EXHIBIT H

US Army Corps of Engineers®
Pittsburgh District 2007

YOUGHIOGHENY RIVER LAKE

PENNSYLVANIA AND MARYLAND

MASTER PLAN

U.S. Army Corps of Engineers
Pittsburgh District
Pittsburgh, Pennsylvania

YOUGHIOGHENY RIVER LAKE
MASTER PLAN UPDATE

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION 1-1
1.1 PROJECT AUTHORIZATION AND PURPOSE 1-1
1.1.1 Project Authorization 1-1
1.1.2 Project Purpose 1-1
1.2 APPLICABLE PUBLIC LAWS 1-1
1.2.1 River and Harbor Act 1-1
1.2.2 Flood Control Act of 1944 1-1
1.2.3 Flood Control Act of 1946 1-2
1.2.4 Fish and Wildlife Coordination Act 1-2
1.2.5 Forest Cover Act 1-2
1.2.6 Federal Water Project Recreation Act 1-2
1.2.7 National Historic Preservation Act 1-2
1.2.8 National Environmental Policy Act 1-3
1.2.9 Architectural Barriers Act of 1968 1-3
1.2.10 Endangered Species Act 1-3
1.2.11 Rehabilitation Act of 1973 and Rehabilitation Act Amendments of 1974 1-3
1.2.12 Archeological and Historic Preservation Act 1-3
1.2.13 Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978 1-3
1.2.14 The Archeological Resources Protection Act of 1979 1-3
1.2.15 Water Resource Development Act of 1986 1-4
1.2.16 Water Resources Development Act of 1988 1-4
1.2.17 Americans with Disabilities Act of 1990 1-4
1.3 PERTINENT PRIOR REPORTS AND DOCUMENTS 1-4
1.3.1 The Master Plan Update 1-4
1.3.2 Reservoir Regulation Manual 1-5
1.3.3 Water Supply Potential of Youghiogheny River Lake 1-5
1.3.4 Safety Plan 1-5
1.3.5 Forest, Fish, and Wildlife Management Plan 1-6
1.3.6 Fire Protection Plan 1-6
1.3.7 Water Quality Report 1-6
1.3.8 Shoreline Management Plan 1-6
1.3.9 Flood Emergency Plan 1-6
1.3.10 Operational Management Plan 1-7
1.3.11 Historic Properties Investigation 1-7
1.4 SCOPE OF THE MASTER PLAN 1-7

1.5 MASTER PLAN OBJECTIVES AND FORMAT 1-8
1.5.1 Master Plan Objectives 1-8
1.5.2 Master Plan Format 1-8
1.6 COORDINATION 1-8

CHAPTER 2: PROJECT DESCRIPTION 2-1
2.1 INTRODUCTION 2-1
2.2 LOCATION AND SETTING 2-1
2.3 LAND ALLOCATIONS 2-1
2.4 OUTGRANTS 2-1
2.5 EXISTING REGULATIONS 2-2
2.5.1 Private Dock Permit Moratorium 2-2
2.5.2 Boating Regulation and Enforcement 2-3
2.6 OPERATIONAL FACILITIES AND STRUCTURES 2-3
2.6.1 Youghiogheny River Lake Dam and Spillway 2-3
2.6.2 Roads on Project Lands 2-4
2.6.3 Public Use Facilities 2-5
2.6.3.1 Picnicking 2-5
2.6.3.2 Camping 2-5
2.6.3.3 Boating 2-5
2.6.3.4 Boating and Capacity Study 2-7
2.6.3.5 Peak-Use Boat Traffic Study 2-9
2.6.3.6 Swimming 2-9
2.6.3.7 Information Center 2-10
2.6.4 Operations Facilities 2-10
2.6.5 Sanitary Facilities 2-10
2.6.6 Reservoir Operation 2-12
2.6.7 Other Considerations 2-13
2.7 NONFEDERAL HYDROELECTRIC POWER 2-14
2.8 WATER QUALITY 2-15
2.9 LAND ACQUISITION 2-15
2.10 PROJECT DEVELOPMENT 2-16

CHAPTER 3: NATURAL/CULTURAL RESOURCE ANALYSIS 3-1
3.1 INTRODUCTION 3-1
3.2 PHYSICAL GEOGRAPHY AND TOPOGRAPHY 3-1
3.3 GEOLOGY 3-1
3.4 SOILS 3-2
3.5 HYDROLOGY 3-3
3.5.1 Youghiogheny River Lake Reallocation Study 3-4
3.6 VEGETATION 3-4
3.6.1 Mixed Mesophytic Forests 3-5
3.6.1.1 Mixed Mesophytic Forest, Typical Subtype 3-6
3.6.1.2 Mixed Mesophytic Forest, Bottomland

Subtype 3-6
3.6.1.3 Mixed Mesophytic Forest, Hemlock Subtype 3-6
3.6.2 Altered Woodlands 3-7
3.6.3 Thickets 3-7
3.6.3.1 Typical Thicket 3-7
3.6.3.2 Invaded Thicket 3-8
3.6.3.3 Aged Thicket 3-8
3.6.4 Meadow 3-8
3.6.4.1 Typical Meadow 3-8
3.6.4.2 Invaded Meadow 3-8
3.6.5 Manipulated Areas 3-9
3.6.5.1 Cultivated Field 3-9
3.6.5.2 Disturbed Land 3-9
3.6.5.3 Landscaped Area 3-9
3.6.5.4 Lakeshore Floodplains 3-9
3.6.6 Wetlands 3-9
3.6.7 Threatened and Endangered Plant Species 3-10
3.7 FISH AND WILDLIFE 3-10
3.7.1 Fishery 3-10
3.7.1.1 Habitat 3-10
3.7.1.2 Water Quality Effects 3-11
3.7.1.3 Hydrology 3-12
3.7.1.4 Game Species 3-12
3.7.1.5 Stocking Program 3-13
3.7.1.6 Invasive Species 3-13
3.7.2 Wildlife 3-14
3.7.3 Threatened and Endangered Wildlife Species 3-15
3.8 CLIMATE 3-15
3.9 AESTHETICS 3-16
3.10 SEDIMENTATION 3-18
3.11 CULTURAL RESOURCES 3-18
3.11.1 Archeological Sites 3-19
3.11.2 Historical Sites 3-20
3.11.2.1 Great Crossings Ford 3-20
3.11.2.2 Great Crossings 3-20
3.11.2.3 National Road 3-21
3.11.2.4 Mason-Dixon Line 3-21
3.11.2.5 Former Project Dwellings 3-21
3.12 SURROUNDING LAND USE 3-22
3.13 EXISTING CORRIDORS 3-23

CHAPTER 4: REGIONAL RECREATION PROFILE 4-1

4.1 INTRODUCTION 4-1
4.2 MARKET AREA SOCIOECONOMIC PROFILE 4-1
4.2.1 Market Area 4-1
4.2.2 Demographic Characteristics 4-4
4.2.2.1 Population 4-4
4.2.2.2 Age 4-4
4.2.2.3 Income 4-4
4.2.2.4 Education 4-4
4.2.2.5 Urbanization 4-5
4.2.2.6 Conclusion 4-5
4.3 EXISTING RECREATION FACILITIES 4-6
4.4 REGIONAL RECREATION RESOURCES 4-8
4.4.1 Analysis and Considerations 4-8
4.4.2 Description 4-8
4.4.2.1 Ohiopyle State Park 4-8
4.4.2.2 Regional Bike/Hike Trails 4-10
4.4.2.3 Youghiogheny Wild and Scenic River 4-11
4.4.2.4 National Road Heritage Park (U.S. 40) 4-11
4.4.2.5 Path of Progress Heritage Route 4-12
4.4.2.6 Fort Necessity 4-12
4.5 VISITATION 4-12
4.5.1 Current Use Projections 4-12
4.5.2 Demand Projections 4-13
4.5.3 Activity Projections 4-15
4.5.4 Activity Limitations 4-18

CHAPTER 5: LAKE WIDE RESOURCE USE OBJECTIVES 5-1
5.1 INTRODUCTION 5-1
5.2 RESOURCE USE OBJECTIVES 5-1
5.2.1 Project Operations 5-2
5.2.1.1. Objective: 5-2
5.2.1.2. Objective: 5-2
5.2.1.3. Objective: 5-2
5.2.2 Safety 5-3
5.2.2.1 Objective: 5-3
5.2.2.2 Objective: 5-3
5.2.2.3 Objective: 5-4
5.2.3 Natural Resources 5-4
5.2.3.1 Objective: 5-4
5.2.3.2 Objective: 5-5
5.2.3.3 Objective: 5-5
5.2.3.4 Objective: 5-6
5.2.3.5 Objective: 5-6
5.2.3.6 Objective: 5-7

5.2.3.7 Objective: 5-7
5.2.3.8 Objective: 5-8
5.2.4 Recreation 5-8
5.2.4.1 Objective: 5-8
5.2.4.2 Objective: 5-9
5.2.4.3 Objective: 5-10
5.2.4.4 Objective: 5-11
5.2.5 Cultural Resources 5-11
5.2.5.1 Objective: 5-11
5.2.6 Education 5-12
5.2.6.1 Objective: 5-12
5.2.6.2 Objective: 5-12
5.2.6.3 Objective: 5.13
5.2.6.4 Objective: 5-13
5.2.6.5 Objective: 5-13

CHAPTER 6: LAND AND WATER USE ZONING 6-1
6.1 INTRODUCTION 6-1
6.2 PROJECT ALLOCATIONS AND LAND USE CLASSIFICATIONS ... 6-1
6.2.1 Allocations 6-1
6.2.2 Land Use Classifications 6-1
6.2.2.1 Operations 6-1
6.2.2.2 Recreation 6-1
6.2.2.3 Mitigation 6-2
6.2.2.4 Environmentally Sensitive Areas 6-2
6.2.2.5 Multiple Resource Management 6-2
6.2.2.6 Easement Lands 6-3
6.3 ZONING PLANS 6-3
6.3.1 Water Surface Zoning Plan 6-3

CHAPTER 7: DEVELOPMENT PLANS 7-1
7.1 INTRODUCTION 7-1
7.2 MANAGEMENT UNIT A: OPERATION AND MANAGEMENT AREA 7-3
7.2.1 Unit Description 7-3
7.2.2 Land Use Classification 7-4
7.2.3 Management Unit Objectives 7-4
7.2.4 Rationale 7-4
7.2.5 Management and Development Concepts 7-5
7.2.6 Constraints 7-5
7.3 MANAGEMENT UNIT B: OUTFLOW RECREATION AREA 7-7
7.3.1 Unit Description 7-7

7.3.2 Land Use Classification 7-8
7.3.3 Management Unit Objectives 7-8
7.3.4 Rationale 7-8
7.3.5 Management and Development Concepts 7-9
7.3.6 Constraints 7-9
7.4 MANAGEMENT UNIT C: YOUGHIOGHENY RECREATION AREA (Spillway & Poplar Hollow) 7-11
7.4.1 Unit Description 7-11
7.4.2 Land Use Classification 7-12
7.4.3 Management Unit Objectives 7-12
7.4.4 Rationale 7-12
7.4.5 Management and Development Concepts 7-13
7.4.6 Constraints 7-13
7.5 MANAGEMENT UNIT D: KLONDIKE RIDGE NATURAL AREA 7-15
7.5.1 Unit Description 7-15
7.5.2 Land Use Classification 7-16
7.5.3 Management Unit Objectives 7-16
7.5.4 Rationale 7-16
7.5.5 Management and Development Concepts 7-17
7.5.6 Constraints 7-17
7.6 MANAGEMENT UNIT E: YOUGHIOGHENY RIVER LAKE WILDLIFE AREA 7-19
7.6.1 Unit Description 7-19
7.6.2 Land Use Classification 7-21
7.6.3 Management Unit Objectives 7-21
7.6.4 Rationale 7-21
7.6.5 Management and Development Concepts 7-21
7.6.6 Constraints 7-22
7.7 MANAGEMENT UNIT F: SOMERFIELD NORTH 7-23
7.7.1 Unit Description 7-23
7.7.2 Land Use Classification 7-24
7.7.3 Management Unit Objectives 7-24
7.7.4 Rationale 7-25
7.7.5 Management and Development Concepts 7-26
7.7.6 Constraints 7-25
7.8 MANAGEMENT UNIT G: SOMERFIELD SOUTH 7-27
7.8.1 Unit Description 7-27
7.8.2 Land Use Classification 7-28
7.8.3 Management Unit Objectives 7-28
7.8.4 Rationale 7-29
7.8.5 Management and Development Concepts 7-29
7.8.6 Constraints 7-30
7.9 MANAGEMENT UNIT H: BRADDOCK RUN 7-31
7.9.1 Unit Description 7-31
7.9.2 Land Use Classification 7-32

7.9.3 Management Unit Objectives 7-32
7.9.4 Rationale 7-32
7.9.5 Management and Development Concepts 7-33
7.9.6 Constraints 7-33
7.10 MANAGEMENT UNIT I: MILL RUN RECREATION AREA 7-35
7.10.1 Unit Description 7-36
7.10.2 Land Use Classification 7-36
7.10.3 Management Unit Objectives 7-36
7.10.4 Rationale 7-36
7.10.5 Management and Development Concepts 7-36
7.10.6 Constraints 7-36
7.11 MANAGEMENT UNIT J: MILL RUN NATURAL AREA 7-37
7.11.1 Unit Description 7-37
7.11.2 Land Use Classification 7-38
7.11.3 Management Unit Objectives 7-38
7.11.4 Rationale 7-38
7.11.5 Management and Development Concepts 7-39
7.11.6 Constraints 7-39
7.12 MANAGEMENT UNIT K: YOUGHIOGHENY RIVER LAKE--
MARYLAND WILDLIFE AREA 7-41
7.12.1 Unit Description 7-41
7.12.2 Land Use Classification 7-42
7.12.3 Management Unit Objectives 7-43
7.12.4 Rationale 7-43
7.12.5 Management and Development Concepts 7-43
7.12.6 Constraints 7-43
7.13 MANAGEMENT UNIT L: SELBYSPORT 7-45
7.13.1 Unit Description 7-45
7.13.2 Land Use Classification 7-45
7.13.3 Management Unit Objectives 7-46
7.13.4 Rationale 7-46
7.13.5 Management and Development Concepts 7-46
7.13.6 Constraints 7-46
7.14 MANAGEMENT UNIT M: BEAR CREEK NATURAL AREA 7-47
7.14.1 Unit Description 7-47
7.14.2 Land Use Classification 7-48
7.14.3 Management Unit Objectives 7-48
7.14.4 Rationale 7-48
7.14.5 Management and Development Concepts 7-48
7.14.6 Constraints 7-49
7.15 MANAGEMENT UNIT N: BUFFALO RUN NATURAL AREA 7-51
7.15.1 Unit Description 7-51

7.15.2 Land Use Classification 7-51
7.15.3 Management Unit Objectives..... 7-51
7.15.4 Rationale..... 7-52
7.15.5 Management and Development Concepts..... 7-52
7.15.6 Constraints..... 7-52
7.16 MANAGEMENT UNIT O: JOCKEY HOLLOW BOAT-LAUNCHING AREA..... 7-53
7.16.1 Unit Description..... 7-53
7.16.2 Land Use Classification 7-54
7.16.3 Management Unit Objectives..... 7-54
7.16.4 Rationale..... 7-54
7.16.5 Management and Development Concepts..... 7-54
7.16.6 Constraints..... 7-54
7.17 MANAGEMENT UNIT P: JOCKEY HOLLOW RECREATION AREA 7-55
7.17.1 Unit Description..... 7-55
7.17.2 Land Use Classification 7-58
7.17.3 Management Unit Objectives..... 7-56
7.17.4 Rationale..... 7-56
7.17.5 Management and Development Concepts..... 7-56
7.17.6 Constraints..... 7-56
7.18 MANAGEMENT UNIT Q: TUB RUN..... 7-57
7.18.1 Unit Description..... 7-57
7.18.2 Land Use Classification 7-58
7.18.3 Management Unit Objectives..... 7-58
7.18.4 Rationale..... 7-59
7.18.5 Management and Development Concepts..... 7-59
7.18.6 Constraints..... 7-59
7.19 MANAGEMENT UNIT R: LAKE AREA-PENNSYLVANIA..... 7-61
7.19.1 Unit Description..... 7-61
7.19.2 Land Use Classification 7-62
7.19.3 Management Unit Objectives..... 7-62
7.19.4 Rationale..... 7-63
7.19.5 Management and Development Concepts..... 7-64
7.19.6 Constraints..... 7-64
7.20 MANAGEMENT UNIT S: LAKE AREA-MARYLAND 7-65
7.20.1 Unit Description..... 7-65
7.20.2 Land Use Classification 7-66
7.20.3 Management Unit Objectives..... 7-66
7.20.4 Rationale..... 7-67
7.20.5 Management and Development Concepts..... 7-67
7.20.6 Constraints..... 7-67

CHAPTER 8: PROJECT-SPECIFIC DESIGN CRITERIA 8-1
8.1 INTRODUCTION 8-1
8.2 DESIGN PHILOSOPHY 8-1
8.3 PROJECT DESIGN PARAMETERS 8-1
8.3.1 Site Selection 8-1
8.3.2 Architecture 8-2
8.3.3 Roads 8-2
8.3.4 Parking 8-3
8.3.5 Picnic Areas 8-3
8.3.6 Boat-Launching Areas 8-4
8.3.7 Courtesy Docks 8-4
8.3.8 Swimming Areas 8-4
8.3.9 Trails 8-5
8.3.9.1 Recreational Trails 8-5
8.3.9.2 Outdoor Recreation Access Routes 8-5
8.3.9.3 Bicycle Trails 8-5
8.3.10 Signs 8-5
8.3.11 Water System 8-6
8.3.12 Wastewater System 8-6
8.3.13 Electrical Distribution 8-6
8.3.14 Carrying Capacity 8-7

CHAPTER 9: IMPLEMENTATION 9-1
9.1 INTRODUCTION 9-1
9.2 IMPLEMENTATION METHODS 9-1
9.2.1 Cost Sharing 9-1
9.2.2 Development Solely by Local Interests Under an Out grant 9-1
9.2.3 Use of SRUF Revenues 9-2
9.2.4 Regular Operations and Maintenance General Funds 9-2
9.2.5 Development by Concessionaire 9-2

CHAPTER 10: DEVELOPMENT COSTS 10-1
10.1 INTRODUCTION 10-1
10.2 PHASING PLAN 10-1
10.3 DEVELOPMENT COSTS 10-1

CHAPTER 11: CONCLUSIONS AND RECOMMENDATIONS 11-1
11.1 CONCLUSIONS AND RECOMMENDATIONS 11-1
11.2 PROJECT OPERATIONS AND MAINTENANCE 11-1
11.2.1 Recommendations 11-1

11.3 SAFETY 11-2
11.3.1 Recommendations 11-2
11.4 NATURAL RESOURCES 11-4
11.4.1 Recommendations 11-4
11.5 RECREATION 11-5
11.5.1 Recommendations 11-6
11.6 CULTURAL RESOURCES 11-7
11.6.1 Recommendations 11-7
11.7 EDUCATION 11-7
11.7.1 Recommendations 11-8
11.8 CONCLUSIONS 11-8
11.9 RECOMMENDATION 11-9

YOUGHIOGHENY RIVER LAKE
MASTER PLAN UPDATE
LIST OF TABLES

Table 2-1, Project Out Grant Data ……2-2
Table 2-2, Project Structures Data ……...2-4
Table 2-3, Existing Public Use Facilities……..2-6
Table 2-4, Existing Water and Sanitary Facilities ……2-11
Table 3-1, Temperature and Precipitation Data……3-18
Table 4-1, Total Population Trends, 1970 – 2005……4-3
Table 4-2, Socioeconomic Indicators, 1990……..4-5
Table 4-3, Matrix of Existing Recreation Facilities……4-7
Table 4-4, Regional Recreation and Open Space Facilities……..4-9
Table 4-5, Current Recreational Use Projections……4-14
Table 4-6, Projected Use by Year and Typical Summer Weekend……..4-16
Table 4-7, Activity Demands for a Typical Summer Weekend……..4-17
Table 5-1, Evaluation Resource Use Objectives With management Units… 5-15
Table 10-1, Phasing of Proposed Improvements……10-2
Table 10-2, Development Costs……10-4

YOUGHIOGHENY RIVER LAKE
MASTER PLAN UPDATE
LIST OF PLATES

Plate 1 – Location Map
Plate 2 – Regional Recreation
Plate 3 – Pool Elevations
Plate 4 – Resources Analysis
Plate 5 – Zoning Plan
Plate 6.1 – Operation and Management Area – Management Unit A
Plate 6.2 – Outflow Recreation Area – Management Unit B
Plate 6.3 – Youghiogheny Recreation Area – Management Unit C
Plate 6.4 – Klondike Ridge Natural Area – Management Unit D
Plate 6.5 – Pennsylvania Wildlife Area – Management Unit E
Plate 6.6 – Somerfield North Recreation Area – Management Unit F
Plate 6.7 – Somerfield South Marina – Management Unit G
Plate 6.8 – Braddock Run, Management Unit H
Plate 6.9 – Mill Run Recreation Area – Management Unit I
Plate 6.10 – Mill Run Natural Area – Management Unit J
Plate 6.11 – Maryland Wildlife Area – Management Unit K
Plate 6.12 – Shelbysport – Management Unit L
Plate 6.13 – Bear Creek Natural Area – Management Unit M
Plate 6.14 – Buffalo Run Natural Area – Management Unit N
Plate 6.15 – Jockey Hollow Boat Launch Area – Management Unit O
Plate 6.16 – Jockey Hollow Recreation Area – Management Unit P
Plate 6.17 – Tub Run Recreation Area – Management Unit Q
Plate 6.18 – Lake Area, Pennsylvania – Management Unit R
Plate 6.19 – Lake Area, Maryland – Management Unit S

CHAPTER 1: INTRODUCTION

1.1. PROJECT AUTHORIZATION AND PURPOSE

1.1.1. Project Authorization. The Youghiogheny River Lake project was authorized by the Flood Control Act (Public Law 75-761) approved 28 June 1938. The development of recreation areas on flood control reservoir facilities was authorized by Section 4 of the Flood Control Act (Public Law 78-534), approved 22 December 1944, as amended. The Water Resources Development Act of 1988 (Public Law 100-676) approved 17 November 1988, redefined recreation to specifically include downstream whitewater recreation activities that depend on project operations and recreational fishing and boating on the project's waters.

1.1.2. Project Purposes. As an integral unit of a coordinated reservoir system, the Youghiogheny River Lake project controls flooding in the Youghiogheny, Monongahela, and Ohio River valleys. Other project functions include low-flow augmentation in these rivers for pollution abatement, fish and wildlife enhancement (Public Law 85-624, approved on 12 August 1958), downstream water supply removal, and hydropower. Whitewater activities that depend on project operations, recreational fishing, and boating at the project are specifically authorized project purposes.

1.2. APPLICABLE PUBLIC LAWS

1.2.1. Authorizing Rivers, Harbors, and Flood Control Acts. Section 5 of the Rivers and Harbors Act of 22 June 1936 (Public Law 75-738), as amended by Section 4 of the Flood Control Act of 28 June 1938 (Public Law 75-761), provides authorization for the Youghiogheny River Lake project.

1.2.2. Flood Control Act of 1944. Section 4 of the Flood Control Act of 1944, (Public Law 78-534, approved on 22 December 1944) provides authorization for the Chief of Engineers "...to construct, maintain, and operate public park and recreational facilities at water resource development projects under the control of the Secretary of the Army, and to permit the construction, maintenance and operation of such facilities." The act also states that the water areas of projects shall be open to public use generally for boating, fishing, and other recreational purposes, and ready access to and exit from areas along the shores of such projects shall be maintained for general public use when in the public interest.

1.2.3. Flood Control Act of 1946. The Flood Control Act of 1946 (Public Law 79-526, approved 24 July 1946) provides the authority to grant leases to nonprofit organizations at recreation facilities in reservoir areas at reduced or nominal charges.

1.2.4. Fish and Wildlife Coordination Act. The Fish and Wildlife Coordination Act of 1958 (Public Law 85-624, approved 12 August 1958) requires that fish and wildlife conservation receive equal consideration with other project purposes. The act further requires coordination of other features of water resources development projects with fish and wildlife considerations.

1.2.5. Forest Cover Act. The Forest Cover Act of 1960 (Public Law 86-717) requires that reservoir project lands owned in fee be developed and maintained to encourage, promote and assure future resources of readily available timber and to increase the value of such areas for conservation, recreation and other beneficial uses, provided that these activities, including timbering, are consistent with and do not adversely affect other project resources. The Chief of Engineers is required by this law to provide for the protection and development of forest or other vegetative cover and the establishment and maintenance of other conservation measures on reservoir lands to yield the maximum benefit and otherwise improve such areas.

1.2.6. Federal Water Project Recreation Act. The Federal Water Project Recreation Act (Public Law 89-72, approved on 9 July 1965,) establishes development of the recreational potential at Federal water resources projects as a full project purpose and provides for cost sharing of recreational development at new flood control projects. The act requires beneficiaries to bear part of the cost of installing and all the cost of managing recreation developments. It also sanctions collection of use fees for services by non-Federal agencies administering the recreation resources of Federal projects. The act's cost-sharing principles have been applied administratively to completed projects such as Youghiogheny River Lake.

1.2.7. National Historic Preservation Act. The National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665), as amended, requires Federal agencies to establish a program to locate, inventory and nominate to the Secretary of the Interior all properties under the agency's ownership or control that appear to qualify for inclusion on the National Register of Historic Places. In addition, with any proposed Federal or Federally assisted undertaking, the agency must take into account the effect of the undertaking on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register.

1.2.8. National Environmental Policy Act. The National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, approved 1 January 1970) requires Federal agencies to give appropriate consideration to environmental amenities and values along with economic and technical considerations in their activities and to prepare an environmental impact statement for all major Federal actions significantly affecting the quality of the human environment. The Council on Environmental Quality has issued binding regulations (40 Code of Federal Regulations 1500-1508) to be used in complying with NEPA.

1.2.9. Architectural Barriers Act of 1968. This act (Public Law 90-480, approved 12 August 1968) requires that buildings financed with Federal funds be designed and constructed to be accessible to the physically challenged.

1.2.10. Endangered Species Act. The Endangered Species Act of 1973 (Public Law 93-205 approved 28 December 1973), as amended (Public Laws 95-632, 96-159 and 97-304), states that the policy of Congress is that all Federal departments and agencies shall seek to conserve endangered and threatened species and shall use their authorities in furtherance of the purposes of the act.

1.2.11. Rehabilitation Act of 1973 and Rehabilitation Act Amendments of 1974. These acts (Public Law 93-112 approved 1 October 1973 and Public Law 93-516 state that no handicapped individual shall, solely by reason of his or her handicap, be excluded from participation in, be denied benefits of or be subjected to discrimination under any program or activity receiving Federal financial assistance.

1.2.12. Archeological and Historic Preservation Act. The Archeological and Historic Preservation Act of 1974 (Public Law 86-532, approved 27 June 1960) provides certain protection and coordination requirements for cultural resources in connection with Federal construction or Federally licensed projects.

1.2.13. Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978. These amendments to Public Law 95-602 provide guidelines regarding the Corps' responsibility to provide access to programs and activities for persons with disabilities.

1.2.14. The Archeological Resources Protection Act of 1979. This act (Public Law 96-95, approved 31 October 1979) provides for the protection of Federally owned archeological sites and artifacts through the provision of civil and criminal penalties.

1.2.15. Water Resources Development Act of 1986. The Water Resource Development Act of 1986 (Public Law 99-662, approved 17 November 1986) defines the basis for sharing the financial responsibilities in joint Federal/non-Federal development, enhancement, and management of recreation and fish and wildlife resources at Federal water resource development projects. This law also "grandfathers" docks that existed on the lake before 16 November 1986.

1.2.16. Water Resources Development Act of 1988. The Water Resources Development Act of 1988 (Public Law 100-676) redefined "recreation" at Youghiogheny River Lake. In Section 6, downstream whitewater activities that depend on project operations, recreational fishing and boating at the project are included as authorized project purposes and, as such, must be considered in project planning to the extent of their compatibility with other project purposes.

1.2.17. Americans with Disabilities Act of 1990. The Americans with Disabilities Act (ADA) of 1990 (Public Law 101-336, approved 26 July 1990) guarantees that individuals who are physically challenged will receive equal opportunities in employment, public accommodations, transportation and government services. The ADA requires that public accommodation include reasonable modifications to policies, procedures, and practices based on obstacles at the site to people who are physically challenged.

1.3. PERTINENT PRIOR REPORTS AND DOCUMENTS

1.3.1. The Master Plan Update. This Master Plan update was prepared as a guide for resource development and management of Youghiogheny River Lake. Its preparation included consideration of project purposes, natural and manmade resources, operations, resource use objectives, constraints and capabilities, supply and demand, recreational trends and regional recreation facilities. The previous update of the Youghiogheny River Lake Master Plan was approved in November 1982. Since that time, two supplements were prepared and approved:

- Youghiogheny River Lake, Maryland, Master Plan Supplement, Buffalo Run Natural Area, 20 April 1987, approved 27 May 1987.

- Youghiogheny River Lake, Pennsylvania, Design Memorandum No. 2, Master Plan Supplement, Youghiogheny Recreation Area-Below the Dam, 27 April 1988, approved 28 June 1988.

1.3.2. Reservoir Regulation Manual. The Reservoir Regulation Manual prepared in October 1978 and revised June 1979 contains specific information and instructions regarding flood control and low-flow augmentation procedures.

The manual outlines the methods for predicting flood flows into the reservoir and for regulation storage and release from the reservoir. Pertinent features for the dam are listed. Basin characteristics and hydrology are described. Incidental provision of recreational benefits is also included.

1.3.3. Water Supply Potential of Youghiogheny River Lake – August 1981 and Supplemental Report – November 1983. These reports were prepared under the authority of Section 22 of the Water Resources Development Act of 1974 (Public Law 93-251) for the Commonwealth of Pennsylvania. The focus was to investigate the capability of water supply potential of Youghiogheny River Lake through various alternatives. These alternatives included structural modifications, reauthorization of storage use to raise the summer pool elevation and modified the release schedule.

1.3.4. Safety Plan. This plan was approved in February 1979. The Safety Plan (on file in the District) was developed to assist project personnel in identifying safety hazards and unsafe conditions. It establishes standard operating procedures to be followed in case of an emergency and is now incorporated into the Operational Management Plan.

The Safety Plan provides a complete list of all supporting law enforcement agencies. In addition, Section 120 of Public Law 94-587 authorizes the U.S. Army Corps of Engineers to contract with these police forces to provide increased law enforcement during peak visitation.

Currently, the Corps works with state and local agencies that, in addition to its project personnel, provide patrols and law enforcement at the project. The Garrett County Sheriff's Department patrols the Maryland portion of the project. The Pennsylvania State Police respond to problems in the Pennsylvania portion of the project from posts in both Fayette and Somerset Counties. According to project operations personnel, since an alcohol ban was instituted at the project, law enforcement problems have decreased significantly.

On the lake itself, project personnel and those of the Pennsylvania Fish and Boat Commission provide regular boat patrols and issue citations as needed. In addition, the U.S. Coast Guard Auxiliary provides courtesy patrols of the lake.

The project Resource Manager, under the Citation Program (Section 234 of Public Law 91-611), has the authority to issue oral and written citations for refuse dumping and other violations of the project's rules and regulations, although the project’s rangers who also have the authority to issue citations carry out most such activity.

1.3.5. Forest, Fish, and Wildlife Management Plan. The Forest, Fish, and Wildlife Management Plan (on file in the District) was approved on 29 December 1977 and is a statement of general policies and procedures to be applied in protecting and managing all the biota of the lands and waters of the project. It has been incorporated into the Operational Management Plan.

1.3.6. Fire Protection Plan. Approved on 15 September 1977, the Fire Protection Plan (on file in the District) contains the fire management policy for Youghiogheny River Lake. The plan serves as a guide for the project in preventing and controlling forest and grassland fires at Youghiogheny River Lake. Highlights of the plan, which has been incorporated into the Operational Management Plan, include general instructions and telephone numbers for key personnel, firefighting stations, and available equipment and personnel to assure a quick response.

All fire departments in the general region of which the project is a part maintain mutual aid agreements and will respond to assist other departments and the project with personnel and equipment.

1.3.7. Water Quality Report. The Water Quality Report, dated June 1978, contains information on water quality data collection, analysis, and evaluation of the Youghiogheny River Lake waters. The report includes recommendations on the operation of the reservoir system and on continued monitoring.

1.3.8. Shoreline Management Plan. The Shoreline Management Plan (on file in the District) presents policy and guidance on the protection of desirable environmental characteristics at Youghiogheny River Lake and addresses restoration of the shoreline where degradation has occurred. Essentially, it is designed to control the private exclusive use of project land and water and the environmental and recreational problems associated with such use. The plan honors past written commitments to individuals for their private, exclusive use of public lands or waters and regulates any such use by a permit or out grant instrument. Currently, project personnel monitor any erosion of the lake shoreline. The Shoreline Management Plan has been incorporated into the Operations Management Plan.

1.3.9. Flood Emergency Plan. The Flood Emergency Plan is the action plan for the Youghiogheny River in the event of a dam failure. The plan provides a guide for action to identify and mitigate or respond to different degrees of emergency, such as excess seepage, erosion of the downstream face of the dam, slope failure, and sabotage.

1.3.10. Operational Management Plan. This plan prepared by the Operations and Readiness Division of the Pittsburgh District provides policy and procedural guidance for the professional operation, administration, and management of the project by field personnel. The Plan was prepared in accordance with Engineering Regulation 1130-2-400, Project Operation Management of Natural Resources, and Outdoor Recreation at Civil Works Water Resources Projects and with Great Lakes and Ohio River Division Regulation 1130-2-27 dated 1 May 1985. Incorporated in the Operational Management Plan are the Safety Plan, the Forest, Fish and Wildlife Management Plan, the Fire Protection Plan and the Shoreline Management Plan.

1.3.11 Historic Properties Investigation. A report entitled "Phase I Historic Properties Investigation, Youghiogheny River lake Project, Fayette and Somerset Counties, Pennsylvania and Garrett County, Maryland" was prepared in 1992 by a consultant. The report indicates that the results of the sampling identified six archaeological sites with the possibility of others.

1.4. SCOPE OF THE MASTER PLAN

In keeping with Corps of Engineers planning policy, this updated Master Plan is a working document that contains information, analyses, and guidelines for the operation and administration of all facilities and land and water areas of the project. This is in accordance with specifically and generally authorized purposes and for the protection and enhancement of recreational opportunities, fish and wildlife management, and environmental quality. Subsequent aspects of planning, development and management for the overall project and for specific portions of the project, including outgrants, are required to be consistent with the zoning and resource use objectives presented in this Master Plan. The Master Plan is both flexible and conceptual by design and is subject to revision as required to accommodate changing needs and conditions.

The Master Plan contains evaluations of project resources which were used to develop policies that permit and encourage their protection, conservation and development, as appropriate, to provide for their best disposition. This evaluation focused on project lands, waters, included consideration of scenic, cultural, recreational, fish, and wildlife values.

An evaluation of the project purpose of flood control and the operation and maintenance of structures associated with this purpose are outside the scope of this Master Plan. However, it is based on an understanding of the operation of the project for its flood control purpose and other hydrologic and biologically based functions. Accordingly, management recommendations and proposed

improvements relative to public use and wildlife management are formulated to be in harmony with all of the project's purposes and functions.

1.5. MASTER PLAN OBJECTIVES AND FORMAT

1.5.1. Master Plan Objectives. This updated Youghiogheny River Lake Master Plan replaces the Master Land Use Plan of April 1982, which is outdated by its age and the growing demand for existing use of project resources. The objective of this updated Master Plan is to provide a comprehensive review of the existing natural and recreational resources of the project area. Also, to provide a comprehensive guide to the sensitive, wise and orderly use, development, protection and conservation of the natural and recreational resources of the Youghiogheny River Lake project over the next 10 to 15 years.

1.5.2. Master Plan Format. The scale, order, and level of data presented in this updated Master Plan have been guided by Chapter 7 (Recreational and Environmental Studies) of Great Lakes and Ohio River Division Regulation 1105-2-2, dated 1 October 1988. Adaptations necessitated by local site conditions or needs and to enhance readability are included.

1.6. COORDINATION

Input from the public and from other Federal, state and local agencies constituted an important element of the entire Youghiogheny River Lake Master Plan updating process. This input identified regional and local concerns, helped determine potential resource uses and evaluated alternative plans for implementing project resource use. Key points of public involvement are described below.

Before work began on this update of the Youghiogheny River Lake Master Plan, the Youghiogheny River Lake Shoreline Management Plan was updated in January 1987. The preparation of that document included a round of three meetings held at three different locations from 22 through 26 October 1985 to solicit comment from the general public and individuals from around the lake. Following these meetings, a 30-day comment period was used to gather written comments from those who could not attend the meetings.

When work began on this updated Master Plan, an initial coordination meeting was held. It involved the Corps of Engineers and representatives of various agencies and organizations with interests in the Youghiogheny River Lake project.

In concert with the Waterways Experiment Station study, a user survey was conducted at the lake during the 1992 summer boating season. The survey, administered to approximately 400 people, was used to determine the social carrying capacity of boating on the lake, as well as to acquire a sense of how boaters use the lake.

On 21 and 22 August 1992, an open house was held at the project office. A news release was sent to the various newspapers, area organizations, and interested individuals to provide notice that the Master Plan was being updated and to request comments or suggestions from the public.

An open house and public meeting was conducted on 8 July 1994 to present the preferred land and water use plans for Youghiogheny River Lake and to invite public comment on those plans. The meeting was preceded by distribution of a mailed pamphlet describing the preferred plan and encouraging people to come to the meeting with their questions and comments or to submit their comments by letter. Where feasible, the Master Plan was revised in response to the comments received.

On 23 and 24 August 1996, an open house was held at the project office. A news release announcing the open house was sent to area newspapers and organizations. Because some previous project open houses were attended primarily by those interested in obtaining permits for private docks, which can be handled by project personnel in the normal course of every day project business, owners of private real estate around the lake were not targeted through a specific mailing. As a result, only two individuals who were concerned about the same local drainage problem attended open house, which was not productive from a master planning perspective.

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CHAPTER 2. PROJECT DESCRIPTION

2.1. INTRODUCTION

This chapter includes general descriptions of the Youghiogheny River Lake project area, the project structures (see TABLE 2-2), reservoir operation, non-Federal hydroelectric power, water quality, and Federal land ownership. It also explains how the operation, management, and development of the project is enhanced or constrained because of particular project features.

2.2. LOCATION AND SETTING

Youghiogheny River Lake is located on the Youghiogheny River in southwestern Pennsylvania (Fayette and Somerset Counties) and northwestern Maryland (Garrett County). Pittsburgh is approximately 70 miles northwest of the project site. The Youghiogheny River generally flows toward the northwest and its confluence with the Monongahela River at McKeesport just south of Pittsburgh. PLATE 1 shows the location of the project and major highways in the region. The dam is located 1.2 miles upstream from Confluence, Pennsylvania. The project extends southward approximately 17 miles to Friendsville, Maryland. The watershed that drains into Youghiogheny River Lake contains 434 square miles.

2.3. LAND ALLOCATIONS

The Federally controlled land area at Youghiogheny River Lake totals 3,915.52 acres. Of that area, the Federal Government owns 3,914.9 acres in fee with 2,846 acres in Pennsylvania and 1,068 acres in Maryland. The remaining 0.62-acre consists of easement lands. All of the project lands were acquired for operational requirements, including the dam site, lake area, construction areas, road and utility relocations and support facilities and structures. Separable lands have not been acquired at Youghiogheny River Lake for recreation or for any other purpose. Because of the purpose for which they were acquired, there are no project lands that are available for excessing, and it is highly unlikely that any will become available in the future.

2.4. OUTGRANTS

The Corps of Engineers has out granted portions of project lands to the Pennsylvania Fish and Boat Commission for fish management and boat-

launching facilities, the Boy Scouts of America for group camping facilities, a commercial concessionaire for marina facilities and the Maryland Department of Natural Resources for wildlife management. The Federal Energy Regulatory Commission has granted a license to a private development corporation for hydropower facilities. TABLE 2-1 summarizes these outgrants.

TABLE 2-1
PROJECT OUT GRANT DATA

Type	Grantee	Purpose	Acreage	Term	Expiration Date
Lease	Penn's Woods Boy Scouts	Parks and Recreation	53.38	10 yrs.	30 Jul 2007
License	D/R Hydro, Inc.	Hydropower Facility	2.62	50 yrs.	31 Jul 2035
Lease	Leskinen Enterprises	Concession	10.80	25 yrs.	30 Apr 2024
License	State of Maryland, DNR	Wildlife & Game Mgmt	850.79	25 yrs.	31 Jul 2005
License	PA Fish & Boat Commission	Fish Mgmt.	2,147	25 yrs.	26 Jul 2025
Lease	PA Fish & Boat Commission	Parks and Recreation	7.12	25 yrs.	31 Oct 2018
Lease	Town of Friendsville, MD	Park and Recreation	19.6	25 yrs.	28 Feb 2026
License	Chestnut Ridge Chapter of Trout Unlimited	Trout Rearing Station	.5-1	5 yrs.	14 Jun 2006

2.5. EXISTING REGULATIONS

2.5.1. Private Dock Permit Moratorium. In response to growing concern regarding boating safety brought about by apparent overcrowding of Youghiogheny River Lake, a moratorium freezing the number of private dock permits issued was imposed by the Pittsburgh District in 1987. The moratorium was also issued so the Corps could study boating safety and capacity on the lake in order to determine the best course of action to take concerning private docks. Since that time, boating studies have been conducted. They have concluded that, while private docks do contribute to an increased number of boats on the lake, other issues are of equal concern. Negative impacts have also been experienced in the maintenance of aesthetics and natural shorelines, erosion control and reduced availability of boating areas with the construction of more private docks.

The 1992 Waterways Experiment Station report considered how lifting the moratorium would affect boating safety and capacity. Although that report stated that most boats in operation at peak use times do not originate from private docks, the recommendation that the moratorium be maintained indicates that private dock users contribute to peak-period traffic. Analysis of additional boating density studies undertaken in the 1992-1996 and 1999-2003 time periods resulted in the same conclusions and a decision to continue the moratorium on additional private docks at the lake.

2.5.2. Boating Regulation and Enforcement. Recreational boating is regulated and enforced by both the Corps of Engineers and the Pennsylvania Fish and Boat Commission. Both agencies routinely patrol the lake to assure conformance with existing regulations. Each agency publishes its regulations in pamphlet form for convenient boater education and reference. The Corps of Engineers enforces the part of the regulations set forth in the Code of Federal Regulations, Title 36 that concern boating. These regulations are reproduced in the pamphlet, *Federal Requirements and Safety Tips for Recreational Boats*. They cover boat registration, boating laws, equipment requirements, pollution regulations, operating procedures and safety and survival tips. The Pennsylvania Fish and Boat Commission produces the *Boating Handbook*, which contains similar information.

To assist both enforcement agencies, the U.S. Coast Guard Auxiliary provides courtesy patrols on the lake. Although these patrols have no enforcement function, they provide assistance for routine public services such as performing courtesy marine examinations, towing stranded boats and teaching boating safety classes.

2.6. OPERATIONAL FACILITIES AND STRUCTURES

2.6.1. Youghiogheny River Lake Dam and Spillway. The dam is of the rolled-earth fill type with an impervious core. It has been operated and maintained since October 1943 and was placed in full operation in January 1948. It rises 184 feet above the riverbed and has a total length of 1,610 ft. The overflow section is an uncontrolled side channel spillway 344.4 ft. in width and has a crest elevation of 1468 ft. NGVD. Water is discharged from the reservoir through a concrete-lined tunnel 18 ft. in diameter and 1,800 ft. long. A steel liner was placed inside the lower 1,000 ft. of this tunnel to reduce the inner diameter to 16.5 feet. Water is diverted to the hydropower facility through a 100-ft. long steel penstock of variable (12-feet to 14-feet) diameter that branches into two 7-ft. diameter penstocks. When flow exceeds the capacity of the hydroelectric power plant, the excess water is released through a wheel gate structure. This gate

also backs up water into the tunnel so it can enter the penstock leading to the power plant. Flow also can be regulated by three 4'-3" X 20'-0" vertical lift gates with their invert elevations at 1316.64 ft. NGVD. TABLE 2-2 provides information on the dam and spillway.

TABLE 2-2
PROJECT STRUCTURES DATA

Structure	Data
Dam	
Type	Rolled Earth Fill, Impervious Core
Top Length	1,610 feet
Top Width	25 ft.
Stream Bed Elevation	1,313 ft. (NGVD)
Roadway Elevation	1,497 ft. (NGVD)
Spillway	
Type	Uncontrolled Side Channel
Crest Elevation	1,468 ft. (NGVD)
Width	344.4 ft.
Outlet Works	
Tunnel, Concrete with Steel-Lined Sleeve	1,800 ft.
Concrete Length/Diameter	800 ft./18 ft.
Steel Sleeve/Diameter	1,000 ft./16.5 ft.
Motor-Operated Vertical Lift Gates	3 @ 4’3” x 20’0”
Invert of Gates, Elevation	1,316.64 ft. (NGVD)
Intake Structure, R.C. Shaft with Control Tunnel Invert	181.4 ft. above Tower Operating Floor

Source: U.S. Army Corps of Engineers.

2.6.2. Roads on Project Lands. Roads on project lands are limited by the virtual absence of freeboard and steep topography. They are generally found only in established recreation and operational areas surrounding the lake. Aside from access to the dam structure and the project office, roads are found in the Youghiogheny, Mill Run, Braddock Run, and Tub Run Recreation Areas. Gated access roads serve the Wilkins Hollow (now a part of the Youghiogheny Wildlife Area) and Buffalo Run areas. U.S. Route 40 (the National Road) cuts across the central part of the project. This highway provides access to the Somerfield North, Somerfield South and Jockey Hollow Recreation Areas as well as the Jockey Hollow Boat Launch Area. Interior project roads also serve three of these

four areas. The Jockey Hollow Recreation Area roads are short access ways leading from the highway to the parking area.

