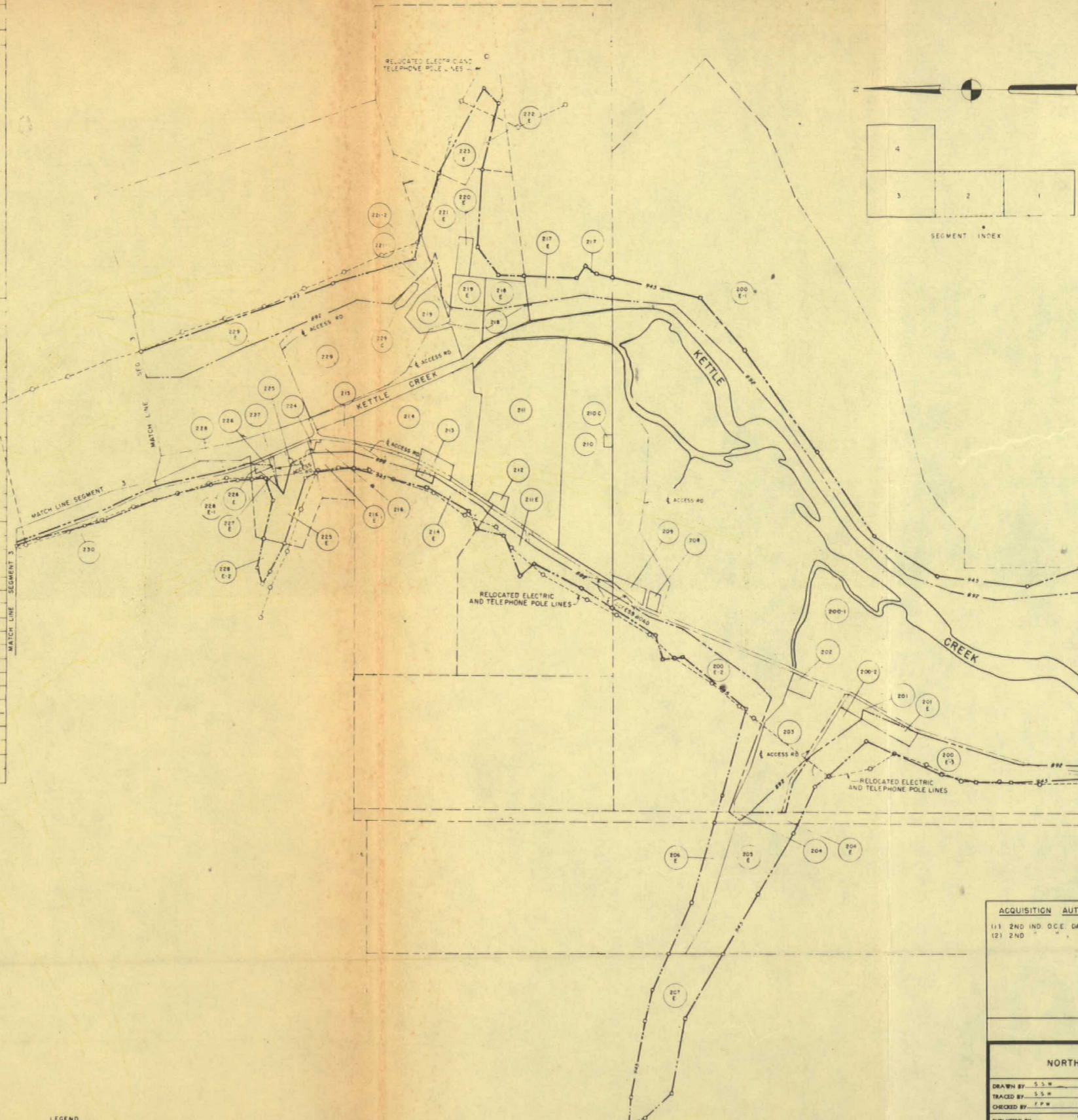
LEGEND
○ RELOCATED POLE LINE, JOINT USE
○ COUNTY RURAL ELECTRIC, AND BELL
○ TELEPHONE CO., OF PENN. A.

NOTE:
MAP COMPILED FROM ACTUAL FIELD SURVEY MADE BY THE BALTIMORE DISTRICT ENGINEER'S OFFICE

DATE	REVISIONS	BY
9-17-60	PLATTED, RELOCATED ELECTRIC & TELEPHONE LINES	S.S.W.
8-10-60	RELOCATED TWP ROAD SECTIONS "A" & "B" ADDED	S.S.W.
5-19-60	ACCESS ROAD THROUGH TRACTS 102 & 103 ADDED	S.S.W.
8-11-59	TR. 105C B-LAND OWNERS OF TR. 111, ADDED	S.S.W.
6-3-55	TRACTS 132 & 138C ADDED, ALSO MINOR REVISIONS	S.S.W.

TRACT REGISTER OF ACQUISITION AFTER 1 JAN. 1943 (CIVIL)

TRACT NO.	LAND OWNER	ACREAGE			REMARKS
		FEE	PERMIT	RESERVATION	
200-1	JESSE D. CALHOUN	181.23			
200-2	JESSE D. CALHOUN	1.40			
200E-1	JESSE D. CALHOUN	13.85			
200E-2	JESSE D. CALHOUN	2.92			
200E-3	JESSE D. CALHOUN	16.75			
201	HOWARD SUMMERSON, ET UX	0.90			
202	LAWRENCE E. LOGUE	0.53			
203	HOWARD E. BROOKS	11.02			
204	DAVID A. DOEBLER, ET UX	0.19			
204E	DAVID A. DOEBLER, ET UX	1.53			
205E	DAVID A. DOEBLER, ET UX	10.73			
206E	ISOLA K. CROSS, ET UX	4.40			
207E	COMMONWEALTH OF PENNSYLVANIA	12.01			
208	LAWRENCE E. LOGUE	0.34			
209	DAVID SCHINDOYER, ET UX	0.68			
210	HAMILTON V. PROCTOR, ET UX	20.07			
211	CHARLES W. CROSS, ET UX	29.17			
211F	CHARLES W. CROSS, ET UX	3.82			
212	EFFIE M. COY	0.37			
213	FRED PELKEY	1.05			
214	HAMILTON V. PROCTOR, ET UX	17.45			
214E	HAMILTON V. PROCTOR, ET UX	3.19			
215	EFFIE M. COY	0.61			
216	ARTHUR M. GAVLOCK, ET UX	0.66			
217	FRED CRANE	2.54			
217E	FRED CRANE	3.69			
218	CHANCIE H. SUMMERSON, ET UX	1.97			
218E	CHANCIE H. SUMMERSON, ET UX	1.90			
219	FRED CRANE	4.48			
219E	FRED CRANE	1.90			
220E	CHANCIE H. SUMMERSON, ET UX	0.88			
221-1	MYRTLE SUMMERSON, ET UX	0.09			
221-2	MYRTLE SUMMERSON, ET UX	0.33			
221E	MYRTLE SUMMERSON, ET UX	9.14			
222E	DAVID BROOKS	0.50			
223E	DAVID BROOKS	3.85			
226E	ARTHUR M. GAVLOCK, ET UX	1.34			
201E	HOWARD SUMMERSON, ET UX	1.20			
210C	HAMILTON V. PROCTOR, ET UX	1.17			
224	ISOLA K. CROSS	0.10			
225	DAVID L. MCCOY	1.18			
225E	DAVID L. MCCOY	3.68			
226	DERWOOD SCHOONOVER, ET UX	0.11			
226E	DERWOOD SCHOONOVER, ET UX	0.17			
227	DERWOOD SCHOONOVER	0.09			
227E	DERWOOD SCHOONOVER	0.29			
228	CHARLE H. CONNELL	1.37			
228E-1	CHARLE H. CONNELL	3.17			
228E-2	CHARLE H. CONNELL	0.95			
200-2	JESSE D. CALHOUN	43.73			
229E	JESSE D. CALHOUN	15.72			
229C	JESSE D. CALHOUN	0.38			
230	FRANK WRIGHT, ET UX	2.83			



PROJECT MAP

DEPT. OF THE ARMY
USING SERVICE

LOCATION OF PROJECT

STATE PENNSYLVANIA
 COUNTY CLINTON
 DIVISION NORTH ATLANTIC
 DISTRICT BALTIMORE
 ARMY AREA SECOND
 11 MILES N.W. OF RENOV, PA.
 18.5 MILES S.E. OF EMPORIUM, PA.

TRANSPORTATION FACILITIES

RAILROADS
 STATE ROADS PA. NO. 144
 FEDERAL ROADS U.S. NO. 120
 AIR LINES

ACQUISITION

TOTAL ACRES ACQUIRED
 FEE
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFER
 LEASE
 LESSER INTERESTS

DISPOSAL

TOTAL ACRES DISPOSED OF
 SOLD
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFERRED
 LEASES TERMINATED
 LESSER INTERESTS TERM.
 REASSIGNED
 OTHER

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE TECHNICAL MANUAL NO. 23.

RESERVATION LINE	
RESERVATION LINE (Actual Survey)	
TRACT BOUNDARY LINE	
TRACT NUMBER	
CONTOUR LINE	
DISPOSAL	

ACQUISITION	AUTHORIZATION
(1) 2ND IND. O.C.E. DATED 19 FEB 1958	
(2) 2ND " " " " 10 DEC 1958	

SEGMENT 2

CORPS OF ENGINEERS, U.S. ARMY
NORTH ATLANTIC DIVISION, WASHINGTON DISTRICT

DRAWN BY: S.S.W.
 TRACED BY: S.S.W.
 CHECKED BY: F.P.W.
 SUBMITTED BY:
 Charles P. Williams
 CHIEF, CADASTRAL SEC.
 RECOMMENDED BY:
 Charles P. Bovee
 ACTING CHIEF, REAL ESTATE DIV.

REAL ESTATE
 ALVIN R. BUSH DAM
 AND RESERVOIR

APPROVED BY:
 DATE: MAY 10, 1960
 OFFICE, CHIEF OF ENGINEERS, WASHINGTON 25, D. C.

DATE	REVISIONS	BY
5-18-60	PLATTING, RELOCATED ELECTRIC & TELEPHONE POLE LINES	S.S.W.
5-31-60	ACCESS RD. ADDED TO TRACTS NOS. 214, 216, 217, 218, 219, 224, & 229	S.S.W.
5-11-60	ACCESS RD. ADDED TO TR. 225	S.S.W.