2.6.3. Public Use Facilities. There are ten established recreation areas to serve visitors to Youghiogheny River Lake. Included among the facilities are those for picnicking, camping, boating and swimming. TABLE 2-3 provides a list of these facilities by recreation area.

2.6.3.1. Picnicking. There are five picnic areas at the Youghiogheny River Lake: Jockey Hollow, Somerfield North, Outflow Recreation Area and two sites at the Youghiogheny Recreation Area. These four areas provide picnic tables and 2 shelters. The shelter at Somerfield North is not accessible. The shelter in the day-use part of the Outflow Recreation Area below the dam is accessible. Drinking water and restrooms are provided at all areas with picnicking facilities.

2.6.3.2. Camping. Camping areas at Mill Run, Tub Run, and the Outflow Recreation Areas provide Youghiogheny River Lake with 192 individual campsites and 2 group campsites. All three camping areas have drinking water, restrooms, and trailer sanitary stations. Showers are also available for campers at the Outflow Recreation Area and Tub Run Recreation Area.

2.6.3.3. Boating. Youghiogheny River Lake is both an excellent and a popular facility for many types of boating. About 575,000 people visit the lake each year and 13% of those use the lake for boating. The most popular boating and boating-dependent activities include fishing during the week and pleasure cruising and water-skiing on the weekends. This “displacement,” or separation of uses, has occurred naturally (without time management regulations) because of the incompatibility between the more intensive activities (power boating and water-skiing) and fishing. Other types of boating, such as canoeing and the use of personal watercraft, which is increasing, are also common activities on the lake. To a limited extent, paddle boating, kayaking, sailing, and sail boarding also occur at Youghiogheny River Lake.

TABLE 2-3
EXISTING PUBLIC USE FACILITIES

Site	Acres (From Utiliz. Inspect).	Agency	Fees	Type	Facilities						
					Picnic Tables	Camping Spaces	Boat-Launching Lanes	Docks	Parking		Swim Area
									Cars	Trailers	
B. Outflow Rec Area	45	Corps	Yes	Overnight	1 Group	61, 2 group	0	0	35	0	No
C. Youghiogheny Rec Area (Spillway)	6	Corps	Yes[1]	Day-Use	14	0	2	1	120	57	Yes
Youghiogheny Rec Area (Poplar Hollow)	3	Corps	No	Day-Use	7	0	0	0	36	0	No
F. Somerfield North	13	Corps	Yes[1]	Day-use	30 1 Group	0	2	1	115	51	No
G. Somerfield South	11	Concession	Yes	Marina	0	0	2	316	112	0	No
H. Braddock Run	53	Penn's Wood Boy Scouts	No	Overnight	0	1 Group	0	0	0	0	No
I. Mill Run	8	Corps	Yes	Overnight	0	30	1	0	10	5	Yes
L. Selbysport	2	MD DNR	No	Day-Use	0	0	1	0	10	5	No
O. Jockey Hollow - Boat-Launching Area	7	PA Fish & Boat Comm.	No	Day-Use	0	0	2	1	1	40	No
P. Jockey Hollow - Picnic Area	3	Corps	No	Day-Use Visitor Center	7	0	0	0	15	6	No
Q. Tub Run	50	Corps	Yes	Overnight	0	101	1	0	34	5	Yes
Total Facilities	**201**				**58** **2 Group**	**192** **2 Group**	**11**	**319**	**488**	**169**	**3**

[1] Charge for Boat Launching

Youghiogheny River Lake, with its clear water, rugged, natural landscape, and good stock of fish, draws users from several states. Most boaters come from southwestern Pennsylvania and in particular from the Pittsburgh metropolitan area (only a two-hour drive), as well as from West Virginia. Residents of Maryland and Washington, D.C., (a three-hour drive) also visit the lake.

The public boating facilities at Youghiogheny River Lake are perceived to be in good condition by those who use them. The public has access to the lake by way of four boat launching ramps. Ramps and parking facilities are located at the Mill Run Recreation Area, the Somerfield North Recreation Area, the Jockey Hollow Boat Launch Area and the Youghiogheny Recreation Area. The Mill Run Recreation Area is a campground with a one-lane ramp. The Somerfield North Recreation Area is a day-use area with a two-lane ramp and 51 paved parking spaces intended for use by vehicles with trailers. The Jockey Hollow Boat Launching Area is an area with a two-lane ramp and 40 paved parking spaces. The Youghiogheny Recreation Area is a day-use area at the spillway with a two-lane ramp that is usable to elevation 1392 and 57 paved parking spaces. The Tub Run Recreation Area also has a two-lane boat-launching ramp; however, this facility is reserved for those using the campground. In addition, the Somerfield South Marina allows the public to use its boat-launching ramp Mondays through Fridays. The marina also has 316 slips available for rent and 112 parking spaces. The only fueling station on the lake, providing between 80,000 and 100,000 gallons of gasoline to boaters per season, is located at the Somerfield South Marina.

In addition to those at the marina, there are approximately 743 private slips along the shore. Of these, 441 are for private residences, mostly summer homes, on private property adjacent to Corps property; 14 boat clubs use the remaining 302 slips.

One notable deficiency in boating facilities at Youghiogheny River Lake is the lack of a sanitary disposal station. Currently, most waste from onboard toilet facilities is discharged directly into the lake. A minority of boaters, however, deposit onboard waste in restroom facilities on shore.

2.6.3.4 Boating and Capacity Study. In order to understand boating safety and capacity issues, the Corps of Engineers' Waterways Experiment Station (WES), in partnership with the Pittsburgh District and the Pennsylvania Fish and Boat Commission, conducted a study in the summer of 1992 and prepared a report in May 1993 that summarizes the results of the study. The report is entitled A Pilot Test of the Quality Upgrading and Learning (QUAL) Carrying Capacity Process at Youghiogheny River Lake. The 1992 study followed a 1982 study of boating entitled Youghiogheny Lake Boating Capacity.

Currently, no Federal or state density standards (e.g., in acres per boat or boats per acre) have been established as representative of safe boating capacity. It is very difficult to determine such a standard with any accuracy because of variations in boat types, uses and pool elevations. The QUAL process attempts to approximate safe boating conditions using boaters' perceptions at specific recreation sites.

Using the QUAL recreational carrying capacity process which included "on the water" counts and exit and mail-back surveys, the WES study documented types of boating activity, peak use and activity periods as well as boaters' perceptions of safety and capacity on Youghiogheny River Lake. The major findings of this study include the following:

- Boating has increased on Youghiogheny River Lake since 1982. In fact, each count taken in 1992 was between 25% and 57% higher than corresponding counts taken a decade earlier.

- Peak periods of boating occurred on weekends. Counts indicated that between 2.5 and 12.2 times as many boats were used on weekends as on weekdays. During the 1992 surveys, the largest number of boats on the lake at one time was 305. At summer pool, elevation 1439 NGVD with 2,830 surface acres, this represents an average density of 9.3 acres per boat. Given that Youghiogheny Lake generally experiences drawdown throughout the summer as a result of releases related to other project purposes, it should be noted that the average acreage per boat decreases as the lake level recedes and boats are more confined to a shrinking pool.

- Different boating activities are more prominent on different days. Fishing boats are the primary boat type observed on weekdays, and ski boats and runabouts comprise 60% to 70% of the boats on weekends.

- Boaters come to Youghiogheny River Lake for its natural features, undeveloped shoreline, clean and clear water, and opportunities for low-density water-based recreation.

- About one-third of boat launching ramp users reported seeing more boats than they preferred during their visits to Youghiogheny River Lake.

- Boating activity is least dense during the week and during early mornings and late afternoons on weekends. These times present good recreational opportunities for boaters who prefer less crowded conditions.

Based on the findings of the boating and capacity study, a decision was made to continue the private dock permit moratorium that was instituted in 1987 and recommended against expanding the project's marina and boat launching ramp

capacities. Boating studies conducted in subsequent years support that decision and the moratorium remains in effect.

2.6.3.5 Peak-Use Boat Traffic Study. To verify the process and the results of the 1992 QUAL study, the Pittsburgh District conducted peak-use period "on the water" boat counts at Youghiogheny River Lake from 1992 through 1996 and from 1999 through 2003. A report compiled following the 2003 boating study supports the following conclusions:

- The peak density of boat traffic has increased since 1982. The greatest boat-traffic density reported in the 1982 study was 13.19 acres/boat. In comparison, the highest density estimated each year from 1992 through 1996 was 8.97, 8.91, 9.64, 9.28, and 7.60 respectively. Corresponding figures from 1999 through 2003 are 8.22, 9.99, 9.60, 10.12 and 9.55, respectively.

- During the study period, there was no definite pattern concerning the total number of boats on the Lake during peak-use periods.

- More speedboats / runabouts and ski boats are on the Lake during peak-use periods than any other type of boat.

- The percentage of all boats comprised of speedboats/runabouts and ski boats during peak-use periods decreased steadily from 1992 through 1996 while the percentage of all boats comprised of personal watercraft increased from 1993 through 1996.

- Concerning boat point of origin during peak-use periods: 1) more boats (42%) originated from day-use launch ramps than any other point of origin; 2) the percentage of all boats from the Marina and from private boat docks and clubs was 28% and 25% respectively; and 3) Tub Run Campground was the source of only a small percentage (5%) of the boats on the lake.

Corps of Engineers and Pennsylvania Fish and Boat Commission personnel with expertise in boating as a recreational activity concur with the results of these boating studies, citing consistency with their own observations of boating activity on Youghiogheny River Lake. As with the 1992 study, it is reasonable to expect that these trends will continue into the near future.

2.6.3.6. Swimming. Three swimming areas are provided at Youghiogheny River Lake: at the Tub Run, Mill Run, and the Youghiogheny Recreation Area (spillway). Most swimmers at the project use the Youghiogheny Recreation Area (spillway). Tub Run and Mill Run are unique because they share their location with camping areas and are used mostly by campers.

2.6.3.7. Information Center. A Visitor Information Center is located in the Jockey Hollow Recreation Area. It is located on Route 40, to serve the traveling public as well as the lake users. Due to staffing and budget reductions, the Center is currently closed, although there is potential for it to reopen if a partner comes forward with a proposal to operate and maintain it. Visitors can still obtain information at the Resource Manager's Office located at the west end of the dam.

2.6.4. Operations Facilities. The project operations and ranger's offices are located at the dam on the west abutment while the maintenance and control buildings are located across the dam on the east abutment. Resources for Youghiogheny River Lake are managed out of these two areas, which include office buildings, maintenance shop, and storage area for vehicles and equipment.

2.6.5. Sanitary Facilities. Youghiogheny River Lake's solid waste management responsibilities are contracted out to a private contractor. The areas under contract include the project's four recreation areas, the dam area, and the resource manager's office.

Wastewater treatment systems have been developed to meet the needs of all recreation areas in the Youghiogheny River Lake. The Outflow Recreation Area and the buildings formerly used as project residences are tied to the Borough of Confluence sewage system. Septic systems are used at the resource manager's office, ranger offices, maintenance building, control tower, and Somerfield Recreation Areas. Primary treatment is provided at Tub Run Recreation Area. For a more complete description of sanitary facilities currently in place at the project, refer to TABLE 2-4.

TABLE 2-4
EXISTING WATER AND SANITARY FACILITIES

Site	Agency	Water				Sanitary Facilities			
		Potable	Source	Capacity (gpd)	Current Demand (gal.)	Type	Wastewater Treatment		
							Type	Capacity	Current Load
B. Youghiogheny Rec Area	Corps	Yes	Well	2,000	1,200-1,400	1 Washhouse 2 Restrooms[1] Dump Station	Plant	Confluence Municipal System	Confluence Municipal System
C. Youghiogheny Rec Area - (Spillway)	Corps	No	N/A	N/A	N/A	Vaulted Pit[2]	Vault	4,000 g	Pumped As Needed
Youghiogheny Rec Area (Poplar Hollow)	Corps	Yes	Bottled	N/A	500-600	Restroom	Septic	10,000 g	Pumped As Needed
F. Somerfield North	Corps	Yes	Well	3,000	1,000	Restroom	Septic	4,000 g Tank	Pumped As Needed
G. Somerfield South	Concession	Yes	Well	3,000	1,000	Restroom	Septic	2,500 g Tank	Pumped As Needed
H. Braddock Run	Penn's Wood Boy Scouts	No	N/A	N/A	N/A	None	N/A	N/A	N/A
I. Mill Run	Corps	Yes	Well	3,000	2,600	Vaulted Restroom Dump Station	Vault	7,000 g 1,000 g	Pumped As Needed[3]
L. Selbysport	Corps	No	N/A	N/A	N/A	None	N/A	N/A	N/A
O. Jockey Hollow - Boat- Launch Area	PA Fish Com.	No	N/A	N/A	N/A	Vaulted Pit	Vault Portable	N/A	Pumped As Needed
P. Jockey Hollow - Picnic Area	Corps	Yes	Well	500	300-400	Restroom	Vault	1,000 g	Pumped As Needed[3]
Q. Tub Run	Corps	Yes	Well	4,000	2,500	2 Washhouses 1 Restroom Dump Station	Plant	20,000 gpd	8,400 gpd

[1] Restrooms are waterborne.
[2] Toilets are not waterborne.
[3] Transported to Deep Creek treatment plant.

Some sanitation management problems have been identified at the project. The steel maintenance building and wood shop do not have restroom facilities. At Jockey Hollow, there are no venting systems for the holding tank, causing odors. At the ranger office, both the public and office restrooms have disagreeable odors due to poor venting. The treatment plant at Tub Run does not have a restroom or shower. Lastly, the lack of a dump station for boats is conducive to discharging holding tanks directly into the lake.

There is also a problem at the Commonwealth-operated Jockey Hollow Boat Launch Area. The Commonwealth no longer provides any type of restroom facility, nor do they provide refuse dumpsters.

2.6.6. Reservoir Operation. Youghiogheny River Lake, with a drainage area of 434 square miles, is operated as a flood control project while maintaining low-flow augmentation downstream. During winter and early spring, excess stream flow is stored in the reservoir until the normal winter low-water regulation pool, elevation 1,419, is reached. The pool at this elevation has a surface area of 2,300 acres and a storage capacity of 100,300 acre-feet. The 1,419-foot elevation is not exceeded before March 1 unless temporary flood control storage is required. After March 1 and before April 1, additional excess stream flow is impounded until the maximum summer conservation pool at elevation 1,439 ft. is reached. The reservoir at this level has an area of 2,830 acres and storage capacity of 151,800 acre-feet. At elevation 1,470 ft. (full pool) the reservoir has an area of 3,540 acres and a maximum flood storage capacity of 250,600 acre-feet.

Project personnel remain alert to the possibility of pollution problems within Youghiogheny River Lake, including accidental spills, unauthorized sewage and wastewater discharge, and illegal dumping of hazardous and toxic materials. A standard operating procedure (SOP) has been developed for oil and hazardous chemical spills in the project in the Operation Management Plan. The SOP identifies the proper federal, state, and local agencies that need to be contacted to coordinate the effort.

The most serious water quality problem in the Youghiogheny River Valley has been acid mine drainage. The most significant source of acid mine drainage in the basin is the Casselman River, which enters the Youghiogheny River 1.2 miles downstream from the Youghiogheny Dam. The principal monitoring point for the watershed is at a water quality monitoring station at Confluence, Pennsylvania. When unusual acid conditions are reported there, additional water is discharged from the project to mitigate acid levels.

During the summer, water is released to provide low-flow augmentation of the Youghiogheny River downstream of the project. During the drier summer months

when water entering the lake is less than the water required for low-flow augmentation, the pool elevation is lowered. The low-flow augmentation provides adequate water volume to dilute pollution and for fisheries and provides a significant benefit for white-water rafting. The operation of the hydropower facility has no influence on the amount and time of any release of water.

2.6.7. Other Considerations. Although the reservoir is operated in a manner to provide optimum benefits for recreation, wildlife, and fisheries programs within the parameters of the reservoir's original purposes, the fluctuating pool elevations place constraints on these programs. Water releases during the peak recreation season for low-flow augmentation at a time when flows into the lake are historically low results in a reduction of the total surface water acres that are available for boating use. This draw down exposes mud flats along the shoreline, which detracts from the visual quality of the recreational experience, and inhibits and reduces recreation potential for boaters. The degree of severity of the impact on flat-water recreation is directly related to the amount of draw down required. During dry years, the impact is most severe with draw downs of 30 feet or more during the recreation season. The most extensive mud flats occur in bays and in the Maryland portion of the project. The Maryland portion has extensive mud flats even in normal years, thereby decreasing the desirability of flat-water recreation in that state. (However, it should be noted that mud flats are of great benefit to various species of wildlife.) At elevation 1,395 ft., only the old river channel in the Maryland portion of the reservoir remains open water. October 1 is considered the last date of the boating season, the average pool elevation for this date is elevation 1412.0 ft. Extensive draw downs also inhibit accessibility to the water at the boat-launching ramps throughout the reservoir.

The fluctuation of water levels does not allow establishment of rooted aquatic plants, which would improve habitat and food for fish and wildlife. The lack of rooted aquatics at Youghiogheny River Lake adversely affects the fishery's potential and is discussed in more detail in Chapter 3 of the Forest, Fish, and Wildlife Management Plan.

Maintenance of adequate flow below the dam is important to protect the trout fishery and the quality of white-water boating at Ohiopyle State Park. The trout fishery depends on adequate flow to maintain the amount of habitat available and to aid in buffering the acid mine drainage that occasionally occurs in the Casselman River. The cage culture trout nursery, constructed and operated by the Chestnut Ridge Chapter of Trout Unlimited (TU) in 1998, in cooperation with the U.S. Army Corps of Engineers, Pennsylvania Fish and Boat Commission and D/R Hydro, also depends on a year-round adequate flow of oxygenated water below the dam.

The white-water boating at Ohiopyle State Park is a significant regional recreation activity. The Flood Control Act of 1944 initially authorized recreation at Youghiogheny River Lake. Section 6 of the Water Resources Development Act of 1988 subsequently redefines recreation to specifically include downstream white-water recreation activities that depend on project operations, recreational fishing, and boating on water at the project. This law stops short, however, of allocating reservoir storage to recreation. Even under the 1988 Act, the protection and enhancement of recreation is conditional and based on the extent of the compatibility of recreation with other project purposes.

The Youghiogheny River Lake Water Management and Reallocation feasibility study was approved by the Assistant Secretary of the Army for Civil Works on August 4, 2005.

2.7. NONFEDERAL HYDROELECTRIC POWER

The Youghiogheny Hydroelectric Authority, a subsidiary of D/R HYDRO COMPANY, Monroeville, Pennsylvania, installed a hydropower facility. The facility began operation in December 1989.

Federal Energy Regulatory Commission (FERC) License No. 3623 was issued to the Borough of Seven Springs on 23 August 1985. The license was subsequently transferred to the Youghiogheny Hydroelectric Authority, who executed the applicable Memorandums of Agreement (MOA) with the COE and constructed the 12.2-megawatt (MW) generating facility. Construction was initiated in March 1988. This facility operates using normal reservoir discharges.

Shortly after the hydropower plant went into operation, public concern grew over the presence of dead and damaged fish in the tailrace area. Article 41 of the FERC license authorizing the project required that the licensee develop a study to assess the impacts of the hydropower project operation on fish resources. The fish sampling study was conducted over two 72-hour periods between 26 December 1992 and 2 January 1993. It entailed sampling the hydropower plant tailrace for three days followed by sampling flow from the Corps tunnel for three days. The entrainment study and subsequent mortality study both concluded that nearly all fish passing through the intake structure at the dam will perish from decompression trauma, regardless of whether they exit through the hydropower plant or through the tunnel, given reservoir and outflow conditions commonly found in the winter. The hydropower developer proposed a financial settlement for any game fish killed by the operation of the turbines, based on the results of the study, although the FERC has since issued an order removing any mitigation requirement.

When project releases are within the flow range of 250 to 1,600 cubic feet per second (cfs), the entire discharge is channeled into the penstock and through the powerhouse and is released into a stilling basin adjacent to the facility. Any flow in excess of 1,600 cfs is directed through the wheel gate structure at the end of the original outlet tunnel.

2.8. WATER QUALITY

Youghiogheny River Lake can be characterized as a clear, oligotrophic, and relatively cool impoundment that is well aerated to considerable depths throughout the year.

In general, the water quality of Youghiogheny River Lake is more than adequate for the realization of project purposes. Formerly, Youghiogheny River Lake was moderately degraded by acid mine drainage. In recent years, there has been significant mine drainage abatement in the basin controlled by Youghiogheny Dam, and the influence of acid mine drainage on the reservoir is negligible at the present time. This project currently supports an important two-story reservoir fishery and a popular cold-water tailrace fishery.

Low-flow augmentation downstream of Youghiogheny Dam mitigates the effects of acid mine drainage and domestic and industrial wastes in the Youghiogheny, lower Monongahela, and upper Ohio Rivers. A significant source of acid mine drainage in the basin is the Casselman River, which enters the Youghiogheny River 1.2 miles downstream of the Youghiogheny Dam. When unusual acid conditions are reported in the Casselman River, it is possible for additional water to be discharged from the project in a timely manner to mitigate acid slugs downstream in the Youghiogheny River. However, the water quality in the Casselman River has improved recently, making water discharges from the project a more infrequent occurrence. Mitigation of mine drainage and thermal and domestic pollution in the lower Monongahela River (Lock and Dam No. 2 Pool and the Monongahela Arm of the Emsworth Pool) has been particularly effective and is well documented.

2.9. LAND ACQUISITION

Acquisition criteria for the project were based on the requirements as authorized by the Flood Control Act of June 1938. The reservation boundary line from the dam to the upstream limits of the project was established to include all land below the flood pool elevation of 1,470 ft. Boundary limits at the dam site were established to include the land necessary for the construction, operation, and maintenance of the dam. Since elevation 1,470 ft. is the full pool elevation, there is no freeboard. The few tracts having substantial area above the flood pool contours were acquired in total due to lack of access.

In addition to fee simple acquisition, some minor perpetual flowage easements were also acquired. Leases were gained for road right-of-way to connect Youghiogheny Recreation Area to Pennsylvania Route 281; a radio antenna site along Legislative Route 383 (Flanigan Road), approximately 1 mile northeast of its westernmost junction with Pennsylvania Route 281, and approximately 1 mile due west of the dam site; and a water supply easement along Flanigan Road to connect a spring on the hillside to the recreation facilities at Youghiogheny Recreation Area (spillway) on the west side of the reservoir.

2.10. PROJECT DEVELOPMENT

Youghiogheny River Lake was authorized in 1938, limited operation was initiated in 1943, and full operation occurred in 1948. The Master Land Use Plan of 1950 proposed recreational development consisting of five day-use areas and seven camping areas to accommodate various recreational activities including boating, swimming, fishing, camping, picnicking, hunting, and hiking. Initial recreational development consisted of partially developing specific recreation areas, which closely followed the master land use plan. The initial developments were adequate for general public use in the early years of reservoir operations. Because recreation use increased rapidly and in response to public use patterns that indicated that changes in the initial plans might be desirable, the master land use plan was updated in 1966 by the preparation of Sections C1 through C3 and subsequent supplements. These documents were followed by the master plan update in 1982 and supplements addressing Buffalo Run and Youghiogheny Recreation Area. These provided revised guidelines for development of various recreation areas and were closely followed in the development of existing facilities on the project.

CHAPTER 3: NATURAL/CULTURAL RESOURCE ANALYSIS

3.1. INTRODUCTION

This chapter presents an inventory of the resources that are found within or affect the project area and discusses their significance and use. Key physical and environmental resources include physical geography, topography, geology, soils, water, vegetation, wildlife, fisheries, climate, visual quality, sedimentation, and cultural resources. When considered together with the socioeconomic analysis and recreation use analysis, these factors are the primary determinants for land use designations.

3.2. PHYSICAL GEOGRAPHY AND TOPOGRAPHY

Youghiogheny River Lake is surrounded by high, rounded hills with steep slopes, deeply cut by narrow stream valleys that join with the river valley below. The hills rise 400 to 500 feet above the reservoir with typical slopes exceeding 50 percent grade. Most of the government-owned land terminates on steep slopes. The government-owned land in the Maryland portion of the project is slightly less steep than that in the Pennsylvania portion.

3.3. GEOLOGY

Youghiogheny River Lake is located in the Allegheny Mountains section of the Appalachian Plateau Physiographic Province. The Appalachians have a geologic history of sedimentation, deformation, and erosion. Sedimentary rocks that compose the Appalachians were deposited as sediment in a shallow sea during the late Paleozoic Era, about 350 million years ago. Two hundred million years ago, the region was uplifted and the rocks were deformed, forming the Appalachians. Erosion has since rounded them, subdued their height, and dissected them with deeply entrenched streams. The Appalachian Plateau slopes westward from the Allegheny Front, which is associated with and parallel to the nearby Laurel Ridge.

Youghiogheny River Lake is situated in a steep-sided valley with exposures of the sedimentary bedrock rock strata. These strata are composed of sandstones, siltstones, shale, and limestone. Notable rock outcroppings occur at Mill Run and below the dam.

The geological formations of the area present some problems in terms of overall recreational development of the reservoir. Where the rock layers are exposed by deep cuts, rock falls may occur as subsurface water freezes and thaws, fracturing the rock. In areas with very steep slopes, bedrock is at or very near the surface with minimal soil cover. The steepness of slope and shallowness of the soil over bedrock are severe constraints to construction in these areas; these areas are also typically unsuitable for subsurface septic systems.

3.4. SOILS

The soils of the Youghiogheny River Lake area developed from weathered sedimentary rock, namely sandstone, siltstone, shale, and limestone. The majority of soils found in the project area are of three general soil associations The Gilpin-Wharton-Ernest association predominates the Fayette County, Pennsylvania, portion of the project. This association includes upland soils, moderately deep and deep, well-drained and moderately well-drained, medium-textured, nearly level to very steep soils under laid by acid shale and some sandstone bedrock. The Somerset County, Pennsylvania, portion is predominantly the Rayne-Gilpin-Wharton-Cavode association. This association includes much of the same types of soils as the Gilpin-Wharton-Ernest association, except that it typically includes level, somewhat poorly drained soils. The Gilpin-Wharton-Dekalb association, predominant in the Maryland portion of the project, is gently sloping to steep, moderately deep and deep, well-drained and moderately well-drained soils formed over acid, gray to brown, soft clay shale to hard sandstone.

In addition to these soil associations, two other associations occur in relatively small areas of the project. The Monongahela-Philo-Atkins association occurs below the dam. These soils are level to gently sloping, deep, moderately well-drained and poorly drained, medium-textured soils occurring on stream terraces and floodplains. The Dekalb-Gilpin-Cockport association occurs at the upper end of the reservoir. This association includes gently sloping to steep, moderately deep, well-drained and moderately well-drained, very stony soils formed over acid, gray to yellowish sandstone and shale.

Predominant soils throughout the project lands are both residual and colluvial types, while some small deposits of alluvial soils are located at the water's edge and in adjacent stream valleys. In general, the colluvial soils are poorly drained, very steep, unstable, and erodible. The alluvial soils are subject to flooding, they have a high water table, and some are poorly drained. The better drained, more stable residual soils are the most suitable for development, but they still have the

limitations of shallow depth to bedrock, stoniness, and slope. The limited depth to bedrock, the presence of unstable and erodible slopes, the severity of the terrain, and other soil factors all combine to limit the amount of land with potential for recreational development.

3.5. HYDROLOGY

The primary water resources of Youghiogheny River Lake are the lake itself and the numerous streams flowing into it. The 2,796 acre lake (Pennsylvania - 2,150 acres; Maryland - 646 acres), at maximum summer conservation pool, represents a major scenic and recreational resource in the region. The lake has approximately 38 miles of shoreline with the maximum lake depth attaining 126 feet at maximum summer conservation pool. Over 13 streams flow directly into the lake and add diversity to the natural landscape. The streams vary in width from a few feet to over 20 feet and vary considerably in flow depending on seasonal conditions. Many of the streams are strewn with boulders and some have areas of rock outcropping. Mill Run, Buffalo Run, and Tub Run are a few of the larger streams. Numerous ravines flow perennially, if groundwater fed, or intermittently, with precipitation events.

The Youghiogheny Reservoir serves a number of important uses in addition to flood control. Water levels are maintained at lower levels during the winter to provide capacity for storing spring runoff. Excess water is stored in the reservoir to obtain the summer conservation pool level. The reservoir summer pool level is maintained as long as possible while water is being released to maintain downstream flow schedules. In addition, a base level of discharge is required to maintain a quality fishery in the tailrace and downstream of the reservoir. Several communities have expressed an interest in using the reservoir as a source of municipal drinking water. Water demands on the reservoir result in up to 50-foot fluctuations in the water level of the reservoir. These large fluctuations are a function of water inflow, outflow, downstream needs, reservoir size, and shape. The fluctuations cause negative impacts to fish spawning, shoreline erosion, aquatic vegetation, and extensive mud flats in the upper reaches of the reservoir and recreation facilities (including beaches, docks, piers, and boat ramps). However, during the spawning season, the lake is held stationary or rises slowly to enhance fish spawning. The balancing of water storage and flood control for competing water users in light of the unpredictability of nature presents an awesome challenge in view of the many varied water requirements.

3.5.1 Youghiogheny River Lake Reallocation Study

The Youghiogheny River Lake project was constructed for the purposes of flood stage reduction in the Youghiogheny and lower Monongahela Rivers and low flow augmentation for water quality control. The Fish and Wildlife Coordination Act of 1958 authorized fish and wildlife conservation as a project purpose. Recreation was authorized in accordance with the 1988 Water Resources Development Act and includes both lake and rivers activities. Hydroelectric power facilities were completed in 1989 becoming an integral feature of this project.

Thus the project is called upon to serve a variety of often-conflicting purposes. It is important to remember that only the initial purposes of flood control and low flow augmentation for water quality have storage allocated. That means, in basic terms, that all other purposes are subordinate to these. Water can be stored or released for other purposes only if there is no significant adverse impact on the purposes for which storage is allocated.

During the last decades, a dramatic shift in the commercial/industrial mix and the demographics of the region has taken place. The region has lost a significant portion of its heavy industry that once dominated the employment base. This loss of heavy industry, as well as a reduction in the severity of acid mine pollution from tributary streams has reduced the pollution load of the Youghiogheny River. Consequently, the original, authorized storage and release schedule for Youghiogheny River Lake, which focused on low flow augmentation for water quality control, may now be modified to meet these shifts in the region's industry and demographics. The Pittsburgh District recently completed a study of water usage and quality demands in the Youghiogheny River basin, contrasting these demands with the operating rules for Youghiogheny River Lake. A Reconnaissance Study was completed in February 1999. After the approval of the Reconnaissance Study, the District initiated a Feasibility Study. The purpose of this study was to determine if release schedules could be revised to reflect these changed conditions with no appreciable adverse effect to the water quality of the Youghiogheny River. The Assistant Secretary of the Army for Civil Works approved the feasibility study on August 4, 2005 and the release schedule at the project has been revised in accordance with that study.

3.6. VEGETATION

The best description of project vegetation is currently contained in the project's Forest, Fish, and Wildlife Management Plan, dated 1977. This information is

now a part of the project's Operational Management Plan. The following narrative contains a brief synopsis of the different vegetative communities found at Youghiogheny River Lake.

3.6.1. Mixed Mesophytic Forests. Mixed mesophytic is a term applied to much of the forest of the southern Appalachian Mountains. The term means that the forest is not typically dominated by a few particular species. Instead, a diverse number of moist habitat tree and shrub species comprise the forest. The dominant species vary from place to place in the landscape depending on the physical conditions of the site, such as slope direction, slope position, and soil characteristics. Mixed mesophytic is the only major natural forest type found on the project.

Past disturbance of the forest is also an important factor that determines species composition and dominance in the forest. Throughout the eastern U.S., most of the forest was logged in the early part of the twentieth century. The project lands are no exception and generally support typical recovering forest. In addition to the natural physical characteristics of the site, the time for natural succession to proceed since the disturbance occurred determines the forest composition and structure. Because of the irregular disturbance history, forests of various ages occur on the project lands. In order of youngest to oldest, based on prevalent tree diameters, forest stands are categorized as "sapling," "pole-age," "maturing," and "mature. The relatively small areas of "mature" woodlands may resemble the pre-disturbance forest of the region.

Three subtypes of the mixed mesophytic association have been identified, based on substantial differences in dominant species. They are the typical subtype, the bottomland subtype, and the hemlock subtype.

With regard to wildlife habitat, the somewhat closed canopy typical of the mixed mesophytic forest type causes a scarcity of ground cover, especially of the denser shrubs and vines that furnish food and protection from predators for the smaller wildlife. In addition, because of the scarcity of ground cover, the amount of browse available to deer and cottontails is restricted. However, the mixed mesophytic forests are suited to the requirements of a large number of wildlife species, including snakes, turtles, toads, salamanders, various songbirds, small mammals such as mice, shrews, chipmunks, and squirrels, raccoons, turkeys, deer, bear, and ruffed grouse.

The mixed mesophytic forests do furnish large quantities of tree seeds and nuts. Almost all game birds and mammals and, to a lesser degree, the larger songbirds use these foods. These forests also provide excellent nesting and

living quarters for birds and mammals that use tree cavities, such as squirrels, raccoons, woodpeckers, owls, and wood ducks. Larger hawks use the mature trees for nesting sites.

3.6.1.1. Mixed Mesophytic Forest, Typical Subtype. The typical subtype occurs on all site types on the project except moist stream margins and the cool microclimates of ravines and steep north slopes. Approximately 83 percent of the project's woodlands have been classified in this category.

The dominant woody plants that comprise this subtype are sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), American beech (*Fagus grandifolia*), yellow-poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), Northern red oak (*Quercus rubra*), and basswood (*Tilia americana*).

Primary game species occupying this subtype on the project are turkeys, ruffed grouse, squirrels, and deer. Because of the great diversity of tree and shrub species, this subtype is particularly attractive to songbirds and other forest-dwelling, nongame birds. Small mammals and a variety of reptiles and amphibians are also common in this forest type.

3.6.1.2. Mixed Mesophytic Forest, Bottomland Subtype. The bottomland subtype occurs on moist soils close to streams. About 10 percent of the project's forested area has been placed in this category.

The dominant woody plant that comprises this subtype is the American sycamore (*Platanus occidentalis*). Some other relatively abundant woody plants typical of this subtype are sugar maple, shagbark hickory, ash (*Fraxinus* spp.), white oak, rosebay rhododendron (*Rhododendron maximum*), and basswood.

This forest type is not highly productive habitat for game. It has little value for woodcock, rabbits, and ruffed grouse and limited value for squirrels, wild turkeys, and deer. It is acceptable habitat for raccoons. Large sycamores often provide nesting cavities for certain birds such as woodpeckers, wood ducks, and owls. Reptiles, amphibians, and small mammals commonly use these habitats.

3.6.1.3. Mixed Mesophytic Forest, Hemlock Subtype. The hemlock subtype occurs in the moist, cool microclimates of steep-sided stream valleys and steep, low-elevation north slopes. Approximately 3 percent of the project woodlands have been assigned this classification.

The eastern hemlock (*Tsuga canadensis*) is the dominant woody plant. Other relatively abundant woody plants include sugar maple, shagbark hickory, American beech, yellow-poplar, black cherry, Northern red oak, rosebay rhododendron, and basswood.

This subtype provides little forage for wildlife; its primary value is as year-round shelter from natural enemies and weather. Ruffed grouse make some use of hemlocks for these purposes. Red squirrels, which are not considered an important game species, also live in and around hemlocks. Owls may use these trees as nesting and roosting sites.

3.6.2. Altered Woodlands. This category consists of woodlands formerly in pasture, part of an old homestead, or subject to other major past disturbance. The canopy frequently is somewhat open. Seedlings, saplings, and typical forest-dwelling shrubs often are sparse or absent. Plants more commonly found in old fields, such as thicket-forming shrubs and grasses often are present. Species composition is determined mainly by the nature of the disturbance and by the predominance of typical "volunteer" or early succession species. Approximately 4 percent of project woodlands have been placed in this category.

Indicator woody plant species in this community include hawthorns (*Crataegus* spp.), black walnut (*Juglans nigra*), wild crab apple (*Malus coronaria*), black cherry, and black locust (*Robinia pseudo-acacia*).

Depending on the composition of the overstory and understory, these altered woodlands can have considerable value for game. Often they provide habitat for cottontails and ruffed grouse. Woodlands with a dense canopy are likely to be less productive than the altered woodlands with a more open canopy.

3.6.3. Thickets

3.6.3.1. Typical Thicket. The composition of typical thickets varies with location depending on the physical characteristics of the site. On the bottomlands, speckled alder (*Alnus rugosa*), hazel alder (*Alnus serrulata*), silky dogwood (*Cornus amomum*), willows (*Salix* spp.), and spireas (*Spiraea* spp.) can be found. On the upland sites, american hazel (*Corylus americana*), hawthorn, wild crab apple, apple (*Malus pumila*), ninebark (*Physocarpus opulifolius*), sumacs (*Rhus* spp.), blackberry, raspberry, and dewberry (*Rubus* spp.) are found.

Thickets usually represent the most productive of habitats for native game. Ruffed grouse, cottontails, and woodcock inhabit these dense areas in good

numbers because both food and protective cover occur within these vegetative units.

3.6.3.2. Invaded Thicket. Typical shrubs and small trees that occur in the invaded thicket are the same species that occur in the typical thicket, with invasion by significant numbers of larger trees. Typical invading tree species are red maple (*Acer rubrum*), sugar maple, ashes, yellow-poplar, black cherry, black locust, and American sycamore.

The invaded thicket provides habitats and values similar to those of the non-invaded thicket. Because of some shading and soil drying caused by the invading trees, shrub growth may be inhibited to some degree. In some cases, this loss may be offset in part by mast production by the trees or by additional cover furnished by trees with dense foliage.

3.6.3.3. Aged Thicket. Aged thickets are characterized by the dominance of small trees and large shrubs with few ground-level branches. Low, trailing brambles are sparse or absent. The dominant shrubs and trees are hawthorns, wild crab apple, common apple, and black cherry.

The wildlife values decrease as thickets age, but aged thickets are still heavily used by wildlife. Food production is high from the hawthorns, crab apple, and wild cherry. Protection, provided by the thorny branches of the hawthorns and crab apple, is excellent. Woodcock and grouse are the most prominent game species. Songbirds use the dense treetops for nesting.

3.6.4. Meadows

3.6.4.1. Typical Meadow. Meadows are comprised of sedges (*Carex* spp.), povertygrass (*Danthonia spicata*), cinquefoils (*Potentilla* spp.), goldenrods (*Solidago* spp.), and so on. They are not high game-producing areas, primarily because they lack good grazing materials for rabbits and are low on seed production for pheasants and bob-whites. Cover varies from site to site, but it is often sparse.

3.6.4.2. Invaded Meadow. The dominant species are as listed above for a typical meadow with invasion by significant numbers of alders, silky dogwood, ashes, American sycamore, and willows on the bottomlands and red maple, sugar maple, flowering dogwood, hawthorns, ashes, yellow-poplar, wild crab apple, black cherry, sumacs, black locust, and brambles on the uplands.

Invaded meadows are most productive of woodcock, with the possibility of limited use by ruffed grouse, cottontails, and bob-whites. They are used to some degree by songbirds and other non-game wildlife.

3.6.5. Manipulated Areas

3.6.5.1. Cultivated Field. Mowing, pasturing, or cultivation artificially maintains the dominant species in this community. Open fields, particularly those mowed to prevent excessive growth of tall weeds and invasion by trees and shrubs, are primarily of value to cottontails and bob-whites. Open field songbirds are also attracted.

3.6.5.2 Disturbed Land. This classification includes borrow areas, road cuts and fills, and so on, usually with infertile soils and relatively sparse herbaceous vegetation. Normally disturbed areas have limited value for either game or non-game animals.

3.6.5.3. Landscaped Area. These areas are primarily in recreation areas and around project structures. Mowed grasses usually are dominant but shrubs and trees of various species may be considered dominant in some cases based on crown coverage. Because of the openness of these areas, game may be relatively scarce there.

3.6.5.4. Lakeshore Floodplains. This community, located between the normal winter pool elevation and the normal summer pool elevation, near the mouths of moderately sloping tributary valleys, is subject to prolonged flooding. The dominant woody plants are black willow (*Salix nigra*), seral shrubby willows (*Salix* spp.), silky dogwood, and American sycamore.

The lakeshore floodplain rarely produces sufficient ground cover of the right kind to encourage wildlife. Dense stands of willow may be used occasionally as nesting cover by certain songbirds. Food production for wildlife on these flooded areas is extremely low.

3.6.6. Wetlands. The steep topography that generally surrounds the reservoir precludes the establishment of large areas of wetlands. However, some wetlands have developed at or near the mouths of several tributaries to the reservoir. For example, at least some of the areas identified as floodplain woods would be considered wetlands. National Wetland Inventory maps, developed by the U.S. Fish and Wildlife Service, provide a rough measure of the extent of wetlands at the project. The maps identify limited palustrine wetlands in the lower valleys of Braddock Run, Mill Run, Buffalo Run, Reason Run, and Wilkins

Hollow and along the floodplain terraces of the Youghiogheny River west and south of Selbysport. Depending on the plant species composition and structure, wetlands often serve as a preferred habitat for nesting, cover, and foraging for a variety of game and non-game animals. During periods of high water, the permanent vegetation of wetlands can also serve as important fish spawning habitats. Wetlands are outstanding relative to other vegetation cover types because of regulations that prohibit their degradation. Physical disturbance of regulated wetlands, which are typically defined by the presence of wetland vegetation, soils, and hydrology as determined through field inspection, requires a permit from the COE under Section 404 of the Clean Water Act and from state agencies under their respective wetland protection laws.

3.6.7. Threatened and Endangered Plant Species. It is the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species by preserving the ecosystems upon which these species depend and by providing programs for the conservation of such species. In keeping with the intent of the Endangered Species Act, the Corps of Engineers and the Maryland Natural Heritage Program within the Maryland Department of Natural Resources have conducted surveys of the flora found on the federal lands at Youghiogheny River Lake. A survey in 1988 identified five plant species that were of special interest in Maryland. A follow-up survey in 1992 relocated two of these species. A more extensive survey of a portion of the lake was conducted in 1994. The results of the inventory included four state-listed federal candidate species, nine other species of note, and three special habitat areas.

This master plan update will not disclose the location of any plants that have special state or federal designation to minimize the chance of endangering the populations from wild plant collectors.

3.7. FISH AND WILDLIFE

3.7.1. Fishery

3.7.1.1. Habitat. The topography of the region has dictated the shoreline and bottom contours of the reservoir. The reservoir is further modified by fluctuating water levels, which change the shoreline, depth, in stream cover, and other numerous factors throughout the year. The upper reaches of the reservoir where the Youghiogheny River enters exhibit more lotic or riverine characteristics, while the area near the dam is more lentic or lake-like. Thermal stratification occurs near the dam, providing cold-water habitat at depth year-round, while the rest of

the reservoir offers warm water habitat. The slope associated with the majority of the shoreline of the reservoir is steep, exposed bedrock that offers very little suitable habitat for spawning, protection of young, attachment of macrophytes (aquatic vegetation), or substrate for benthic macro invertebrates. This problem is further exacerbated by water level fluctuations. Fish that are pelagophillic (open water spawners with free-floating eggs) are naturally more suited to reproduction in the reservoir. The reservoir offers an abundance of forage habitat for piscivorous fish and moderate to good habitat for planktivorous fish. The practice of sinking evergreen trees in the reservoir provides cover for juvenile fish and attracts other species to congregate. People who fish in the Youghiogheny River use these artificial structures to their advantage.

3.7.1.2. Water Quality Effects. The Youghiogheny River Lake is oligotrophic (low in nutrient concentrations) and is characterized by low phytoplankton populations, lack of aquatic vegetation, and slow growth rates in fish. The geology of the drainage basin contains very little limestone; therefore, the lake contains very low carbonate levels and has very little buffering capacity. Historically, the lake has had low pH values due to acid mine drainage, which had detrimental effects on the fishery. The majority of these mines have been closed or reclaimed, and low pH values have not been observed in the past few years. There are no known sources of sanitary sewage on the Youghiogheny River Lake, although several are suspected. Houses located along the lakeshores have septic systems with leach fields in shallow soils that are marginally suited for this use. In addition, the marina does not offer any sewage disposal facilities for boaters. Fecal coliform, a bacterium found in sewage, is measured at the beach and has not exceeded state- or federally regulated levels. If fecal coliform levels remain low at the monitoring sites and nutrient levels remain the same, sanitary sewage does not appear to represent a problem in the reservoir. Nevertheless, efforts to reduce the potential for sewage discharge into the reservoir should be continued. Corps employees conduct periodic biological and chemical sampling to document and monitor changes in water quality in the tailrace, lake, and tributaries. Corps biologists initiated adult aquatic insect sampling in the tail waters of the Youghiogheny Dam in 1991 in order to determine biological baseline conditions, and to monitor changes in water quality. The Youghiogheny River Lake inflow was sampled for the same purpose in 1992, and several tributaries were sampled between 1994 and 1999, including Mill Run, Buffalo Run, Tub Run, and Hall Run. Several rare or unusual insect species have been documented at the facility because of this sampling work, including two species of caddisflies new to science, which were discovered in the tailrace in 1991.