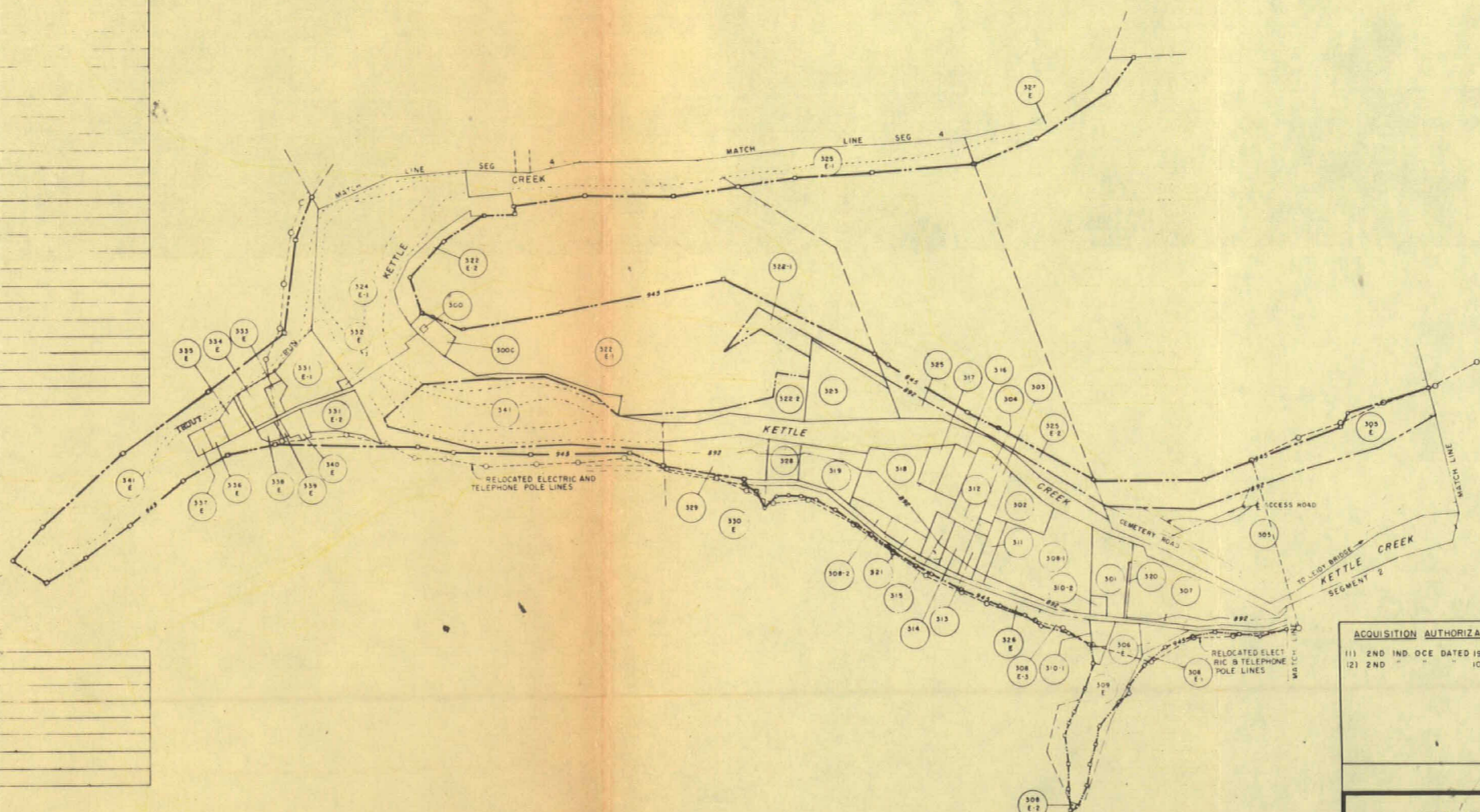
LEGEND
 --- RELOCATED POLE LINE, JOINT USE
 TRI-COUNTY RURAL ELECTRIC, AND BELL
 TELEPHONE CO., OF PENNA.

NOTE:
 MAP COMPILED FROM ACTUAL FIELD SURVEY MADE BY THE BALTIMORE DISTRICT ENGINEER'S OFFICE.

TRACT REGISTER OF ACQUISITION AFTER 1 JAN. 1943 (CIVIL)

RE-10 CODE	TRACT NO.	LAND OWNER	ACREAGE			REMARKS
			FEE	FLOWAGE EASEMENT	PERMIT	
	300	TRUSTEES OF THE W E CHURCH OF LEIDY, CLINTON COUNTY	0 10			
	300C	TRUSTEES OF THE W E CHURCH OF LEIDY, CLINTON COUNTY	0 97			
	301	DELOY GILBERT, ET AL	3 12			
	302	MIC MACS SPORTSMEN CLUB	2 22			
	303	RUSCOE WELSH, ET UX	0 95			
	304	EFESEE LODGE	2 46			
	305	HAMILTON V PROCTOR, ET UX	33 27			
	305E	HAMILTON V PROCTOR, ET UX		12 21		
	306E	ANDY CARLSON, ET AL		0 95		
	307	GEORGE J CHOMA	8 33			
	308-1	ISOLA K CROSS	9 50			
	308-2	ISOLA K CROSS	0 73			
	308E-1	ISOLA K CROSS		0 96		
	308E-2	ISOLA K CROSS		0 04		
	308E-3	ISOLA K CROSS		1 24		
	309E	CHARLES E HINES, ET UX		6 59		
	310-1	KENNETH O WYKOFF	0 65			
	311	NICHOLAS GIANOPLOS	1 00			
	312	LEWIS CHURCHILL, ET UX	0 23			
	313	DELBERT SCHOONOVER	0 79			
	314	LOUIS R BRUNG, ET UX	1 12			
	315	ROUND TOWN HUNTING CLUB OF YORK COUNTY, PA	1 12			
	316	CHARLES E DEEGHAM, ET AL	1 44			
	317	GEORGE E GREISINGER, ET UX	1 04			
	318	MAURICE KELLEY, ET UX	6 17			
	319	MARTIN GAVLOCK, ET UX	3 17			
	320	ISOLA K CROSS	0 06			
	321	CHARLES W CROSS, ET UX	0 84			
	322-1	HAMILTON V PROCTOR, ET UX	0 56			
	322-2	HAMILTON V PROCTOR, ET UX	3 54			
	322E-1	HAMILTON V PROCTOR, ET UX		36 55		
	322E-2	HAMILTON V PROCTOR, ET UX		2 10		
	325	MARY M LUDY	5 75			
	324E-1	FRANCIS R WINDFELDER, ET UX		24 04		
	325-1	LEAH JEAN CALHOUN BARKER		8 26		
	325E-1	LEAH JEAN CALHOUN BARKER		5 66		
	325E-2	LEAH JEAN CALHOUN BARKER		4 00		
	327E	JESSE A CALHOUN		1 34		
	329	NANCY HOLMES		4 48		
	326E	HARRISON R STAHL, ET AL		2 43		
	330-2	KENNETH O WYKOFF		0 38		
	330E	CHARLES W CROSS, ET UX		0 18		
	331E-1	NOAH LUDY, ET UX		3 65		
	331E-2	NOAH LUDY, ET UX		2 60		
	332E	PLEASANT VALLEY GRANGE NO 1479 OF THE VILLAGE OF HAMBERSLEY		0 10		
	333E	JESSE A CALHOUN		0 48		
	334E	DOYLE L SCHOONOVER, ET UX		1 43		
	335E	EDNA M BRUMLEY, ET AL		0 85		

336E	METHODIST EPISCOPAL CHURCH	0 47	
337E	DONALD CRANE	0 47	
338E	NORMAN D CRANMER, ESTATE	0 35	
339E	SUPERVISORS OF LEIDY TWP	0 12	
340E	ISOLA K CROSS	0 55	
341	COMMONWEALTH OF PENNSYLVANIA	17 00	
341E	COMMONWEALTH OF PENNSYLVANIA	32 37	



LEGEND
 ○ RELOCATED POLE LINE, JOINT USE TRI-COUNTY RURAL ELECTRIC AND BELL TELEPHONE CO OF PENNA

PROJECT MAP

DEPT. OF THE ARMY
 USING SERVICE

LOCATION OF PROJECT

STATE PENNSYLVANIA
 COUNTY CLINTON
 DIVISION NORTH ATLANTIC
 DISTRICT BALTIMORE
 ARMY AREA SECOND
 11 MILES N.W. OF RENOVO, PA.
 18.5 MILES S.E. OF EMPORIUM, PA.