3.7.1.3. Hydrology. The Youghiogheny River is a high-gradient river that flows north from the Appalachian Mountains into southwestern Pennsylvania. Because it lacks significant natural buffering capacity, the presence of and influence from acid mine drainage and acid precipitation makes the Youghiogheny River an extremely fragile resource. The Youghiogheny River and Lake is considered a fragile system because of very low alkalinity, which also causes a low level of productivity and slow growth rates in fish. This is mainly due to the lack of limestone in the basin. However, since 1982 there has been a marked decrease in mine drainage into the Youghiogheny system, which has lead to a slight improvement in the fertility of the lake. In addition, the Pennsylvania Fish and Boat Commission (PF&BC) has suggested several ways of improving the overall ecological health and productivity of the Youghiogheny River Lake and the river downstream. Maintaining a stable pool in the lake during the spring spawning season would likely lead to healthier and larger fish populations. This procedure has been in place for several years. A later start and less severe draw down could allow for larger aquatic vegetation yields providing for better habitats for several fish species. This may also help maintain the critical dissolved oxygen and temperature criteria for the two-story trout fishery during drier years. Increasing productivity in the lake will in turn, increase productivity in the river. Also maintaining adequate flow in the river during the late summer/early fall is crucial to supporting the fisheries noted above. In spite of the limitations mentioned above, the lake provides a high quality sport fishery, which includes trout, walleye, northern pike, yellow perch, rock bass, and both small mouth and largemouth bass. It is the only two-story trout fishery in southwestern Pennsylvania managed by the PF&BC by stocking with fingerling trout. It is also one of the only six lakes in Pennsylvania and the only one in the southwestern region with a naturally reproducing walleye fishery. Sport fishing has grown in popularity because of these high quality fisheries.

3.7.1.4. Game Species. Fishing represents an important recreational activity at the lake, as well as a locally important source of income for local business establishments that sell fishing supplies, boating supplies, groceries, and gas. Youghiogheny River Lake has a diverse fish population including small mouth bass, walleye, yellow perch, Northern pike, tiger muskellunge, largemouth bass, rock bass, black crappie, brown trout, bluegill, brown bullhead, and channel catfish. Forage fish in the reservoir include golden shiners, white suckers, Northern hogsuckers, carp, emerald shiner, and a variety of minnows. The stocking of alewife has resulted in a very successful forage base. Brown trout are important cold-water species that have been stocked in the lower portion of the reservoir. The carp and white suckers are an underutilized fishery in the lake and in this region of the country. The Youghiogheny River in Maryland is considered an excellent cold water fishery and includes brook, brown, and

rainbow trout. Below the dam, the Youghiogheny River provides year-round trout fishing opportunities for rainbow trout as well as other fish species. Mill Run has native trout populations and is stocked with trout. In 1998, the Chestnut Ridge Chapter of Trout Unlimited constructed a cage culture trout nursery in the Youghiogheny Dam tailrace. This was accomplished under a Memorandum of Understanding between Trout Unlimited, the U.S. Army Corps of Engineers, Pennsylvania Fish and Boat Commission and D/R Hydro Company. Growth rates of trout reared at this facility are well above average compared to trout raised in conventional nurseries. Thousands of rainbow trout and brook trout reared at this facility in 1998, 1999, 2000 and 2001 were released into the Youghiogheny River below the dam and adjacent waters.

3.7.1.5. Stocking Program. Stocking has met with mixed success in the past. The stocking of smelt eggs failed, while the stocking of alewife was very successful at providing a forage base for piscivorous fish, although the annual loss of thousands (even millions) of alewifes through the dam and power plant during the winter months has created fisheries management problems. These problems have yet to be solved. Other species of fish that have been stocked in the lake over the last 40 years include Northern pike, black crappie, yellow perch, and brown trout. In a reservoir subject to sport fishing pressures and selective species removal, the stocking of sport fish will always be an issue. Stocking is necessary for a number of reasons including lack of spawning habitat, over fishing, introduction of a new species, or some other physical or physiological factor that affects natural reproduction. The stocking of fish is often controversial due to the cost of maintaining a put-and-take fishery or some unanticipated event such as the entrainment of alewife through the hydroelectric facility and discharge outlet. Even though the introduction of this species was extremely successful, the presence of injured and dead fish in the tailrace area caused concern with the public.

The stocking of fish should be based on sound fisheries biology and need. Adequate research should be performed to document existing conditions and stocking based on the goals and objectives of state fisheries biologists. Maintaining the summer conservation pool for a longer period would improve the ability of many fish species to reproduce.

3.7.1.6. Invasive Species. Due to improvements in water quality in the Great Lakes, species have been introduced from around the world and have flourished in the absence of native predators. These species have expanded their geographical presence by migrating up the Ohio River Basin, by traveling to isolated water bodies in the bilge water of recreational boaters, and by accidental introduction. These species include the Asiatic clam, zebra mussel, spiny water

flea, Eurasian water milfoil, and ruffe. These species have the potential to have serious detrimental impacts on the ecology and balance of the lake. Measures should be taken to prevent the introduction of these species and should include educating the boaters, anglers, and lakeshore property owners and monitoring the lake.

3.7.2. Wildlife. Because of the diversity of vegetation around Youghiogheny River Lake, a wide variety of wildlife typical of the region is present. Of the many mammals present on the site, several are recreationally significant as game animals or furbearers. These species include white-tailed deer; gray, red, and fox squirrels; Eastern Cottontail; gray and red fox; raccoon; opossum; muskrat; beaver; and woodchuck. There is an ongoing program to reestablish a population of river otters at the project. This species is currently protected under state laws.

Many birds nest on the site and likely include green heron, wood duck, and game birds such as wild turkey, ruffed grouse, and woodcock. Many songbirds are also present on the site during their nesting season. Scarlet tanagers and other neo-tropical species are especially noticeable during migration and many remain to nest in the area. In the early spring and fall, the area attracts many species of migratory waterfowl, but only in moderate numbers. Birds of prey are also present, though not abundant, and may include osprey, American kestrel, and various hawks and owls. The project is located on the western slopes of the Allegheny Mountains, which are heavily used by birds of prey as a migration route. Therefore, a variety of migrating species can be seen from the project.

Reptiles that may be seen on the project include wood turtle, snapping turtle, painted turtle, and 15 species of snakes including the venomous Northern copperhead and timber rattlesnake. These venomous species are relatively rare on the project and appear to pose no serious threat to people using the area. Bull frogs, leopard frogs, and red-spotted newts are a few of the resident amphibians. Surveys by Corps personnel have identified nine species of salamanders using a variety of upland and bottomland habitats.

Although there are many game species in surrounding areas and on the site, the potential for enhanced hunting activities and wildlife programs is severely limited by the narrowness of government land surrounding the reservoir, steep slopes, and poor access. Despite these limitations, there should be efforts to preserve the reservoirs and surrounding environs' wildlife population through consideration of proper wildlife habitat balance in future land use decisions. The Maryland portion of the project has the most potential for improvement of wildlife habitat and hunting opportunities since it has relatively large and accessible open upland

areas. Potential for waterfowl hunting is limited by pool draw down, difficulty of boat access, and lack of suitable waterfowl habitat. The greatest opportunity for waterfowl habitat enhancement occurs in the Buffalo Run area. Areas with wildlife management potential are identified in **PLATE 6.14.**

3.7.3. Threatened and Endangered Wildlife Species. It is the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species by preserving the ecosystems upon which these species depend and by providing programs for the conservation of such species. As stated previously, Corps employees initiated adult aquatic insect sampling at Youghiogheny Lake in 1991 in conjunction with its water quality and environmental stewardship programs. Numerous other biological surveys have been conducted around the facility by Corps' biologists to acquire baseline data and evaluate fish and wildlife programs at the facility. In keeping with the intent of the Endangered Species Act, the Corps of Engineers and the Maryland Natural Heritage Program within the Maryland Department of Natural Resources have conducted surveys of the fauna found on the federal lands at Youghiogheny River Lake. An extensive survey of a portion of the lake was conducted in 1994.

Because of the possible presence of endangered species and critical habitat areas around the Youghiogheny River Lake, development must be sensitive to the location of known or potential protected species' habitat areas. Specific information on state or federally listed wildlife species will not be discussed in this report to minimize potential disturbances by the public.

3.8. CLIMATE

The project is located in the temperate continental climatic zone, a region of seasonally widely varying temperatures, and moderate, year-round precipitation increasing slightly during the warmer months.

Temperature and precipitation data recorded at Somerset, 20 miles northeast of the project at elevation 2,100 feet mean sea level (msl), has been compiled and summarized. It closely resembles conditions recorded near Confluence, approximately 2 miles north of the project at elevation 1,331 feet msl.

Temperatures vary from mean daily maximums and minimums of 82.5ºF (28.1ºC) and 57.0ºF (13.9ºC) in July to 36.5ºF (2.5ºC) and 17.7ºF (-7.9ºC) in January. The period of record is 1951 to 1975. The temperature has reached 90ºF (approximately 32ºC) or above an average of five days a year and freezing temperatures have occurred an average of 125 days a year. The length of the

frost-free period varies from one part of the project to another due to differences in topography.

Precipitation varies from year to year but has averaged approximately 42.24 inches (107.3 cm) annually at Confluence. Measurable precipitation has fallen an average of 102 days a year. Temperature and precipitation data is found in TABLE 3-1.

3.9. AESTHETICS

Visitor surveys have revealed that the visual quality of the Youghiogheny River Lake is a very important resource and one of the reasons they use the lake for recreation. The scenic resources of Youghiogheny River Lake are directly related to the wooded slopes adjacent to the lake and stream environments. The most significant visual attractions are the lake surrounded by densely forested hills, the Youghiogheny River, and the numerous streams flowing through forested ravines. Other scenic features include rock outcroppings and seasonal color changes and floral displays of natural vegetation. Vistas of the lake occur at various locations including the dam, various recreation areas, the U.S. 40 Bridge, and certain locations on public roads surrounding the project. Other areas within the project provide views of a smaller scale such as along the smaller streams flowing into the lake. Existing observation areas include a small parking area near the control tower and a parking area at the west end of the dam.

Youghiogheny River Lake has excellent scenic qualities, especially when the lake is near the maximum summer conservation pool. However, during periods of extreme draw down, typically in August and September, the visual qualities are diminished due to the appearance of mud flats along the shoreline. The most extensive mud flats occur in the Maryland portion of the reservoir and in certain bays, such as Tub Run, Jockey Hollow, and Buffalo Run.

The residential character and numerous scattered private boat slips along portions of the shoreline are not visually compatible with the natural resource values of the project. Their proliferation is not in keeping with the naturalistic setting of the lake. For this reason, the Shoreline Management Plan identifies specific areas called "protected areas" that will be maintained free of private development to the greatest extent possible.

TABLE 3-1
TEMPERATURE AND PRECIPITATION DATA

Month	Temperature[1]					Precipitation[1]				
	Average Daily Maximum	Average Daily Minimum	Average Daily	2 Years in 10 Will Have...		Average	2 Years in 10 Will Have...		Average Number Of Days with 0.10 inch or More	Average Snowfall
				Maximum Temperature Higher Than	Minimum Temperature Lower Than		Less Than	More Than		
	ºF	ºF	ºF	ºF	ºF	Inch	Inch	Inch		Inch
January	35.1	15.1	25.1	66	-8	3.07	1.96	4.42	9	15.3
February	38.3	16.2	27.3	65	-8	2.71	1.65	3.86	8	17.1
March	49.2	25.3	37.3	78	6	3.79	2.57	5.33	10	13.5
April	60.3	34.3	47.3	84	18	3.95	2.57	5.04	10	1.8
May	71.1	43.7	57.4	88	27	4.30	2.18	5.53	10	0.1
June	74.5	52.3	65.9	93	37	4.00	2.05	5.78	8	0.0
July	82.8	57.0	69.9	94	43	5.00	2.57	5.93	9	0.0
August	81.2	56.5	69.2	93	42	3.67	2.38	5.15	8	0.0
September	75.5	49.8	62.7	92	32	3.75	1.80	4.48	7	0.0
October	63.7	38.0	50.9	84	20	3.07	1.14	3.74	6	0.2
November	51.7	30.2	41.0	74	9	3.46	1.78	3.52	8	3.9
December	39.3	21.1	30.2	70	-2	3.52	1.87	4.53	9	14.0
Year	60.7	36.6	48.7	96	-12	44.29	36.55	47.73	102	65.9

[1] Recorded in the period 1961 to 1990 at Confluence, Pennsylvania.

3.10. SEDIMENTATION

Erosion occurring in the watershed results in the deposit of silt at the mouths of streams entering the reservoir. The change in flow velocity results in rapid settling of silt that occurs as small deltas or alluvial fans. Where the Youghiogheny River enters the reservoir, there are extensive mud flats due to sedimentation and water level fluctuations. Often nothing grows on these flats due to extremes in water levels, although some herbaceous growth develops occasionally in the Buffalo Run and Selbysport areas. In years past, when conditions permitted, seed crops such as millet were planted to provide food for migrating waterfowl. While sedimentation has not greatly affected the flood capacity of the reservoir, it has degraded several areas. The Corps maintains no control over the watershed, which is large and occurs in five counties in the states of Pennsylvania, Maryland, and West Virginia. The project watershed consists of rural land, much of which is cultivated or grazed. The steeper slopes are primarily wooded. Development is scattered with the exception of small towns in the region. As a naturally occurring process, silt will fill in the reservoir eventually, but not any time in the next few generations.

The reduction of sediment into the lake should be encouraged by working with states, counties, and local jurisdictions to implement model zoning and land use plans, best management practices for construction, no-till agriculture, and other measures to reduce erosion. Several measures could be used to mitigate the mud flats where the Youghiogheny River enters the reservoir. These measures could include dredging to recreate aquatic habitat, creating potholes to hold water and create small wetlands, constructing a small berm to create a more extensive wetland, or some other measure. Any modification of this area would require feasibility studies, preliminary design, cost analysis, and several other studies to ensure that the natural environment would benefit while the operation of the reservoir was not affected.

The recent sedimentation survey was done in the summer of 1998 and the report entitled ‘Sedimentation Report for Youghiogheny River Lake’ was completed in February 1999.

3.11. CULTURAL RESOURCES

Historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (see 36 CFR 60.5). Such properties may be significant for their historic, architectural, engineering, archeological, or cultural values and may be of national, regional, state, or local significance.

The COE will manage federally owned, administered, or controlled historic properties in a spirit of stewardship for the inspiration and benefit of present and future generations. At Youghiogheny River Lake, historic preservation is an equal and integral component of resource management and should be given just and equal consideration along with other resource use objectives. To accomplish this, it is the policy of the Corps to identify, evaluate, protect, preserve, and manage historic properties on Youghiogheny River Lake project lands.

A Youghiogheny River Lake Historic Properties Management Plan shall be developed which will provide a comprehensive program to direct historic preservation activities and objectives and to effectively manage and protect each property. It will list identified historic properties, map their locations, give their National Register status, discuss project impacts, and prioritize preservation activities (reference ER 1130-2-540, "Project Operations – Environmental Stewardship Operations and Maintenance Policies", 15 November 1996, Chapter 6). Information in the management plan and in other reports relating to the location or character of historic properties on project fee or easement lands shall not be released to the public whenever it is determined that the disclosure of such information may create a substantial risk. The risk may include: harm, theft, or destruction to such properties or to the area or place where those properties are located.

If any development cannot avoid affecting a known site or an untested area, archeological studies, coordinated with the Pennsylvania Bureau of Historic Preservation or the Maryland Historical Trust (State Historic Preservation Office), will be required before development may proceed.

3.11.1. Archeological Sites. The Youghiogheny Valley was extensively occupied over a period of more than 10,000 years. It was a major passageway for people moving between the Potomac Valley and the Ohio Valley. Archeological records reveal that the first Indians were nomadic people who lived by hunting. Later, they became village dwellers that not only hunted but also grew crops, made pottery, and worked with a variety of tools. The Delaware, Shawnee, and Iroquois were known to have used the Youghiogheny Valley as hunting and fishing ground. Indian mounds have been found in numerous places, particularly along the streams. There are 34 identified archeological sites within the project. Because of the significance of this area as a travel corridor, the potential exists for additional sites. Most sites are located below normal pool elevation. Several sites are located within the draw down zone and are being affected by erosion. None of the archeological sites within the project has yet

been determined to be eligible for listing on the National Register of Historic Places.

3.11.2. Historical Sites. During the mid-1700s, pioneers began showing a real interest in the area. Before that time, the area had been traversed by a number of traders and other wanderers, but they left no permanent mark. The claiming of the area by both the French and English resulted in several historic sites and museums being located in this region; these sites are a reminder of the part that the Youghiogheny River Basin played in the early history of the country. Historic places and events are marked for the public as they tour the region or pass through on U.S. 40, the National Road. The dam was constructed in 1943 and has reached the 50-year criteria for making the dam and related structures eligible for inclusion in the National Register of Historic Places. The complex of structures previously used as project housing (two dwellings and a detached garage) were constructed in 1949-1950 and have been determined eligible for inclusion on the National Register. Although the dam has not been evaluated for its historic significance, it should be managed as it if were eligible for the National Register. Historic features within the project are located on PLATE 4.

3.11.2.1. Great Crossings Ford. About 0.5 mile upstream from the bridge is the "Great Crossings Ford" of the Youghiogheny River where Gen. George Washington and the Continental Army crossed and camped on 18 November 1753. At that time, he had been sent as an envoy by Gov. Dinwiddie of Virginia to talk with the French Commandant at Fort LeBoeuf and to warn the French away from the Pennsylvania border. Washington encamped there a second time with his army from 18-24 May 1754 when on a military expedition to the Ohio River. From that point, he explored the Youghiogheny River. Gen. Braddock, with his army, also crossed there on 24 June 1755 on his march against Fort Duquesne. A bronze plaque describing this is located along the highway at the eastern end of the U.S. 40 Bridge, which spans the reservoir.

3.11.2.2. Great Crossings. This bridge, built in 1818, lies below the reservoir on the north side of the existing Route 40 Bridge. The Great Crossings Bridge is a triple-arch bridge on the original National Road. Its name was derived from the nearby Great Crossings ford where George Washington crossed with his troops in 1754, and distinguished it from the National Road's "Little Crossings Bridge" across the Casselman River. Designed and built by Kinkead, Beck and Evans, the bridge stands about 40 feet high, 30 feet wide, with a parapet length of 375 feet. Two rounded buttress piers originally having larger rounded bases support the 3 arches, measuring 90, 75, and 60 feet, respectively.

The Great Crossings Bridge has been inventoried in two recent historical surveys: the 1987 state survey of National Road properties (PHMC Survey Form

survey code 111-AD-7) and the 1982 Fayette County Historic Resource Survey (PHMC Survey Form survey code Oh-1). The bridge is also described in Charles Stolz's, *The Early Architecture of Western Pennsylvania* (1936). The bridge has been determined to be eligible for the Historic Register.

Before the Youghiogheny Reservoir was built, it was suggested by several historical societies that the bridge be moved to another location and thereby preserved. This was not done, however, and the bridge was inundated. A section of the bridge may still be seen during very dry years when the lake is at an extremely low elevation.

3.11.2.3. National Road. One of the most influential contributions to the development of the United States in its early history was a road. The National Road was authorized by President Thomas Jefferson in 1806 to be constructed from Cumberland, Maryland to Ohio. It reached Wheeling, West Virginia on the banks of the Ohio River in 1818. It immediately became an important link between eastern seaports and population centers inland. In 1835, Pennsylvania agreed to administer its part of the road.

In the 1920s, the National Road became U.S. Route 40. When the Youghiogheny River Lake was built, this highway was widened and relocated in the area and a new bridge was built to span the reservoir. A 2-mile-long section of the original Route 40, located about 3 miles east of the bridge, passes through the town of Addison. Petersburg Tollhouse, is the only original tollhouse still standing on this section of highway in Addison.

3.11.2.4. Mason-Dixon Line. This boundary line between Pennsylvania and Maryland was surveyed between 1763 and 1767 to end a bitter colonial land dispute. This line later became the symbolic division line between northern and southern states. This state line, which crosses the reservoir, is identified in several locations in the area.

3.11.2.5. Former Project Dwellings. For much of its history, the US Army Corps of Engineers constructed on-site housing for use by employees assigned to a facilitiy, particularly in rural areas. This program was gradually phased out as a result of a 1991 directive. A comprehensive study of all former housing in the Pittsburgh District was undertaken and resulted in the April 1998 Report “Thematic Study of Civil Works Residences”. The twin 2-story Colonial revival style dwellings at Youghiogheny Lake, constructed in 1949-1050, were determined eligible for inclusion on the National Register of Historic Places under Criteria A and C. These buildings are currently vacant but will be managed in accordance with National Register guidelines.

3.12. SURROUNDING LAND USE

The land surrounding Youghiogheny River Lake is of rural, mountainous character and is sparsely populated compared to other areas in the surrounding counties. Land use is primarily agricultural, which occurs on gently rolling ridges and uplands and is extensively divided by numerous steep forested hillsides and ravines. Although the surrounding land uses are primarily agricultural, several small subdivisions have developed within the past few years. The pace of residential development in the past seems to have been quite slow, so that it seems that the overall land use should not change drastically in the next decade. However, because of the increases in visitors coming to this region from outside the established market area and the increasingly developed Deep Creek Lake, there is potential for an increased pace of development in the vicinity of the project. Significant acreage of recreation and wildlife lands occurs in surrounding counties with the Rails-to-Trails development immediately adjacent to Youghiogheny River Lake. Some timber harvesting occurs locally. Although gas fields and strip mining for limestone, sandstone, sand and gravel, clay, and shale occur in surrounding counties, no mining activities presently occur adjacent to Youghiogheny River Lake. Coalfields generally have been depleted in the region.

Numerous existing summer home developments occur adjacent to the Youghiogheny River Lake project. The actual buildings are located on private property, however, related structures and landscape maintenance have in some instances encroached on government land. Some of these activities have been granted permits under guidance set forth in the Shoreline Management Plan. Those encroachments not currently permitted will be resolved on a case-by-case basis. Private boat docks are located on the lake and are issued permits by the Corps. At present, 743 private and community docks are under permit.

Problems associated with the summer home developments are numerous. There continues to be strong demand for additional docking facilities and increased boating use of the lake. The numerous docks scattered throughout the reservoir visually detract from the naturalistic landscape. The cleared, manicured, and maintained lawns that extend, in some instances, all the way to the shoreline of the lake visually detract from the scenery and appear incongruous with the rugged natural resource setting of the reservoir.

The maintenance of lawns to the water's edge may wrongly imply certain proprietary rights to government land by the adjacent private property owners. This may lead to conflicts between private owners and the public related to use of the land. Management personnel will be alert to such conflicts and take necessary action to alleviate such problems.

3.13. EXISTING CORRIDORS

The current highway system provides adequate access to the project area. Interstates 70 and 76, significant east-west transportation routes are located to the north of the project area. Interstate 79 is an important regional transportation link from the Great Lake region to the southern Appalachian region. To the south is the recently constructed Interstate 68, which passes just south of Friendsville at the southern end of the project. Interstates 70, 76, and 79 provide access to the market area population. Interstate 68 provides access to some of the market area population to the south of the project; however, it also provides access to areas east of the current market area. Because of the proximity of the project to the Baltimore and Washington, D.C., metropolitan areas and with the completion of the new interstate, the number of visitors from these metropolitan areas is increasing. Highway corridors are shown on PLATE 1.

Although Interstates 70, 76, and 79 provide adequate access to the project area, travelers have to use other roads to reach the lake. The roads typically used include U.S. 40, Maryland Routes 42 and 53, and Pennsylvania Route 281. In particular, U.S. 40 and Pennsylvania Route 281 provide direct access to several project recreational facilities. U.S. 40, better known as the National Road, accesses Somerfield North, South, Jockey Hollow Recreation Area, and Boat Launch Area. Pennsylvania Route 281 provides access to the project just below the dam and to the Tub Run. Maryland Route 53 provides access to the project on the southern end near Selbysport. To access all areas of the lake, use of local public roads is required. These local roads vary in their condition. Some are paved while others are not. The unpaved roads can pose a problem when people travel during periods of bad weather. The location and condition of the local roads can be seen on PLATE 3.

There still exists one major proposal to construct a new regional highway in the project area, the Mon/Fayette Expressway. In 1985, the Pennsylvania Legislature passed Act 61, which authorizes the Pennsylvania Turnpike Commission to construct a toll road in the Monongahela Valley area from I-376 (the Parkway East in Pittsburgh), through Fayette County, to I-68 in West Virginia. Construction of this highway from West Virginia to Route 51 in southern Allegheny County received all the necessary approval for construction.

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CHAPTER 4: REGIONAL RECREATION PROFILE

4.1. INTRODUCTION

This chapter describes the socioeconomic characteristics of the region around Youghiogheny River Lake and provides a background on the potential demand for recreational facilities at the project. This chapter also includes an analysis of existing and projected recreation use patterns at the project. This information includes visitation characteristics, which could influence recreational usage at the project and an analysis of the effect regional demand, need, and resources have on project, demand and facility needs. Analysis of the socioeconomic characteristics of the market area and projection of future visitation provides a basis for identifying potential recreational demand and facility needs for Youghiogheny River Lake.

The influences and considerations discussed in this section are associated with human existence and needs in the project area together with some more or less miscellaneous, but nevertheless important, factors. All of these have ramifications for the project, and most exert pressures on it or affect other factors that do so.

4.2. MARKET AREA SOCIOECONOMIC PROFILE

Socioeconomic characteristics of the project market area are important considerations in estimating the number and type of recreational facilities needed at the project site. Generally, the most important characteristics in determining these requirements are population trends, median age of the population, household income, education attainment, and the rural and urban nature of the population. These characteristics have implications for the operation of the project.

4.2.1. Market Area. The market area was defined based on data from camper registration records for the Youghiogheny River Lake. Analysis of the data indicated that the market area for the Youghiogheny River Lake encompasses southwestern Pennsylvania and Maryland. The counties that comprise the market are identified in Table 4-1 and shown on PLATE 1. Although a number of counties are listed as being in the market area for this project, the actual visitation varies within this market area throughout the year. The market area changes slightly during a typical week. Day users of the project during

weekdays are generally from nearby counties because of the time required to travel to the lake. Weekend use of the project includes nearby counties, but because of the extra time available for travel and the opportunity to stay overnight, there are many more visitors from counties farther away.

The Pittsburgh metropolitan area is the largest population center in the market area for this project. The balance of the market area is generally rural. In recent years, visitors from outside the established market area have been increasing. In particular, an increased number of visitors from the Baltimore and Washington, D.C., metropolitan areas have been traveling to the project in search of recreational opportunities. This increase is not surprising since the project is not much further in distance from those metropolitan areas than it is from Pittsburgh, and Interstate 68 provides convenient access. Access to the project will also improve for visitors from the Pittsburgh Metropolitan Area and other parts of the current market area northwest of the project when the Mon-Fayette Expressway is completed. Other factors which appear capable of enlarging the market area include the continued expansion of the regional bikeways and the mature development of Deep Creek Lake in Garrett County, Maryland. Deep Creek Lake is a favorite recreation destination of professionals from the Baltimore and Washington, D.C., areas. Recreational demand projections are based on the established market area, however, the influence of these transportation improvements as well as the attraction of the regional recreation resources (see TABLE 4.4 and PLATE 2) will likely expand the market area in the next ten years.

TABLE 4-1
TOTAL POPULATION TRENDS, 1970-2005

State	1970	1980	Change 1970-80	1990	Change 1980-90	1995	Change 1990-95	2000	Change 1995-00	2005	Change 2000-05
Maryland											
Garrett	21,476	26,498	23.38%	28,138	6.19%	29,405	4.50%	29,846	1.50%	29,909	0.21%
Allegany	84,044	80,548	-4.16%	74,946	-6.95%	74,073	-1.16%	74,930	1.16%	73,639	-1.72%
Pennsylvania											
Fayette	154,667	159,417	3.07%	145,351	-8.82%	145,837	0.33%	148,644	1.92%	146,142	-1.68%
Somerset	76,037	81,243	6.85%	78,218	-3.72%	80,277	2.63%	80,023	-0.32%	78,907	-1.39%
Westmoreland	376,935	392,294	4.07%	370,321	-5.60%	376,091	1.56%	369,993	-1.62%	367,635	-0.64%
Greene	36,090	40,476	12.15%	39,550	-2.29%	41,856	5.83%	40,672	-2.83%	39,808	-2.12%
Allegheny	1,605,016	1,450,085	-9.65%	1,336,449	-7.84%	1,304,958	-2.36%	1,281,666	-1.78%	1,235,841	-3.58%
Washington	210,876	217,074	2.94%	204,584	-5.75%	206,662	1.02%	202,897	-1.82%	206,406	1.73%
Beaver	208,418	204,441	-1.91%	186,093	-8.97%	187,397	0.70%	181,412	-3.19%	177,377	-2.22%
Cambria	186,785	183,263	-1.89%	163,029	-11.04%	159,919	-1.91%	152,598	-4.58%	148,073	-2.97%

Source: U.S. Census of the Population.

4.2.2. Demographic Characteristics. This section deals with the populations in the Youghiogheny River Lake market area counties and the characteristics of these populations. No attempt has been made to calculate an actual market area population because the entire population of each county should be reasonably representative of the part of that county that is within the market area. Further, a market area population was not needed to derive the estimated future visitation.

4.2.2.1. Population. The population trends for the project's market area are shown in Table 4-1. The 2000 population for the market was approximately 2.6 million people. The 2000 population represents a decrease of approximately 7 percent from the 1990 market area population. Projections for the year 2015 show a further decrease in population.

4.2.2.2 Age. With the exception of RV-type camping, younger populations tend to participate in the types of recreational activities that are offered at the project. The median age for the population in the market area is 40.1 years of age. The median age is higher than the U.S. average 0f 35.3, which provides some indication of the potential usage of the recreational facilities at the project.

4.2.2.3. Income. The median household income in the market area in 2000 was $36,301. The average household income for all counties in the market area is shown on Table 4-2. This income level is below the national average of $50,046.

4.2.2.4. Education. In some studies on outdoor recreation, it has been concluded that education levels have some impact on participation rates at outdoor recreation facilities. The studies concluded that there is a correlation with a higher level of education and a higher percentage of outdoor recreation participation. In the project market area, the average percentage of the population with at least a high school education was slightly over 84 percent. The percentage with at least a college education (bachelor’s degree or higher) was 22 percent.

TABLE 4-2
SOCIOECONOMIC INDICATORS, 2000

State	Total Population	Median HH Income	Median Age	Percent Urban	Percent Rural	High School Degree	College Degree
Maryland							
Garrett	29,846	$32,238	38.3	16.9	83.1	79.2	13.8
Allegany	74,930	$30,821	39.1	74.1	25.9	79.9	14.1
Pennsylvania							
Fayette	148,644	$27,451	40.2	53.2	46.8	76.0	11.5
Somerset	80,023	$30,911	40.2	25.5	74.5	77.5	10.8
Westmoreland	369,993	$37,106	41.3	74.3	25.7	85.6	20.2
Greene	40,672	$30,352	38.2	31.3	68.7	75.7	12.2
Allegheny	1,281,666	$38,329	39.6	97.3	2.7	86.3	28.3
Washington	202,897	$37,607	40.8	63.1	36.9	82.6	18.8
Beaver	181,412	$36,995	40.7	73.2	26.8	83.6	15.8
Cambria	152,598	$30,179	41.2	67.6	32.4	80.0	13.7

Note: Educational attainment figures for persons 25 years and older.
Source: U.S. Census of the Population.

Educational attainment in the general market area is higher in regards to high school education but lower with respect to college education (bachelor's degree or higher) when compared to the percentages nationwide. Approximately 80 percent of the nation's population have completed a high school education and almost 24 percent have received a college degree (bachelor's degree or higher).

4.2.2.5. Urbanization. Campground studies conducted in other states have shown that urban populations are less likely to participate in camping activities than rural populations. Table 4-2 shows that the market area population is highly rural in character, with the exception of the Pittsburgh metropolitan area.

4.2.2.6. Conclusion. A number of demographic factors influence the visitation of recreation facilities. The demographic characteristics described above can aid in understanding the potential number of visitors at the project. The most notable characteristic is the overall population decrease in the region. The combination of the decrease in population and the average nature of the other demographic characteristics implies that the overall number of visitors to the project may stay stable or slightly decline in the coming years.

The potential expansion of the market area is not considered in this analysis, however, it is very likely to do so. The completion of I-68 should not be underestimated. During the study phase of this report, permit applications for new housing starts are low indicating little pressure for second homes. However, with the added lure of the bikeways, the National Road and the Southwest Pennsylvania Heritage Studies, tourism should rise.

4.3. EXISTING RECREATION FACILITIES

Youghiogheny River Lake has facilities available to the public for camping, picnicking, fishing, boating and swimming. Because of the project's location in southwest Pennsylvania and northwest Maryland, the reservoir and associated facilities attract approximately three million visitor hours annually. Previous to 1987, the District calculated visitation in "recreation days" by multiplying the number of visitor vehicles by a passenger factor to arrive at a visitation figure. After 1987, the District began calculating and reporting "visitor hours." In 1992, the District was directed to implement the Visitor Estimation and Reporting System (VERS), utilizing a reduced set of factors that are intended to convert the number of vehicles to visitor hours more accurately. The 1992 visitation figure illustrates the magnitude of change induced by VERS in reporting visitation. The lake attracts boaters for pleasure boating and water-skiing and operators of personal watercraft.

The number of recreation facilities identified in this master plan update is fewer than in the 1982 plan when there were more than 20 recreation areas. The reduction in recreation areas reflects the change in focus from a more active recreation development to a more passive and interpretive form of recreation. Natural and cultural resources management and interpretation will become much more significant factors in visitor recreation at the Youghiogheny River Lake. A brief description of the existing recreation facilities is provided in Table 4-3.

TABLE 4-3
MATRIX OF EXISTING RECREATION FACILITIES

Recreation Facility	Management Unit																		
	A. Operation/Management	B. Youghiogheny Recreation Area	C. Y. Recreation Area (Spillway)	D. Klondike Ridge Natural Area	E. Y. River Lake Wildlife Area	F. Somerfield North	G. Somerfield South	H. Braddock Run	I. Mill Run Recreation Area	J. Mill Run Natural Area	K. Maryland Wildlife Area	L. Selbysport	M. Bear Creek Natural Area	N. Buffalo Run Natural Area	O. J. Hollow Boat Launching Area	P. Jockey Hollow Recreation Area	Q. Tub Run	R. Lake Area (Pennsylvania)	S. Lake Surface (Maryland)
Boat Launch			■			■	■		■			■			■		■		
Public Boat Docks							■												
Marina							■												
Camping		■							■								■		
Swimming Beach			■			■											■		
Picnicking		■	■			■	■									■			
Fishing		■	■			■	■			■		■	■		■	■		■	■
Visitor Center																■			

Source: Woolpert.

4.4. REGIONAL RECREATION RESOURCES

Numerous public recreation and natural resources lands occur in the area surrounding Youghiogheny River Lake. Table 4-4 lists these resources, and Plates 1 and 2 identifies the location of several recreation and natural resource lands in the region. Many of these lands include major acreage for state forests and game lands. No major county park systems occur in the area surrounding the project.

4.4.1. Analysis and Considerations. The Pennsylvania and Maryland Statewide Comprehensive Outdoor Recreation Plans indicate a lack of developed recreational facilities to satisfy demand in the Youghiogheny River Lake region even though there are considerable land areas devoted to public open space. An inventory of local park systems in the vicinity of Youghiogheny River Lake also indicates a lack of major recreational facilities at the local level. Therefore, there is a need to develop additional facilities in the surrounding region.

4.4.2. Description. The Youghiogheny River Lake market depicted on Plate 1 shows the numerous public recreation and natural resource lands that occur in the surrounding area. Within a 25-mile radius, there are eleven state parks in a three-state area. All twelve parks are significantly smaller, except for Deep Creek, which is 1,800 acres with similar recreational opportunities.

Within a three-county area (Fayette and Somerset in Pennsylvania and Garrett in Maryland), all of which the Youghiogheny River is a part of, there are 23 parks (federal, state, and county) with recreational facilities. Many of these lands include major acreages of state forest and game lands. Some major state parks, natural resource lands, and recreation opportunities do occur in the area and influence proposed developments at Youghiogheny River Lake. Those areas are discussed below.

4.4.2.1. Ohiopyle State Park. This park is approximately 19,046 acres in size and is located 3 miles downstream from the project. The park's popularity was traditionally based on its river recreation, primarily canoeing, kayaking, and rafting. The development of the Youghiogheny River Trail and the mountain bike trail on Sugarloaf Mountain has provided a more diversified recreation experience. The park also has camping, picnicking, hiking trails, and interpretive programs. Ohiopyle and the Youghiogheny project generally provide different types of recreation opportunities. Ohiopyle is river-oriented while Youghiogheny is lake- and boating-oriented. Recreation development at Ohiopyle is dispersed

TABLE 4-4
REGIONAL RECREATION AND OPEN SPACE FACILITIES

Garrett County (MD)

Federal: Savage River Reservoir and Jennings Randolph Lake

State: Savage River State Forest
Garrett State Forest
Deep Creek State Park
Casselman Bridge State Park
Swallow Falls State Park
Herrington Manor State Park
New Germany State Park
Potomac State Forest
Big Run State Park

County: None Close

Somerset County (PA)

Federal: None

State: Laurel Ridge State Park
Laurel Hill State Park
Forbes State Forest
Gallitzin Babcock State Forest
Kooser State Park
4 State Game Lands

County: None Close

Fayette County (PA)

Federal: Youghiogheny River Lake
Fort Necessity National Battlefield
Friendship Hill National Historic Site

State: Laurel Ridge State Park
Ohiopyle State Park
Forbes State Forest
8 State Game Lands

County: Jacobs Creek Park
Dunlap Creek Park

West Virginia (60 Mile Radius)

Federal: Tygart Lake and Monongahela National Forest (Part)

State: Cathedral Sate Park, Prickett's Fort State Park, Tygart Lake State Park
Valley Falls State Park, Walter Smith State Park, 9 State Wildlife Areas, and Coopers Rock State Forest

County: 36 County Parks

Source: West Virginia SCORP, Pennsylvania SCORP, and Maryland SCORP.

over large land areas where development can be low density. Recreation development at Youghiogheny River Lake is more intensive (for example,

campground and day-use area densities are high). The primary reason why Ohiopyle is discussed is that the Youghiogheny River Trail will bring many visitors to the area who will use the lake's campgrounds as a base of operation. The Youghiogheny River provides a great setting for rafting and canoeing, the traditional activity within the park. However, as the river becomes more congested, more and more people will boat on the calmer section of river between the lake and the park.

Ohiopyle has been a tremendous draw to the region for many years. In 1994, the park attracted 2,172,494 people. The visitation has remained steady over the last few years primarily due to a severe crowding problem within the Borough of Ohiopyle where many of the facilities are located. A lack of parking, not demand, has been cited as a prime reason for limited growth projections in the future. Additional parking will be constructed based on availability of ISTEA funding.

4.4.2.2. Regional Bike/Hike Trails. The Rails-to-Trails movement is proving very successful in attracting large number of recreationists both locally and regionally. Several bike/hike trails are completed or proposed in the region. The most significant of the trail proposals is the ultimate link from Pittsburgh to Washington, D.C. The proposed link between these two cities will consist of four trail sections. The Youghiogheny River Trail (South) along the Youghiogheny River from Connellsville to Confluence provides access to the project at the northern end. This trail is owned and administered by the Commonwealth of Pennsylvania as part of Ohiopyle State Park. The Youghiogheny River Trail (North) owned by the Regional Trail Corporation will connect Connellsville with McKeesport. Except for a small section Boston and McKeesport, this trail is complete. When this trail, along with some small trails on the Monongahela River, is completed, bicyclists will have the opportunity to travel from Pittsburgh to the project. The third section of the bike/hike trail will extend from the project area to Cumberland, Maryland. The Allegheny Highlands Trail will link with the Ohiopyle Trail at Confluence where the bike trail crosses the Youghiogheny River. The Allegheny Highlands Trail will follow the rail right-of-way along the Casselman River. At Cumberland, Maryland, the trail will connect with the C&O Canal Towpath Trail, which will stretch from Cumberland to Washington, D.C. The Towpath is operated and administered by the National Park Service.

The Youghiogheny River Trail has been enjoying success for many years after the initial section was paved within the Ohiopyle State Park. In recent years, the number of paved miles has been increasing. The estimated use in 1994 was almost 200,000 people, up from 158,000 in 1992. This success has resulted in numerous bike rental shops opening in Ohiopyle, Confluence and Connellsville.

In addition to the trails mentioned above, there are almost a dozen other trails proposed, open or under constructed within Southwest Pennsylvania that will link to provide uninterrupted riding or hiking from the New York, Ohio and West Virginia State lines to Washington, D.C. One proposed trail will link Point Marion on the Monongahela River in western Fayette County with Uniontown and Connellsville where it will meet the Youghiogheny River Trail.

4.4.2.3. Youghiogheny Wild and Scenic River. If adopted by Congress and Maryland and Pennsylvania, the proposal for designating the Youghiogheny River as a component of the National Wild and Scenic Rivers system will influence use of this river in these states. The state of Maryland has already designated the portion of the Youghiogheny River upstream of the project as part of the state's Wild and Scenic River system. Because of existing established recreation use of the river in Pennsylvania, it is anticipated that the segment below the Youghiogheny Dam will receive the most initial use. However, this will not likely add to existing canoe-launching use in the Outflow Recreation Area because additional canoe-launching facilities are planned further downstream by the state of Pennsylvania.

4.4.2.4. National Road Heritage Park (U.S. 40). In 1989, the Commonwealth of Pennsylvania established a Heritage Parks Program to encourage certain regions of Pennsylvania to preserve and promote the state's rich industrial history. The objective of the program is the promotion of regional economic development, cultural and historic conservation, and opportunities for recreation and education. Heritage Parks are designated regions with a full range of historic, cultural, recreation, and educational resources that communicate America's industrial heritage.

According to the Park's Management Action Plan, the National Road Heritage Park will be a network of public/private partnerships working together to interpret and preserve various historic sites and resources, conserve the valuable cultural and natural heritage along the National Road corridor, foster local economic development, and teach students and adults about the importance of the National Road to the state and the nation. Attendance, once all phases are complete, is estimated between 320,000 and 480,000 visitors per year. Many of these will be people who take advantage of the Road's amenities while in the region visiting other attractions. For others, the opposite will be true.

The National Road crosses the Youghiogheny River Lake where the historic Great Crossings Bridge now stands submerged. The Road's Management Plan has identified five regional interpretive centers, two of which flank the Corps project. One may be located at the tollhouse in Addison; the other at Fort Necessity.

4.4.2.5. Path of Progress Heritage Route. The Path of Progress Heritage Route is a circuitous set of highway segments which traverse several counties in southwest Pennsylvania. A portion of the Route is located adjacent to the project. The route was designated by the Southwest Pennsylvania Heritage Preservation Commission whose focus is on the development, enhancement and interpretation of iron/steel-making, coal and transportation themes within a nine county area which includes Fayette and Somerset Counties. The purpose of the Heritage Route is to provide systematic access to cultural, natural and recreation sites in the region from the interstate highway system and other major regional access highways. Route 281 from Somerset to Confluence, Route 523 on the east side of the project and Route 40 from its intersection with Route 523 west have been designated a part of this system. Brochures have been published and are made available to motorists to aid in locating the significant resources along the routes.

4.4.2.6. Fort Necessity. Operated by the National Park Service, Fort Necessity is located on Route 40 in Fayette County about 10 miles west of Youghiogheny River Lake. The fort is a reconstruction of the one hastily built by George Washington in 1754 to provide a defense against a French attack. Although Washington's forces were defeated, Washington himself was allowed to leave. This battle is considered a prelude to the French and Indian Wars.

4.5. VISITATION

4.5.1. Current Use Projections. Establishment of the recreational demand at Youghiogheny River Lake was attempted by using procedures set forth in U.S. Army Engineer Institute for Water Resources Research Report 74-R1, *Estimating Initial Reservoir Recreation Use.* This publication promotes the choice of a "similar project" with an established demand curve that can be applied to the project in question. The demand curve is based on the population of surrounding counties and travel distances to the reservoir.

The similar project used to estimate demand at Youghiogheny River Lake was Hulah Reservoir located in the Tulsa District. Hulah was chosen since both Hulah and Youghiogheny River Lakes have comparable developmental features. The strongest recommendation, however, came from the fact that both reservoirs have similar numbers of competing recreation areas and both are in the proximity of a major population center - Tulsa for Hulah and Pittsburgh for Youghiogheny.

The use rate curve for Hulah was applied to population centers of the 10 counties surrounding Youghiogheny in Pennsylvania and Maryland. Current

census of population updates of 2000. The Hulah use rate curve applied to population results in potential day-use figures for each county, as shown on Table 4-5. Current visitation (visitor hours) was determined using the Visitor Estimation and Reporting System (VERS), which was developed by COEWES.

Two adjustments were applied to the day-use figures; one was an adjustment to convert day-use figures to total use figures reflecting overnight camping and one was an adjustment to reflect historic use. Conversion of day-use visitations to total use visitations requires an adjustment for camping of 21 percent based on the percentage of campers to total visitors.

The current demand, as defined by this methodology, indicates a demand twice that of recorded visitation. There are two possible explanations. First, the procedures set forth in the IWR Research Report do not accurately simulate the demographic use of this lake. Secondly, and probably somewhat more likely, the limited land area and concomitant lack of developable areas, have limited recreational use to approximately 40% of those who would use the lake if the facilities allowed. In reality, it is probably best to assume a combination of the two. Therefore, an adjustment factor of 40%, based on actual visitation has been applied. Total yearly demand potential for Youghiogheny River Lake is shown in Table 4-5.

4.5.2. Demand Projections. Projected demand figures at Youghiogheny River Lake were determined directly from population projections and historic records. Compounded annual growth rates of census updates and OBERS projections were applied to each of the 10 counties in the study area from 1990 to 2020. Assuming that the use rates for current demand will remain constant, recreational demand can be projected based on expected population figures. Study area population and projected use through 2020 is shown in Table 4-6. The curve and camping adjustments necessary to find total yearly use are also shown in Table 4-6.

TABLE 4-5

CURRENT RECREATIONAL USE PROJECTIONS

Day Use Market Area County		2000 County Population	Per Capita Day Use Rate	Estimated Day-Use Population
Maryland				
	Garrett	29,846	2.10	62,677
	Allegany	74,930	1.00	74,930
Pennsylvania				
	Fayette	148,644	2.40	356,746
	Somerset	80,023	1.70	136,039
	Westmoreland	369,993	0.62	229,396
	Greene	40,672	0.55	22,370
	Allegheny	1,281,666	0.10	128,167
	Washington	202,897	0.10	20,290
	Beaver	181,412	0.10	18,141
	Cambria	152,598	0.33	50,357
Total		2,562,681		1,099,111
		Camping Adjustment 21%		230,813
		(Adjusted for Overnight Use)		1,329,925
		Adjusted Total Use (40% of demand)		531,970

Source: U.S. Census Bureau.

Recreational demand for an entire year is unworkable for planning purposes and must be adjusted to reflect use on a typical weekend day. To establish the season of most visitations, it was found that Youghiogheny River Lake typically has 55 percent of all yearly visitations in June, July, and August. Taking this additional step, an established rate of 2.88 percent of the summer season's visitation can be expected on any typical weekend day. Adjustments to demand to reflect typical weekend use at Youghiogheny River Lake from 1990 to 2020 are shown in Table 4-7.

In actuality, use should remain consistent. As population in the current market area drops, the demand will not. Since the project supplies only 40 percent of the demand at present time, the population decline will only serve to raise the percent of recreation supplied. Counteracting this trend, with other recreation and transportation assets in the region providing an additional lure to tourism, it appears likely that the market area will grow which in turn will increase the population served by this facility.

4.5.3. Activity Projections. The market area creating recreational demand at Youghiogheny River Lake encompasses a large portion of the entire

Pittsburgh metropolitan area. Using percentages of activity participation from 1990 to 2020 at the Youghiogheny River Lake, a reasonable estimate of the activities demanded at Youghiogheny River Lake is revealed. These activity percentages applied to the potential demand for the reservoir established the activity loading at any time during a typical weekend day. Activity demands from 1990 to 2020 are shown in Table 4-7.

During the course of a typical day, people recreating will change, or "turn over," to different activities. Using accepted turnover rates, again adjusted to reflect conditions at Youghiogheny River Lake, total daily recreational activities can be assessed. These activities and their relationship to the number of people available to use the facilities at Youghiogheny River Lake are also shown in Table 4-7.

TABLE 4-6
PROJECTED USE BY YEAR AND TYPICAL SUMMER WEEKEND

	1990 Demand	2000 Demand	2010 Demand	2020 Demand
Expected Population	2,626,679	2,562,681	2,413,773	2,321,907
Expected Recreation Demand	1,093,713	1,099,111	1,042,924	1,019,100
Camping Adjustment (21%)	229,680	230,813	219,014	214,011
Total Demand	1,323,393	1,329,924	1,261,938	1,233,111
Total Use	529,357	531,970	504,775	493,244
Limitation Adjustment (Total Demand x 40%)				
Rounding Adjustment	529,000	532,000	505,000	493,000
Three-Month Visitation Season (55%)	290,950	292,600	277,750	271,150
Persons for Typical Weekend Day (2.88%)	8,379	8,427	7,999	7,809

Source: U.S. Army Corps of Engineers, Pittsburgh District.

TABLE 4-7
ACTIVITY DEMANDS FOR A TYPICAL SUMMER WEEKEND

Activity	Activity Partici-pation Rate	Turn-over Rate	1990		2000		2010		2020	
			Loading	Activities	Loading	Activities	Loading	Activities	Loading	Activities
Fishing	17.65	2.00	739	1,479	744	1,487	706	1,412	689	1,378
Boating	13.29	1.60	696	1,114	700	1,120	664	1,063	649	1,038
Water-Skiing	3.21	2.00	134	269	135	271	128	257	125	251
Swimming	8.82	1.66	445	739	448	743	425	706	415	689
Camping	5.14	1.00	431	431	433	433	411	411	401	401
Sightseeing	40.29	3.03	1,114	3,376	1,121	3,395	1,064	3,223	1,038	3,146
Hiking	0.42	1.54	23	35	23	35	22	34	21	33
Picnicking	11.18	1.54	608	937	612	942	581	894	567	873
TOTAL			4,191	8,379	4,215	8,427	4,001	7,999	3,906	7,809

4.5.4. Activity Limitations. Demand projections are normally used as a basis for current and future facility design. However, Youghiogheny River Lake demand and activity expectations so far exceed the reservoir's recreational capabilities that they cannot be used as the primary basis for planning. Rather, proposed facilities must be based on the project resource capabilities and limitations with regard to recreation, and not on an effort to satisfy current and future demand.

The reservoir is situated in an area of steep topography that limits the number and size of available recreational sites. Currently, most of the areas best suited for recreation are already developed, which leaves only a small number of areas suitable for limited future development. These remaining areas have been assessed individually for potential development of new facilities based on the design criteria for use in the event a non-federal cost sharing partner expresses a desire to operate and manage a recreation site. Development of these areas will not satisfy potential recreational demand at Youghiogheny River Lake but will result in the most compatible use of the reservoir's resources, in light of the resource limitations.

CHAPTER 5: LAKEWIDE RESOURCE USE OBJECTIVES

5.1. INTRODUCTION

This chapter presents the 19 lake wide resource use objectives (RO) that have been identified for the Youghiogheny River Lake. The lake wide ROs reflect the special capabilities and constraints of the Youghiogheny River Lake's resources. They specify how those resources should be managed to help fill current and projected public needs and desires. Table 5-1 at the end of this chapter summarizes the relative suitability of each of the project's individual management units to help meet the lake wide objectives.

5.2. RESOURCE USE OBJECTIVES

Resource use objectives are the stated philosophies and reasons behind the features of the development and management plans contained in this updated master plan. These objectives were developed to conform to the intent of ER and EP 1130-2-550. These documents provide guidance for establishing resource use objectives which specify the attainable, publicly acceptable options for resource use determined from study and analysis of resource capabilities and public needs.

The following resource use objectives reflect the results of a detailed analysis and evaluation of the resources provided at Youghiogheny River Lake as described mainly in Chapters 2 and 3 of this plan, as well as in the synthesis section of this chapter. Each objective contains a rationale to explain why that particular objective was selected. Some of these are obvious and generic to many projects, while others have grown out of conditions existing at a specific project. The balance was derived from statements set forth by project users because of public involvement solicitations. All are included to help future planners and managers understand the rationale for the various recommendations of this master plan update.

The ROs, as a group, reflect a changing management emphasis for the project when, in the past, the primary objective was to provide active recreation. That traditional use is still relevant but the ability of the project lands and the staff to provide any additional active recreational facilities is severely limited. The maturation of a new generation with varied needs and values has given cause to provide a different recreation experience, one that accommodates educational and interpretive pursuits as well as other more passive uses. The responsibility of providing public use of the project in a time of great demand also requires a

dedicated philosophy of stewardship of the resources to allow a quality experience for future users. Therefore, in addition to recreation, the ROs are grouped into the general categories of Project Operation, Safety, Natural Resources, Cultural Resources, and Education.

5.2.1. Project Operations

5.2.1.1. Objective: Operate and maintain the lake for authorized project purposes.

Rationale: Youghiogheny River Lake is part of the Corps of Engineers (COE) flood control for the watershed, which includes counties in Pennsylvania, Maryland, and West Virginia. The reservoir provides capacity to store storm water, requires the Corps to release water downstream to mitigate for natural low flows, fish and wildlife conservation, and recreational opportunities both above and below the dam. The Congress establishes these purposes.

5.2.1.2. Objective: Continue the current policy of licensing, leasing property, and outgrants, including allowing Pennsylvania and Maryland to actively manage recreation and wildlife areas.

Rationale: This policy allows for the establishment of diverse recreational opportunities that may not otherwise be available. By allowing others to operate facilities on federal lands, it frees the Corps staff from actively managing all lands at the project and allows funds allocated to the project to be expended to meet other needs. The agencies and groups that lease and use the parcels have the responsibility to operate and maintain these leased lands. The policy requires coordination between these groups and the Corps.

5.2.1.3. Objective: Maintain and manage facilities to limit shoreline erosion and sediment accumulation.

Rationale: Water level fluctuations create the potential for erosion along the shoreline, which degrades the shoreline environment as well as potentially adversely affecting recreational facilities, vegetation, and cultural resources. The continued fluctuations can have a negative effect on the visual quality of the shoreline. Erosion of the shoreline can affect recreation facilities such as beaches and boat ramps, requiring additional maintenance and costs. The accumulation of sediment in the reservoir can shorten the life span of the reservoir if a regular maintenance program is established.

5.2.2. Safety

5.2.2.1. Objective: Create and maintain no-wake zones on the lake as a means to safer boating and to protect property.

Rationale: As the number and types of boats increase on the lake, wave action created in their wake has inherent risks. In addition to posing risks to shoreline as a catalyst for erosion, the wake affects shoreline recreation; causes damage to permitted docks and the boats moored to them, and interferes with other lake uses such as boat fishing.

5.2.2.2. Objective: Maintain safe boating levels and reduce conflicts between power boating and other boating activities such as fishing and personal watercraft.

Rationale: A variety of factors give every indication that boating demand will increase in the future and this could have serious safety ramifications for users of the lake.

The demand for boating access at the project is expected to increase for several reasons:

Increased Boat Sales. Boat sales across the nation and in Pennsylvania have been increasing in the last decades and this trend is expected to continue. Personal watercrafts, in particular, have seen a dramatic increase in sales. In fact, annual personal watercraft sales are expected to increase 30 to 40 percent in the next few years.

Increased Boat Registration. Currently, there are approximately 300,000 motorized boats (including personal watercraft) registered in Pennsylvania (non-motorized boat registration is not required in the state). The number of registered boats per Pennsylvania County has doubled in the past 10 years. An annual increase of between 6 and 8 percent is expected to continue into the future.

To study the boating safety and capacity issues on the Youghiogheny River Lake, the Corps' Waterways Experimental Station (WES), on behalf of the District and the Pennsylvania Fish and Boat Commission, conducted a study in the summer of 1992. The findings of this study gave justification for the implementation and continuation of the current moratorium on private dock permits issued by the Corps. In addition, the WES study recommended not

increasing boat-launching capacity at public launch areas or increasing the size of the marina.

Also documented in the WES report were boaters' perceptions of conditions on the Youghiogheny and boaters' reasons for choosing to use the reservoir. About one-third of boaters found the lake to be crowded or had problems with other boaters during their visits to the Youghiogheny, especially during peak-use days. Yet, boaters are drawn to the Youghiogheny River Lake for its natural features, undeveloped shoreline, clean and clear water, and low-density recreational opportunities. There is currently only one gas dock on the lake, located on the marina. If a second service station were made available, it could reduce congestion near the marina.

5.2.2.3. Objective: Provide safe swimming conditions.

Rationale: The public swimming is located at the Youghiogheny Recreation Area (spillway). The spillway swimming beach was renovated in 2000 to correct conditions that did not meet safe design criteria. This work was done in conjunction with the redesign of the adjoining boat launching ramp and parking facilities at the Youghiogheny Recreation Area. The swimming beach reopened for public use 2001.

Due to the recent development of unstable soil conditions, the high cost to correct this unsafe condition and minimal use by the public, the Somerfield swimming beach was closed permanently. The new spillway swimming beach will more than compensate for the loss of this facility.

5.2.3. Natural Resources

5.2.3.1. Objective: Identify, manage and protect habitat known to support or that potentially supports special concern, threatened, or endangered species.

Rationale: Federally listed threatened and endangered species at the project lands are protected under the Endangered Species Act of 1973. The Maryland Non-game and Endangered Species Conservation Act of 1975 and the Pennsylvania Fish and Boat Act further protect rare species in each respective state. These rare species have the potential for becoming extremely depleted or extirpated and therefore warrant protection.

The osprey is listed as threatened in Pennsylvania and of special concern in Maryland. Nesting platforms have been erected at Youghiogheny River Lake for

the ospreys and use of one platform was finally recorded in 2006 at the Maryland end of the project. Breeding pairs at other lakes in the District have used similar platforms. Continued efforts to support the ospreys are directly in line with this objective. Other state-protected species have historically occurred at the Youghiogheny or nearby and may still occur there. An inventory of the project lands to identify potential habitats, and then specific efforts to determine if these species or other rare species are present at any of the identified locations, is necessary to determine the areas of the project that require specific management efforts. Until the project lands are inventoried, all project lands have a potential to support rare species.

Several special concern species are known to occur in the Maryland portion of the project. The known locations of these species are localized to a relatively small area. This area should be managed independently for the survival of these rare species as important ecological features of the region and the state. Accessibility to the known habitats should not be improved to avoid unnecessary impacts from collectors. Other potential habitats for these and other rare species that have historically been recorded on or near project lands should be investigated, inventoried, and managed as appropriate.

5.2.3.2. Objective: Manage forest resources to maximize biological diversity and to maintain the visual quality and scenery of the lake shoreline.

Rationale: The upland habitats on the project are typically a narrow band of steep slopes that is only a few hundred feet wide in most areas. The visibility of most of the project lands from the water and the need for preservation of the aesthetic qualities, as well as the sensitivity of the steep slopes to erosion precludes harvest of timber products on most project lands.

The natural setting of the lake shoreline is currently a very important quality that draws visitors to the project. The shoreline is generally not developed and consists primarily of wooded slopes, which in some cases are quite steep. While there has been some development along and near the shore from neighboring landowners, maintenance of the natural state of the lake's shoreline would provide benefits to future visitors.

5.2.3.3. Objective: Continue management of project lands to support game and non-game wildlife populations.

Rationale: The non-game wildlife inhabitants of the project lands have not been inventoried but include a substantial number of birds, small mammals, reptiles,

and amphibians. Non-game species are an important element to ecological stability and aesthetic appreciation of the project lands. The diversity of non-game species includes species adapted to every habitat at the project. Species richness and diversity are linked to the diversity of habitats available. Within the requirements for flood management and flow augmentation, the goal of management should be to provide the greatest diversity of upland and aquatic habitats to support the greatest diversity of species.

The habitats at the Youghiogheny River Lake lands are strongly dominated by steep woodland habitats. Much of the habitat is mature or maturing forest with dense canopies and moderate under story development. Continuous forest habitat is critical to the survival of some non-game species such as forest interior dwelling birds. Maintenance of the forest is also integrated with the visual scenic quality of the reservoir. Much of the forested habitats near the Youghiogheny have been fragmented by agriculture.

Inventory of the project lands should be coordinated with state wildlife agencies to identify the target species or species groups for management, such as species that are of particular ecological or aesthetic value or are of depleted numbers and to determine which management techniques should be employed and where they should be implemented.

5.2.3.4. Objective: Maintain and improve aquatic habitat for game fisheries.

Rationale: Sport fishing is an integral part of the recreation opportunities at the project. Actions to improve the habitat for game fishes should be considered in coordination with other objectives, particularly flood control, boating, and water quality maintenance. The most important improvements that can be made are provision of greater cover and improved forage base for the piscivorous sport fishes.

5.2.3.5. Objective: Preserve unique natural areas.

Rationale: Natural areas are places where human influences are relatively inconspicuous and where the plant and animal communities or geological features are in some way rare or outstanding. The feature that makes a place a natural area may be exceptional maturity of trees, presence of an unusual phenomenon, unusual abundance of a particularly striking plant or animal species, or scarcity of ecologically similar sites elsewhere.

A natural area must be large enough to exhibit wilderness character (which means that works of humans and severely altered or managed vegetative types should not be visible from its interior) and to enable protection of its natural qualities from alteration by artificial influences, and to provide worthwhile educational and research opportunities.

The forest inventory of project lands, conducted by project personnel, shows that Klondike Ridge, Mill Run, and Bear Creek Natural Areas each support forest habitats that are unusual by virtue of their vegetation composition or age. With improved access, these forest stands could provide unique opportunities for public enjoyment and education.

5.2.3.6. Objective: Improve and expand available habitat for waterfowl.

Rationale: The waterfowl population at the Youghiogheny is moderate. Wood duck populations have been supported through the establishment of ponds and the provision of boxes in floodplain woods. However, the large fluctuations in water levels and the steep sides of the reservoir reduce the potential for the development of the marsh habitats preferred for nesting by most other waterfowl. The Maryland portion of the project provides an opportunity for improving the waterfowl habitat, particularly the alluvial flats in and near Buffalo Run. Small sub-impoundments can be created at the mouths of several tributaries to retain water. These impoundments could support the marsh vegetation, which would be used for waterfowl nesting. Additionally, shallow ponds could be created in the flats, which would remain during low water. These ponds could be especially important during migration.

5.2.3.7. Objective: Maintain water quality for water-contact recreation, wildlife, and fisheries.

Rationale: The current water quality at the lake is very good from the perspective of water-contact sports, such as fishing, swimming, boating, and water-skiing. Monitoring of water quality indicates very low nutrient levels, indicating few problems from sources such as septic systems, which would cause potential for contamination with disease organisms. The particularly low nutrient levels are somewhat counter-productive for fisheries, resulting in only a moderate sport fish population, which can be improved by stocking and using other habitat improvement methods.

5.2.3.8. Objective: Continue pest management activities.

Rationale: Pest species include certain insects, zebra mussels, and some mammals and plants. Of particular importance is control of pests that can cause substantial damage to the forest, such as the gypsy moth. Treatment of known infestation of this and other insect pests should be continued to protect the forest. Some mammals, such as raccoons, skunks, and beavers, can be local nuisances. Educating boaters and anglers about the potential damage zebra mussels can cause and the various ways it can be introduced into non-infected waters is the best method to minimize the potential for its colonization within Youghiogheny Lake. In certain areas, certain plants may become a nuisance. Physical removal is recommended. Judicious use of glyphosate herbicides may be appropriate where other sensitive (rare) plants will not be affected.

5.2.4. Recreation

5.2.4.1. Objective: Design, develop, or improve recreation facilities in a manner that will minimize operating costs while meeting public health and safety standards and will help meet regional needs for diversity of water-dependent recreation activities such as boating, swimming, and fishing.

Rationale: There are three swimming areas on the 2840-acre (summer pool) Youghiogheny River Lake - at the Tub Run, Mill Run and the Youghiogheny Recreation Area (spillway). Camping areas complement two of these areas -Mill Run and Tub Run -. About 9 percent of Youghiogheny River Lake's visitors participate in swimming.

According to the Pennsylvania State Comprehensive Outdoor Recreation Plan (SCORP), in Region 7, the need for improved or expanded swimming facilities was identified on 41 percent of the returned surveys. In West Virginia SCORP Region 6, which includes the portions of the state closest to Youghiogheny River Lake, freshwater swimming was listed eighth on a list of outdoor recreation activities most frequently participated in.

Swimming facilities were identified in the same survey as a priority for respondents who are physically challenged. For people who are elderly, restrooms and bathhouses were the highest funding priority. In the Pennsylvania SCORP Region 10, respondents who are physically challenged identified restrooms and bathhouses as the third highest priority and swimming facilities as fourth. Among people who are elderly in Region 10, bathhouses and bathrooms were listed as the fourth highest funding priority.

The 2840acres at Youghiogheny River Lake offer some of the best waters for fishing in southwestern Pennsylvania. Fishing is the second most popular activity at Youghiogheny River Lake - 18 percent of the lake's visitors participate in this activity. Survey respondents identified fishing areas as an opportunity that needs to be expanded or provided in the West Virginia and Pennsylvania SCORPs.

Facilities for hunting and fishing for respondents who are elderly or mentally or physically challenged were identified as an important priority in Regions 7 and 10.

5.2.4.2. Objective: Design, develop, or improve recreation facilities in a manner that will minimize operating costs while meeting public health and safety standards and regional needs for hiking, bird watching, picnicking, camping, and bicycling.

Rationale: Bicycling and hiking are popular activities within the Youghiogheny River Valley. In the Pennsylvania SCORP, 52 percent of respondents in Region 7 jogged or walked for fitness an average of 72 days per year, 45 percent of respondents used hiking trails an average of 15 days per year, and 35 percent participated in bicycling an average of 28 days per year. In Region 10, 58 percent of respondents jogged or walked for fitness an average of 66 days per year, 38 percent of respondents used hiking trails an average of 11 days per year, and 36 percent participated in bicycling an average of 19 days per year. In West Virginia SCORP Region 6, jogging and walking was the most popular outdoor recreation activity, and bicycling was the seventh most popular activity. Hiking, jogging, and fitness trails meeting the special needs of all people were identified by respondents from Region 7.

In Region 7, 38 percent of respondents felt hiking trails need to be expanded or created, while 36 percent said the same for bicycle paths. In Region 10, new or expanded bicycle trails were identified by 40 percent of respondents, while jogging and fitness trails were identified by 33 percent.

The campground facilities at Youghiogheny River Lake serve as an important camping resource for the entire Laurel Highland region. About 5 percent of Youghiogheny River Lake's visitors participate in camping. The Youghiogheny River Lake campgrounds (Mill Run, Tub Run, and the Outflow Camping Area) are unique because they provide the camper with close access to other recreational opportunities at the lake, such as fishing, boating, canoeing, and swimming. For this reason, visitors from the surrounding region commonly use Youghiogheny River Lake’s campgrounds. Statistics were obtained from the

Commonwealth of Pennsylvania's 1991-1997 SCORP for Region 7 (including Somerset County and five other counties) and Region 10 (including Fayette and eight other counties). In Region 7, 23 percent of respondents said they participated in camping. Overall, the average camper spent 2.6 days in this activity.

Surveys in both regions concluded that campground rehabilitation is an important recreation improvement and rehabilitation priority. Poor maintenance was classified as the seventh highest reason that survey respondents did not participate in existing recreation facilities in Region 7. The same survey (in Region 7) identified the maintenance of all existing facilities as the second highest recreation funding priority.

Furthermore, in Region 7, surveys identified the provision and expansion of campgrounds as an important recreation development priority; 19 percent of existing facilities were overused, and an inventory determined that 175 additional trailer sites were needed in that same region. Surveys in both regions stated that overcrowding of existing facilities was a chronic problem. In addition, respondents from both communities in Region 7 identified campgrounds meeting the needs of people who are physically challenged and people who are elderly. Neither was identified in Region 10.

Picnicking is a popular activity in the region surrounding Youghiogheny River Lake. In the Pennsylvania SCORP, 65 percent of respondents in Region 7 participated in picnicking an average of seven days per year; in Region 10, 66 percent of respondents participated in picnicking an average of eight days per year.

In the Pennsylvania SCORP, the need for improved, expanded, and rehabilitated picnic facilities was identified in both Regions 7 and 10. The maintenance of existing facilities was the second highest recreation funding priority identified in Region 7. In Region 10, it was the third highest funding priority. Picnic facilities were also identified as an important funding priority among people who are elderly in Region 10, where it was listed as the fifth highest funding priority. In West Virginia Region 5, picnicking was identified as the fifth most popular outdoor recreation activity.

5.2.4.3. Objective: Encourage organizations that lease property from the Corps to maintain facilities and programs that offer a broad range of activities, and make opportunities available for local sponsors or cooperating associations to improve the project.

Rationale: The Pittsburgh District of the COE currently leases five areas within Youghiogheny River Lake to two public agencies, the Boy Scouts, and a private concessionaire. These leases permit the Corps to concentrate their resources on the primary missions of the facility.

The Pennsylvania Fish and Boat Commission has a park and recreation lease to operate the Jockey Hollow Launch Area and has a license for fish management. From this location, the commission manages fish stocks for the Pennsylvania portion of the lake. A boat launch is also provided at this location. The Maryland Department of Natural Resources (MDDNR) has a license for wildlife management including three fishing areas near Selbysport. Braddock Run is outgranted to the Penn's Woods Council of the Boy Scouts for public recreation purposes. Lastly, Youghiogheny Marina, a private concessionaire, operates a 316-slip marina at the Somerfield South area.

Sponsors that could make and maintain improvements to the project include state and local governments, conservation groups, historical societies, recreation and sports clubs, private companies, and individuals.

5.2.4.4. Objective: Maintain and upgrade recreation facilities to make them accessible for people who are physically challenged.

Rationale: It is important for all visitors, including the physically challenged, to be given the opportunity to enjoy the recreation facilities at the Youghiogheny River Lake. The Americans with Disabilities Act (ADA) requires that public facilities be upgraded to accommodate people who are physically challenged. Incorporating improvements at the facilities will allow all visitors to enjoy the full recreation experience.

5.2.5. Cultural Resources

5.2.5.1. Objective: Survey and protect cultural resources on project lands.

Rationale: The project is located in a region of the country where many significant historical events occurred. A significant aspect of the region's history is tied to transportation. In prehistoric times, the Youghiogheny River Valley was an important travel route. The significance of this river valley continued through the 1700s and 1800s. In the early 1800s through the mid 1900s, transportation in the project area continued to be a significant component of the growth of the country, with the construction of the Great Crossings Bridge and the National Road. There are several known significant historic properties located within project boundaries that may be eligible for listing on the National Register of

Historic Places. They would require protection and management to ensure compliance with federal laws and regulations. Several archeological sites may be affected by the changes in the pool level. Pool level changes may be causing erosion of the sites, which adversely affects the resources. Inundation of the Great Crossings Bridge has caused damage to the structure, and when the bridge was exposed during an extremely low pool level, vandalism caused additional damage. To comply with Section 110 of the National Historic Preservation Act, a Historic Property Management Plan should be funded and completed to provide guidance on the protection and management of cultural resources on project lands.

5.2.6. Education

5.2.6.1. Objective: Promote public understanding of the project's natural and cultural environment and cultural resources and its relationship to the COE's goals of flood control and multiple use through a public education program that includes a consistent and coherent sign program, distribution of literature, exhibits, roadside displays, and presentations.

Rationale: There is an ongoing environmental education program at Youghiogheny River Lake that focuses on increasing public knowledge of the Corps' role as a federal water resource management agency in this region. Themes or subjects include the Corps' missions in fish, wildlife, and cultural resources management, and management concerns such as fire, vandalism, water safety, and regional and project recreational opportunities. To facilitate public understanding of the Corps' role, bulletin boards should be displayed at each of the recreation management units, brochures should be available at the project office, and informational signs should be installed throughout the project.

Increasing the opportunities for educating the public about the project's natural and cultural resources, as well as the National Road Heritage Park, will be an important focus for project managers. It is anticipated that although the overall number of visitors will decline at the project there will be an increase in the number of visitors who want to learn more about the project's and the region's history.

5.2.6.2. Objective: Maintain ongoing coordination with other agencies and groups in the area.

Rationale: Large portions of the project are currently managed by other agencies. The Commonwealth of Pennsylvania manages the lake area on the Pennsylvania side of the border and the Maryland Department of Natural Resources manages the lake and the shoreline on the Maryland side of the border. The Braddock Run management unit is leased to the Boy Scouts for a primitive camping facility. A unique situation is the presence of the National Road Heritage Park, which bisects the project along U.S. 40. The Heritage Park Corporation manages the National Road Heritage Park. Because the areas leased or managed by these agencies and corporations represent a large portion of the project and lands adjacent to the project, continued coordination will ensure that these areas are managed in accordance with the Corps' missions.

5.2.6.3. Objective: Organize or facilitate events for community groups.

Rationale: Interpretative efforts include guided tours of the dam and environmental education of wildlife that inhabits the project. These programs provide the local community and project visitors the opportunity to receive a deeper understanding of the project's purpose and role in regional flood control and environmental protection.

5.2.6.4. Objective: Represent the Corps by participating at regional and local public meetings that address regional concerns

Rationale: The project is located in two states (Pennsylvania and Maryland) and the watershed that this project includes also reaches the state of West Virginia. There are many small towns and villages in the three counties where the project is located. To ensure that the Corps' missions are understood by the local political jurisdictions, and the interests of all concerned parties are addressed in local and regional planning efforts, COE employee participation at local agency and public meetings should be encouraged, subject to ethics rules.

5.2.6.5. Objective: Develop a program to protect the lake from nuisance aquatic species.

Rationale: There is the potential for nuisance species to become established in the lake from other sources by way of boats, bait fish, and other sources. Nuisance species such as the zebra mussel, which is an established problem in some of the Great Lakes, could easily be transported in bilge water of boats. These species can seriously affect the ecological balance of the lake and cause some water quality degradation. An education program to reduce the potential for this species and other nuisance species should be considered.

TABLE 5-1
EVALUATION RESOURCE USE OBJECTIVES WITH MANAGEMENT UNITS

Lakewide Resource Use Objectives	Management Unit																		
● = High Suitability ■ = Moderate Suitability	A. Operation/Management	B. Youghiogheny Recreation Area	C. Youghiogheny Recreation Area	D. Klondike Ridge Natural Area	E. Youghiogheny River Lake Wildlife Area	F. Somerfield North	G. Somerfield South	H. Braddock Run	I. Mill Run Recreation Area	J. Mill Run Natural Area	K. Maryland Wildlife Area	L. Selbysport	M. Bear Creek Natural Area	N. Buffalo Run Natural Area	O. Jockey Hollow Boat Launching Area	P. Jockey Hollow Recreation Area	Q. Tub Run	R. Lake Area (Pennsylvania)	S. Lake Surface (Maryland)
Project Operations:																			
Operate and maintain lake for flood control.	●																	●	●
Continue policy of licensing, leasing property, and outgrants.		■	■				●	●	■		●	●	●	●	●	■	■	●	●
Maintain and manage facilities to limit shoreline erosion and sediment accumulation.			●	■	●	●	●				●							●	●
Safety:																			
Maintain safe boating levels.			●			●	●		●			●			●		●	●	●
Provide safe swimming conditions.			●							●							●	■	■
Natural Resources:																			
Manage and protect habitat that supports special concern, threatened, or endangered species.				■	■					■	●	■	●	●					
Manage forest resources to maximize biological diversity and maintain visual quality and scenery of lake shoreline.				●	●	■	■	●	■	●	●	■	●	●	■	■	■	●	●
Manage habitats to support game and				●	●			●		●	●		●	●				●	●

Lakewide Resource Use Objectives	Management Unit																		
● = High Suitability ■ = Moderate Suitability	A. Operation/Management	B. Youghiogheny Recreation Area	C. Youghiogheny Recreation Area	D. Klondike Ridge Natural Area	E. Youghiogheny River Lake Wildlife Area	F. Somerfield North	G. Somerfield South	H. Braddock Run	I. Mill Run Recreation Area	J. Mill Run Natural Area	K. Maryland Wildlife Area	L. Selbysport	M. Bear Creek Natural Area	N. Buffalo Run Natural Area	O. Jockey Hollow Boat Launching Area	P. Jockey Hollow Recreation Area	Q. Tub Run	R. Lake Area (Pennsylvania)	S. Lake Surface (Maryland)
nongame wildlife and fisheries.																			
Maintain and improve aquatic habitat for game fisheries.		●																●	●
Preserve unique natural areas.				●	■			■		●	■		●	●					
Improve and expand available habitat for waterfowl.					■			●			●			■				■	●
Maintain water quality for water-contact recreation, wildlife, and fisheries.		●	●			●	●	●	●	●		●	●		●		●	●	●
Continue pest management activities.				●															
Recreation:																			
Develop and maintain facilities for water-dependent recreation including boating, swimming, and fishing.		●	●			●	●		●			●	■		●		●	●	●
Maintain land-based recreation such as hiking, bird watching, picnicking, and camping.		●	●	■	■	●	●	●	●	●			■			●	●		
Encourage organizations that lease property to maintain facilities and programs.							●	●			●				●			●	
Maintain and upgrade recreation facilities to make them accessible for people who are physically challenged.	●	●	●			●	●		●							●	●		
Cultural Resources:																			
Survey and protect cultural resources on project lands.		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Lakewide Resource Use Objectives	Management Unit																		
● = High Suitability ■ = Moderate Suitability	A. Operation/Management	B. Youghiogheny Recreation Area	C. Youghiogheny Recreation Area	D. Klondike Ridge Natural Area	E. Youghiogheny River Lake Wildlife Area	F. Somerfield North	G. Somerfield South	H. Braddock Run	I. Mill Run Recreation Area	J. Mill Run Natural Area	K. Maryland Wildlife Area	L. Selbysport	M. Bear Creek Natural Area	N. Buffalo Run Natural Area	O. Jockey Hollow Boat Launching Area	P. Jockey Hollow Recreation Area	Q. Tub Run	R. Lake Area (Pennsylvania)	S. Lake Surface (Maryland)
Education:																			
Promote public understanding of the project's natural environment and its goal of flood control and multiple use.	●	●		●					■	●			■			●	●		
Maintain ongoing coordination with other agencies and groups in the area.	●															●			
Organize or facilitate events for community groups.	●	●																	
Participate on regional and community boards and committees.	●																		
Develop a program to protect the lake from nuisance aquatic species.	●		●			●	●		●			●			●		●		

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CHAPTER 6: LAND AND WATER USE ZONING

6.1. INTRODUCTION

Specific parcels of land, called management units, are zoned into land use categories based on resource capability, public desires, and agency missions and policies. This chapter provides a conceptual guide for the use, management, and development of all project lands. This chapter presents recommendations for the uses of all lands and water areas including limits on densities and location for development and use, relationship of natural and scenic protection zones, distribution and location of water access areas, and integration of all appropriate uses into a balanced plan for the wise use of the project resources in the public interest.

6.2. PROJECT ALLOCATIONS AND LAND USE CLASSIFICATIONS

6.2.1. Allocations. All lands are allocated in accordance with the authorized purposes for which they were acquired. Project lands at Youghiogheny River Lake are allocated to Operations. These are lands acquired in accordance with the authorizing documents for operation of the project (flood control and low flow augmentation).

6.2.2. Land Use Classifications. Allocated lands are further classified to provide for development and resource management consistent with authorized project purposes and the provisions of NEPA and other federal laws. A project map delineating land according to classification categories is shown on PLATE 5. Land is classified into one of the following categories:

6.2.2.1. Operations. These lands are needed to provide for the safe, efficient operation of Youghiogheny River Lake for its authorized purposes. Areas classified for project operations include lands on which the dam embankment and other project operations facilities are located, including the project office, equipment storage area, maintenance shop, and outlet structure. Notice of restricted areas and activities will be adequately posted or signed. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements.

6.2.2.2. Recreation. Recreation lands are lands that were acquired for project operations and allocated for use by the public for recreation. In general, no uses

of these lands are allowed that would interfere with the public enjoyment of recreation opportunities. Recreation lands and the facilities they contain may be administered by other public or quasi-public entities under lease agreements.

6.2.2.3. Mitigation. There are no lands at Youghiogheny River Lake that are classified within this category. Lands included in this category are normally acquired or designated in accordance with authorizing documents to offset habitat losses associated with the development of the project. Land classified in this category should be evaluated for consideration for lease or license to the Department of the Interior or the state.

6.2.2.4. Environmentally Sensitive Areas. Environmentally sensitive areas are areas where scientific, ecological, cultural, or aesthetic features have been identified. Low impact management activities, as necessary to protect the integrity of these values, including erosion control, use restrictions, or interpretive displays, may be permitted. No agricultural uses are permitted on these lands.

6.2.2.5. Multiple Resource Management. These lands are managed for one or more of, but not limited to, the following activities to the extent that they are compatible with the primary authorizations.

Recreation, Low Density. These lands are designated for low-density recreation activities such as hiking, primitive camping, wildlife observation, hunting, or other activities that minimize adverse effects on the natural environment.

Wildlife Management, General. These lands are managed for fish and wildlife management. At Youghiogheny River Lake, the Pennsylvania Fish and Boat Commission provide fish management and administration in the Pennsylvania portion of the lake. The Maryland DNR provides wildlife management of game species in the Maryland portion of the lake. The Corps provides management of non-game species on project lands managed by others and manages all species in areas elsewhere.

Vegetative Management. Lands within this classification are generally of a supportive nature such as erosion control, retention, and improvement of scenic qualities, wildlife management, low-density recreation, and other similar uses. Public Law (PL) 86-717 recommends a more intensive timber management program such as selective harvesting to maintain a continuous yield of timber, but only where it is compatible with other project purposes.

Inactive or Future Recreation Areas. These are areas that are designated for future intensive-use recreation, or lands that have been used for intensive recreation in the past and are now temporarily closed. When they recover or meet criteria for recreation use they will be opened (or reopened) for intensive-use recreation. Interim use should follow the guidelines described above for low-density recreation.

6.2.2.6. Easement Lands. The Corps holds an easement interest but no fee title for these lands. Use and management of these lands must be in strict accordance with the terms and conditions of the easement estate that was acquired for the project.

6.3. ZONING PLANS

6.3.1. Water Surface Zoning Plan. The water surface-zoning plan, shown on PLATE 5, is part of the land use plan for the Youghiogheny River Lake and is instituted to maintain safety and the quality of the boating experience for all lake visitors.

Currently, there are four water zones present on the lake; prohibited boating, no-wake, river recreation, and open water recreation. The majority of the reservoir is designated as an open water recreation area, allowing any safe boating activity at any time at any safe speed.

Water areas designated as no-wake zones are intended to protect the shoreline and property, provide for visitor safety, and provide protected areas for boat fishing opportunities. This zone includes an area extending from the shore outward for 100 feet and areas 100 feet out from the buoyed safety line defining swimming areas and certain natural bays (e.g. Buffalo Run; Reason Run; Wilkins Hollow; Coon Hollow; Braddock Run; Tub Run; Jockey Hollow and Mill Run). A no-wake zone to protect the marina from damage and to reduce boating conflicts is under study. The no-wake zones allow all nonmotorized boats and motorized boats to travel at "minimum height swell speed."

A single river recreation area is designated at the extreme southern end of the lake, from Selbysport to Friendsville. This area is intended to provide opportunities for river fishing and canoeing. For safety reasons, the only area off limits to any boating activity, designated as a prohibited boating zone, is the area between the trash boom and the dam at the northern end of the lake.

Although other types of water surface zoning have been considered, none has been deemed reasonable for use on the Youghiogheny at this time. Speed limited areas, ski-only zones, personal-watercraft-only zones, and other special

management techniques have all been considered but not implemented for three reasons, in particular: First, with limited personnel, it is too difficult to enforce these zones. Second, zoning for special intensive uses often creates a higher concentration of those uses and, therefore, very hazardous conditions within those zones. Finally, displacement of conflicting boating uses seems to be occurring naturally already.

CHAPTER 7: DEVELOPMENT PLANS

7.1. INTRODUCTION

In this chapter, the resource use objectives (RO) for each management unit that makes up the Youghiogheny River Lake project area (see PLATE 5) are established. Management unit ROs communicate site-specific application of the project-wide ROs established in Chapter 5. Implementation of the ROs will help satisfy identified regional needs and the expressed desires of other agencies and the public, within the limits and the capabilities of the project's resource base.

The development plan for each management unit contains the following components:

The **Unit Description** is a brief description of the unit that focuses on natural and cultural resources affecting resource use, including the following:

Size: (acreage)
Location and Access:
Site use: (existing)
Adjacent Land Use:
Soils/Landform:
Vegetation:
Wildlife Habitat/Species:
Cultural Resources: (archeological sites)
Limitations and Hazards:

The **Land Use Classifications** are the classifications the management unit is zoned for as outlined in ER 1130-2-550 and in Chapter 6. These classifications define resource management and development practices that may be either appropriate or inappropriate for that parcel of land. Units are zoned for a single land use classification based on the primary resource use objective.

The **Management Unit Objectives** are the specific resource use objectives (RO) for each management unit. Each unit has more than one RO. As with the land use classifications, in units where the primary ROs may not be implemented for some time, both interim and ultimate ROs are prescribed. The absence of a specific objective for a particular management unit does not

preclude its implementation (for example, nesting box programs, wildlife inventories, and so on).

The **Rationale** is a discussion of the need for and intent of the identified ROs and the management and development concepts recommended to implement them.

The **Management and Development Concepts** are summary descriptions of the techniques that can or should be undertaken to implement the unit ROs. The concepts discussed in this section are not all-inclusive. Rather, they convey an understanding of the range of development and management strategies that are intended as a means to implement the ROs. The management and development concepts will be further refined and detailed in subsequent planning and design documents, including operational management plans, feature design memorandums, and plans and specifications. The ultimate decisions regarding the methods that are actually implemented will result from coordination between the Youghiogheny River Lake Resource Manager and staff representing other Corps elements, as well as other agencies, where appropriate.

The **Constraints** are a summary of administrative and/or site-specific factors that may influence or constrain implementation of unit ROs.

7.2. MANAGEMENT UNIT A: OPERATION AND MANAGEMENT AREA

7.2.1. Unit Description

Size: 107 acres (83 acres of land above summer pool).

Location and Access: This management unit is located on the north end of Youghiogheny River Lake. A public road that intersects Pennsylvania Route 281 to the north provides access. (See Plate 6.1)

Site Use: Two buildings which were government dwellings, two project maintenance buildings, the dam structure and associated spillway, an intake structure, a stilling basin, an administration building, and the area of the lake surface near the dam are located in this unit. The former concession building near the administration building which houses the ranger offices and public restrooms is also located in this unit. 2.62 acres of this unit are under license to D/R Hydro, Inc. for a hydropower facility. The Chestnut Ridge Chapter of Trout Unlimited operates a cage culture trout nursery in the stilling basin adjacent to D/R Hydro's hydropower plant. They also have a small storage shed near the trout pens in this unit. As part of the bank protection of the stilling basin, the licensee has provided paved walkways and a universally accessible pier for anglers.

Adjacent Land Use: Land beyond project property is primarily vacant wooded hillsides, privately owned with potential for timber harvesting. Project property adjacent to this unit is the Youghiogheny Outflow Area (Unit B), the Youghiogheny Recreation Area (Unit C), and the Pennsylvania Lake Area (Unit R).

Soils/Landform: The unit is located along a moderate slope (8 to 15 percent). The soil is classified as Wharton silt loam, a deep, moderately well-drained soil. Bedrock is 4 to 6 feet below the surface.

Vegetation: The vegetation of the area is landscaped (it is mostly lawn with scattered planted trees).

Wildlife Habitat/Species: Landscaped areas typically support wildlife populations of limited diversity, primarily songbirds.

Cultural Resources: The former dwellings were determined eligible for inclusion on the National Register of Historic Places based on information compiled for the District's "Thematic Study of Civil Works Residences" dated April 1998. No other known cultural resources sites are located in this unit;

however, the entire unit has not been tested. Since the original project structures have recently turned 50 years of age, these must be treated as if they are eligible for the National Register for Historic Places until a formal determination can be made.

Limitations and Hazards: The presence of the dam, its control building, outlet works and spillway serve the primary purpose of the project. As such, their function must be preserved.

7.2.2. Land Use Classification. This management unit is classified as project operations. The residences are closed to the public, but visitors are allowed on a personal basis. Visitors are allowed to drive across the dam to access the Youghiogheny Recreation Area (Spillway).

7.2.3. Management Unit Objectives

Maintain the project to meet authorized purposes.

Maintain safe, functional, and efficient support facilities for the operation and administration of the project.

Maximize the use of volunteers to augment project resources in fulfilling the project purposes.

7.2.4. Rationale

The emphasis on reducing federal spending has and will present a great challenge to resource managers to provide for project purposes while accommodating public demands for use of project recreation lands. In recognition of this need, the Corps has developed a policy, ER and EP 1130-2-500, to encourage volunteers to serve at the projects.

It has been determined that the two dwellings are under utilized and are no longer required for project purposes. To eliminate requirements for maintenance on these structures in the future, it has been decided to initiate procedures that will result in the Corps removing these properties from the property list. Both dwellings are eligible for listing on the National Register for Historic Places. Any action related to these structures will require coordination with the appropriate State Historic Preservation Office. Given their status as historic resources, the District will also consider any reasonable request by an agency or non-profit group to lease the dwellings, assuming that the proposed use reflects project purposes and that the proposed lessee assumes the responsibility for costs related to their upkeep.

The lower level of the maintenance building near the control tower (the part that was previously used as offices for the Park Rangers) has a high level of radon gas and without adequate mitigation measures should not be used for human occupation. As a storage building, it is also lacking. The presence of excessive moisture encourages mold and mildew to damage papers and boxes.

The only meeting room available to project personnel in this unit is in the basement of the Administration Building. Because of the narrow stairs and hallways, universal access to this room is extremely difficult.

7.2.5. Management and Development Concepts

Continue to recruit and retain volunteers.

Dispose of the two residences and underlying property that are no longer needed for project purposes or lease those buildings to a group willing to operate and maintain them for a use consistent with project purposes.

Investigate possibilities for providing a universally accessible space for public meetings.

7.2.6. Constraints

The potential historic significance of the original structures, including the residences, will affect external treatments until determination studies can be conducted.

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7.3. MANAGEMENT UNIT B: OUTFLOW RECREATION AREA

7.3.1. Unit Description

Size: 30 acres.

Location and Access: This management unit is located on the north side of the dam downstream of the lake. Pennsylvania Route 281 provides direct access to this area. The access road shown on PLATE 6.2 leading from Flanigan Road to the Day Use Area was constructed by the D/R Hydro Company and is not intended for use by the public. (See Plate 6.2)

Site Use: The site is currently used as a picnic and camping area, as well as for outdoor education programs sponsored by the District for school children and special event days for physically challenged. The campground has 61 Class A campsites and 2 group camping areas that support tent camping and recreational vehicles. It has flush restrooms and a shower house, a camper check-in station, sanitary dump station, bike /hiking trail and parking. The site includes a small pond that is stocked with fish for electro fishing demonstrations. Access to the river is provided by trails from parking areas located in this unit. The water from the reservoir is cold and well aerated, supporting an excellent trout fishery. Recent improvements to the campground include a special tent-only area for bike-in/hike-in campers and the development of a separate bicycle path through the campground that connects to the Youghiogheny River Trail.

Adjacent Land Use: The area is located adjacent to the operation and management area and a privately owned and operated campground. The spillway is located east of the area across the river and the hydroelectric power plant is located across the river at the base of the dam.