TRANSPORTATION FACILITIES

RAILROADS
 STATE ROADS PA. NO. 144
 FEDERAL ROADS U.S. NO. 120
 AIR LINES

ACQUISITION

TOTAL ACRES ACQUIRED
 FEE
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFER
 LEASE
 LESSER INTERESTS

DISPOSAL

TOTAL ACRES DISPOSED OF
 SOLD
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFERRED
 LEASES TERMINATED
 LESSER INTERESTS TERM.
 REASSIGNED
 OTHER

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE TECHNICAL MANUAL NO 93.

RESERVATION LINE
 RESERVATION LINE (Actual Survey)
 TRACT BOUNDARY LINE
 TRACT NUMBER
 CONTOUR LINE
 DISPOSAL

ACQUISITION AUTHORIZATION
 111 2ND IND OCE DATED 19 FEB 1958
 121 2ND IND OCE DATED 10 DEC 1958

SEGMENT 3

CORPS OF ENGINEERS, U.S. ARMY
 NORTH ATLANTIC DIVISION, WASHINGTON DISTRICT

DRAWN BY S.S.W.
 CHECKED BY S.S.W.
 CHECKED BY T.P.W.
 SUBMITTED BY
 CHIEF, CADASTRAL SEC.
 RECOMMENDED BY

REAL ESTATE
 ALVIN R. BUSH DAM
 AND RESERVOIR

APPROVED BY
 ACTING CHIEF, REAL ESTATE DIV.
 OFFICE, CHIEF OF ENGINEERS, WASHINGTON 25, D. C.

NOTE
 MAP COMPILED FROM ACTUAL FIELD SURVEY MADE BY THE BALTIMORE DISTRICT ENGINEER'S OFFICE

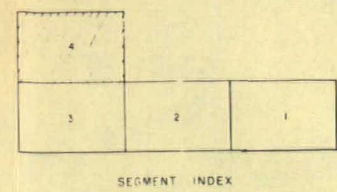
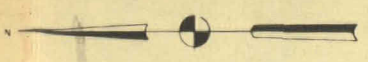
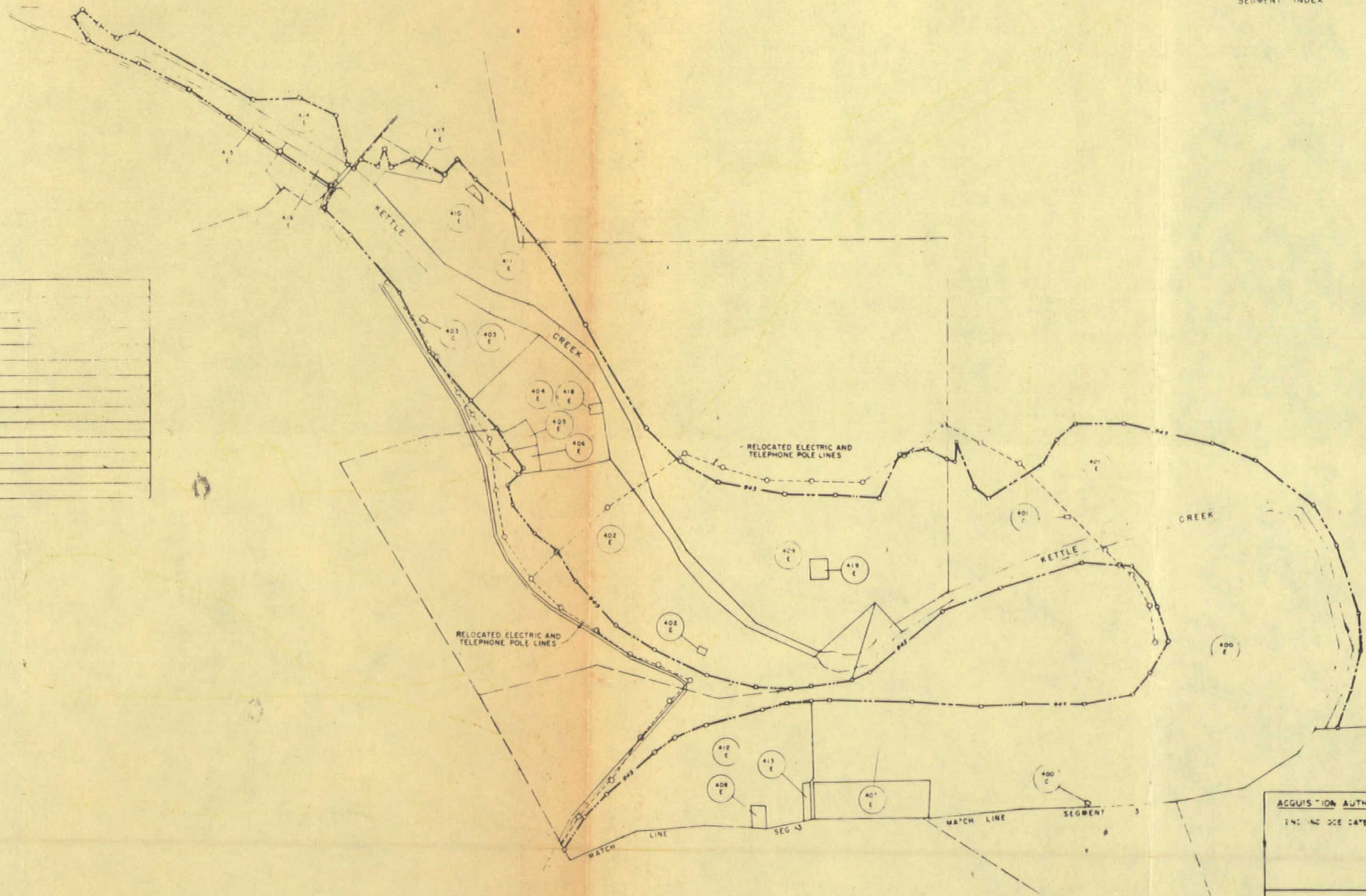
DATE	REVISIONS	BY
9-28-60	PLATTED, RELOCATED ELECTRIC & TELEPHONE LINES	S.S.W.