Soils/Landform: The soils of this unit belong to the Monongahela-Philo-Atkins association, particularly the Wharton and Philo soil series. These soils are typically deep, moderately well drained to poorly drained, medium textured, sloping to nearly level. The management unit is mostly composed of the poorly drained Philo soil on the flat area adjacent to the river, with Wharton soils on the 8 to 15 percent slopes on the western side of the unit.

Vegetation: The vegetation is mostly landscaped in this management unit. The area is primarily a mowed lawn/open field setting with a number of deciduous and evergreen trees scattered throughout the area. A limited area of altered woodland, composed of shrub and small tree growth, occurs on the western slope.

Wildlife Habitat/Species: Wildlife species are limited in the landscaped areas, due to the lack of cover and preferred food sources. Species that may be present in this unit are cottontails, bob-white quail, and a variety of songbirds. Species such as skunk and raccoon, which frequently forage for refuse in areas of intense human activity, may periodically visit the area at night, especially when use of the picnic area and the nearby camping area is the greatest. The altered woodland area on the west side may provide habitat for other species, but its size and the proximity of human disturbance limit the habitat value of this area.

Cultural Resources: There are no known cultural resources sites located in this unit, however, the entire area has not been tested.

Limitations and Hazards: Periodically, large volumes of water must be released. High discharge exiting under the wheel gate has resulted in excessive spray. When the volume of discharge is high, the water level in the outflow area rises rapidly creating safety concerns for anglers who frequent the area below the dam. As a precaution, the hydropower station installed an alarm system to warn those in the immediate area when the condition occurs. There are ongoing discussions regarding the need to improve the existing warning system so that it is audible at least to the Route 281 Bridge located farther downstream (beyond the limits of Management Unit B).

7.3.2. Land Use Classification This management unit is classified as recreation.

7.3.3. Management Unit Objectives

Maintain and enhance the existing recreational activities including camping, fishing, bike/hiking trail and picnicking.

Provide public education programs and community events.

Accommodate visitors who wish to access the bike trail.

Accommodate overnight camping requests by organized groups such as Girl Scouts, Boy Scouts, white water rafters and biking groups.

7.3.4. Rationale

The existing recreational areas ought to be maintained to meet regional recreation needs. Accessibility to the area below the dam is strengthened by the proximity to Pennsylvania Route 281 and the Youghiogheny

River Trail. A connection to the trail and development of a trailhead are beneficial for recreation users.

Public education serves many purposes from a greater awareness of the Corps mission and the environment to promotion of recreational safety.

The Corps of Engineers has signed Cooperative Agreements with the Girl and Boy Scouts of America "...for the purpose of establishing a framework for a cooperative relationship under which [they] will assist one another in areas of mutual concern. On several occasions each summer, the Scouts have requested overnight group accommodations below the dam.

7.3.5. Management and Development Concepts

Construct an additional picnic shelter adjacent to the existing shelter.

Separate day-use and overnight use facilities.

Construct a fish cleaning station to consolidate fish cleaning waste.

Improve parking in the day-use area to provide a better connection to the accessible fishing area described in Unit A.

Consider development of a Visitor Information Center in this unit or in adjacent Management Unit A.

7.3.6. Constraints

No constraints have been identified that conflict with the implementation of improvements or the continued use of the area for recreation.

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7.4. MANAGEMENT UNIT C: YOUGHIOGHENY RECREATION AREA (Spillway & Poplar Hollow)

7.4.1. Unit Description

Size: 32 acres (20.5 acres of land above summer pool).

Location and Access: This management unit is located on the east and west sides of the dam. To access the eastern portion of this unit requires driving across the top of the dam. (See Plate 6.3)

Site Use: The eastern, or Spillway, section was developed as an emergency overflow for the dam in the case floodwaters resulting from unusually high rainfall threatened to overtop the dam. Boat launching, picnicking, and swimming are the primary uses of the area. A parking area for 120 cars and 57 car-trailers is provided for the picnic area and two-lane boat launch at the lake end of the spillway. Picnic areas are limited to a narrow wooded ledge adjacent to the lake on the east side. The swimming area was redesigned and relocated in 2000 to meet current guidelines as part of a project that also upgraded the boat launch. This area would also serve as the trailhead for the proposed Klondike Trail. The western, or Poplar Hollow, section is primarily used for picnicking.

Adjacent Land Use: This unit is bordered by the Klondike Ridge Natural Area (Unit D) to the east and the Operation and Management Area (Unit A) to the north. On the west side of the dam, land beyond the project property is primarily wooded hillsides, privately owned with potential for timber harvesting. Parking for the Poplar Hollow picnic area is accommodated in the Administration Building parking lot.

Soils/Landform: The upper portion within this unit is a relatively flat bedrock bottom originating at the edge of the water with a sheer rock cliff to its east. West of the dam, the landscape is steep to very steep slopes (12 to 60 percent) from the boundary to the edge of the water except where the existing structure and parking area have been developed. The soils in the area belong to the Gilpin-Wharton-Ernest association, particularly the Gilpin series. These soils are moderately deep-to-deep, well-drained to moderately well-drained, medium-textured soils underlain by acid shale and some sandstone bedrock.

Vegetation: East of the dam, except for the narrow wooded picnic area, the Spillway portion of the unit is composed of hard-packed soils, pavement, and exposed bedrock. Therefore, there is no vegetation over most of the area. West of the dam, the Poplar Hollow portion of the unit is composed of mostly maturing, second growth, and typical mixed mesophytic forest. Dominant trees in this area

include sugar maple, hickories, American beech, yellow poplar, black cherry, white and Northern red oaks, and basswood.

Wildlife Habitat/Species: East of the dam, the lack of vegetation and suitable habitat reduces the value of the unit as a habitat for most wildlife. Species such as raccoons and skunks may occasion the picnic area to forage for food refuse. West of the dam, wildlife that typically inhabits the mixed mesophytic woods is expected. Common game animals in these areas include turkey, ruffed grouse, squirrels, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds.

Cultural Resources: There are no known cultural resources sites located in this unit, however, the unit has not been completely tested.

Limitations and Hazards:

None.

7.4.2. Land Use Classification This management unit is classified as recreation.

7.4.3. Management Unit Objectives

Maintain the spillway to insure its intended purpose of allowing water to spill over in times of major flood events.

Maintain and upgrade the existing recreation facilities, including the boat launch, picnic area and swimming area, to include increased accessibility for the physically challenged.

Educate area users about safety issues and nuisance species.

Control shoreline erosion.

Manage boat density on lake.

7.4.4. Rationale

To date, water has not passed through the spillway. However, the spillway continues to play an important role in the operation of the dam for flood control purposes and must be maintained for its intended purpose.

The regional demand for water-based recreation suggests maintaining existing facilities to meet the recreation need. The proximity of the Spillway recreation facilities to the Outflow Camping Area and the road linkage between the two provide visitors with extended recreation opportunities.

Water safety education can be provided with the addition of signs or the distribution of hand-out information at the boat launch and swimming areas. Opportunities to educate the public regarding nuisance aquatic species such as the zebra mussel and the operation and maintenance of the lake and dam for flood control purposes should also be considered.

The WES study helped to determine that boating activity has increased significantly in the past decades, particularly on weekends. The increase in boating activity has resulted in project visitors reporting that crowding or conflicts with other boaters are factors that create an unsatisfactory recreation experience.

7.4.5. Management and Development Concepts

Provide universal access to the restroom.

Provide a new picnic shelter (construction by others).

Provide trailhead for the proposed Klondike Trail.

7.4.6. Constraints

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The spillway must be kept clear of trees and structures.

The existing steep topography limits the expansion potential of recreational facilities.

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7.5. MANAGEMENT UNIT D: KLONDIKE RIDGE NATURAL AREA

7.5.1. Unit Description

Size: 118 acres.

Location and Access: There is minimal access to this management unit. A public road parallels this unit to the east but there is no connection from that road to the area. Access could be provided from the Youghiogheny Recreation Area (Spillway), which shares a common boundary and has motor vehicle and boat access, as well as a parking area. (See Plate 6.4)

Site Use: This management unit is currently maintained as a natural and wildlife habitat area.

Adjacent Land Use: The site is bordered by privately owned farmland (pasture) and woodland.

Soils/Landform: The area is a very steep, predominantly west-facing slope, although it includes a steep cove with north and south facing slopes. The soils belong to the Rayne-Gilpin-Wharton-Cavode association. The soils in the unit are steep to very steep, deep and moderately deep, and well drained to moderately well drained. The soils are mostly stony, with some bedrock outcrops and rocky talus slopes.

Vegetation: The vegetation of the Klondike Ridge is entirely typical mixed mesophytic forest type. However, the deciduous forest in this unit is unusual due to its apparent history and diversity of habitat. Portions of this area appear to have been avoided for timber harvesting, probably due to the steepness of the slope; therefore, sections of mature woods, the largest of the project, have been preserved. Other portions of the area have remained relatively undisturbed for some time and are maturing. Sections that have been more recently disturbed support-altered woodlands. The altered woodlands are located along the edge of the lake and divide the mesophytic woodlands into two sections.

Within the mixed mesophytic woodlands, white, black, and Northern red oaks are dominant. Beech is abundant on the moister, north-facing slope. Chestnut oak, scarlet oak, and pignut hickory are abundant near the ridge top. Other chief woody species include white ash, shagbark hickory, black cherry, sugar maple, yellow poplar, flowering dogwood, and common spicebush. Most of the larger trees are oaks, beech, and sugar maple. A large variety of woodland herbs are typically found in this forest habitat.

Wildlife Habitat/Species: Wildlife species expected in this unit are those associated with the mixed mesophytic forest, since it is the dominant vegetation type. Common game animals in these areas include turkey, ruffed grouse, woodchuck, squirrels, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds. The mature forest typically does not support a great variety of wildlife because of the reduced under story vegetation. However, the interspersion of altered woodlands on Klondike Ridge provides for some diversity of habitat and greater under story vegetation. Additionally, the open pastures and altered woodlands on adjacent properties provide increased habitat diversity for wildlife in this vicinity.

Cultural Resources: There are no known cultural resources sites located in this unit. However, the entire unit has not been tested.

Limitations and Hazards: Lack of direct access for low-density recreation has prevented visitors from experiencing the mature hardwood forest.

7.5.2. Land Use Classification This management unit is classified as a multiple-use area.

7.5.3. Management Unit Objectives

Maintain the natural characteristics of the unit, which include the largest area of undisturbed woods found at the project.

Introduce low-density recreation to the area.

Maintain and improve (particularly in the altered woodland portions) the existing wildlife habitat to protect areas where common game is found.

Maintain the visual quality of the existing wooded slopes to be consistent with the visual appearance of the majority of the lake shoreline.

7.5.4. Rationale

The existing mature trees should be protected to preserve a diminishing regional resource that is unique at the project. It should become part of the project's interpretive programming to foster a better public understanding of the environment.

Visitors using the proposed low-density recreation-hiking trail can take advantage of existing parking at the Youghiogheny Recreation Area (spillway).

This would allow the recreation need to be met without requiring the construction of parking facilities in the unit itself.

Protecting and enhancing habitat diversity that exists in the unit will enhance species diversity.

The visual quality of the wooded slopes is an important aspect to the river lake environment, as identified in an earlier recreation user survey.

7.5.5. Management and Development Concepts

Construct a hiking trail loop within the unit to allow visitors an opportunity to experience the mature woods. A loop trail should be developed with one portion on higher ground and one portion on lower ground to increase the educational opportunities of the trail. The lower trail should connect to a longer trail that would extend south to connect with U.S. 40. The lower trail should be constructed to allow a moderate to difficult level of accessibility for the physically challenged.

Provide an interpretive program that educates the public on the mature forest that exists by implementing a sign program along the proposed hiking trail.

Take action to remedy diseases and insect infestations of unit resources.

7.5.6. Constraints

The existing steep slopes will require the proposed hiking trail to be carefully located to allow for easy access and to minimize erosion potential and degradation of the forest.

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7.6. MANAGEMENT UNIT E: YOUGHIOGHENY RIVER LAKE WILDLIFE AREA

7.6.1. Unit Description

Size: 335 acres at summer pool.

Location and Access: This management unit is the largest one at the project and comprises most of the lakeshore on both the east and west sides of the reservoir extending to the Pennsylvania/Maryland border. Automobile access on the east side of the lake is limited to a few access points. On the west side of the lake there are more opportunities for access from state and local roads, some of which parallel the lake to serve residential developments that border the west side of the project. (See Plate 6.5)

Site Use: The management unit is used for general wildlife and vegetation management. Portions of this management unit have been identified in the Shoreline Management Plan as limited development areas. This means that certain private facilities may be permitted. As defined by the Shoreline Management Plan, the density of floating facilities will not exceed 50 percent of the shoreline allocated for limited development when the lake level is at summer pool.

Adjacent Land Use: The land uses adjacent to this management unit on the east side of the lake are primarily agricultural and forest outside the project boundary. Along the western side of the project are a number of second-home developments, many of which abut Corps property. Because of the extent of this management unit, several other management units border and divide this management unit into several distinct parcels.

Soils/Landform: This unit is mostly steep to very steep (up to 70 percent) wooded slopes adjacent to the reservoir. The soils along the west side of the reservoir are designated the Gilpin-Wharton-Ernest soil association. The soils in this association are steep to very steep, deep and moderately deep, and well drained to moderately well drained. The soils are mostly stony, with some bedrock outcrops and rocky talus slopes. On the east side, the soils are designated in the Rayne-Gilpin-Wharton-Cavode soil association. These soils are moderately deep-to-deep, well drained to moderately well drained, and medium-textured and are underlain by acid shale and some sandstone bedrock. Like the west side, these soils are typically stony.

Vegetation: Most of this unit is pole-timber age and maturing stands of typical mixed mesophytic forest. Dominant trees in this area include sugar maple,

hickories, American beech, yellow poplar, black cherry, white and Northern red oaks, and basswood. Altered woodlands dominated by invasive species such as black locust, hawthorn, black cherry, and sweet crab apple occur in some areas formerly used as homesteads or pasture where trees or the under story have been selectively cut. Some landscaped areas occur where adjacent residents have encroached onto federal lands. The landscaped areas are typically lawn with scattered planted or preserved trees. Small areas of floodplain woods occur at the mouths of small tributaries. Some small areas of invaded thicket also occur.

Wildlife Habitat/Species: Wildlife use in this area varies depending on the vegetation and intensity of adjacent land use. Because this is the largest unit and it includes several small tributaries and a long shoreline, it is the most important unit for wildlife in the Pennsylvania portion of the project. Although species from the adjacent habitats visit the landscaped areas, the landscaped areas typically provide limited habitat value. Squirrels and songbirds are the most likely inhabitants.

The most common wildlife species expected in this unit are those associated with the mixed mesophytic forest, since it is the dominant vegetation type. Common game animals in these areas include turkey, ruffed grouse, squirrels, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds. In the altered woodlands and invaded thicket areas, with a somewhat more open canopy and denser under story, cottontail rabbits are common along with various songbirds and ruffed grouse. Wetlands and floodplain forest also attract a variety of wildlife species. Wood duck nest boxes have been placed in the floodplain woods, and a wildlife pond has been created in this unit just north of the Jockey Hollow boat launch. A wildlife food plot has been established in Wilkins Hollow. The food plot is an open area that is periodically planted in preferred forage plants such as oats and clover.

Cultural Resources: This management unit contains three identified prehistoric-period archeological sites: 36So19, 36So28, and 36So29. Site 36So28 evidences Early and Late Archaic and Woodland time periods on the presence of diagnostic artifacts. Erosion affected the integrity of this site at the time it was registered. Site 36So19 is assignable to the Archaic, Early, and Middle Woodland time periods, and 36So29 was not assigned to a specific prehistoric period. These sites were also being affected by fluctuations in the Youghiogheny Lake level. The presence of cultural resources in this management unit attests to the use of the area prehistorically. For this reason and because both prehistoric and historic period cultural resources are located on other project lands, this management unit is considered to have the potential for containing additional cultural resources.

Limitations and Hazards: Generally steep slopes prohibit future development in this management unit.

7.6.2. Land Use Classification This management unit is classified as multiple resources.

7.6.3. Management Unit Objectives

Manage for diversity of wildlife habitat.

Maintain and enhance the existing visual character of the lake.

Protect historic properties.

Develop low-density recreation opportunities

7.6.4. Rationale

Diversity is a measure of the health of an ecological system. As such, the District, should strive to preserve and enhance the lands under its stewardship.

Altering the existing visual quality of the shoreline would conflict with an earlier recreation survey finding and resource use objectives for the project. In the survey, users responded that an important reason they come to the Youghiogheny River Lake is the scenery provided through its abundant existing wooded slopes.

Section 110 of the National Historic Preservation Act states, "The heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency."

The development of hiking trails would provide additional low-density recreational opportunities for project visitors. A properly sited hiking trail would be compatible with the management of wildlife and could provide educational opportunities.

7.6.5. Management and Development Concepts

Manage and maintain forest cover. Certain areas are suitable for timber stand improvement by selectively cutting/girdling trees with low wildlife forage value, allowing more desirable trees and under story plants to grow.

Continue to maintain the visual quality of wooded slopes that exist through eliminating encroachment, restoring cut areas and restricting permitted access paths to a reasonable width.

Restore disturbed sites that have been altered through tree removal and creation of manicured lawns.

Develop a trail along the east portion of the lake that will connect U.S. 40 with the Klondike loop trail. Access by the physically challenged could be provided on a moderate to difficult level of accessibility.

A portion of this unit was identified in the 1982 plan as the Wilkins Hollow management unit. The Wilkins Hollow management unit will now be included in the Youghiogheny River Lake Wildlife Area because of its variety of wildlife. However, there is the potential to develop this parcel as a separate management unit for recreation some time in the future.

Within the abilities of the project resources, protect known archeological sites.

7.6.6. Constraints

Fluctuating water levels are a constraint to the maintenance of cultural resources.

There are no unit-wide constraints to wildlife management. However, in areas where there is encroachment from neighboring landowners, there is a varying extent of fragmentation of habitat. Fragmentation of habitat may hinder some wildlife species in their movement along the lake shoreline.

7.7. MANAGEMENT UNIT F: SOMERFIELD NORTH

7.7.1. Unit Description

Size: 29.4 acres (13 acres land above summer pool)

Location and Access: This management unit is located on the north side of U.S. 40 on the east side of the lake. Immediately east of this unit is Township Road 860, which intersects U.S. 40 and parallels the project until it eventually intersects another township road. Because of this area's proximity to U.S. 40, access to it is excellent. (See Plate 6.6)

Site Use: This site is used for high-density recreational purposes such as picnicking and boat launching. The two-lane boat ramp and parking area for 115 cars and 51 trailers was upgraded in 1994. The area has been designated as a no swimming area since April 1999.

Adjacent Land Use: Because of this unit's proximity to U.S. 40, adjacent land use is a mixture of commercial and residential uses to the east, U.S. 40 to the south, and the Youghiogheny River Lake Wildlife Area management unit to the north.

Soils/Landform: The soils in this unit are designated the Gilpin-Wharton-Ernest soil association. In the sloping (15 to 70 percent) eastern portion of this unit, the soils are Berks channery silt loam and Weikert silt loam. These soils are shallow to moderately deep, well drained, and formed from gray to brown shale and silt stone. Bedrock outcrops and rocky talus slopes are possible. The lower, flatter soils adjacent to the reservoir, in the area of the existing development, are Udorthents. Udorthents are deep and well-drained soils that are a mixture of soil and unconsolidated fragments of shale, sandstone, and coal.

Vegetation: The vegetation in the unit is mostly landscaped. The landscaped areas are typically lawn with scattered planted and preserved trees. The northern end of the unit is less disturbed and is dominated by typical mixed mesophytic woods.

Wildlife Habitat/Species: Landscaped areas typically do not support a large variety of wildlife due to the general lack of preferred food sources and cover. Species that may be present in these areas are cottontails, and a variety of songbirds. The mixed mesophytic woods along the slope likely support common game animals including turkey, ruffed grouse, squirrels, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds.

Cultural Resources: This management unit contains two identified historic period archeological sites, 36So27, and 36So109. Neither site is assignable to a specific historic time period, but they do indicate the general historic period use of the area. Both sites were being affected by the fluctuations of the Youghiogheny River Lake level at the time of registrations in 1964 and 1991. Because of the presence of cultural resources within this management unit, and because both prehistoric- and historic-period cultural resources are located on other project lands, this management unit is considered to have the potential for containing additional cultural resources. The southern boundary of this unit is U.S. 40 (the National Road). This roadway was an important link between eastern seaports and cities in the Midwest. The original road alignment in the area of the project was relocated and widened, and a new bridge was constructed to span the reservoir. Road remnants on the original alignment of the National Road and the town of Somerfield are located on this unit and are inundated by the reservoir.

Limitations and Hazards: Fluctuations in the water level impact recreational facilities and cultural resources. The access road to this unit intersects with Route 40. Westbound traffic on Route 40, which includes a significant number of trucks, is coming down a long hill and is often traveling at excessive speeds. People turning into and out of the recreation area are subjected to dangerous conflicts with these vehicles.

A slip-prone area was identified on the hillside about 100 yards north of the picnic shelter. The upper hillside continues to experience landslide and soil shifting.

7.7.2. Land Use Classification This management unit is classified as recreation.

7.7.3. Management Unit Objectives

Upgrade and maintain the existing recreation facilities to meet regional needs and promote safety for the existing recreational uses of boating and picnicking.

Protect historic properties.

Improve accessibility to existing recreational facilities for people who are physically challenged.

Manage boat density on lake.

Provide education on nuisance aquatic species such as zebra mussels.

Prevent recreational injuries, conflicts, and accidents from occurring by promoting safety programs and providing information on safety education.

Control erosion of shoreline.

7.7.4. Rationale

Section 110 of the National Historic Preservation Act of 1966 requires that federal agencies assume responsibility for the preservation of historic properties that are owned or controlled by that agency. The first step to assume such responsibility is to undertake a program to identify historic properties under its jurisdiction.

The ADA sets guidelines for accessibility to places of public accommodation and commercial facilities by individuals with disabilities. These guidelines are to be applied during the design, construction, and alteration of such buildings and facilities to the extent required by regulations issued by federal agencies, including the Department of Justice, under the Americans with Disabilities Act of 1990 (Federal Register, Vol. 56, No. 144, Friday, July 26, 1991, Rules and Regulations).

The WES study helped to determine that boating activity has increased significantly in the past decades, particularly on weekends. The increase in boating activity has resulted in project visitors reporting that crowding or conflicts with other boaters are factors that create an unsatisfactory recreation experience.

Nuisance aquatic species can cause a serious imbalance to the lake ecosystem, degrade water quality, damage watercraft, and impair the recreational uses of the lake.

7.7.5. Management and Development Concepts

Place signs and provide literature at the boat launch to promote recreation safety and inform boaters of nuisance species such as zebra mussels.

Maintain the number of car/trailer spaces at the current level and restrict boat launching once spaces are filled.

Stabilize shoreline where erosion is evident.

7.7.6. Constraints

Fluctuating water levels are a constraint to the use of the boat launch.

Potential cultural resources sites could constrain future expansion or development plans.

As mentioned, a slip-prone area was identified on the hillside about 100 yards north of the picnic shelter. The continuing land slide/soil shifting in the upper hillside appears to be sufficient to prohibit spending the large funding required to redevelop a swimming facility.

Site topography is a constraint to an economical design for a swim beach meeting federal design standards.

7.8. MANAGEMENT UNIT G: SOMERFIELD SOUTH

7.8.1. Unit Description

Size: 56 acres (12 acres of land above summer pool).

Location and Access: This unit is located immediately south of U.S. 40 and Somerfield North Recreation Area. A gated road that intersects with U.S. 40 provides access. Because the marina has a marine fueling station, some available dock space, and a marine store, boaters on the lake who use these facilities frequent this unit. (See Plate 6.7)

Site Use: Operated by a concessionaire, Leskinen, Inc., this unit caters exclusively to boaters' needs such as a launching ramp, providing fuel, dock space, a marine store, and a parking lot for marina patrons. Restroom facilities are also provided.

Adjacent Land Use: The adjacent land uses are similar to those around Somerfield North. U.S. 40 borders the unit to the north. Adjacent to the unit to the east are several residential structures. Further to the east and southeast is a relatively large development of year-round and second homes, generally of much higher quality than in most other areas around the project. Immediately south of the unit is another parcel of the wildlife area management unit.

Soils/Landform: The unit is situated on a west-facing, moderately steep (8 to 25 percent) slope. The soils in this unit are Berks channery silt loam and Ernest silt loam. These are deep, well-drained to moderately well-drained soils. The lower, flatter areas adjacent to the reservoir are Udorthents. Udorthents are deep and well-drained soils that are a mixture of soil and unconsolidated fragments of shale, sandstone, and coal.

Vegetation: The vegetation in the unit is mostly landscaped. The landscaped areas are typically lawn with scattered planted or preserved trees. The southern end of the unit is less disturbed and supports maturing mixed mesophytic woods and altered woodland, where trees and/or the under story have been selectively cut, along a small tributary. A small area of floodplain woods occurs at the north end of the unit.

Wildlife Habitat/Species: Landscaped areas typically do not support a large variety of wildlife due to the general lack of preferred food sources and cover. Species that may be present in these areas are cottontails, , and a variety of songbirds that are transient. The limited mixed mesophytic and altered woods may support common game animals including turkey, ruffed grouse, squirrels,

and white-tailed deer. Other species would include songbirds and other forest-dwelling birds.

Cultural Resources: This management unit contains two identified prehistoric- and historic-period archeological sites, 36So20 and 36So22. Site 36So20 is assignable to the Early, Middle, and Late Archaic; Transitional; Early Middle; Late Woodland; and historic time periods. This site represents the use of the area over the largest part of prehistory and into the historic period. Site 36So22 is assignable to the Archaic and indicates a more limited chronological use of the area. Both sites were being affected by erosion associated with the fluctuations of the lake level at the time of their registration. Because of the presence of cultural resources within this management unit, and because both prehistoric- and historic-period cultural resources are located on other project lands, this management unit is considered to have the potential to contain additional cultural resources. The north boundary of this unit is U.S. 40 (National Road).

Limitations and Hazards: This area contains the greatest density of boaters. Some boats are operated at high speeds near the marina, causing large wakes that damage boats docked at the end of the marina. The potential for boating accidents is high due to the number of boats and the operating speeds.

The access road to this unit intersects with Route 40. Westbound traffic on Rte 40, which includes a significant number of trucks, is coming down a long hill and is often traveling at excessive speeds. People turning into and out of the recreation area are subjected to dangerous conflicts with these vehicles.

7.8.2. Land Use Classification This management unit is classified as recreation.

7.8.3. Management Unit Objectives

Protect known cultural resource sites and lessen erosion impacts

Increase car parking to support the authorized 316 boat docks.

Maintain the existing recreation facilities including the boat launch, marina, boat docks, and parking facilities.

Educate boaters on safety issues and nuisance species such as the zebra mussel.

Limit the number of docks to current levels.

Protect the water quality of the lake.

7.8.4. Rationale

Guidance set forth in EM 1110-1-400, Recreation Planning and Design Criteria, states that .6 parking spaces should be provided per dock. The current number of docks is 316. The 112 parking spaces at the unit are 77 short of the recommended number. The area is limited, however, and it is unlikely that it can support additional spaces. Therefore, if policy changes, additional land area should be purchased to allow adequate parking for the use.

The marina operator intends to add parking in some of the grassy area.

The existing recreational facilities at Somerfield South provide the public with boating opportunities that help to meet regional water recreation needs.

The potential of boating injuries is great at Somerfield South because of the number of boaters. Promoting safety programs and providing information on safety education can avoid boating injuries, conflicts, and accidents.

The WES study helped to determine that boating activity has increased significantly in the past decade, particularly on weekends. The increase in boating activity has resulted in project visitors reporting that crowding or conflicts with other boaters are factors that create an unsatisfactory recreation experience.

Many of the boats using the lake are equipped with marine toilets. There are, however, no dump stations on the lake for boaters to use. One may surmise that many of these holding tanks are emptied directly into the lake. The marine operator intends to install a sanitary disposal station by 2003.

7.8.5. Management and Development Concepts

Enforce the current moratorium on dock permits to maintain the current number of boat slips and to maintain a safe level of boating on the lake.

Provide signs to educate the public on boating safety, project flood control history and operations, and nuisance aquatic species.

Construct a sanitary dump station for boats.

7.8.6. Constraints

Potential cultural resources sites could constrain future development or expansion.

Seasonal fluctuations of the lake level impact boating in this unit.

7.9. MANAGEMENT UNIT H: BRADDOCK RUN

7.9.1. Unit Description

Size: 27 acres.

Location and Access: This unit is located in the next cove upstream from Somerfield South on the right bank. Access is limited to township road T858 that intersects with U.S. 40 to the north. (See Plate 6.8)

Site Use: The site is currently out granted to the Penn's Woods Council of Boy Scouts for use as a primitive campground.

Adjacent Land Use: The land bordering this unit is primarily forested, with some agricultural uses further to the east and south. The adjacent project lands are two parcels of the wildlife area management units. To the north beyond the project are some of the residential properties that also border Somerfield South.

Soils/Landform: This unit is located in a narrow stream valley. The narrow valley floor has gentle to flat slopes with moderately steep to very steep (15 to 70 percent) slopes along each side of the valley. Along the sloping valley walls of this unit, the soils are Rayne-Gilpin channery silt loam and Wharton silt loam. These soils are deep and well drained to moderately well drained. Some bedrock outcrops and rocky talus slopes are possible. The valley floor is mostly deep, well drained to moderately well drained Philo and Chavies soils. The lowest end of the valley is Fluvaquents. Fluvaquents are deep, frequently flooded, alluvial soils. These soils frequently occur in wetland areas along floodplains.

Vegetation: The upper slopes of the valley support maturing mixed mesophytic forest. Dominant trees in this area include sugar maple, hickories, American beech, yellow poplar, black cherry, white and Northern red oaks, and basswood. The lower slopes and valley floor are dominated by bottomland hardwood forest and strongly dominated by sycamore trees. Other less frequent species include sugar maple, shagbark hickory, ash, white oak, rosebay rhododendron, and basswood. Willows, dogwoods, and sycamore dominate the floodplain area at the mouth of Braddock Run. The National Wetland Inventory identifies the floodplain woods as a deciduous scrub-shrub wetland. A meadow occurs centrally along the stream. Pasture grasses dominate this area and a variety of old field herbs such as goldenrods.

Wildlife Habitat/Species: The mixed mesophytic forest of the upper slopes may support a variety of wildlife typical for this type of forest, including turkey, ruffed

grouse, squirrels, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds. The sycamores and willows that dominate the bottomland hardwoods and floodplain have limited value as wildlife forage. Sycamores do provide good nesting habitat for woodpeckers, wood ducks, and owls. These areas also typically have poorly developed under story because of the mid-season flooding, which further limits the value of these areas for game species such as rabbits, squirrels, ruffed grouse, turkey, and deer. The meadow habitats may provide for occasional grazing but are usually not highly productive for wildlife unless managed to support desirable wildlife food source plants.

Cultural Resources: There are no known cultural resources sites located within this management unit, however, no testing has been conducted. This area has been identified as having a high potential for both historic and prehistoric sites. Before the construction of the Great Crossings Bridge, the National Road and the trail that preceded it followed Braddock Run down from Addison and crossed at a natural ford.

Limitations and Hazards: Steep slopes on the valley walls and floodplain with some wetlands characterize this unit.

7.9.2. Land Use Classification This management unit is classified as recreation.

7.9.3. Management Unit Objectives

Out grant for low-density recreation.

Manage for habitat diversity.

7.9.4. Rationale

Continuing to lease the property to a nonprofit group with similar objectives and philosophies allows the Corps' project staff to reduce their responsibility from actively managing the property.

Maintaining the existing character of the wooded slopes ensures that the visual quality of the shoreline is similar to other areas along the lake.

The presence of moist valley bottomlands and associated wetlands allow management for desirable species, which may differ from those that use upland habitat.

7.9.5. Management and Development Concepts

No changes for the Braddock Run area are anticipated in the near future.

7.9.6. Constraints. The National Wetlands Inventory identifies scrub-shrub wetlands in this unit. Appropriate constraints should be administered regarding the types of activities conducted in this site(s). Other than this, there are no constraints that have been identified that would limit the current activity or operation of the site.

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7.10. MANAGEMENT UNIT I: MILL RUN RECREATION AREA

7.10.1. Unit Description

Size: 16 acres (12.7 acres of land above summer pool).

Location and Access: This unit is located south of the Pennsylvania/Maryland state line on the east side of the lake. A gravel road that intersects Maryland Route 53 to the east provides access. This road essentially divides the unit into two areas. This road also intersects with another public road to the east. A boat ramp provides access from the lake. (See Plate 6.9)

Site Use: Camping is the primary use of this unit. Facilities include 31 campsites, a restroom, and playground equipment. The unit also has a boat-launching ramp and a trailer dump station.

Adjacent Land Use: The Wildlife Area Management Unit is adjacent to this unit to the north and the Mill Run Natural Area is located immediately to the south. Adjacent land uses off project property are generally forest, agricultural, and some residential development along the road that accesses this unit.

Soils/Landform: This unit is located in the gently sloping lower portion of the Mill Run and Collier Hollow stream valleys, with some limited steeper slopes along Collier Hollow. The primary soils are Cavode silt loam, Ernest and Cookport stony silt loams, and stony alluvial lands. These soils are typically moderately deep and somewhat poorly drained to moderately well drained. The lower lying areas are subject to periodic inundation by the lake.

Vegetation: Floodplain and maturing bottomland woods are dominant in the unit. A small area of invaded meadow occurs on the north side of the unit, and invaded thicket occurs near the mouth of Mill Run.

Wildlife Habitat/Species: The floodplain and bottomland forests are typically not highly valuable for wildlife due to the lack of forage provided by the dominant trees, including sycamores and willows. However, larger trees in these areas are often used for nesting by wood ducks, woodpeckers, and owls. The invaded thicket and invaded meadow generally provide good nesting and forage habitat.

Cultural Resources: Two sites, 18Ga227 and 18Ga108, are located within this management unit. The unit has also been identified as a high potential area for both historic and prehistoric sites.

Limitations and Hazards: Steep slopes preclude expansion for high-density recreation uses.

7.10.2. Land Use Classification This management unit is classified as recreation.

7.10.3. Management Unit Objectives

Continue to operate and manage the site for rustic camping.

Educate area users about safety issues and nuisance species.

7.10.4. Rationale

The Maryland Outdoor Recreation and Open Space Plan found a demand for more than 180,000 visitor days of camping that could not be satisfied by the facilities in Western Maryland. Of the three campgrounds on the lake, Mill Run is the only one that was constructed in a wooded area thereby making it distinctive. In order to provide diversity and a choice to the camping public, this campground should be maintained in a rustic manner.

The Mill Run Recreation Area provides a boat launching facility for use primarily by campers. Information on boating safety should be posted at all boat launching facilities throughout the lake. Nuisance species such as the zebra mussel also can be introduced into the lake by boaters who use waters containing such species. The zebra mussel is particularly mobile through its ability to attach itself to the hull of boats. In recent years, this mussel has expanded its range from the Great Lakes to the Allegheny River. Introduction of this species into the lake would affect the fishery and could clog the outlet.

7.10.5. Management and Development Concepts

Post information signs on inspecting boats for nuisance species.

Manage the campground for tenting and small trailers. The wooded character of the campground should be preserved. Separation between camping spurs should be augmented with vegetation.

7.10.6. Constraints

The campground access road must be kept open to allow access to private property beyond. Although through traffic is minimal, it does create a control problem.

7.11. MANAGEMENT UNIT J: MILL RUN NATURAL AREA

7.11.1 Unit Description

Size: 53 acres (49.5 acres of land above summer pool).

Location and Access: The Mill Run Natural Area is located south and east of the Mill Run Recreation Area and is accessed by the same road. This gravel access road runs along the northern part of the unit making most of the unit relatively inaccessible. (See Plate 6.10)

Site Use: General wildlife management and fishing are the primary uses.

Adjacent Land Use: Mill Run Recreation Area is located directly west of the unit, and another parcel of the Maryland management area unit is located on the southern end of this unit. There is no access to adjacent properties to the south of project lands so there has not been any second-home development in this area.

Soils/Landform: The unit includes the lower end of the rocky Mill Run Valley and a substantial area south of the stream. A nearly vertical rocky cliff borders the stream to the south. Above the cliff is a gently sloping bench, bordered by steeper slopes, especially to the southwest. Very stony alluvial soils occur along the bottom of the Mill Run Valley. The bench and steep slopes south of the valley are primarily Cookport, Ernest, Dekalb, and Gilpin very stony silt loams and other unclassified very stony soils.

Vegetation: The vegetation is remarkable in this area primarily because this unit contains the greatest expanse of hemlock forest at the project. It is also notable because it supports typical mesophytic and bottomland forest types. It is the only area at the project that contains these three forest types.

The hemlocks dominate the stream valley, mostly immediately adjacent to the stream and extending south over the elevated bench. The hemlock forest, along with the rocky stream valley and rocky cliff, provides an aesthetic feature that is unique for the project. Showy wildflowers, which prefer the acidic environment of the hemlock forest floor, such as lady's slippers and other orchids, may be more abundant here than anywhere else at the project. Maturing mixed mesophytic forest dominates the steeper southwestern corner of the unit. Maturing bottomland woods occur along the stream valley where the hemlocks are excluded, primarily north of the stream. A limited amount of mesophytic forest and invaded meadow also occurs along the valley bottom. A constructed wildlife

pond that supports some emergent herbs is identified as an emergent wetland on the National Wetland Inventory map.

Wildlife Habitat/Species: The wildlife value of the hemlocks is limited because they do not provide much forage for wildlife. Their primary value is as year-round protection from weather and predators, particularly for birds and squirrels. The mesophytic woods are also only moderately valuable to wildlife because of the dominance of yellow poplar, which also provides little forage, and the poorly developed under story in these woods.

The most notable animal habitat feature is Mill Run. Mill Run has excellent water quality and supports a preferred, year-round trout fishery for local anglers. The Maryland Department of Natural Resources stocks the stream to bolster the natural populations of trout.

Cultural Resources: There are no known cultural resources located within this management unit; however, the unit has not been thoroughly investigated. A study conducted by the District has identified this unit as having high potential for both prehistoric and historic sites.

Limitations and Hazards: The location of Mill Run along the northern boundary limits accessibility.

7.11.2. Land Use Classification This management unit is classified as multiple resource

7.11.3. Management Unit Objectives

Maintain the unit to protect the unique hemlock forest habitat.

Manage the riparian habitat for trout fishery.

Develop the proposed interpretive trail for scenic and educational purposes.

7.11.4. Rationale

This management unit is unique to the Youghiogheny River Lake because it is the only natural area at the project containing three forest types. Consequently, it provides a unique opportunity for education and appreciation.

Mill Run supports an important, high-quality trout fishery for regional recreational fishing.

The hemlock forest provides an important resting area for the local deer herd.

Develop the proposed interpretive trail for scenic and educational purposes.

7.11.5. Management and Development Concepts

Maintain submerged artificial fish-cover structures at the mouth of Mill Run, and stream improvement structures in Mill Run.

Within the jurisdiction of federal lands, monitor water quality in Mill Run and minimize any condition that would cause potential degradation.

Cooperate with MDDNR in their efforts to stock Mill Run with trout.

Develop the Interpretative Trail and increase Hemlock plantings as shown on PLATE 6.10

7.11.6. Constraints

There are no known constraints that conflict with maintaining the area in this manner.

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7.12. MANAGEMENT UNIT K: YOUGHIOGHENY RIVER LAKE - MARYLAND WILDLIFE AREA

7.12.1. Unit Description

Size: 629 acres (99 acres of land above summer pool).

Location and Access: This management unit contains most of the Maryland portion of the project. With the exception of the relatively small Selbysport Recreation Area, the unit is continuous from the Mill Run Natural Area to the Bear Creek Natural Area unit; the Buffalo Run Natural Area is the only management unit between the two. There are few roads leading to this unit on either side of the lake. A public road that was inundated by the lake provides access to both sides near Selbysport. Access on the east side of the lake is also provided from Friendsville for a short distance north. (See Plate 6.11)

Site Use: This unit is currently under license to the Maryland Department of Natural Resources (MDDNR) for wildlife and game management. It is upstream of the permanent lake surface in Maryland, as described in Unit S. In the summer months, the streambed portion of Unit K becomes part of the lake and patrol and fishery management are the responsibility of the Corps.

Adjacent Land Use: The land uses adjacent to this unit are generally agricultural and open space. The Selbysport Recreation Area divides the east shore of this unit into two parcels. The west shore is continuous although the Buffalo Run Natural Area is located along a tributary and does not bisect the western shore of this unit.

Soils/Landform: Although this unit comprises a relatively large area of several components, steep slopes with well-drained, stony soils, largely characterize it. There are some areas of less steep slopes along the river, particularly wider areas along the west side of the river near Selbysport and just north of the Bear Creek Natural Area, and as a narrow band along the east side of the river from Selbysport south to the Bear Creek Natural Area. Flatter alluvial lands also extend along the Buffalo Run Valley. The flatter areas are predominantly Atkins, Pope, Brinkerton, and Andover silt loams, Gilpin channery silt loam, and stony alluvial land. These soils range from poorly drained to well drained, although most of the lower lying area is subject to annual or occasional flooding.

Vegetation: Because of the varied disturbance history, the wider, flat areas near the lake, and the management of the vegetation for wildlife by MDDNR, this large unit has a great diversity of vegetative cover types. As with most other units, the steep slopes are dominated by pole-timber or maturing mixed mesophytic

woodland. Some slope areas are dominated by altered woodland. Floodplain and bottomland stands dominate in the flatter areas near the lake that are frequently flooded. The Buffalo Run area has a particularly diverse interspersion of thicket, aged thicket, invaded thicket, and invaded meadow. Invaded meadow occurs along utility lines that cross the southern portion of the unit. Meadows and invaded meadows are maintained by the MDDNR for wildlife on the terraces just north of the Bear Creek Natural Area and along the west side of the river near Selbysport. The National Wetland Inventory identifies several areas of forested, scrub-shrub, and emergent marsh wetlands in the flat lower portion of the Buffalo Run Valley; on the terrace west of Selbysport; and along the river south of Selbysport. This unit contains the greatest extent of wetlands on the project lands. Of particular note, the draw down of the reservoir exposes a rather large mudflat on the western shore just north of Selbysport. This mudflat provides a habitat that supports relatively unique native flora.

Wildlife Habitat/Species: MDDNR is licensed to operate this management unit specifically for wildlife management. The diversity of the vegetative cover-types provides an excellent habitat for a number of game and non-game species to thrive. The Buffalo Run Valley has a diverse assortment of thickets and invaded meadow habitats that support many populations of wildlife. The population includes ruffed grouse, cottontails, deer, and turkey. The habitat is also conducive to supporting a good population of woodcock, but there are no agencies documenting its presence. Floodplain and bottomland woods are most expansive in this unit, supporting wood ducks, woodpeckers, beaver, and owls. Two wildlife ponds have been created in the flats south of Selbysport. Wood duck and bluebird boxes have also been placed in this area. The MDDNR has introduced river otter into this area in an attempt to reestablish a viable population of this once common, but currently rare, species. The mudflat just below Selbysport attracts hundreds of shorebirds during the fall migration. This special habitat is noteworthy as there may be no other flats locally that are large enough to attract the birds seen here.

Cultural Resources: Six sites, 18Ga43, 18Ga46, 18Ga103, 18Ga224, 18Ga239, and 18Ga295, appear to be located within this management unit. One site, 18Ga239, may be just on the border of federally and non-federally owned property. The lake may actually inundate site 18Ga46. Much of the unit is considered a probability area for historic and prehistoric sites.

Limitations and Hazards: The lake draw down exposes mudflats that greatly restrict boating in this area.

7.12.2. Land Use Classification This management unit is classified as multiple uses.

7.12.3. Management Unit Objectives

Manage habitats to support game and non-game wildlife and fisheries.

Maintain and preserve the diversity and extent of habitat.

Maintain the natural characteristics of the unit.

Preserve historic properties.

7.12.4. Rationale

This unit contains a great diversity of habitat that supports wildlife species relatively unique to this portion of Maryland and meets a portion of the recreation needs for the region.

Altering the existing visual quality of the shoreline by clearing vegetation for lake views and constructing access paths would conflict with an earlier recreation survey finding. In the survey, users responded that an important reason they come to the Youghiogheny River Lake is the scenery provided through its abundant existing wooded slopes.

Federal laws require protection of cultural resources.

7.12.5. Management and Development Concepts

Institute control of off-road vehicle use of the mudflat above Selbysport.

Create wetlands and sub-impoundments to provide diverse habitat.

7.12.6. Constraints

Areas suitable for wetlands and sub-impoundments will require cultural resource investigations.

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7.13. MANAGEMENT UNIT L: SELBYSPORT

7.13.1 Unit Description

Size: 6 acres (4.7 acres of land above summer pool).

Location and Access: The Selbysport management unit is located on the east side of the project. A public road (Maryland Route 53) has direct access to this unit. This road connects to Addison and Friendsville. (See Plate 6.12)

Site Use: A road that formerly crossed the river at this location on a bridge is now used as a boat ramp for small boats.

Adjacent Land Use: This unit bisects the Maryland Wildlife Area on the east side of the lake. Land uses off project properties are residential (the town of Selbysport), institutional (church), and open space.

Soils/Landform: This unit is located in the confined stream valley at the mouth of a small tributary to the Youghiogheny River. The soils in this unit are Cookport and Ernest very stony silt loams and Gilpin channery silt loams. They are moderately deep-to-deep, well-drained soils. Slopes range from 8 to 35 percent.

Vegetation: Altered woodlands are the primary vegetative cover type. Floodplain woods occur along the lake at the mouth of the small stream. A limited area of meadow occurs just west of the township road. A small area of invaded thicket occurs in the northern portion of the unit.

Wildlife Habitat/Species: Given the adjacency of the Maryland Wildlife Area, this unit is probably used by the variety of wildlife that inhabits the larger adjacent woods, including ruffed grouse, woodchuck, turkey, deer, and songbirds.

Cultural Resources: There are no known cultural resources sites located within this management unit, however, the site has not been tested. A project-wide study found a high probability that prehistoric sites may be found in a portion of this unit.

Limitations and Hazards: The direct access from Maryland Route 53 to the boat launch is a safety concern because it leads directly to the water.

7.13.2. Land Use Classification This management unit is classified as recreation.

7.13.3. Management Unit Objectives

Improve the existing boat launch and parking at the unit to meet recreational needs and safety requirements.

Manage for diversity of habitat.

7.13.4. Rationale

The existing situation is dangerous because the road ends in the water. The unit access road is also in need of re-grading. Unless these safety concerns can be addressed, the unit should be closed and incorporated into the Wildlife Unit.

7.13.5. Management and Development Concepts

Realign and re-grade the access road to address safety considerations.

7.13.6. Constraints

Seasonal high water affects boat launching.

7.14. MANAGEMENT UNIT M: BEAR CREEK NATURAL AREA

7.14.1. Unit Description.

Size: 102 acres.

Location and Access: This management unit is located at the southern end of the project at the town of Friendsville. Access to this unit is from a number of roadways including Maryland Route 42, Maryland Route 53, and nearby Interstate 68. (See Plate 6.13)

Site Use: Fishing, general wildlife management and river recreation are the primary uses. Rafters using the upper Youghiogheny River take out either adjacent to Friendsville Park or a little further downstream at a rafting company's facility. There are licenses for access across government lands to allow raft take-outs. Cattle grazing a portion of this management unit are not under lease and considered to be trespassing.

Adjacent Land Use: The community of Friendsville is located on the south side of this unit. The land uses associated with the town and adjacent to this unit are a community park and a residential area. Further downstream the adjacent land use is primarily wooded open space. Within the wooded open space is a small white-water raft outfitter operation.

Soils/Landform: This unit is marked by level to nearly level landform along the floodplain and terrace above the Youghiogheny River and Bear Creek. Stony alluvial land, subject to annual flooding, occupies the areas immediately adjacent to the streams. The slightly elevated terraces are dominated by Pope silt loam and Philo silt loam. The Pope and Philo silt loams are deep, moderately well-drained soils that may be subject to periodic flooding.

Vegetation: This area is reserved as a natural area primarily because of its relatively rare, undisturbed mature bottomland hardwoods along the streams. The dominant trees are sycamores, some larger than 40 inches in diameter. A variety of other trees and shrubs are also present, including rosebay rhododendron, hemlock, basswood, sugar maple, common spicebush, black cherry, yellow birch, beech, shagbark hickory, paw-paw, oaks, ash, and elm. The bottomland forest includes an island that is inaccessible.

Wildlife Habitat/Species: Generally, the dominance of bottomlands by sycamores reduces its value as a wildlife forage area. The diversity of other, preferred forage plants in this area helps to maintain wildlife populations in this

unit. A number of rare species may occur in this unit, including the hellbender, painted turtle, and green salamander.

Cultural Resources: There are no known cultural resources sites located within this management unit, however, the area has not been tested. A District study has indicated that this unit has a high probability of both historic and prehistoric sites.

Limitations and Hazards: Wetland habitat within this unit creates deterrents to development.

7.14.2. Land Use Classification This management unit is classified as multiple resource management.

7.14.3. Management Unit Objectives

Inventory for species of special concern to identify particularly sensitive habitats.

Manage the unit to ensure the visual quality of the area remains by preserving the existing mature vegetation.

Develop a hiking trail with interpretive signs.

Resolve existing cattle trespass.

7.14.4. Rationale

To preserve the diversity of wildlife and ensure that the habitats necessary to support the identified species of concern are protected, it is necessary to first identify the special concern species and their critical habitats at the project.

The mature bottomland forest is a unique feature, both aesthetically and as an unusual habitat feature at the project.

7.14.5. Management and Development Concepts

In conjunction with the Maryland Department of Natural Resources, inventories should be conducted and management plans should be prepared for identified species.

Develop a hiking trail with interpretive signs.

7.14.6. Constraints

Portion 2 of the management unit may be environmentally sensitive.

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7.15. MANAGEMENT UNIT N: BUFFALO RUN NATURAL AREA

7.15.1. Unit Description

Size: 163 acres.

Location and Access: This management unit is on the west side of the lake in Maryland near where the Buffalo Run tributary flows into the lake. There is a gated access road to this site. (See Plate 6.14)

Site Use: The unit is used for threatened and endangered species management.

Adjacent Land Use: The adjacent land uses are primarily wooded open space both on and off project property. The management unit located around Buffalo Run Natural Area is the Maryland management area.

Soils/Landform: The area is generally flat with unclassified alluvial soils.

Vegetation: The primary vegetative community is wet meadow. This wet meadow is particularly important because of the presence or historic records of several rare plant species. Because of the presence of these plants, the Maryland Natural Heritage Program has rated this wetland as highly significant.

This unit is delineated because of its special management needs. Special protection for the rare plants must be provided through habitat management to prevent the invasion of trees and shrubs into the area as well as aggressive herbs such as cattails, which might exclude these species.

Wildlife Habitat/Species: This area is not specifically valuable for wildlife. The same wildlife that inhabits the surrounding areas of the Buffalo Run Valley visits this area to forage, such as deer.

Cultural Resources: There are no known cultural resources sites located within this management unit.

Limitations and Hazards: The presence of significant wetland plants limits the use to an environmentally sensitive area.

7.15.2. Land Use Classification This management unit is classified as environmentally sensitive.

7.15.3. Management Unit Objectives

Develop a species management plan.

Manage the unit to ensure that the visual quality of the area remains by preserving the existing native vegetation.

7.15.4. Rationale

Preserve the diversity of wildlife and ensure that the habitat of rare and endangered species is maintained, pursuant to the Maryland Non-game and Endangered Species Conservation Act of 1975. To better manage this unit, the COE rangers require adequate access for motor vehicles that can be maintained as necessary. There will be no public access to this area. Visual quality is compatible with management for wildlife diversity.

7.15.5. Management and Development Concepts

In cooperation with MDDNR, maintain the existing rare species' habitats through preservation (avoid improved access) and mechanical manipulation of vegetation and hydrology, as deemed necessary.

7.15.6. Constraints

The entire management unit is classified as environmentally sensitive.

7.16. MANAGEMENT UNIT O: JOCKEY HOLLOW BOAT LAUNCHING AREA

7.16.1. Unit Description

Size: 14 acres (9.2 acres of land above summer pool).

Location and Access: This boat-launching area is located on the west side of the lake and along U.S. 40. There is direct access from U.S. 40 to this unit. (See Plate 6.15)

Site Use: The facilities, which are limited to a boat-launching ramp and parking at this unit, are currently leased to the Pennsylvania Fish and Boat Commission (PFBC). There are no restroom facilities at this location.

Adjacent Land Use: The southern boundary of this unit is U.S. 40. To the west and north is wooded open space.

Soils/Landform: This unit is located in a confined stream valley. The side slopes of the valley are steep, with a somewhat flatter, alluvial area at the edge of the lake. The slope soils are Gilpin-Weikert channery silt loams. These are shallow to deep, well-drained to moderately well-drained, medium-textured soils underlain by acid shale and some sandstone bedrock. Some bedrock outcrops may occur along the slopes.

Vegetation: The area not already developed for the boat launch is wooded. Approximately half the area is altered woodland, and the other half is pole-timber aged mixed mesophytic woodland. The upper valley slopes support a maturing mixed mesophytic forest. Dominant trees in this area include sugar maple, hickories, American beech, yellow poplar, black cherry, white and Northern red oaks, and basswood. Altered woodlands are dominated by invasive species such as black locust, hawthorn, black cherry, and sweet crab apple.

Wildlife Habitat/Species: The wildlife expected in this area is typical for the mixed mesophytic woodland and altered woodlands. Species would likely include turkey, ruffed grouse, squirrels, woodchuck, and white-tailed deer. Other species would include songbirds and other forest-dwelling birds. In the altered woodlands, with a somewhat more open canopy and denser under story, cottontail rabbits are common along with various songbirds and ruffed grouse.

Cultural Resources: There are no known cultural resources sites located within this management unit.

Limitations and Hazards: The size of the site and its location next to U.S. 40 limit its ability to be expanded.

7.16.2. Land Use Classification This management unit is classified as recreation.

7.16.3. Management Unit Objectives

Continue to provide the boat-launching ramp, restroom, and parking at the site.

Coordinate with the Pennsylvania Fish and Boat Commission in their operation and maintenance of the facilities.

Prohibit the future development of additional car/boat trailer parking facilities.

7.16.4. Rationale

Operating the boat launch continues to provide for regional water-based recreation needs. Because this unit is not operated by the COE, coordination with the Pennsylvania Fish and Boat Commission is required to ensure that its operation meets COE goals and objectives.

7.16.5. Management and Development Concepts

There are no current plans for expanding or changing the facilities at the boat-launching area.

7.16.6. Constraints. There are no known constraints that conflict with the objective of operating the boat launch.

7.17. MANAGEMENT UNIT P: JOCKEY HOLLOW RECREATION AREA

7.17.1. Unit Description

Size: 4.6 acres (3.9 acres of land above summer pool)

Location and Access: This management unit is located on the west side of the lake in the same cove as the Jockey Hollow boat-launching area. However, it is closer to the main portion of the lake. This management unit is also located on U.S. 40, which provides direct access. (See Plate 6.16)

Site Use: This recreation area is the location of the visitors' center for the project. The visitor center is currently closed, but could reopen under some type of partnership agreement. Other facilities at the unit include picnic tables, a short walking path, and automobile parking.

Adjacent Land Use: The southern boundary for this unit is U.S. 40. The land on either side of the area is a portion of the Youghiogheny River Lake Wildlife Area management unit.

Soils/Landform: The unit currently contains a parking lot constructed at road elevation. The remainder of the area retains its steep slope landform. The soils are typically Gilpin-Weikert channery loams. These soils are moderately deep to shallow, well- drained loamy soils.

Vegetation: The area that has been developed is currently not vegetated. Invaded thicket is the primary vegetation on the surrounding slopes.

Wildlife Habitat/Species: Because of the nature of the site development, most of the unit does not provide wildlife habitat. The adjacent invaded thicket provides a woodland thicket habitat of moderate value to game and nongame wildlife.

Cultural Resources: Within this management unit, there are no known cultural resources sites **Hazards:** The location of the recreation area between U.S. 40 and the lake limits its ability to expand. The bank on the western portion of this unit is slipping. The guardrail along the paved road has been affected, marking the upper limits of the slip.

7.17.2. Land Use Classification This management unit is classified as recreation.

7.17.3. Management Unit Objectives

Maintain and operate the site for recreational use.

Continue possible coordination with non-Corps agency in the development of an interpretive center.

7.17.4. Rationale

Maintaining the site for recreational use helps to meet the region's recreational needs.

7.17.5. Management and Development Concepts

Continue development of the existing visitors' center into an interpretive center to be staffed and operated by a non-federal sponsor. Corps' interpretive displays should be culturally and historically oriented.

7.17.6. Constraints

There is a lack of opportunities to expand the facilities.

The slide at the western end of the unit that first appeared in the 1960's and again in the 1990's.

No constraints are known to conflict with the operation of the site for recreational use.

7.18. MANAGEMENT UNIT Q: TUB RUN

7.18.1. Unit Description

Size: 54 acres (44 acres of land above summer pool).

Location and Access: Tub Run is located on the west side of the lake further downstream from the Jockey Hollow management unit. Access to this unit is provided by a public road, which intersects with Pennsylvania Route 281 in two locations. (6.17)

Site Use: This recreation area provides 101 Class A camping sites (supporting both tent campers and recreational vehicles), amphitheater, boat launching, swimming, three flush restrooms and two shower houses, a camper check-in, a trailer dump station, and parking. The camping areas are physically separated into three locations in this unit. The easternmost restroom building is not used because funding required to complete the camping development has never been available, and the building is too distant from existing camping areas to be useful.

Adjacent Land Use: Adjacent management units are portions of the Youghiogheny River Lake area. Property located outside project boundaries is primarily wooded open space on the south side of the unit. However, there are a few residential structures on the south side as well. Located between the unit and adjacent land uses to the south is a public road. North of this unit is a cluster of residential structures that are used as second/weekend homes.

Soils/Landform: The Tub Run Recreation Area is relatively flat over much of the area adjacent to the stream. The Brinkerton and Armagh silt loams are predominant along the lower, flatter area currently used for camping and recreation. These are typically poorly drained, loamy to clayey soils. Ernest very stony silt loam predominates along Tub Run in the western end of the unit. These are deep, moderately well-drained soils. The steep slopes on the north and south sides of the unit are predominantly Gilpin and Weikert stony silt loams and Ernest silt loam, moderately eroded. These are shallow to deep, moderately well- to well-drained soils.

Vegetation: The flatter valley bottom is primarily landscaped with grass and clumps of trees. Small areas of floodplain woods occur along the water's edge. The surrounding steep slopes are pole-timber and maturing mixed mesophytic woodlands.

Wildlife Habitat/Species: The wildlife within the management unit is expected to be somewhat reduced because of the predominance of landscaped area and

frequency of human disturbance. Species that may be present in this unit are cottontails, and a variety of songbirds. Species such as skunk and raccoon, which frequently forage for refuse in areas of intense human activity, may periodically visit the area at night, especially when uses of the camping area is the greatest. The floodplain and mixed mesophytic woodlands may provide habitat for a mixture of game and non-game species.

Cultural Resources: There are no known cultural resources sites located within this management unit.

Limitations and Hazards: Seasonal high water limits shoreline recreation expansion. Water seepage in the hillside adjacent to the easternmost restroom is an additional limitation to this site.

Fishery resources in Tub Run and the mouth of Tub Run are negatively impacted by low buffering capacities resulting from low in-stream alkalinities. The Corps and the Yough Walleye Association embarked on a cooperative in-stream limestone sand neutralization project on Tub Run in 2000 in an effort to improve alkalinities in the stream. The objective of this ongoing program is to improve the fishery in Tub Run and Youghiogheny Lake.

7.18.2. Land Use Classification This management unit is classified as recreation.

7.18.3. Management Unit Objectives

Maintain the existing recreation facilities at the site, which include camping, swimming, and boat launching for campers, restrooms, and parking.

Maintain safety for the recreational uses of boat launching and swimming.

Expand the camping facilities to meet regional recreation needs.

Continue the ongoing in-stream limestone sand neutralization efforts in order to improve the water quality / fishery in Tub Run and Youghiogheny Lake.

7.18.4. Rationale

The existing recreation facilities should be maintained and expanded where possible to help meet the regional recreational needs.

7.18.5. Management and Development Concepts

Expand the campground by implementing the design from the 1982 master plan. That plan would require 20 additional campsites and parking spaces for 10 automobiles. The campground expansion will be funded with special recreation user fees collected at the project. In addition, as mentioned in 7.18.1 above, the drainage problem caused by the water seepage must be considered when designing any campground extension.

7.18.6. Constraints

Seasonal high-water levels affect the use of the campground, boat launch, and swimming areas.

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7.19. MANAGEMENT UNIT R: LAKE AREA - PENNSYLVANIA

7.19.1 Unit Description

Size: 2,044 acres (2,150 acres at summer pool).

Location and Access: The lake area unit comprises the entire lake surface within Pennsylvania borders, including those lands below the maximum conservation pool exposed during draw down. Because of the public roads that encircle much of the project, the Pennsylvania portion of the lake is accessible from numerous locations around the shoreline. (See Plate 6.18)

Site Use: The project is essentially used for storage of water as a flood control measure and for regulation of downstream flows. The lake surface also serves as a recreation resource. Recreation uses on the lake include boating, fishing, swimming, and water-skiing. The lake is leased to the Pennsylvania Fish and Boat Commission (PFBC) for public recreation and licensed for fish management. The PFBC and the Corps' Park Rangers patrol the lake and enforce their own regulations.

Adjacent Land Use: Several other management units border the lake. Management of the lake surface fringe must be consistent and compatible with resource use objectives for adjacent lands. Although the property bordering the lake was purchased for operation of the project, these areas are also used for other purposes such as wildlife management and recreation. These management units are described in earlier paragraphs in this chapter.

Soils/Landform: The lake bottom, portions of which become exposed during winter draw down and periods of drought, consists of gently sloping to steep lower slopes.

Vegetation: There is a distinct lack of any submerged or emergent vegetation along the perimeter of the lake due to the extensive fluctuation in the pool level. During high water, woodland vegetation on surrounding slopes is immediately adjacent to the water surface or partially submerged. During periods of draw down, the un-vegetated lake bottom is exposed.

Wildlife Habitat/Species: Canada geese can be seen on the lake throughout the year. Other waterfowl that can be found include mallards, wood ducks, teal, and scaup. The U.S. Army Corps of Engineers (COE) encourages the habitation of osprey at the project by erecting nesting platforms in Wilkins Hollow, Tub Run, and Braddock Run. Transient bald eagles are also occasionally sighted. A variety of sport fish, including largemouth bass, Northern pike, walleye, bluegills,

bullheads, crappies, and channel catfish, inhabit the lake. Forage fish include minnows, alewife, carp, and shiners.

The sterility of the reservoir water, the steepness of the shoreline, and a lack of suitable spawning sites contribute to a low density of forage fish in general. Thus, the forage base of pan fish, rough fish, and minnows is inadequate to maintain high populations of several major game fish species. Because the depth of the reservoir contributes to a two-tier fishery, alewives have been stocked to establish a broader forage base.

Cultural Resources: There are several known archeological sites that were inundated by the reservoir. The known sites are 36Fa23, 36Fa51, 36Fa84, 36So3, 36So4, and 36So21. The Great Crossings Bridge is located within the lake area on the Pennsylvania side.

Limitations and Hazards: Seasonal low-water elevations effectively narrow the width of the lake and limit water-based recreation.

7.19.2. Land Use Classification The zoning plan for the lake surface incorporates several areas of the lake where boating activities are regulated to protect the public by minimizing boating conflicts. Several areas are affected by these regulations - the area within 600 feet of the dam, which totally prohibits any boating activity (with the exception of the period between late fall and early spring when the float line is removed); the recreational areas in the coves such as Jockey Hollow; the cove where the Reason Run tributary enters the lake; and Tub Run. To reduce boater conflicts in the area of the marina on the south side of the U.S. 40 Bridge, a no-wake zone is recommended that extends from the U.S. 40 bridge, upstream to the southern extent of the Somerfield management unit. This no-wake zone would extend the entire width of the lake. The water surface-zoning plan is described in more detail in Chapter 6.

7.19.3. Management Unit Objectives

Continue to use the lake for storing water for flood control and regulating downstream flows and water quality.

Continue the lease and license with the Pennsylvania Fish and Boat Commission to provide opportunities for water-based recreation including boating, swimming, water-skiing, and fishing.

Encourage the safe operation of recreational boats and encourage the PFBC to increase patrol / enforcement efforts.

Address increasing concerns about the use of personal watercraft.

Continue the research program for boating use lake capacity including the yearly and five-year cycle surveys.

7.19.4. Rationale

Operating and managing the lake fulfills the mission of the COE to provide for regional flood control.

Providing opportunities for water-based recreation helps to meet the region's recreation needs.

Provide for downstream water quality and quantity needs.

Providing safe boating conditions on the lake will help ensure an enjoyable recreational experience for boaters. The regular monitoring of boating safety and capacity issues will help reduce conflicts and increase safe boating operations.

7.19.5. Management and Development Concepts

Promote water safety by enforcing the water surface-zoning plan and through patrols by the Pennsylvania Fish and Boat Commission and Corps personnel.

Continue the current fish-stocking program to support game fish populations in coordination with the Pennsylvania Fish and Boat Commission.

Continue the introduction of submerged, artificial fish-cover structures.

Investigate adding a small marine service station somewhere on the lake to decrease congestion near the marina.

Continue to provide water safety information and programs.

7.19.6. Constraints

Fluctuating water levels and steep shoreline constrain shoreline activities, impact boating, and limit the natural development of important fish habitat features such as submerged and emergent vegetation.

Concentration of boating related facilities in the area of the Route 40 Bridge results in boating congestion.

7.20. MANAGEMENT UNIT S: LAKE AREA - MARYLAND

7.20.1. Unit Description

Size: 99 acres.

Location and Access: The lake area unit comprises the entire lake surface within Maryland borders, including those lands below the maximum conservation pool exposed during draw down. Because of the public roads that encircle much of the project, the Maryland portion of the lake is accessible from numerous locations around the shoreline. (See Plate 6.19)

Site Use: The project is essentially used for storage of water as a flood control measure and for regulation of downstream flows. The lake surface also serves as a recreation resource. Recreation uses on the lake include boating, fishing, swimming, and water-skiing. Corps rangers patrol the lake and enforce our regulations.

Adjacent Land Use: Several other management units border the lake. Unit K, for instance, is frequently inundated in late spring and summer. This enlarges the lake area at the Maryland end of the project. Management of the lake surface fringe must be consistent and compatible with resource use objectives for adjacent lands. Although the property bordering the lake was purchased for operation of the project, these areas are also used for other purposes such as wildlife management and recreation. These management units are described in earlier paragraphs in this chapter.

Soils/Landform: The lake bottom, portions of which become exposed during winter draw down and periods of drought, consists of gently sloping former floodplain terraces.

Vegetation: There is typical floodplain and bottomland vegetation along the perimeter of the lake during normal high water periods. During winter draw down and periods of drought, mud flats, some of which are rather extensive, are exposed on the former terraces. There are no areas of submerged vegetation.

Wildlife Habitat/Species: Canada geese and mallards can be seen on the lake throughout the year. Other waterfowl that can be found seasonally include wood ducks, teal, and scaup. Transient bald eagles are also sighted occasionally. The COE encourages wood duck use by installing and maintaining nesting structures. A variety of sport fish, including largemouth bass, Northern pike, walleye, bluegills, bullheads, crappies, and channel catfish, inhabit the lake. Forage fish include minnows, shad, carp, and shiners.

The sterility of the reservoir water, the steepness of the shoreline, and a lack of suitable spawning sites contribute to a low density of forage fish in general. Thus, the forage base of pan fish, rough fish, and minnows is inadequate to maintain high populations of several major game fish species. Because the depth of the reservoir contributes to a two-tier fishery, alewives have been stocked to establish a broader forage base. There are historical records of stonecat (Noturus flavus) and hellbender (Cryptobranchus alleghaniensis) in the Youghiogheny River.

Cultural Resources: There were several known archeological sites inundated by the reservoir. The known sites are 18Ga1, 18Ga29, 18Ga39, 18Ga40, 18Ga41, 18Ga42, 18Ga45, 18Ga46, 18Ga47, 18Ga48, 18Ga49, 18Ga225, and 18Ga301.

Limitations and Hazards: Seasonal low-water elevations reduce the width of the lake and limit water-based recreation.

7.20.2 Land Use Classification The zoning plan for the lake surface incorporates several areas of the lake where boating activities are regulated to protect the public by minimizing boating conflicts and protecting environmental resources. The areas affected by these regulations within this unit are the recreational areas in the coves such as Mill Run or environmentally sensitive areas such as Buffalo Run. In the upper reaches of the river lake is a designated river recreation zone that prohibits powerboats. The water surface-zoning plan is described in more detail in Chapter 6.

7.20.3. Management Unit Objectives

Continue to use the lake for storing water for flood control and regulating downstream flows.

Continue to provide opportunities for water-based recreation including boating, swimming, water-skiing, and fishing.

Provide for safe recreational use for the various activities on the lake.

Improve fish habitat by maintaining higher lake levels (if possible) and adding artificial habitat features.

7.20.4. Rationale

Operating and managing the lake fulfills the mission of the Corps to provide for regional flood control.

Providing opportunities for water-based recreation helps to meet the region's recreation needs.

Providing safe boating conditions on the lake will help ensure an enjoyable recreational experience for boaters. The regular monitoring of boating safety and capacity issues will help reduce conflicts and increase safe boating operations.

7.20.5. Management and Development Concepts

Conduct a boating study.

Continue the introduction of submerged, artificial fish-cover structures.

Ensure water safety by enforcing the water surface-zoning plan.

Construct impoundments in Buffalo Run to expand the wetland habitats for use by waterfowl and other wildlife.

Continue the current fish-stocking program to support game fish populations in coordination with the Pennsylvania Fish and Boat Commission and the MDDNR.

7.20.6. Constraints

Fluctuating water levels constrain shoreline activities, impact boating, and limit the natural development of important fish habitat features such as submerged and emergent vegetation.

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CHAPTER 8: PROJECT-SPECIFIC DESIGN CRITERIA

8.1. INTRODUCTION

This chapter provides basic design considerations for the initial and proposed development at Youghiogheny River Lake. These guidelines are presented in order to avoid confusion, eliminate duplication of design effort, and provide a general guide to design, construction, and implementation of the facilities proposed in Chapter 9. Design guidance is also addressed by EM 1110-1-400 and EM 1110-2-410.

8.2. DESIGN PHILOSOPHY

The guidance provided addresses the concern for functional use, creative design, environmental harmony, and economical construction and operation. The following design parameters provide for the health, safety, security, and comfort of visitors in all aspects of development.

8.3. PROJECT DESIGN PARAMETERS

8.3.1. Site Selection. All proposed and future facilities at Youghiogheny River Lake should be compatible with existing natural and constructed features, and a detailed analysis should be completed before design implementation. Generally, development of areas around the lake should be sited in a manner to minimize disturbance of the natural site features. However, certain site features, such as soils, can present serious constraints to optimum facility development. Before preparation of detailed facility designs, a preliminary analysis should be made of site-specific natural conditions.

Permanent structures and major developments must be located above the five-year flood elevation of 1,452 feet. The exceptions to this are areas below the dam and facilities such as boat-launching ramps, docks, and swimming areas, or, in special cases, where it is not physically or economically feasible to locate facilities such as roads or parking above elevation 1,452. Slopes in excess of 8 percent are considered too steep for intensive development, such as major campgrounds; and slopes greater than 15 percent are considered too steep for low-density recreation, such as dispersed picnicking or primitive camping. Recreation sites have been located and are proposed to be developed so that grading, clearing, and grubbing will be kept to a minimum. All grading and earthwork will be in accordance with established erosion control practices and

will meet all state and local regulations. Appropriate action should be taken during construction to ensure protection of vegetation and other site features. Facility locations, quantities, and road alignment shown are preliminary and flexible to allow the project designer and field supervisor latitude to adapt the facilities to the site.

8.3.2. Architecture. New buildings and structures in existing recreation areas will, to the extent feasible, match architectural building styles already in use for the same types of buildings, assuming the existing buildings will be retained. In areas where existing development is minimal or is proposed to be replaced, and in new areas, the proposed buildings and structures will reflect the architectural styles and character appropriate to the natural setting. Building materials will be compatible with the colors and textures in the environment. Clerestory windows will be provided to maximize use of natural lighting.

8.3.3. Roads. Roads have been located so that they follow natural ground form and topography as much as possible in order to minimize disturbance. Areas where excessive cuts, fills, or grading would be required should be avoided to the extent feasible. Three types of roads are proposed for the project area. The types and specific design parameters for each, as identified below, are proposed on the basis of the soil and slope characteristics of the project, high-water table or seasonal flooding in some areas, the type and amount of traffic, and the overall desired intent of development within specified areas. Facilities associated with road construction such as drainage structures and guardrails should be designed to be in harmony with the area by using appropriate materials and colors. Selective clearing to create viewing opportunities and landscaping should be used to enhance the overall scenic qualities of the roads.

Paved Road, 22-Foot Width. This type of road will be used in major camping and day-use areas, boat-launching areas, major access roads within the project, and other major-use areas where two-way traffic is necessary. These roads will consist of a 22-foot-wide, 2-inch asphalt concrete surface on a 5-inch asphalt concrete base and compacted sub grade. Shoulders will be 4 feet wide, stabilized, and seeded.

Crushed-Stone Road, 18-Foot Width. This type of road will be used in low-use campgrounds, boat-launching areas, and day-use areas where two-way traffic is desired. These roads will consist of 18-foot-wide, 6-inch crushed-stone surface, and compacted sub grade, and 4-foot stabilized and seeded shoulders. At intersections where paved roads convert to gravel roads, the first ten feet of the gravel roads should be paved to minimize traffic problems and provide safer turning conditions. Minimum radius for these roads will be 150 feet.

Crushed-Stone Road, 12-Foot Width. This type of road will be used in low-use camping areas where one-way traffic is necessary. This type will consist of a 12-foot-wide, 6-inch crushed-stone surface and compacted sub grade. Shoulders will be 2 feet wide, stabilized, and seeded. Minimum radius for these roads will be 100 feet.

8.3.4. Parking. Parking for picnic and camping areas will be provided at a 1:1 ratio (one parking space or spur per picnic unit or campsite). In boat-launching areas, 25 car/trailer spaces per ramp will be provided where possible.

Paved parking will be provided at all picnic areas, boat-launching areas having over 40 launchings per normal weekend day, and other major use areas. Typical sizes for various spaces are 10 feet by 20 feet for cars and 10 feet by 40 feet for 45-degree angle parking for cars/trailers. Five percent of parking spaces will be designed for people who are physically challenged. These spaces should be 12'-6" wide and conveniently located in relation to buildings, walkways, and other facilities. Surfacing, base, and other construction details are the same as for paved roads. All paved parking stalls will be striped for efficient use and will have parking stops and barriers where appropriate.

Crushed-stone parking will be provided at areas of low use such as lake access points and boat-launching areas having less than 40 launchings per normal weekend day and will be used for vehicle camp spurs. Construction details for this type of parking are the same as for crushed-stone roads.

8.3.5. Picnic Areas. Picnic areas will contain a minimum of eight tables with necessary support facilities. The density of picnic areas will generally not exceed 10 to 12 picnic sites (units) per acre. Where group picnicking is appropriate and desired, at least one shelter will be provided in each major day-use area. Play equipment will be provided at major picnic areas. Water supply will be provided at each picnic area with spacing of hydrants not exceeding 400 feet. Restrooms will be provided at each area. Restrooms will not be placed more than 600 feet from the farthest picnic sites. Ten percent of the picnic sites will be designed to accommodate people who are physically challenged.

Each picnic site (unit) will contain a table and bench combination, one charcoal grill per two picnic tables, one trash receptacle for each three to five tables and, where appropriate, landscaping.

8.3.6. Boat-Launching Areas. Major boat-launching areas will contain multiple ramps, and, where feasible, these will have an upper limit at elevation 1,452 (five-year flood frequency pool) and a lower limit at elevation 1,387 (4 feet

below the average pool at the end of the boating season, 31 October). Turnarounds will have a minimum 75-foot diameter where possible.

Paved boat-launching ramps will consist of a 6-inch reinforced concrete surface over a crushed-stone base. If the ramp exceeds 75 feet in length, lanes will be 16 feet in width. Multiple lane ramps will have a width of multiples of 16 feet. Each ramp should have turnarounds at 150-foot intervals on a continuously sloping ramp. Turnarounds should permit vehicles to drive headfirst down the ramp, turn around, and back trailers into the water. The finished surface will be scored and ramp shoulders will be stabilized ***(Design Parameters Apply to the Various Recreation Facilities Such As Those at Tub Run)*** with riprap where necessary to prevent erosion caused by wave action. Low-use boat-launching ramps will consist of an asphalt or crushed-stone surface. Boat ramps should be designed with slopes of 12 to 16 percent, with 14 percent being the optimum slope.

8.3.7. Courtesy Docks. A courtesy dock should be provided at each major launching area. These will be of wood, or wood and metal construction, with encased polystyrene or an equal flotation device. Courtesy piers will be 5 feet in width and 30 feet in length. Guidelines for private docking facilities are set forth in the Shoreline Management Plan.

8.3.8. Swimming Areas. Swimming areas will be designed to conform with the standards set forth in EM 1110-1-400 and follow guidelines set forth in "Planning, Design, Operation and Maintenance of Inland Water Swimming Beaches" by the National Water Safety Congress. Priorities in the design of a beach will be the safety of the user, the effects that the physical features of the site will have on the beach, and future operation and maintenance considerations.

Beaches, including turf sunbathing areas, should be separated from parking areas with an adequate grass buffer when possible. Trees should be left, as practicable, in the turf areas adjacent to sand beaches. If surface runoff is anticipated to be heavy, diversion contouring or ditches should be designed to carry runoff water away from the beach turf area and swimming area. Swimming areas and boat launching facilities should also be separated.

A concrete-filled cellular confinement should be used for the swimming area surface. This method uses a polyethylene webbing to form open cells. The cells should be filled with 5 inches of concrete to produce a semi-flexible surface that can conform to subsurface changes. The webbing serves as reinforcement for the concrete and control for cracking. The webbing is placed over a non-woven geo-textile and does not require a base or sub base layer. The concrete should

be finished using standard techniques, which make the surface suitable for pedestrian and wheelchair access.

8.3.9. Trails

8.3.9.1. Recreational Trails. These trails will consist of a wood chip or existing earth surface. Tread width may vary and will generally vary between 2 and 4 feet in width. Horizontal clearing width will be 4 to 6 feet and vertical clearance will be a minimum of 7 feet. Trails should be marked in accordance with Access Board guidelines, once published, to alert visitors to the types of challenges they may expect in terms of gradient, width, surfacing, etc. This type of information is particularly useful to those with disabilities. A trail with maximum accessibility would be similar to the access route described below.

8.3.9.2. Outdoor Recreation Access Routes. Outdoor recreation access routes provide access to a site's primary developed recreation elements. As such, they should be made as accessible for those individuals with disabilities as possible. They should be designed and constructed properly to ensure a firm, stable surface. Concrete, asphalt, pavers, and finely crushed stone are examples of suitable material. For maximum accessibility, the following guidelines should be used. The minimum tread width for these trails to allow a person in a wheelchair and a pedestrian to pass is 4 feet; 5 feet is the minimum width to allow two wheelchairs to pass. If a 5-foot width cannot be provided due to topography or existing obstacles, passing spaces should be provided every 200 feet. Rest areas, areas out of the travel way, should be placed at intervals of 200 to 300 feet and provided with a bench. Rest stops should be planned to take advantage of natural level spaces with interesting features, such as vistas, interpretative opportunities, shorelines, and so on. Longitudinal slopes for these trails should be less than 5 percent.

8.3.9.3. Bicycle Trails. Bicycle trails will consist of a 2-inch surface of limestone screenings and a 4-inch crushed-stone base. The trail width will be 5 feet. Horizontal clearing will be 10 feet and vertical clearing will be a minimum of 7 feet.

8.3.10. Signs. Signs will be provided to inform, direct, and protect project visitors. All signs will be designed and located in accordance with EP 310-1-6a, the U.S. Army Corps of Engineers, *Sign Standards Manual.*

8.3.11. Water System. Water system requirements to serve the increased demands at each recreational area are based on peak-day water demands for the various types of public use areas. Demands were determined by applying the water use figures shown in Table 2-3.

8.3.12. Wastewater System. Wastewater collection system requirements to serve the increased needs at each recreational area have been determined. The capacities of existing waste water collection and treatment systems have been analyzed to determine the need for improvements.

The recommended improvements include the construction of a 1,000-foot sewer to carry wastewater from the restroom, washhouse, and sanitary disposal station in the Youghiogheny Recreation Area. At the administration building, wastewater should be connected to the existing septic system. At the Friendsville Recreation Area, a pumping station and 1,000-foot force main will connect the recreation area's wastewater system to Friendsville's municipal system. At the Somerfield South Recreation Area, a mound system with a 1,350-gallon-per-day (GPD) design capacity should accommodate the existing restroom at the area.

Other problem areas also need to be resolved. At Tub Run, wastewater hauled in from Mill Run and Jockey Hollow often produces a shock load in the treatment system. The addition of a holding tank at Tub Run is recommended to eliminate the shock load. In addition, at the Jockey Hollow information center, a ventilation system needs to be installed to alleviate the stench problem at the holding tank.

8.3.13. Electrical Distribution. Several electric utility companies currently serve the project area. Electric service to the South Selbysport, Mill Run, and Wilkins Hollow Recreation Areas is connected to Somerset Rural Electric Cooperative distribution lines at project boundaries. Electric service to the south unit of the Somerfield Recreation Area has been connected to the GPU Company distribution line at the area boundary. Electric services at the Youghiogheny Recreation Area are connected to either a Somerset Rural Electric Cooperative distribution line or a GPU Company distribution line, depending on the location of each electric load.

Underground electric distribution facilities are proposed for the project area electric distribution system, but alternate overhead line constriction may be desirable. Transformers, pad-mounted and screened from view, are located at most major structures including the administrative offices, concessions buildings, maintenance area, and wells and pumping stations. All primary distribution systems will be installed to all security area lights located near the structures, such as sanitary disposal stations, sanitary facilities, camper check stations, and select camping and play areas.

8.3.14. Carrying Capacity. The units within Youghiogheny River Lake should be improved and developed while considering the designed carrying capacity of the entire project, project units, and individual activities taking place

within the units. The techniques for determining carrying capacity are outlined in IR R-80-1. Carrying capacity formulas have been developed for many of the activities that are accommodated at Youghiogheny River Lake, including picnicking, swimming, sunbathing, boat launching, and camping.

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CHAPTER 9: IMPLEMENTATION

9.1. INTRODUCTION

The means by which any development program will be accomplished is equally as important as the plan itself. Current national priorities make development and renovation opportunities more restrictive than they were in the past. Local interests have placed increased emphasis on the provision of recreation facilities and programs. Visitation rates at Youghiogheny River Lake are increasing, and the need for implementing the proposals contained in this master plan update is great. It should be recognized that changing priorities could drastically affect the manner and schedule of implementation of this master plan update. However, the aim of this update is to have continuing utility despite changing priorities that may affect implementation of the proposals presented here.

9.2. IMPLEMENTATION METHODS

There are five basic implementation methods available for the development of Youghiogheny River Lake:

Cost sharing
Development solely by local interests under an out grant
Use of returned recreation user fee revenues
Regular operations and maintenance general funds
Development by concessionaire

9.2.1. Cost Sharing. Funding for cost sharing may be more difficult to secure now than in the past. In addition to providing at least 50 percent of development costs up front, the cooperating local government entity must also agree to operate, maintain, and provide major replacements for the facility.

9.2.2. Development Solely by Local Interests Under an Out grant. As in the past, local government entities with all or part of a project in their jurisdiction may obtain use, under a lease or license, of an area at the project and in their jurisdiction for approved recreation development. In such cases, all development costs are the sole responsibility of the local sponsor, as are operation, maintenance, and major replacement costs.

9.2.3. Use of Returned Recreation User Fee Revenues. Legislation enacted in the past stipulated that when the total of recreation user fees collected nationwide exceeds $34 million, the excess amount should be returned to the Districts and projects where fees are collected on a pro-rated basis. These funds, in years when they are made available, can be used to accomplish a wide range of actions. The funds may be used to decrease project operation and maintenance costs or to increase user fee revenues, but only in existing recreation areas. The means of achieving these goals may include renovation, consolidation, separation of day-use and overnight uses, addition of facilities or features, and payment of operation and maintenance costs including those for fee collection and other improvements on a case-by-case basis. They may also be applied to the provision of barrier-free access for people who are physically challenged. Under this implementation method, operation, maintenance, and major replacement responsibilities would remain with the district or, with changed local conditions, could conceivably be assumed by an outgrantee.

9.2.4. Regular Operations and Maintenance General Funds. Regular operations and maintenance general funds are restricted to projects where facilities need total renovation, reconstruction, or replacement. These resources may also be used if the necessary work involves a change in facilities or is an upgrade and could be accomplished at the same or less in cost by replacing or rebuilding the original facilities.

9.2.5. Development by Concessionaire. The final potential development method that could be used at Youghiogheny River Lake involves the implementation of the plans presented in this master plan by a concessionaire. Youghiogheny River Lake currently has agreements with a private concessionaire that operates Yough Marina and the Commonwealth of Pennsylvania Fish and Boat Commission, which manages the boat launch at Jockey Hollow. The operator of the marina has already begun conversations with the Corps of Engineers for the construction of a marine sanitation pumping station at Jockey Hollow. Although this method can be an added benefit to the government by providing income and improving facilities, this method is limited to activities, for which there is a viable commercial market. For developments that are undertaken using these methods, operations, maintenance, and the concessionaire provides major replacement costs.

CHAPTER 10: DEVELOPMENT COSTS

10.1. INTRODUCTION

A number of improvements have been recommended in this master plan update for implementation at the Youghiogheny River Lake. This chapter presents a phasing plan that prioritizes the elements to be constructed. The items listed for Phase I are recommended for implementation within the first three years after the approval of the master plan update, subject to funding limitations.

10.2. PHASING PLAN

TABLE 10-1 is a proposed timetable for implementing improvements for each management unit at the project. The timetable's purpose is to list a range of proposed improvements to be completed over a 15-year period. The highest priorities for action are listed under Phase I. These actions will allow the most important issues to be addressed quickly. It is important to note that several recommendations have been identified for implementation in Phase I that do not have development costs listed. These include enhancing accessibility for the disabled at a number of locations, continuing the private boat dock moratorium, performing a cultural resources survey, and performing a threatened and endangered species inventory.

10.3. DEVELOPMENT COSTS

The associated development costs for items listed under Phase I is shown in TABLE 10-2. The development costs are presented at a February 2007 cost level.

TABLE 10-1
PHASING OF PROPOSED IMPROVEMENTS

Management Unit	Phase I 2007-2010	Phase II 2011-2015	Phase III 2016-2021
Unit A–Operation and Management Area:			
• Dispose of existing government dwellings.	•		
Unit B–Youghiogheny Recreation Area:			
• Incorporate road circulation improvements in campground.	•		
• Complete campground improvements.	•		
• Provide/replace educational and safety signs.	•	•	
Unit C–Youghiogheny Recreation Area (Spillway):			
• Provide universal access to restroom	•		
• Provide/replace educational and safety signs.		•	
• Provide trailhead for proposed Klondike Trail	•		
Unit D–Klondike Ridge:			
• Develop hiking loop.	•		
• Provide interpretive signs along proposed trail.	•		
Unit E–Youghiogheny River Lake Wildlife Area:			
• Restore wooded areas where manicured lawns currently exist.		•	•
• Construct trail to U.S. 40.	•	•	
• Implement habitat improvement projects.	•	•	
Unit F – Somerfield North			
• Provide / replace educational and safety signs.	•		
• Provide pedestrian access to Somerfield South under US Rt. 40 bridge		•	
Unit G–Somerfield South:			
• Provide/replace safety signs.	•		
• Provide pedestrian access to Somerfield North under U.S. 40 bridge.			•
Unit H–Braddock Run:			

Management Unit	Phase I 2007-2010	Phase II 2011-2015	Phase III 2016-2021
• N/A.			
Unit I–Mill Run Recreation Area:			
• Provide/replace safety signs.	•		
Unit J Mill Run Natural Area:			
• Develop hiking trail / increase hemlock plantings	•		
• Provide interpretive signs along trail.	•		
Unit K–Youghiogheny River Lake Maryland Wildlife Area:			
• Restore wooded areas where manicured lawns currently exit.		•	•
• Conduct an endangered species survey.	•		
• Create wetlands and sub impoundments.		•	
Unit L–Selbysport:			
• Realign entry road.	•		
• Provide/replace safety signs.	•		
Unit M–Bear Creek Natural Area:			
• Develop hiking trail.		•	
• Provide interpretive signs along proposed trail.		•	
Unit N–Buffalo Run Natural Area:			
• Ensure continued existence as wet meadow.		•	•
Unit O–Jockey Hollow Boat Launch:			
• Provide/replace safety signs.	•		
Unit P–Jockey Hollow Recreation Area:			
• Operate interpretive center.	•		
Unit Q–Tub Run:			
• Provide/replace safety signs.	•		
• Expand campground.		•	
Unit R–Lake Area-Pennsylvania:			
• Add artificial submerged fish habitat.		•	
Unit S–Lake Area-Maryland:			
• Add ponds to support waterfowl.		•	
Source: Woolpert.			

TABLE 10-2
DEVELOPMENT COSTS
(February 2007 COST LEVEL)

Item	Quantity	Unit Price	Contingency (25%)	Total
A. Operation and Management Area:				
• Dispose of government dwellings.	LS*	17,000	4,250	21,250
			Total	**21,250**
B. Youghiogheny Recreation Area:				
• Install signs.	LS	650	160	810
• Incorporate road circulation improvements in campground:				
• 14' bituminous road	3,890 SY*	42	41,000	204,000
• Bituminous parking	418 SY	36	3,800	18,800
• E&D and S&I (20%)				44,700
			Total	**268,300**
C. Klondike Ridge:				
• Construct 3-foot-wide foot trail.	13,000 LF*	3.0	9,750	48,750
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				9,900
			Total	**59,525**
D. Somerfield South:				
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				175
			Total	**1,050**
E. Mill Run Recreation Area:				
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				175
			Total	**1,050**
F. Mill Run Natural Area:				
• Construct 3-foot-wide foot trail.	6,000 LF	3.0	4,500	22,500
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				4,675
			Total	**28,050**

Item	Quantity	Unit Price	Contingency (25%)	Total
G. Selbysport:				
• Realign entry road.	470 SY	48	5,650	28,250
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				5,825
			Total	**34,950**
H. Jockey Hollow Boat Launch:				
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				175
			Total	**1,050**
I. Tub Run:				
• Install signs.	LS	700	175	875
• E&D and S&I (20%)				175
			Total	**1,050**

* LS - Lump Sum
* SY - Square Yards
*LF - Linear Feet

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CHAPTER 11: CONCLUSIONS AND RECOMMENDATIONS

11.1. CONCLUSIONS AND RECOMMENDATIONS

The Youghiogheny River Lake was authorized for its primary mission of flood control in the Youghiogheny, Monongahela, and Ohio River Valleys in the summer of 1938. Although its primary mission is flood control, the lake is also managed to meet other regional resource needs including natural resources management, recreation, cultural resources management, and education. Because of the proximity of the project to a heavily populated market area, the use of the recreational facilities and lake surface is becoming extremely popular, which creates safety problems with boating and swimming facilities.