Scale
 400' 200' 100'
 SHEET 3 OF 5
 INSTALLATION OR PROJECT NO.
 SHEET NO. 1960

TRACT REGISTER OF ACQUISITION AFTER 1 JAN 1943 (CIVIL)

TRACT NO.	LAND OWNER	ACREAGE			REMARKS
		FEE	STORAGE EASEMENT	PERMIT	
400E	EDWIN G. CALHOUN		109.73		
400E	EDWIN G. CALHOUN		0.01		
401E	WILLIAM K. CAMPBELL		4.85		
401C	WILLIAM K. CAMPBELL		0.01		
402E	THOMAS F. SUMMERSON		38.22		
402C	THOMAS F. SUMMERSON		0.08		
403E	GERALD M. STOUT, ET UX		15.40		
403C	GERALD M. STOUT, ET UX		0.02		
404E	TORRENCE ORVIE BOTSFORD		14.17		
405E	ALEXANDER NESMAN, ET UX		0.83		

406E	ISOLA K. CROSS		0.70		
407E	FORT PITT HUNTING CLUB		5.81		
408E	LEAN JEAN CALHOUN BARKER		0.42		
408E	JOHN CREIGHTON, ET AL		69.00		
410E	SHERMAN J. FRIEL, ET UX		0.15		
411E	COMMONWEALTH OF PENNSYLVANIA		0.36		
412E	PEARL W. WALTERS, ET AL		27.60		
413E	MINNIE D. ADAMS, WIDOW		0.43		
414E	WILLIAM H. SUMMERSON		5.02		
418E	FRANKLIN BOTSFORD		1.11		
418E	FRED CRANE		1.10		
419E	CYDE BROOKS		1.42		
419E	GEORGE F. BOTSFORD		0.19		
419E	JOHN CREIGHTON, ET UX		0.47		



PROJECT MAP

DEPT. OF THE ARMY
 USING SERVICE
 LOCATION OF PROJECT
 STATE PENNSYLVANIA
 COUNTY CLINTON
 DIVISION NORTH ATLANTIC
 DISTRICT BALTIMORE
 ARMY AREA SECOND
 11 MILES N.W. OF RENOVO, PA.
 18.5 MILES S.E. OF EMPORIUM, PA.

TRANSPORTATION FACILITIES
 RAILROADS
 STATE ROADS PA. NO. 144
 FEDERAL ROADS U.S. NO. 120
 AIR LINES

ACQUISITION
 TOTAL ACRES ACQUIRED
 FEE
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFER
 LEASE
 LESSER INTERESTS

DISPOSAL
 TOTAL ACRES DISPOSED OF
 SOLD
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL
 USE PERMIT
 TRANSFERRED
 LEASES TERMINATED
 LESSER INTERESTS TERMINATED
 REASSIGNED
 OTHER

LEGEND
 EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD BY ARMY MAP SERVICE TECHNICAL MANUAL NO. 23
 RESERVATION LINE
 RESERVATION LINE (Actual Survey)
 TRACT BOUNDARY LINE
 TRACT NUMBER
 CONTOUR LINE
 DISPOSAL

ACQUISITION AUTHORIZATION
 2ND INC DEC DATED 9 FEB 1958

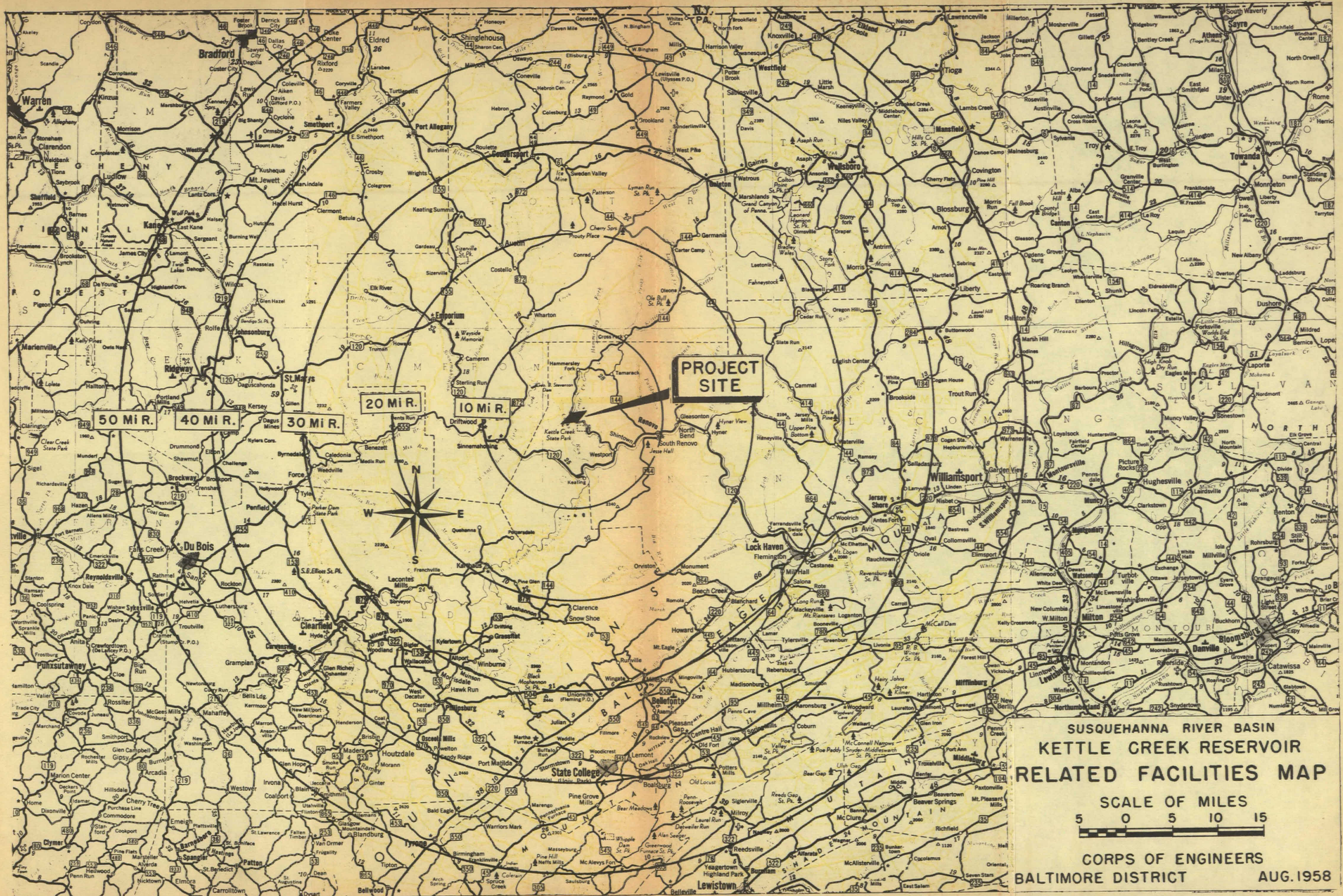
SEGMENT 4
 CORPS OF ENGINEERS, U.S. ARMY
 NORTH ATLANTIC DIVISION, WASHINGTON DISTRICT