11.2. PROJECT OPERATIONS AND MAINTENANCE

The Youghiogheny River Lake was designed and built to function as part of a coordinated reservoir system to control flooding in the Youghiogheny, Monongahela, and Ohio River Valleys. In addition to the mission of flood control, the reservoir is operated to provide low-flow augmentation of the Youghiogheny River downstream of the dam. The low-flow augmentation provides a minimal flow of water to abate pollution. Low-flow augmentation requires the draw down of the pool level of the reservoir at varying times throughout the year, but primarily during the summer and fall months.

11.2.1 Recommendations:

Continue to operate the reservoir in accordance with the authorized operational schedule, which was recently updated as a result of the Reallocation Study. The new operational schedule allows the Corps to meet the diverse needs of the Youghiogheny River watershed while still meeting the needs for which the project was originally authorized. From a recreational standpoint, the main objective is to maintain the lake at its summer pool elevation from May 1 onward into the low flow season as long as the water quality and water quantity conditions upstream and downstream permit

Coordinate with Fayette, Somerset, and Garrett Counties in their preparation of land use plans to ensure that the Corps' missions continue to be compatible with local land use development.

11.3. SAFETY

Surveys and studies conducted by the Corps' Waterways Experiment Station and by project staff indicate that the lake is at, or quite near, capacity in terms of boating safety during peak use. A variety of factors-including increased boat sales and increased boat registration give every indication that boating demand will grow in the future, and this could have serious safety ramifications for users of the lake if not anticipated and controlled. Those most familiar with the lake agree that parking is the single most limiting factor in keeping the number of non-privately-docked boats at or below capacity on peak-use days. Were the supply of parking increased, the high demand of boaters would certainly fill the available spaces and add to crowding on the lake.

The current displacement or natural separation of uses is expected to continue. Uses that are more intensive will occur on the weekends, with an increase in personal watercraft use. Less intensive uses will predominate on weekdays. It should be noted that several safety concerns are associated with the use of personal watercraft. First, as personal watercraft are the smallest boats on the lake, they are often less visible to other boaters. Similarly, the popular activity of trailing high-speed boats in order to jump its wakes creates a potential hazard, as oncoming boats may not be able to see the trailing personal watercraft. Lastly, because of the structure of personal watercraft and the lack of a physical barrier to protect the driver, the risk of injury in the case of an accident is greater. As the use of personal watercraft increases on the Youghiogheny River Lake, these safety issues should be kept in mind.

The area determined to be the most congested is at U.S. 40. This congestion is attributed to the fact that three boat-launching ramps (Somerfield North, Jockey Hollow and the ramp at the marina (Somerfield South) and a great number of private docks (about 50 percent of the shoreline) share that location with the marina. In addition, the only fuel source is located at the marina, drawing boats launched from all parts of the lake. All these factors, coupled with the facts that no restrictions are placed on boat size or horsepower, no speed limits exist, and the Route 40 Bridge is not designated as a "Slow / No Wake" zone create very hazardous conditions in this area.

11.3.1. Recommendations:

Continue the private dock permit moratorium. Most boaters choose to use the Youghiogheny because of its rich, natural beauty. Private docks detract from this natural setting and negatively affect what primarily attracts boaters to the lake. Boating experts within the Corps and the Pennsylvania Fish and Boat Commission recommended that the moratorium on private dock permits be

continued not only to increase safety and limit overcrowding but also to ensure the quality of the boating experience for all boaters on the lake.

Establish a parking moratorium at the existing boat-launching areas. Because parking limits the number of day users who make up the largest percent of peak-use boaters, it is recommended that a moratorium on public parking facilities be established. Experts at both the COE and the Pennsylvania Fish and Boat Commission indicated that a parking moratorium would be one way to contain the number of boaters allowed on the lake. This moratorium would allow for capacity use at peak periods, which is currently the case, and it would limit any overcrowding in the future.

Consider establishing a slow / no wake zone at the Route 40 Bridge.

Consider establishing a no-wake zone at the marina. Given that boats docked at the marina are damaged because of wakes and that congestion in the area near the marina and U.S. 40 is very high, it is recommended that a no-wake zone be considered at the marina. Such a zone could potentially extend the width of the lake to ensure that boating is not channeled in one area. The no-wake zone, if implemented, would be expected to alleviate damage to marina boats and hazards caused by crowded boats at high speeds.

Evaluate the need and consider a location for a second marine fueling station to reduce some of the congestion in the Route 40 area.

Conduct additional boating studies. It is important to continue to study and monitor boating safety and capacity issues at the Youghiogheny River Lake. Changes in boater numbers or patterns can affect the current recreational policies. Similarly, regular monitoring can provide information at frequent enough intervals to identify any changes before they grow into problems.

In conjunction with each study, special attention should be given to the implications the study's results may have on the current private boat dock moratorium. Reassessment of the moratorium should occur periodically.

Perform routine maintenance on comfort stations throughout the project. To prevent slipping, floors need to be coated with an abrasive, non-slip material.

Mitigate erosion problems in the project, particularly in the Somerfield North Recreation Area and the Youghiogheny Recreation Area (spillway). Riprapping, drainage systems, and planting have been identified as techniques to help mitigate the effects of erosion.

11.4 NATURAL RESOURCES

The steep wooded lands surrounding the Youghiogheny River Lake are an important visual feature and buffer for the users of the lake. This visual aspect, and the steepness of most slopes with high potential for erosion, limits use of the land for sustained yield of forest products. Preservation and management of most undeveloped portions of the project lands for wildlife habitat and low-intensity recreation, while maintaining the buffer, are the most appropriate uses of the land. The current habitats, including mostly upland deciduous forest of variable composition and structure, provide good habitat for game and non-game wildlife. Much of the forest can be managed to maintain and improve the habitat, although certain areas, such as the old growth oak woods at Klondike Ridge, the hemlock stand, and deeryard at Mill Run, and the mature bottomland forest at Bear Creek, should be preserved for their ecological uniqueness and natural beauty.

Several other habitat types provide diversity, including floodplain woods, open fields, thickets, and wetlands. Nesting boxes for wood ducks have been placed in floodplain woods and nesting platforms for ospreys have been erected. Several ponds have been made throughout the project. Fields have been planted with desirable forage herbs and grasses. Continued maintenance of these habitats is integral to overall habitat management and maintenance of biological diversity. Addition of greater emergent marsh habitat, particularly in the somewhat flatter Maryland portion, would improve waterfowl habitat.

Fishing is an important recreation activity at the reservoir. Game fishes include walleye, small mouth bass, yellow perch, Northern pike, and tiger muskellunge. Both rainbow and brook trout fingerlings are reared in the cooperative cage culture trout nursery below the dam. Many of these are stocked in the Youghiogheny River for the benefit of anglers. A trout fishery is maintained by stocking below the dam and at Mill Run. As allocation of water permits, lake levels should be maintained as close to normal summer for as long as possible to improve the fishery. Artificial submerged cover habitat should also be added, since vegetated shallow water areas are limited by the steep topography and current water-level fluctuations.

11.4.1. Recommendations:

Survey the project lands for potential threatened and endangered species. Develop species-specific management plans, depending on the results of the survey.

Create permanent ponds in the Maryland flats areas to support migratory waterfowl during low-water periods.

Create sub-impoundments at Buffalo Run, Church Run, and possibly the mouths of other small tributaries. In Buffalo Run Valley, any changes should be coordinated with the Maryland Natural Heritage Program to protect the known plants of special concern. It may be possible, depending on the topography, to create tiered sub-impoundments. Lower ones may improve fish-spawning habitat.

Add artificial submerged fish habitat to improve the fish-spawning habitat and increase sport fish populations. Improvements in the Pennsylvania portion of the lake should be coordinated with the Pennsylvania Fish and Boat Commission and with the MDDNR in the Maryland portion.

Implement timber stand improvements in the Youghiogheny Wildlife Area, especially the wider area near Mays Point, as well as in the wooded slopes in the Buffalo Run Valley. These improvements would be primarily for wildlife habitat improvement, although the trees that would be saved (mast producers such as oak, walnut, and hickory) are also valuable timber that may be selectively harvested in the future. Any timber stand improvement (TSI) in the Buffalo Run Valley should be coordinated with the Maryland Natural Heritage Program to avoid affecting the special concern plant species.

Reestablish the wooded areas on project lands, which have been cleared and replaced with manicured lawns by neighboring landowners.

11.5. RECREATION

The Youghiogheny River Lake is an important recreation resource for southwest Pennsylvania and portions of Maryland and West Virginia. The lake surface and project lands around it are open for public use. The most developed public recreation areas include the Youghiogheny Recreation Area and the Somerfield North and Tub Run Recreation Areas. Lesser-developed recreation areas include those at Mill Run and Jockey Hollow Picnic Area. Taken together, these 128 acres provide 58 picnic tables, 2 group picnic areas, 194 camping spaces, 11 boat-launching lanes, 3 swimming areas, 488 car parking spaces, and 169 trailer parking spaces. In addition, several undeveloped areas exist along the shore of the Youghiogheny and are available for low-density recreation. These include the Klondike Ridge and Mill Run Natural Areas, the Youghiogheny River Lake Wildlife Area, and the Maryland Wildlife Area.

Four other public recreation areas - Somerfield South, Jockey Hollow Boat Launch, Selbysport, and Braddock Run - are outgranted areas along the lake. The 11 acres of Somerfield South are a commercial concession that has been operated since 1984. Included in this area are a marina with 316 boat slips, 116 trailer parking spaces, a boat-launching ramp with 2 lanes, a restroom facility and the marina retail/repair shop building. The only gasoline dock at the lake is located at the marina and is available to all boaters. The launching ramp at the marina is available for public use Monday through Friday and during low-water periods when other ramps at the lake are out of service. The 7-acre Jockey Hollow Boat Launching Area is operated and maintained by the Pennsylvania Fish and Boat Commission. Selbysport is a small boat-launching area operated by the Maryland DNR. The 53-acre Braddock Run Recreation Area includes one group camping area and is leased to the Penn's Woods Boy Scouts. It is used as a youth camp. Public groups can reserve the use of this area by contacting the Penn's Woods Boy Scout Council Office.

One of the Youghiogheny's greatest assets is its high water quality, which contributes to its popularity for water-based recreation. Although the Youghiogheny is a very popular boating site, no dumping station exists for onboard boat waste. To maintain the clean waters of the Youghiogheny River Lake and ensure safe conditions for both swimmers and plant and animal life, the installation of a sanitary disposal station by the marina operator is recommended. Prior to installation, a study should be conducted to determine the best location, type, and size of a waste dumping station. The study should evaluate types, sizes, and sites using a variety of measures including truck access for waste haulers, convenience for boaters, boater access during both high and low pool levels, boating traffic and safety, environmental issues, projected boating levels, and cost.

11.5.1. Recommendations:

Develop hiking trails with interpretive signs through the Klondike Ridge, Bear Creek, and Mill Run Natural Areas. Klondike Ridge and Mill Run are both accessible from existing recreation areas and would be well used. Possibly other areas in the Youghiogheny Wildlife Area and Maryland Wildlife Management Area are suitable for longer trails.

Continue coordinating with Penn DOT and regional bikeway administrators in the development of the bikeway. Continue to provide support facilities (such as bike-only campsites and group camping) for the bikeway at the Youghiogheny Recreation Area, which crosses the Youghiogheny River downstream of the dam using the former Rt. 281 bridge.

11.6. CULTURAL RESOURCES

The region is rich in cultural resources ranging from prehistoric archeological sites to historic structures. There are 34 archeological sites known to exist on project lands. Several additional cultural resources have been identified at the project including the Mason-Dixon Line, the Stone Arch Bridge, the Great Crossings and the buildings formerly used as dwellings for project personnel. A very significant historic resource located at the project (the road crosses project lands) is the National Road (U.S. 40). A number of the archeological sites that are located in the draw down zone are being adversely affected by erosion from fluctuating pool levels. The varying pool levels also affect the Stone Arch Bridge. During periods of extremely low pool levels, portions of the bridge are exposed. This exposes the bridge to vandalism, a situation that was most evident during the record low pool levels in the summer of 1991 when the upper section of the bridge was exposed and unauthorized individuals removed many stones. Since then, project personnel have taken steps to prevent this by putting gates up and blocking access to the bridge.

11.6.1. Recommendations:

Obtain funding and complete a historic property management plan for the project.

Survey the project for cultural resources and nominate all eligible properties to the National Register of Historic Places (according to ER 1130-2-540).

Manage the former dwellings in accordance with guidelines for structures eligible for inclusion on the National Register, including consideration for adaptive re-use by the Corps or another interested party.

Mitigate the effects of erosion on archeological sites in the draw down zone.

11.7. EDUCATION

Education is an important aspect of the experience of the Youghiogheny River Lake. Currently, informative signs and markers are posted at various recreational areas along the lake, increasing public awareness of the lake's resources in a passive manner. The Corps also provides personnel to educate the public in an interactive manner. Tours of the Youghiogheny River

Lake Dam and Interpretive Programming both provide opportunities for the public to gain an understanding of the valuable natural and built resources present at the Youghiogheny River Lake. Education of the public about the project's cultural resources and the National Road Heritage Park will become an important part of the interpretation program at the Youghiogheny River Lake.

11.7.1. Recommendations:

Coordinate with the Heritage Park Corporation on providing interpretation for the National Road Heritage Park and project cultural resources at the Jockey Hollow Recreation Area.

Provide signs, brochures, and other types of educational material at the recreation areas so that project visitors understand recreation safety and learn of the Corps' missions at the reservoir.

11.8. CONCLUSIONS

The Youghiogheny River Lake is essentially fully developed in terms of traditional recreation. Other than the Wilkins Hollow area, there are no additional areas that have the access and land area to support concentrated development. What is already there does not meet the demand, which mandates that local natural resource managers are faced with the daunting task of turning people away who wish to use the lake.

The opportunity does exist to provide facilities to meet a growing demand for less traditional recreation. Passive recreational use of wildlife lands such as hiking and bird watching would require a trail head and suitable trail system. Demands for education in natural resource, cultural resources, and the Corps mission can also be provided with a suitable meeting area and educational materials. Providing support facilities and a connection from federal lands facilitates use of the regional bike trail and these techniques could be pursued in conjunction with other trail projects in the future.

These new opportunities have the ability to reach many visitors without placing a financial strain on project resources. They are available to peoples of all ages and accessibility needs. In addition, they recognize the fact that the lake is a part of a region - a region rich in resources and history.

11.9. RECOMMENDATION

This Master Plan is approved as the overall guide for the development and management of the Youghiogheny River Lake project and as the authorized vehicle for the various plans presented herein.

17 May 2007
DATE

STEPHEN L. HILL
Colonel, Corps of Engineers
Commanding

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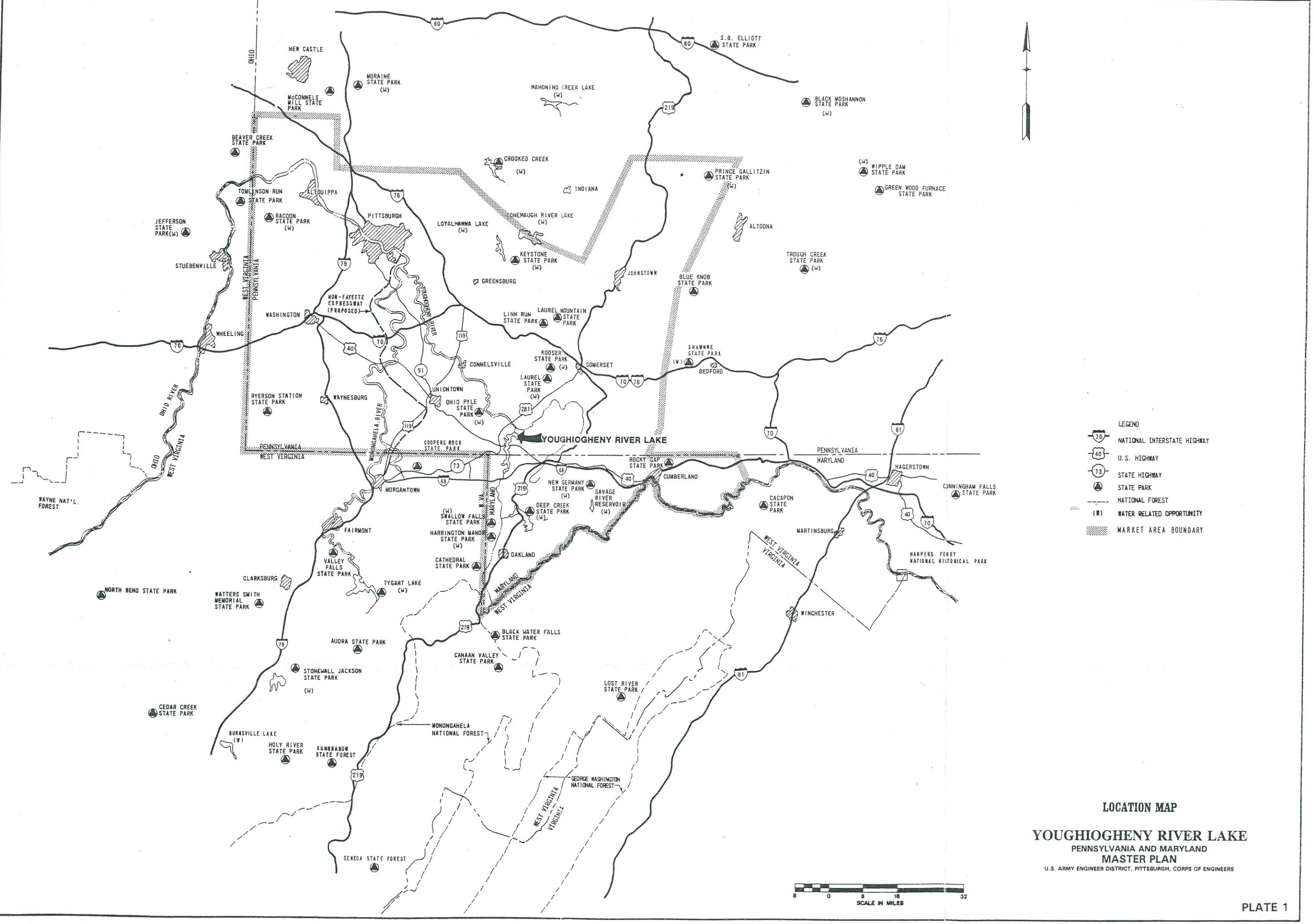
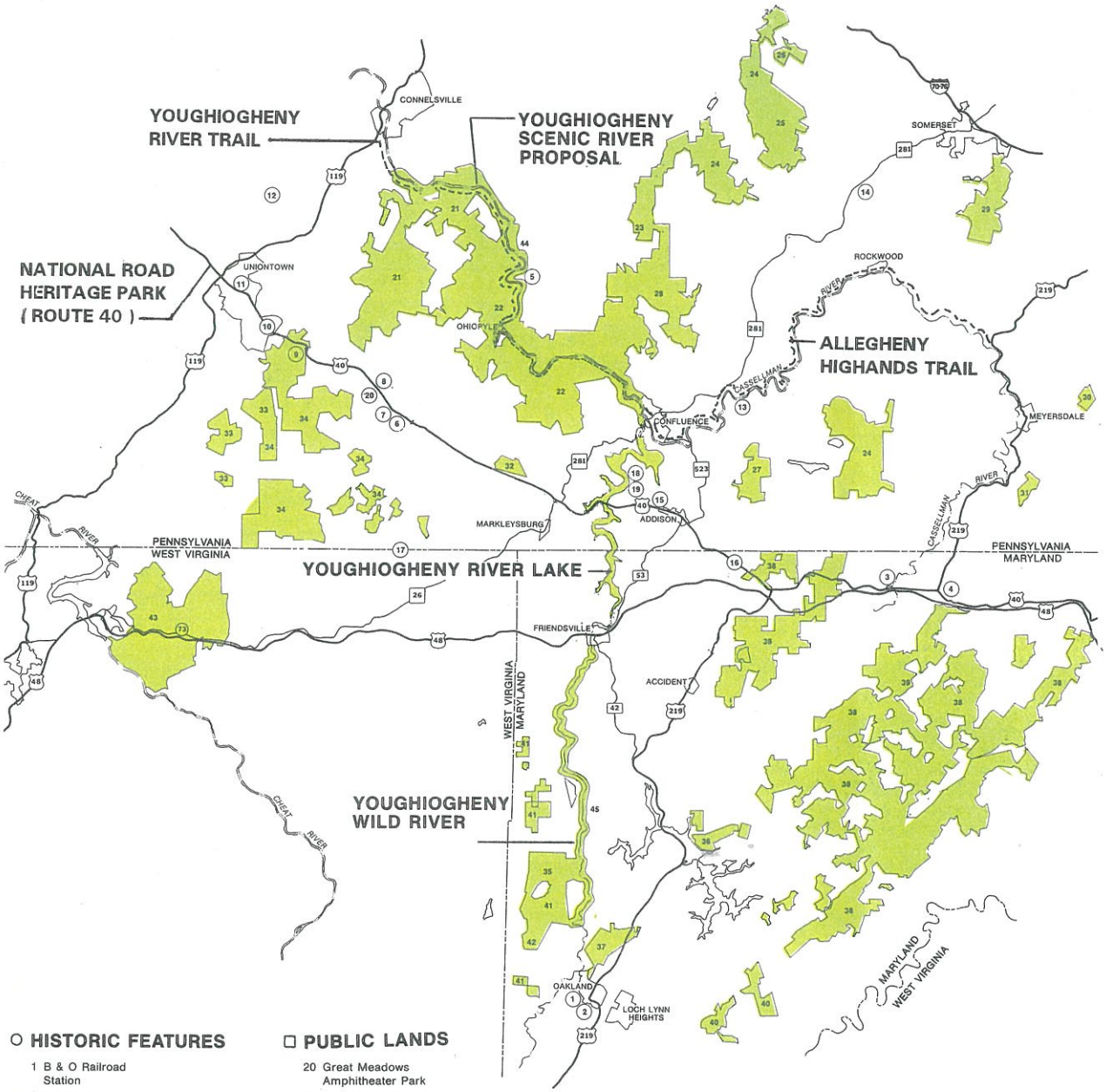


LOCATION MAP

YOUGHIOGHENY RIVER LAKE
PENNSYLVANIA AND MARYLAND
MASTER PLAN
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH, CORPS OF ENGINEERS



○ HISTORIC FEATURES

1 B & O Railroad Station
2 Courthouse
3 Casselman Bridge
4 Meadows Encampment
5 Fallingwater
6 Wharton Iron Furnace
7 Fort Necessity National Battlefield
8 Orchard Camp (Braddock's Grave)
9 Half Kings Rocks
10 Hopwood
11 Searights Tollhouse
12 Isaac Mason House
13 Fort Hill Site
14 Harmon Husband House
15 National Road Tollhouse
16 National Road (U.S. Route 40)
17 Mason-Dixon Line
18 Great Crossings
19 Stone Arch Bridge

□ PUBLIC LANDS

20 Great Meadows Amphitheater Park
21 State Game Lands
22 Ohiopyle State Park
23 Laurel Ridge State Park
24 State Forest
25 Laurel Hill State Park
26 Kooser State Park
27-33 State Game Lands
34 State Forest
35 Swallow Falls State Park
36 Deep Creek Lake State Park
37 State Wildlife Management Area
38 State Forest
39 New Germany State Park
40-41 State Forest
42 Herrington Manor State Park
43 State Forest
44 Youghiogheny Scenic River
45 Youghiogheny Wild River

REGIONAL RECREATION

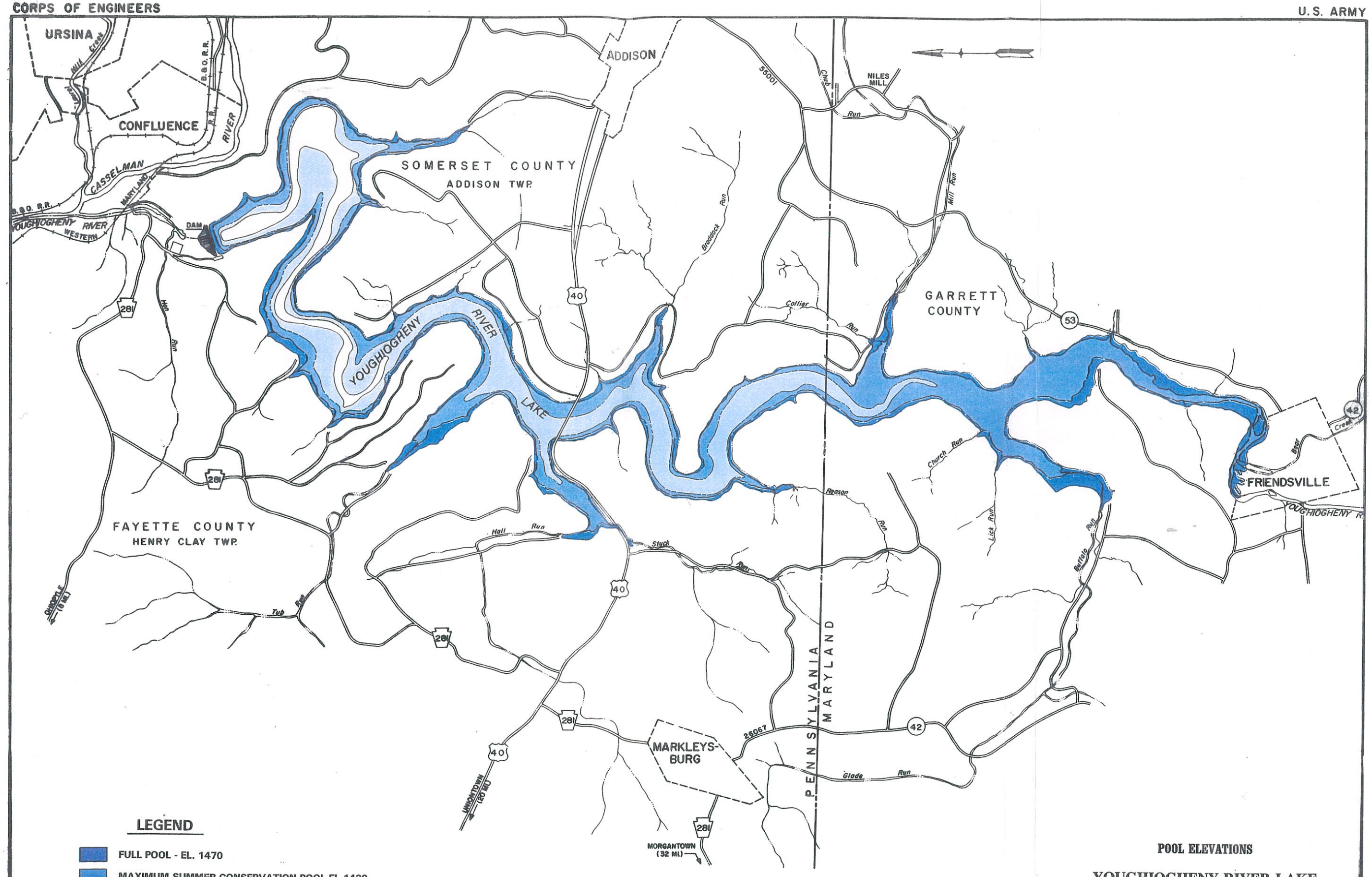
YOUGHIOGHENY RIVER LAKE

PENNSYLVANIA AND MARYLAND

MASTER PLAN

U.S. ARMY ENGINEER DISTRICT, PITTSBURGH, CORPS OF ENGINEERS

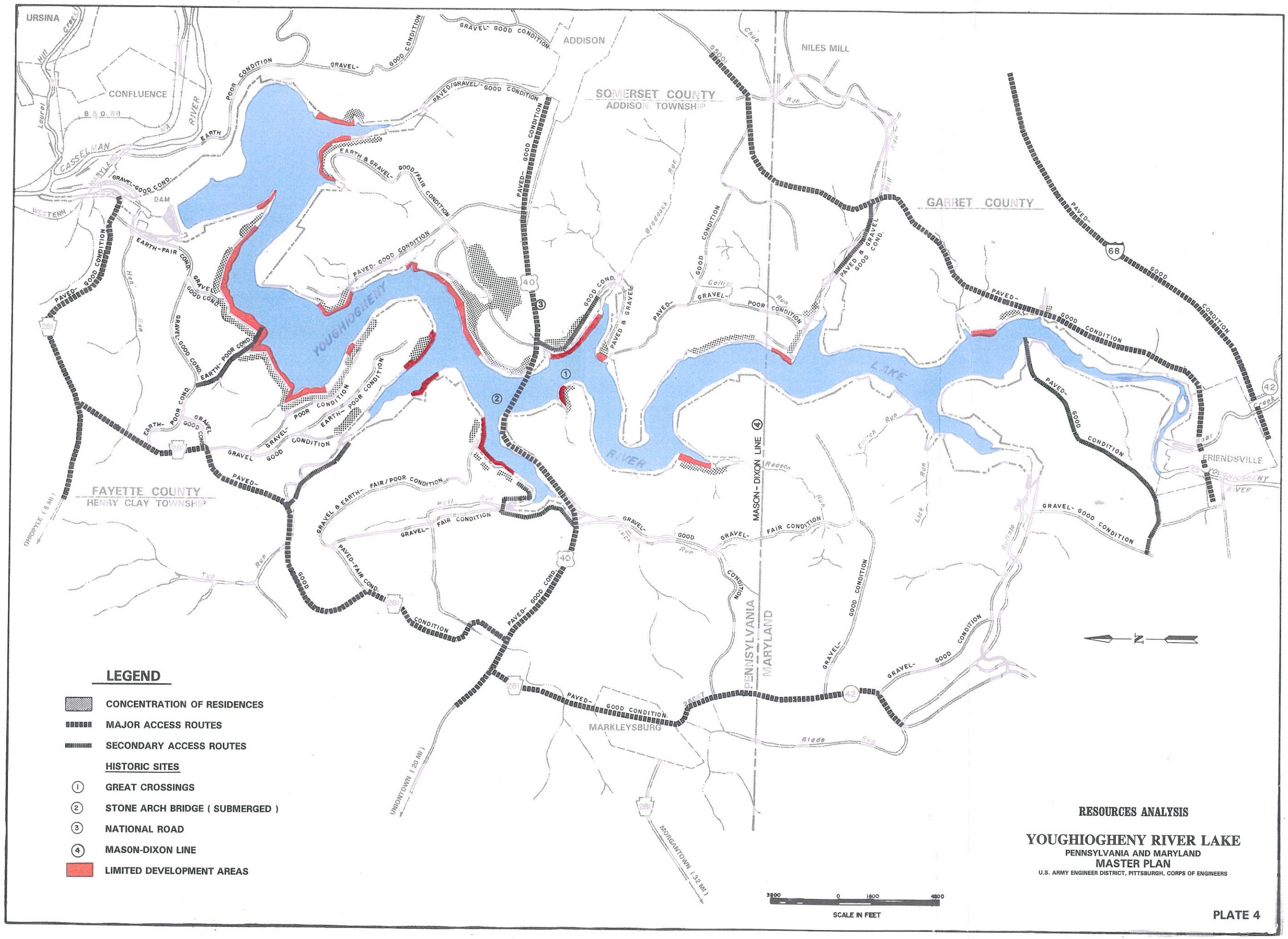
PLATE 2



POOL ELEVATIONS

YOUGHIOGHENY RIVER LAKE
PENNSYLVANIA AND MARYLAND
MASTER PLAN
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH, CORPS OF ENGINEERS

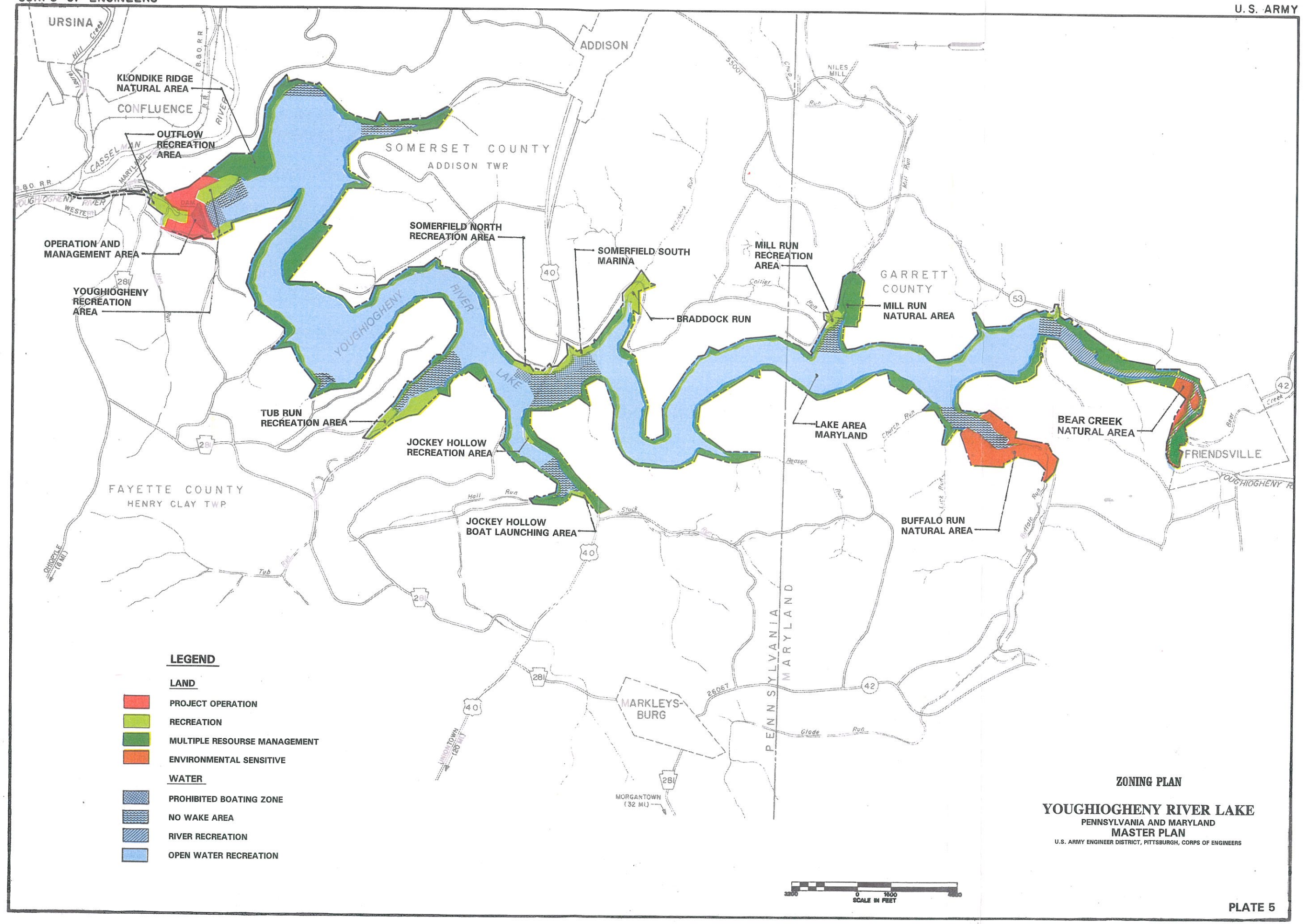
PLATE 3



RESOURCES ANALYSIS

YOUGHIOGHENY RIVER LAKE
PENNSYLVANIA AND MARYLAND
MASTER PLAN
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH, CORPS OF ENGINEERS

PLATE 4



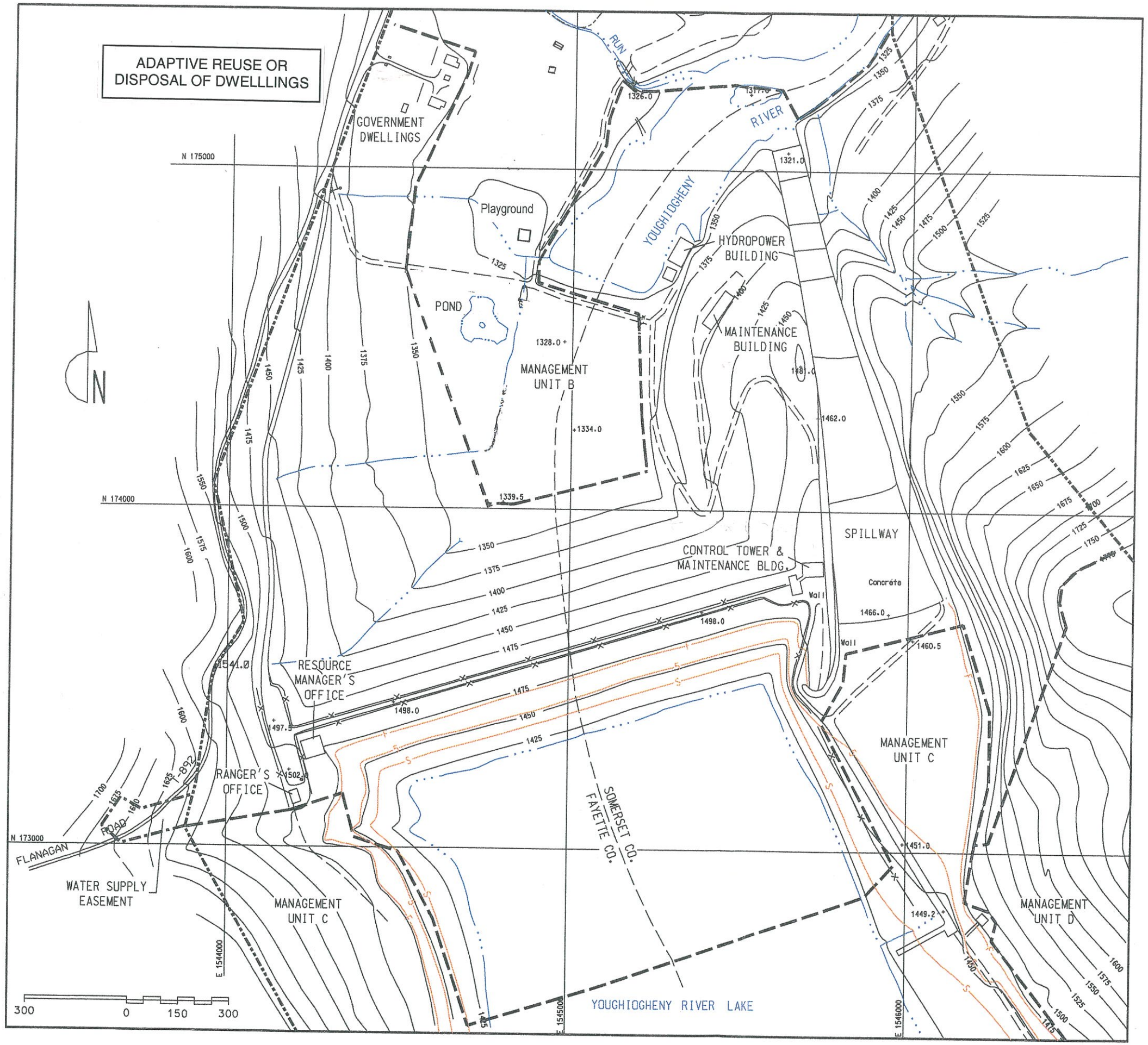
ZONING PLAN

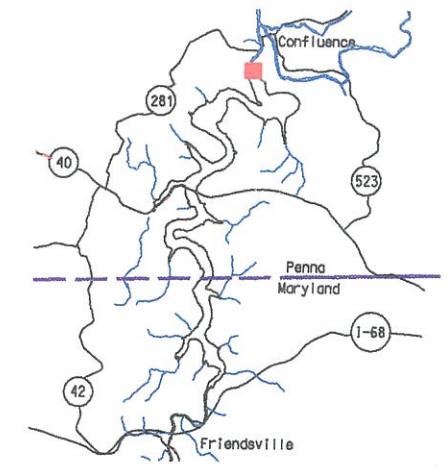
YOUGHIOGHENY RIVER LAKE

PENNSYLVANIA AND MARYLAND

MASTER PLAN

U.S. ARMY ENGINEER DISTRICT, PITTSBURGH, CORPS OF ENGINEERS





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.1

OPERATION AND MANAGEMENT AREA

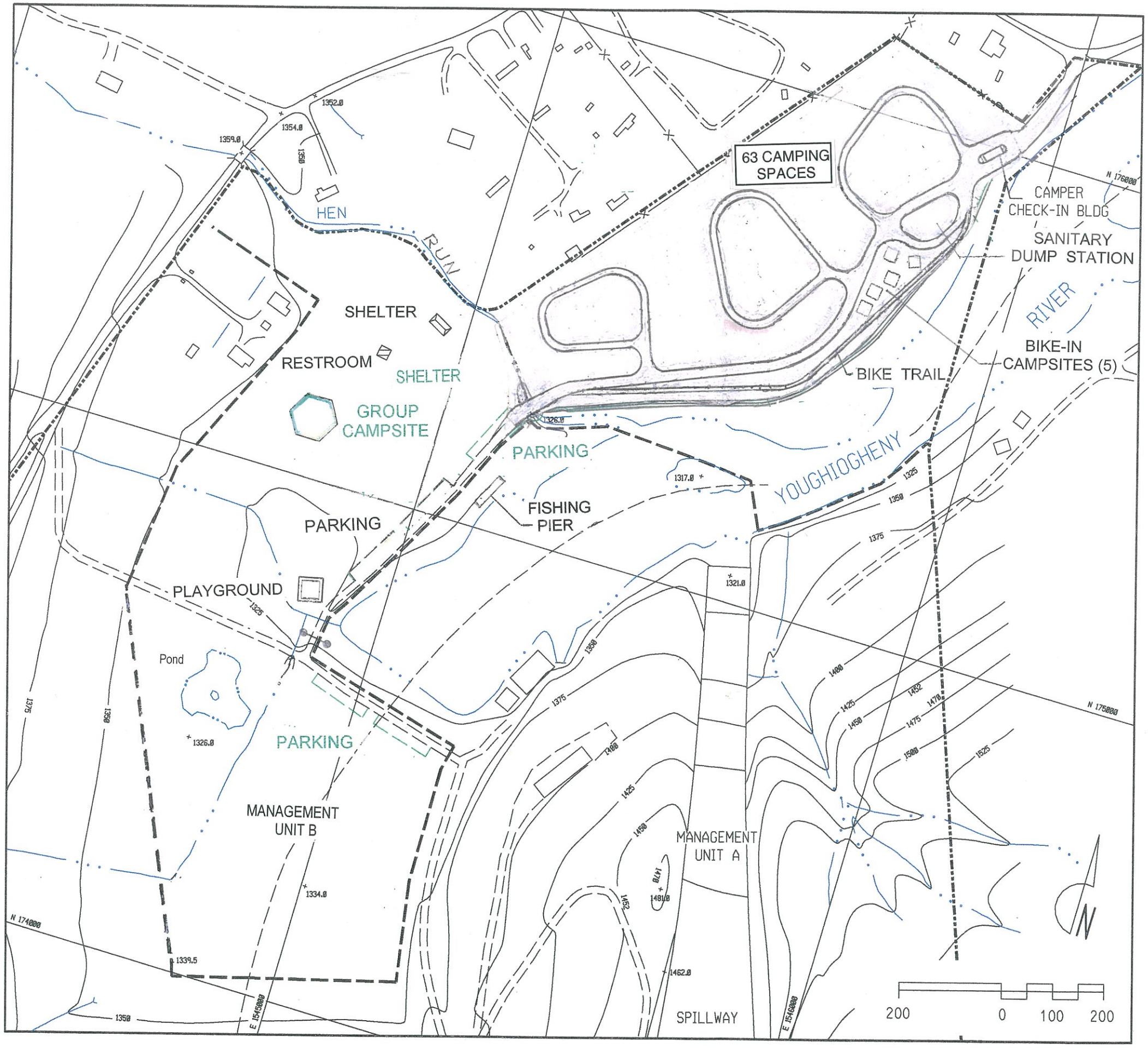
MANAGEMENT UNIT A

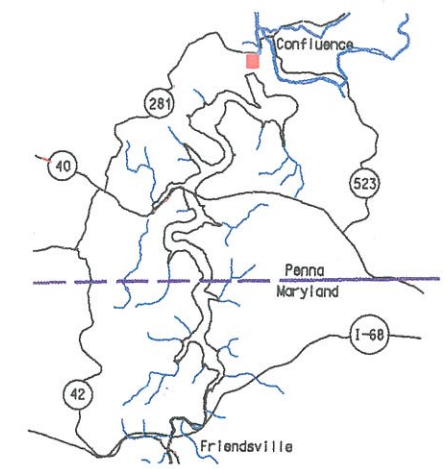
PROJECT OPERATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- U.S. GOVERNMENT EASEMENT LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0
- GATE