DRAWN BY: S.S.B.
 TRACED BY: S.S.B.
 CHECKED BY: F.P.W.
 SUBMITTED BY:
 L. C. Williams
 CHIEF, CADASTRAL SEC.
 RECOMMENDED BY:
 Charles C. Brown
 DISTRICT ENGINEER

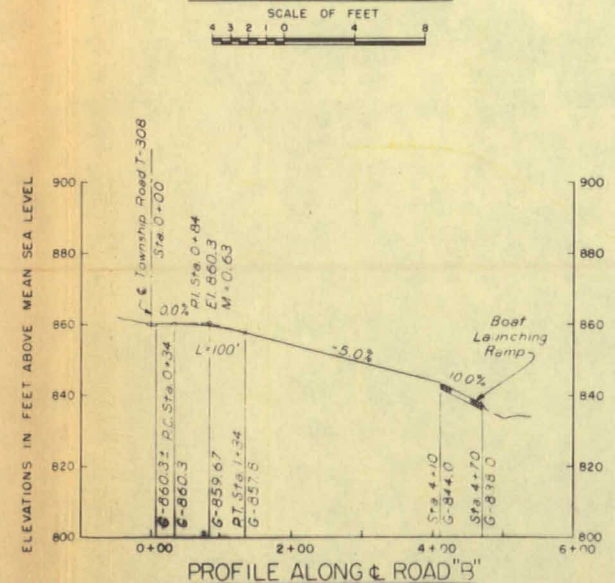
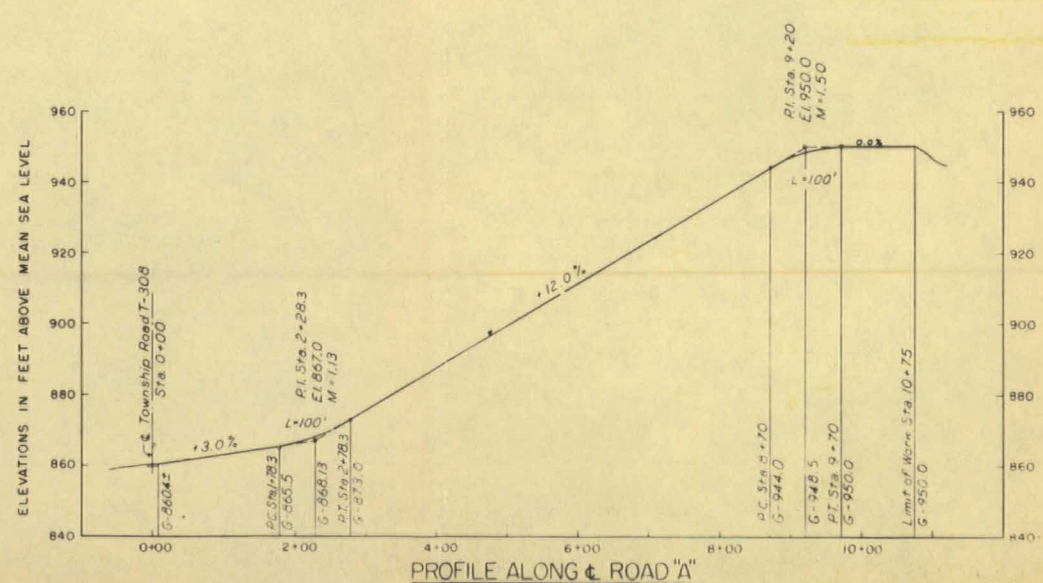
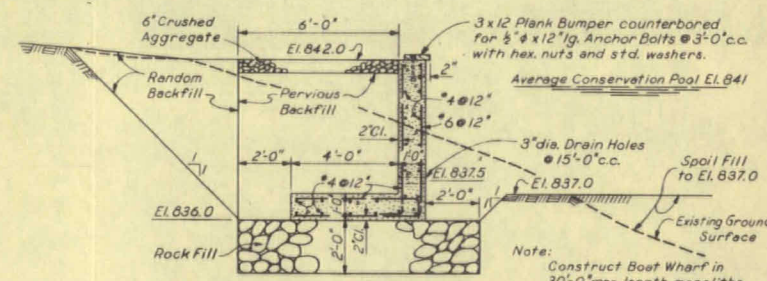
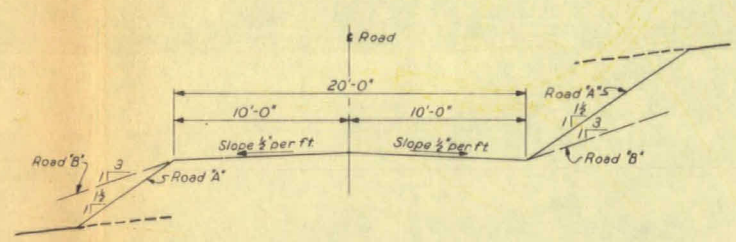
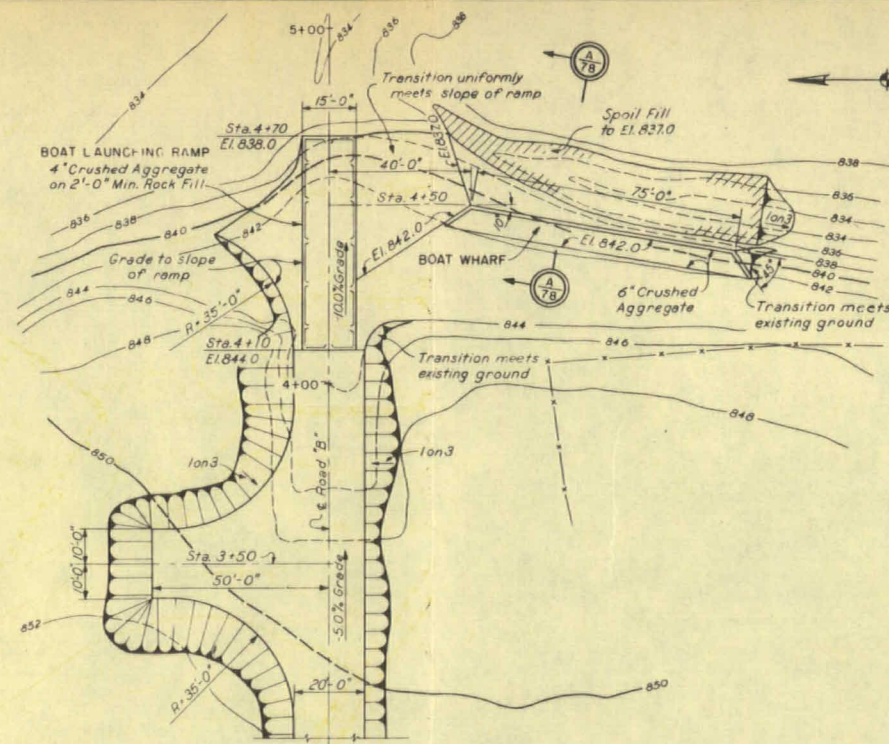
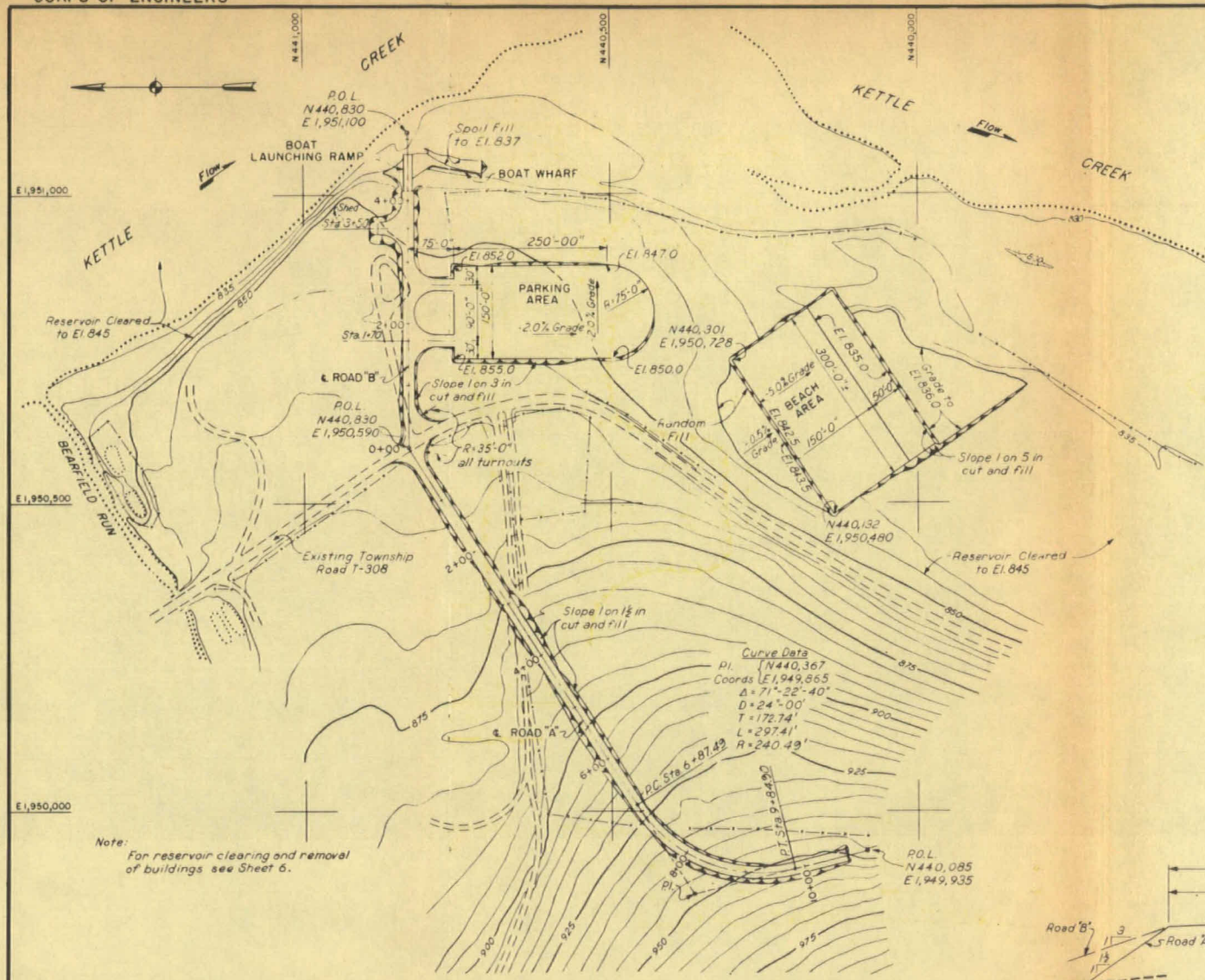
REAL ESTATE
 ALVIN R. BUSH DAM
 AND RESERVOIR
 APPROVED BY:
 Charles C. Brown
 DISTRICT ENGINEER
 DATE: July 1960
 OFFICE, CHIEF OF ENGINEERS, WASHINGTON 25, D. C.

DATE	BY	REVISIONS
10-13-60	S.S.B.	PLATTED, RELOCATED ELECTRIC & TELEPHONE POLE LINES
9-3-60	S.S.B.	TRACT SIZES ADDED

NOTE
 MAP COMPILED FROM ACTUAL FIELD SURVEY MADE BY THE BALTIMORE DISTRICT ENGINEER'S OFFICE.



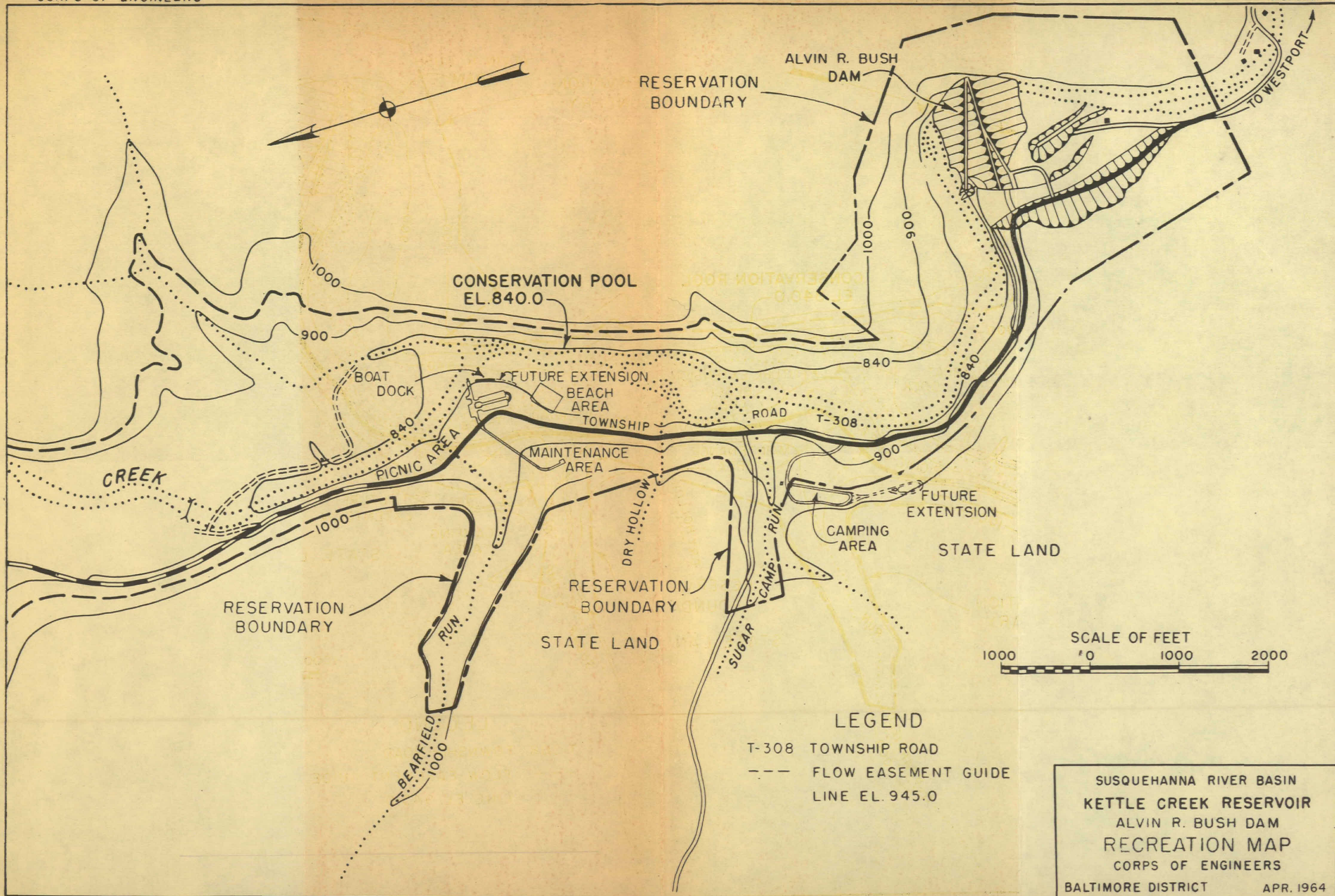
SUSQUEHANNA RIVER BASIN
KETTLE CREEK RESERVOIR
RELATED FACILITIES MAP
 SCALE OF MILES
 5 0 5 10 15
 CORPS OF ENGINEERS
 BALTIMORE DISTRICT
 AUG. 1958
 PLATE 9B-3



GENERAL NOTES:
1. General Notes see sheet 6.

REFERENCES:
Site Plan and Reservoir Clearing - Sheet 6.

REVISION	DATE	DESCRIPTION	BY
	Aug 62	As Constructed	EGH
CORPS OF ENGINEERS, U.S. ARMY OFFICE OF THE DISTRICT ENGINEER BALTIMORE DISTRICT BALTIMORE, MARYLAND			
DRAWN BY: H. H.		SUSQUEHANNA RIVER BASIN - KETTLE CREEK, PA.	
TRACED BY: G. H. W.		KETTLE CREEK DAM	
CHECKED BY: L. S. P.			
REVIEWED BY SAFETY BRANCH		RECREATION AREA	
SUBMITTED BY: [Signature]			
APPROVED BY: [Signature]		PLAN AND DETAILS	
APPROVED FOR: [Signature]			
DATE: FEBRUARY 1959		SCALE: AS SHOWN	
DRAWING NUMBER		SHEET 78 OF 78 140A-06-3	



ALVIN R. BUSH
DAM

RESERVATION
BOUNDARY

CONSERVATION POOL
EL. 840.0

BOAT
DOCK

FUTURE EXTENSION
BEACH
AREA

CREEK

PICNIC AREA

MAINTENANCE
AREA

ROAD T-308

CAMPING
AREA

FUTURE
EXTENSION

STATE LAND

RESERVATION
BOUNDARY

RESERVATION
BOUNDARY

STATE LAND

SCALE OF FEET



LEGEND

- T-308 TOWNSHIP ROAD
- FLOW EASEMENT GUIDE LINE EL. 945.0

SUSQUEHANNA RIVER BASIN
KETTLE CREEK RESERVOIR
ALVIN R. BUSH DAM
RECREATION MAP
CORPS OF ENGINEERS
BALTIMORE DISTRICT APR. 1964