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.2

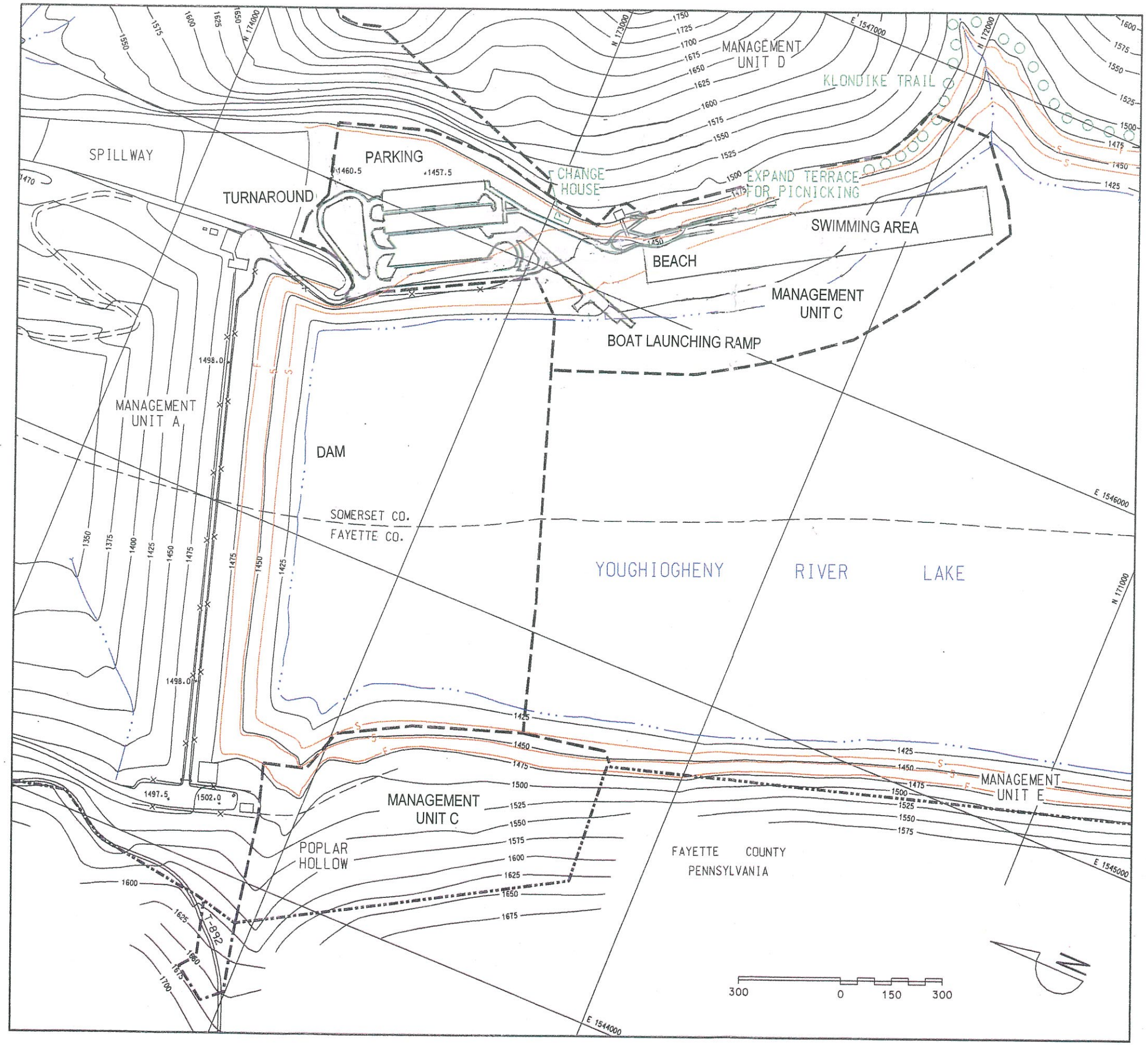
OUTFLOW RECREATION AREA MANAGEMENT UNIT B

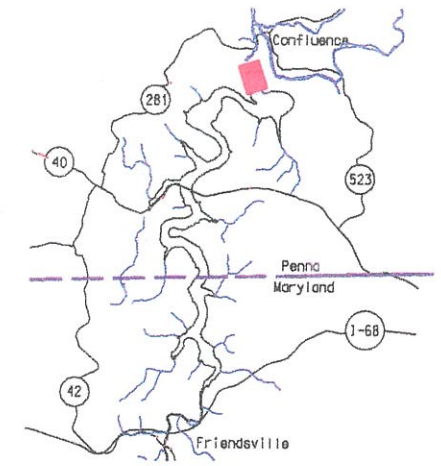
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- WATERBORNE RESTROOM
- WASHHOUSE
- PICNIC SHELTER
- GATE

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.3

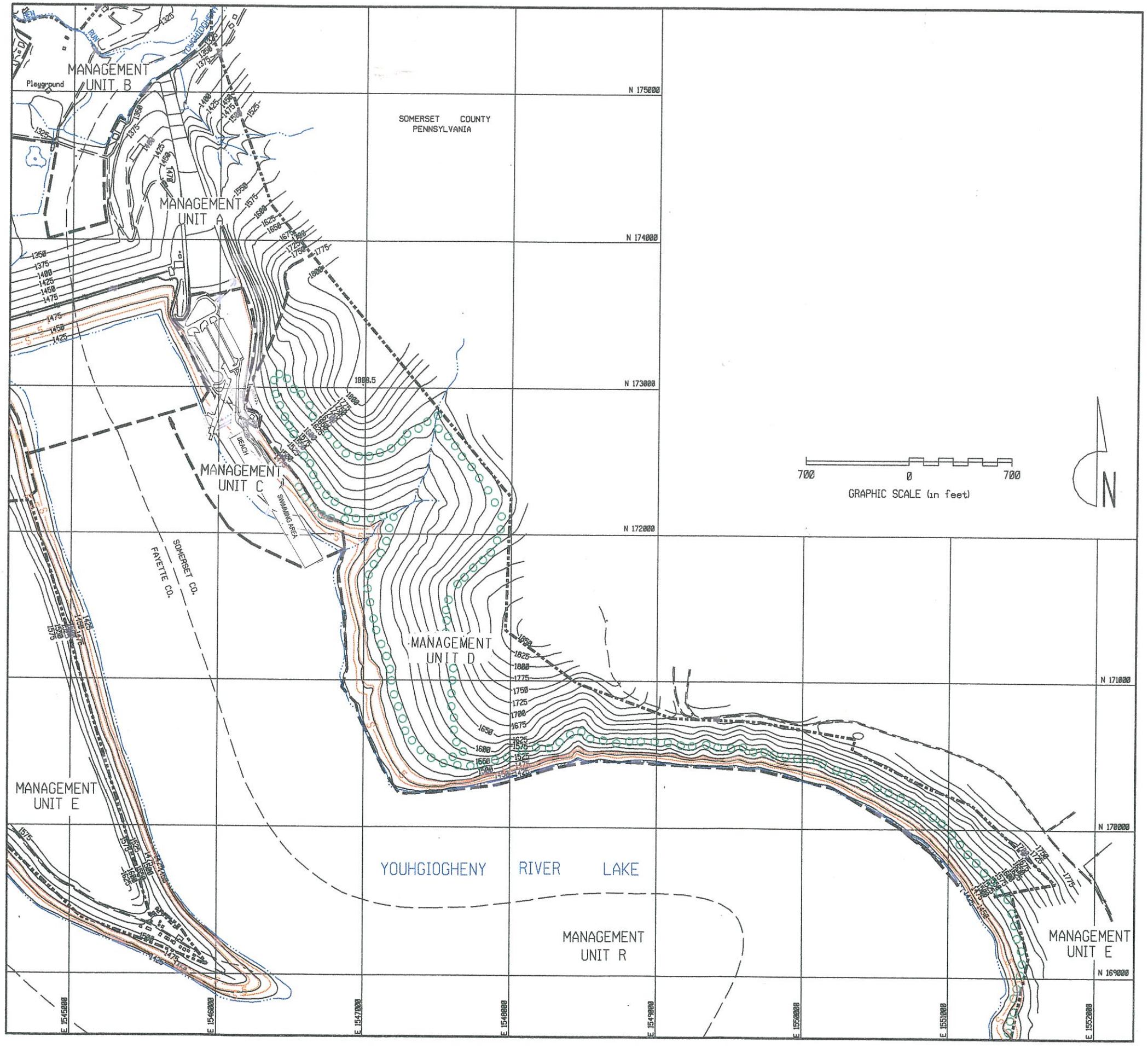
YOUGHIOGHENY RECREATION AREA
-SPILLWAY-
-POPLAR HOLLOW-

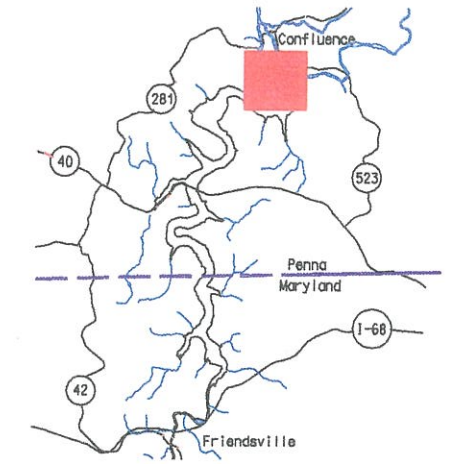
MANAGEMENT UNIT C
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- U.S. GOVERNMENT EASEMENT LINE
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0
- VAULT RESTROOM
- TRAIL
- GATE

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.4

KLONDIKE RIDGE NATURAL AREA

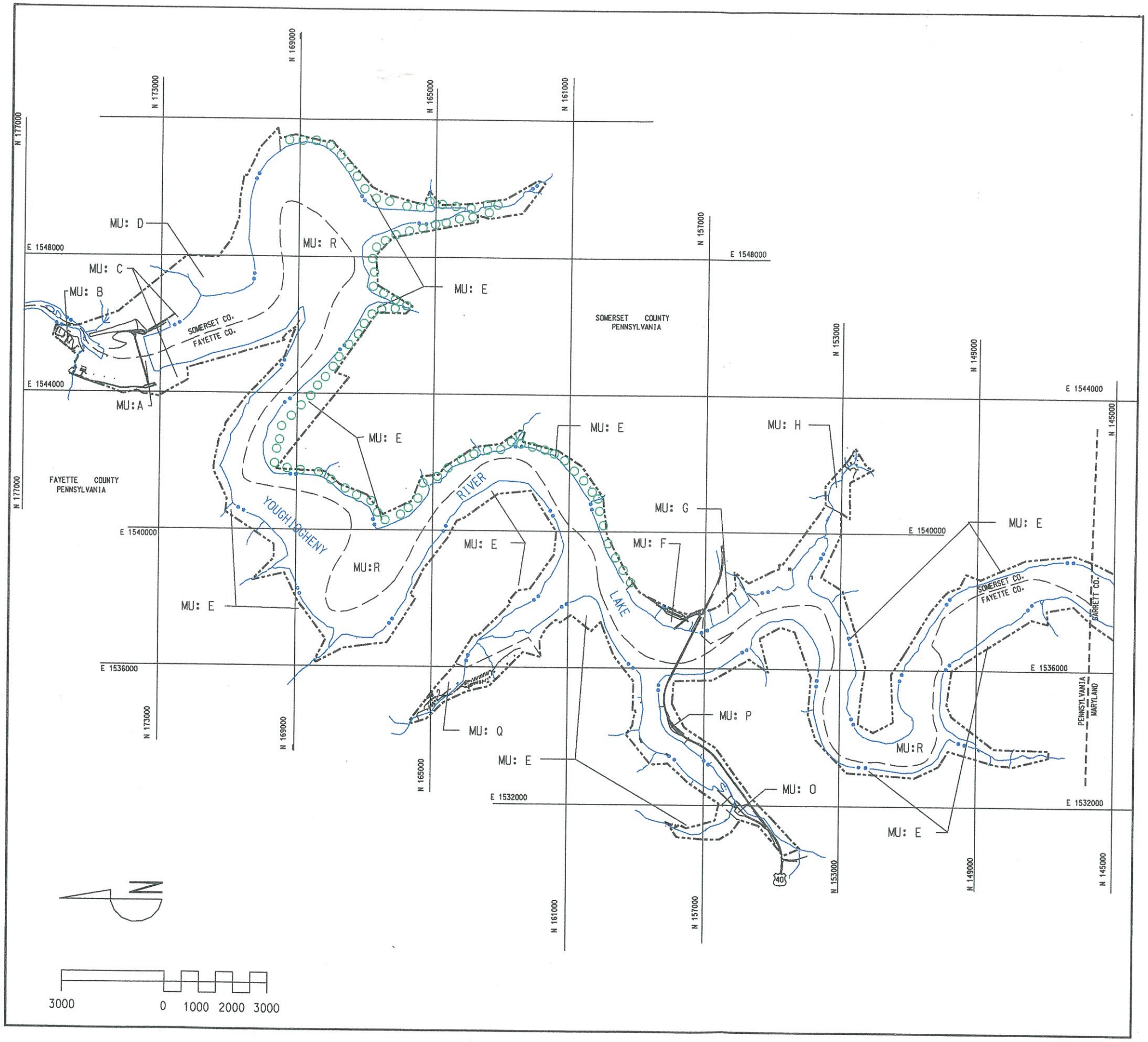
MANAGEMENT UNIT D

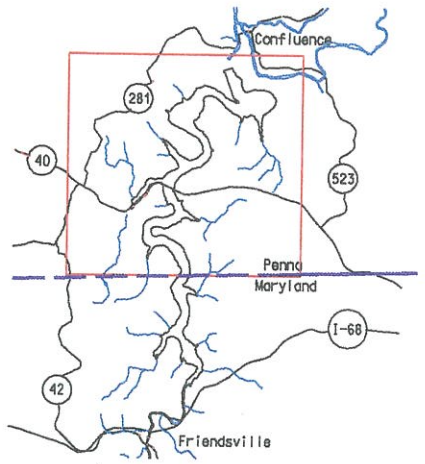
MULTIPLE-RESOURCE MANAGEMENT

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S SUMMER POOL ELEVATION 1439.0
- 5 5-YEAR POOL ELEVATION 1452.5
- F FULL POOL ELEVATION 1470.0
- TRAIL

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.5

PENNSYLVANIA WILDLIFE AREA

MANAGEMENT UNIT E

MULTIPLE-RESOURCE MANAGEMENT

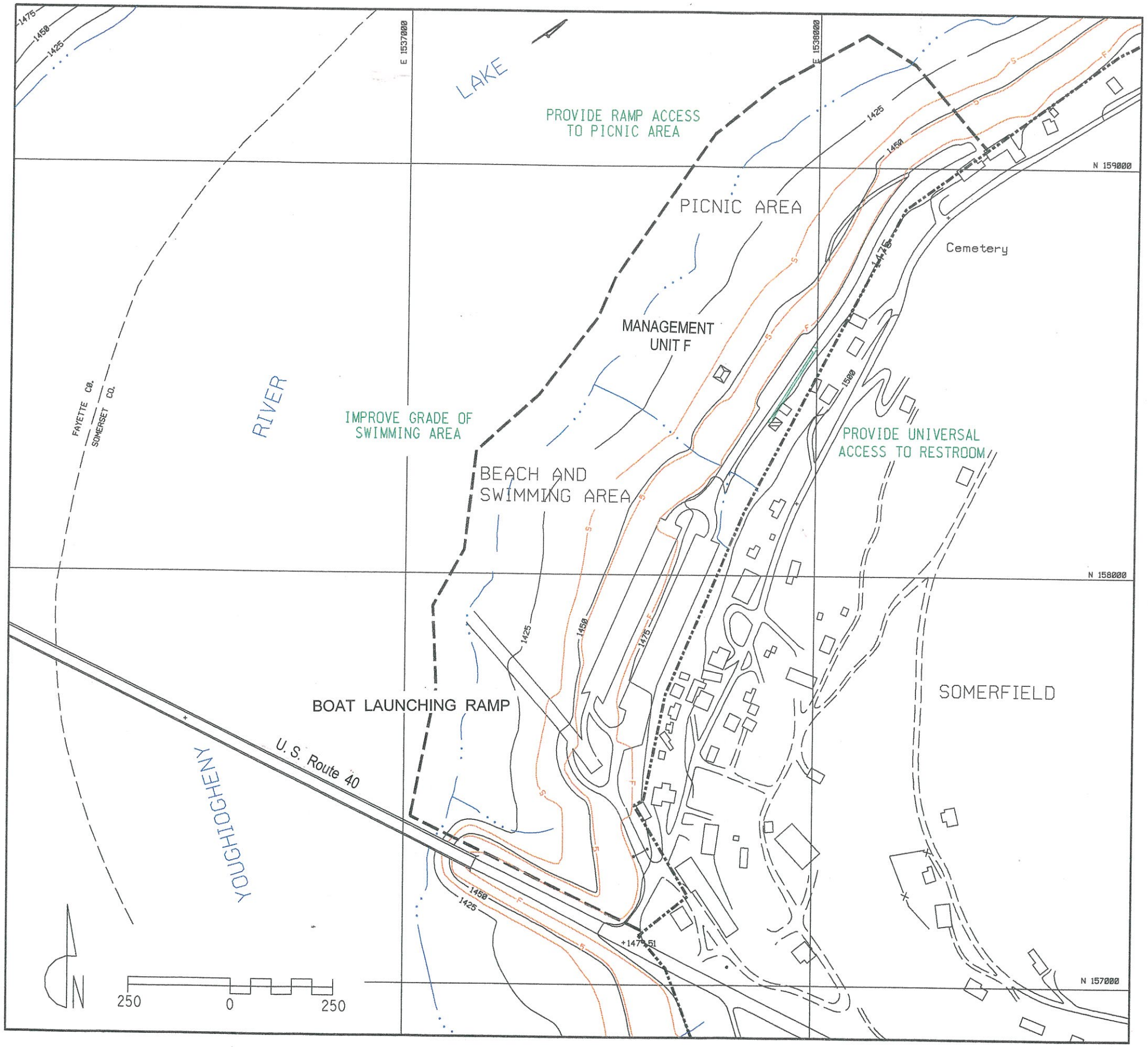
LEGEND

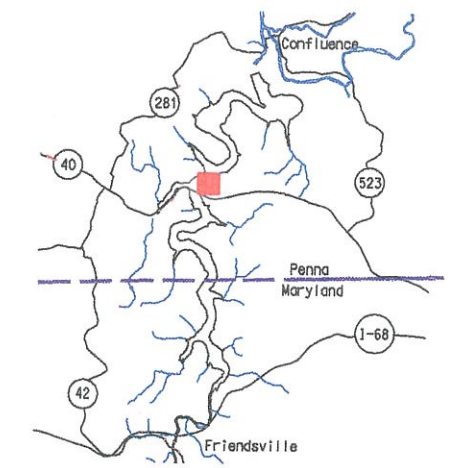
U.S. GOVERNMENT PROPERTY LINE

MANAGEMENT UNIT BOUNDARY

TRAIL

FUTURE DEVELOPMENT
INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

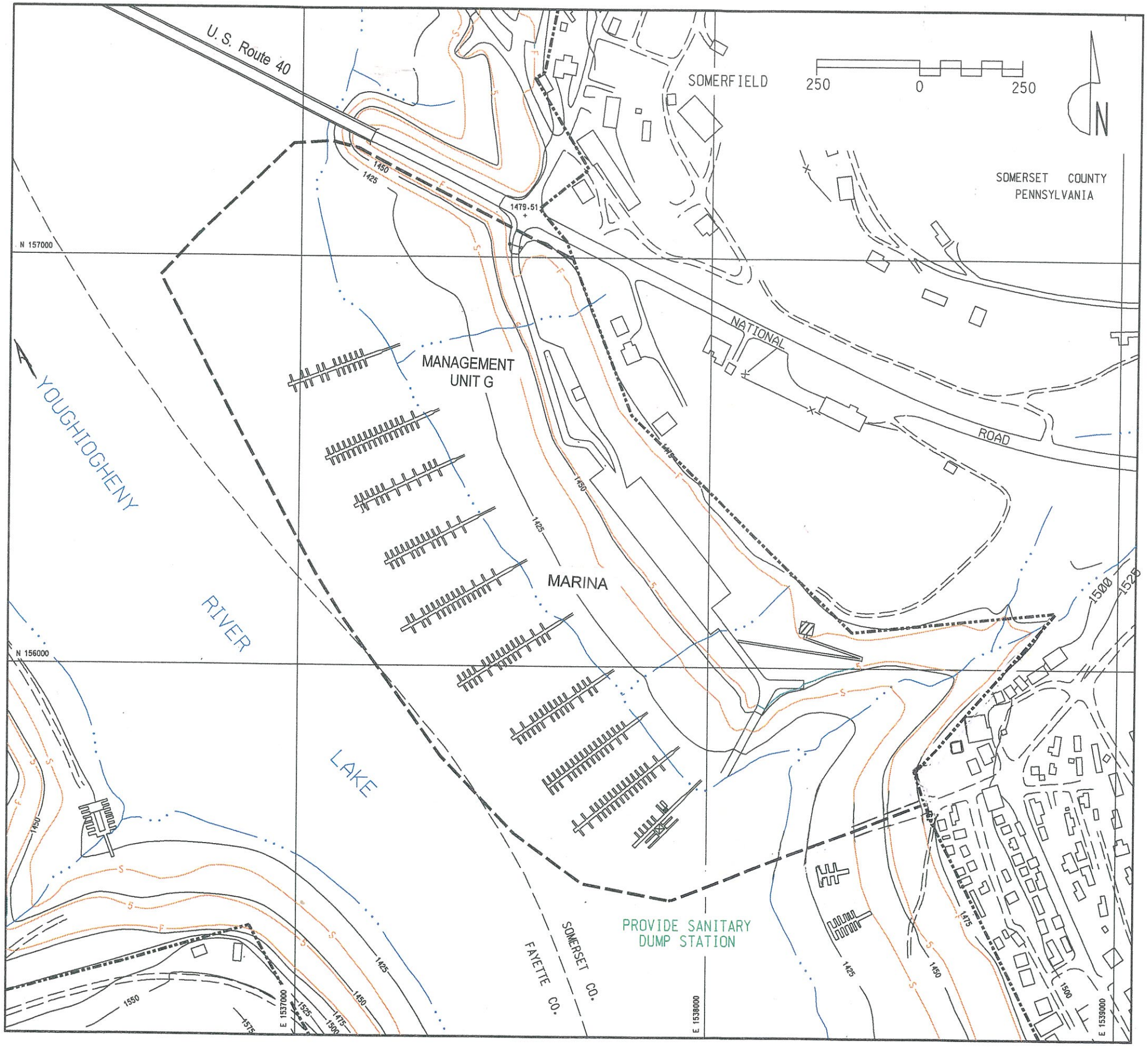
PLATE 6.6
SOMERFIELD NORTH RECREATION AREA

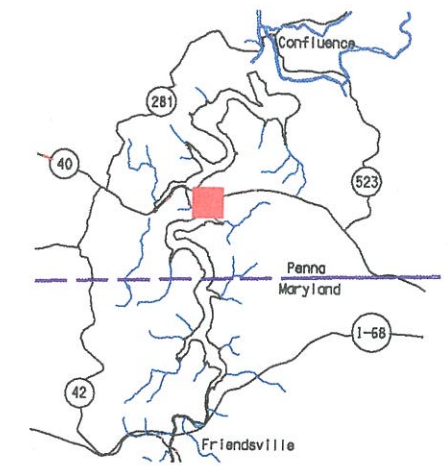
MANAGEMENT UNIT F
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- SUMMER POOL ELEVATION 1439.0
- 5-YEAR POOL ELEVATION 1452.5
- FULL POOL ELEVATION 1470.0
- WATERBORNE RESTROOM
- PICNIC SHELTER
- GATE

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.7

SOMERFIELD SOUTH MARINA

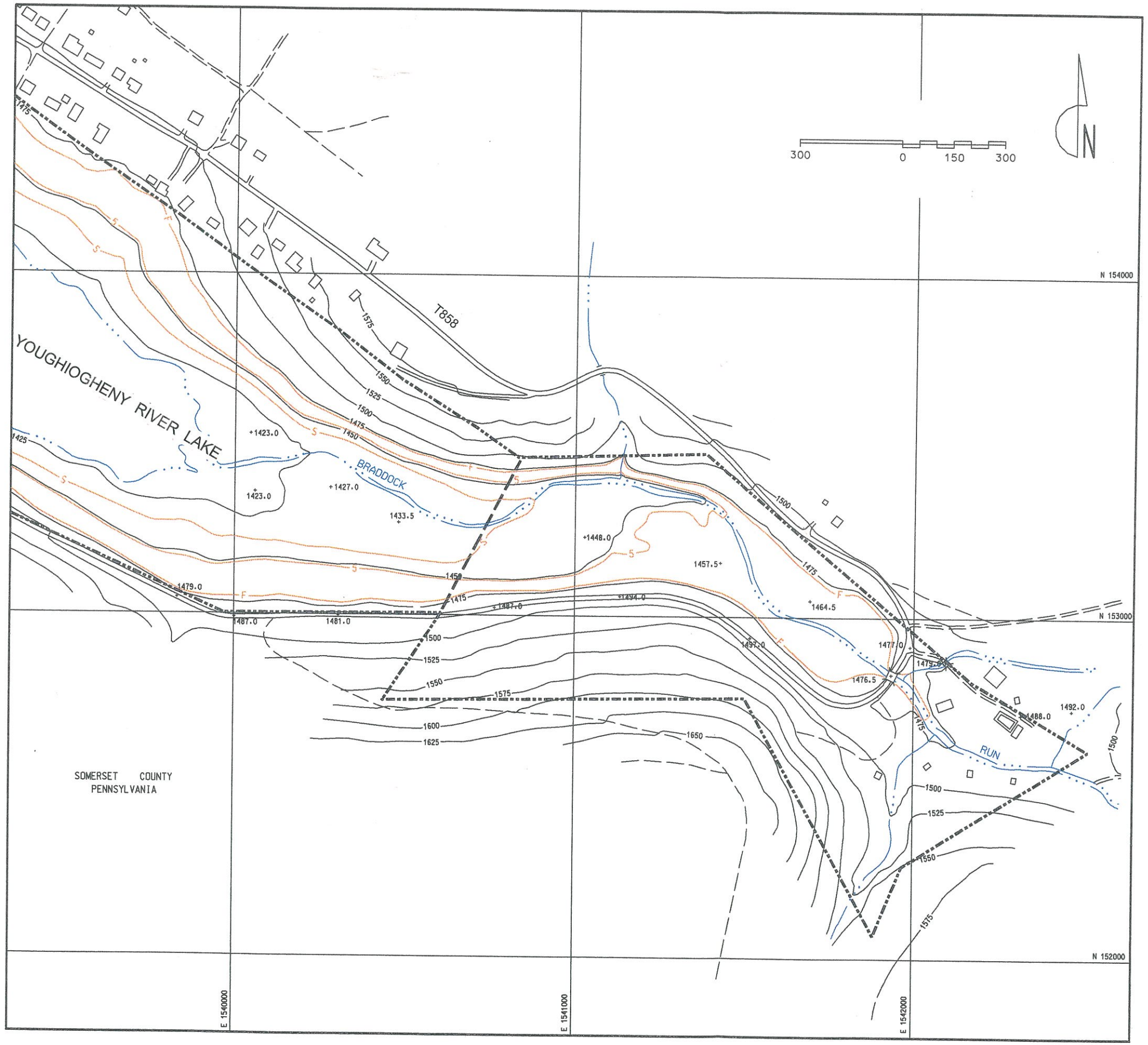
MANAGEMENT UNIT G

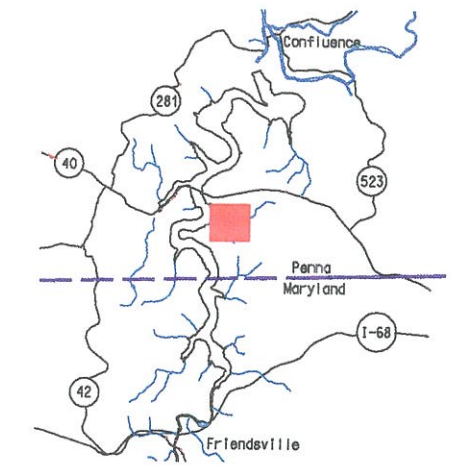
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- SUMMER POOL ELEVATION 1439.0
- 5-YEAR POOL ELEVATION 1452.5
- FULL POOL ELEVATION 1470.0
- WATERBORNE RESTROOM
- GATE

FUTURE DEVELOPMENT
INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.8

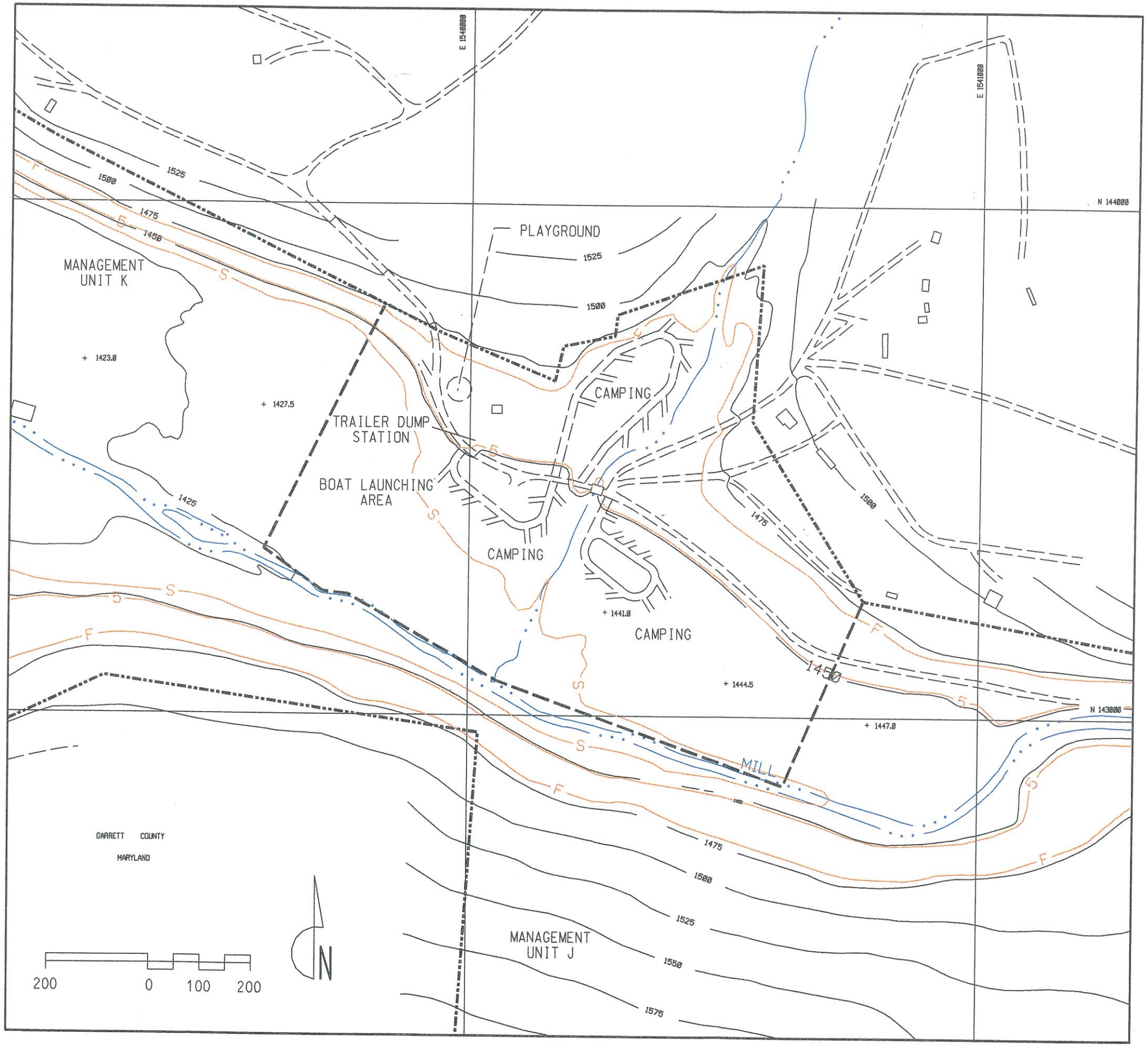
BRADDOCK RUN

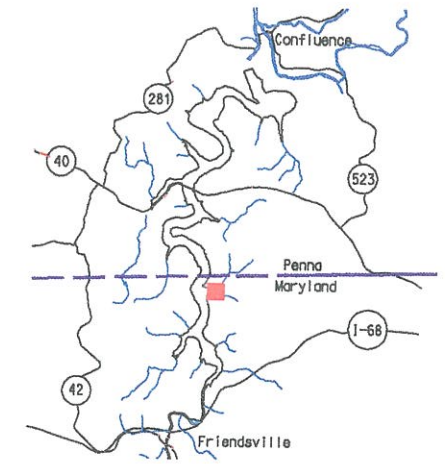
MANAGEMENT UNIT H

RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

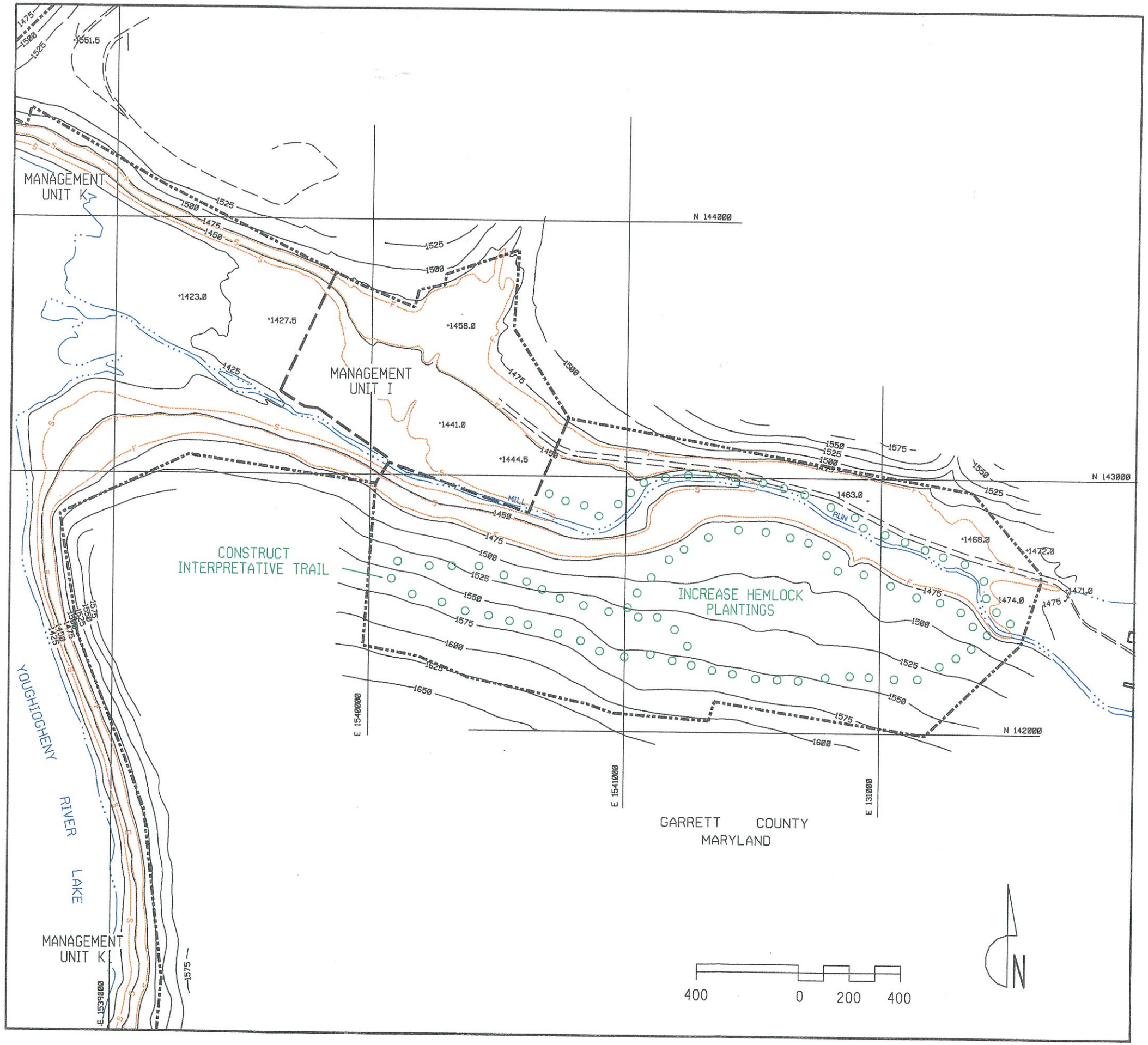
U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

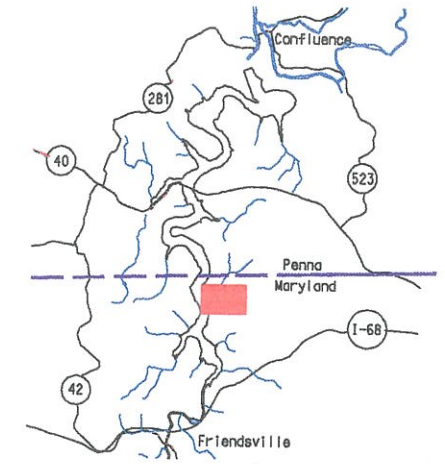
PLATE 6.9

MILL RUN RECREATION AREA
MANAGEMENT UNIT I
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0
- VAULT RESTROOM





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.10

MILL RUN NATURAL AREA

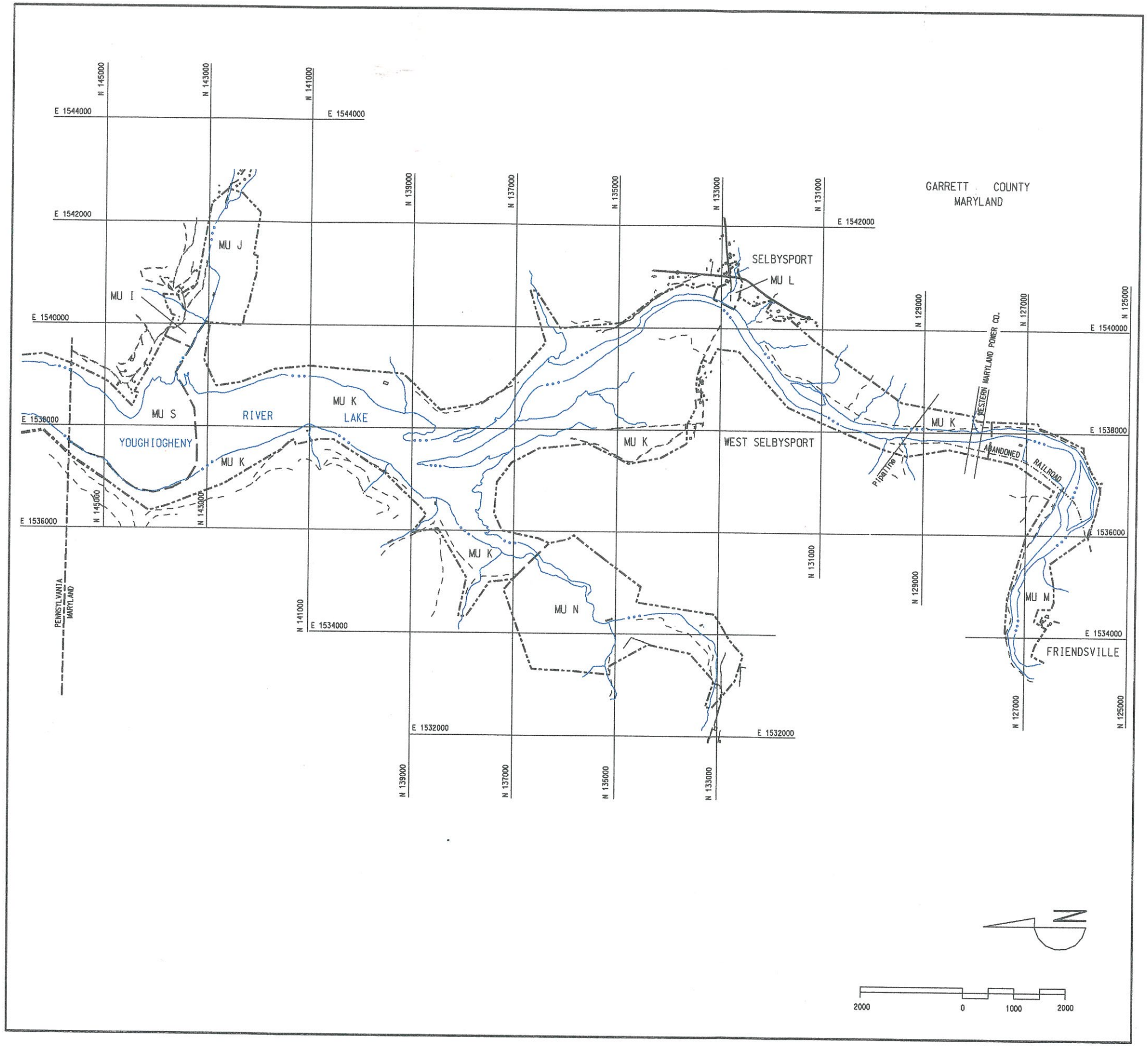
MANAGEMENT UNIT J

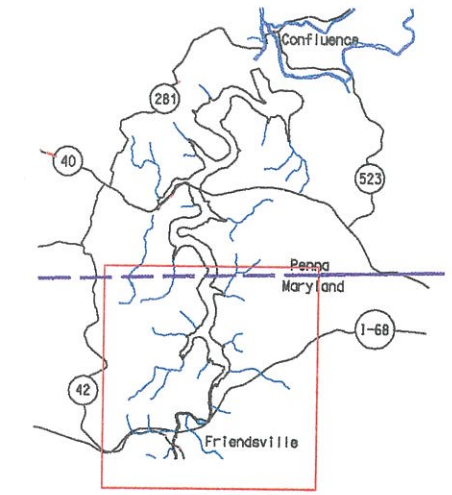
MULTIPLE RESOURCE MANAGEMENT

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- SUMMER POOL ELEVATION 1439.0
- 5-YEAR POOL ELEVATION 1452.5
- FULL POOL ELEVATION 1470.0
- TRAIL

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.11

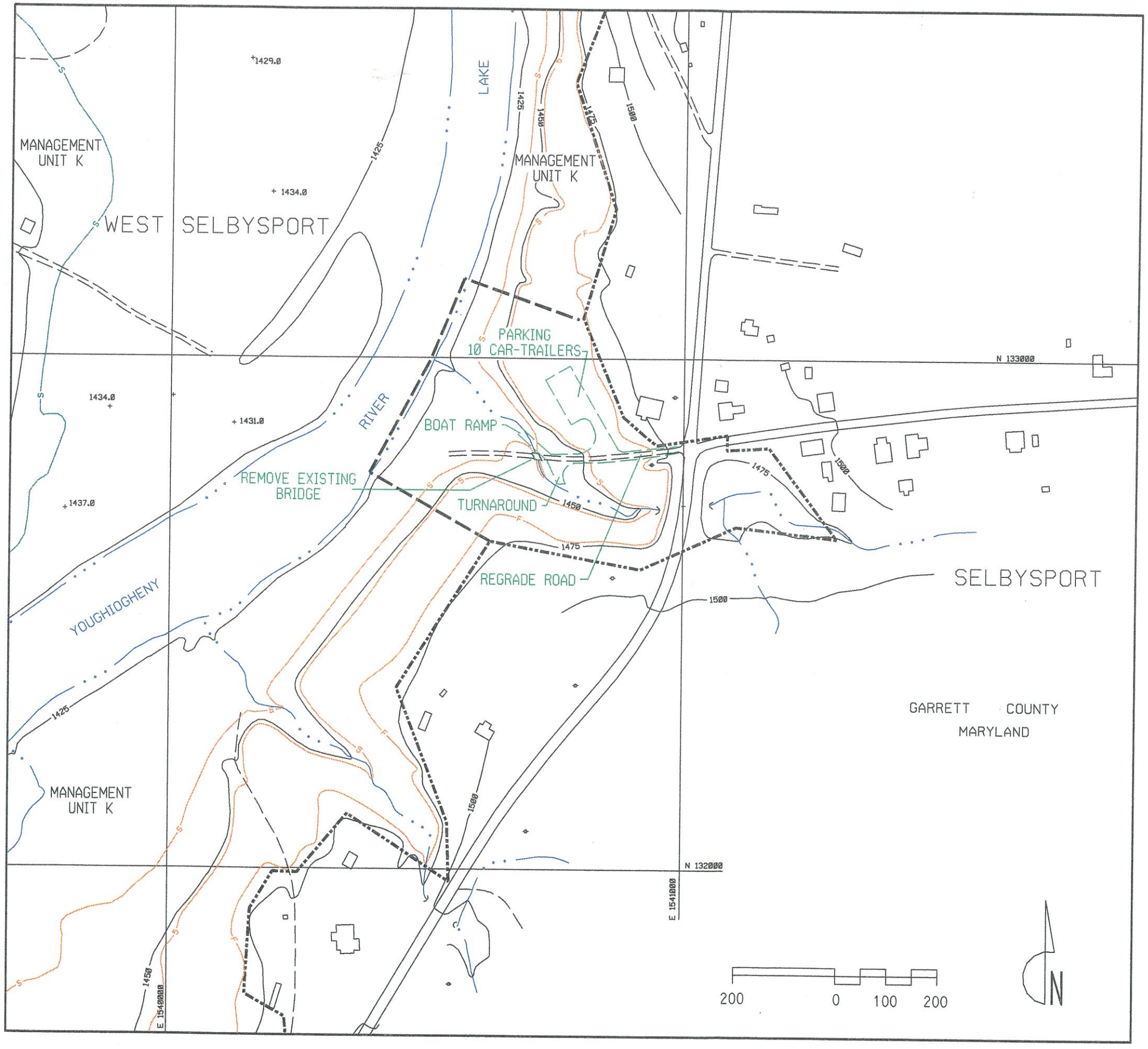
YOUGHIOGHENY RIVER LAKE – MARYLAND

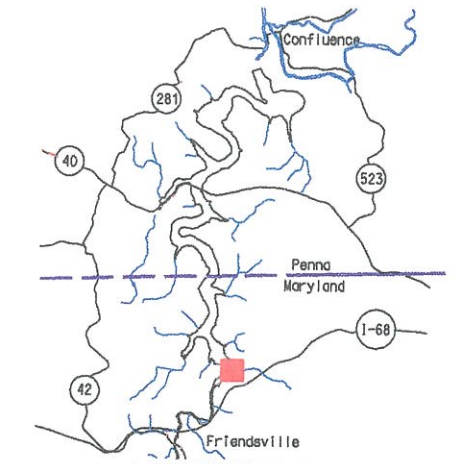
MANAGEMENT UNIT K

MULTIPLE RESOURCE MANAGEMENT

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.12

SHELBYSPORT

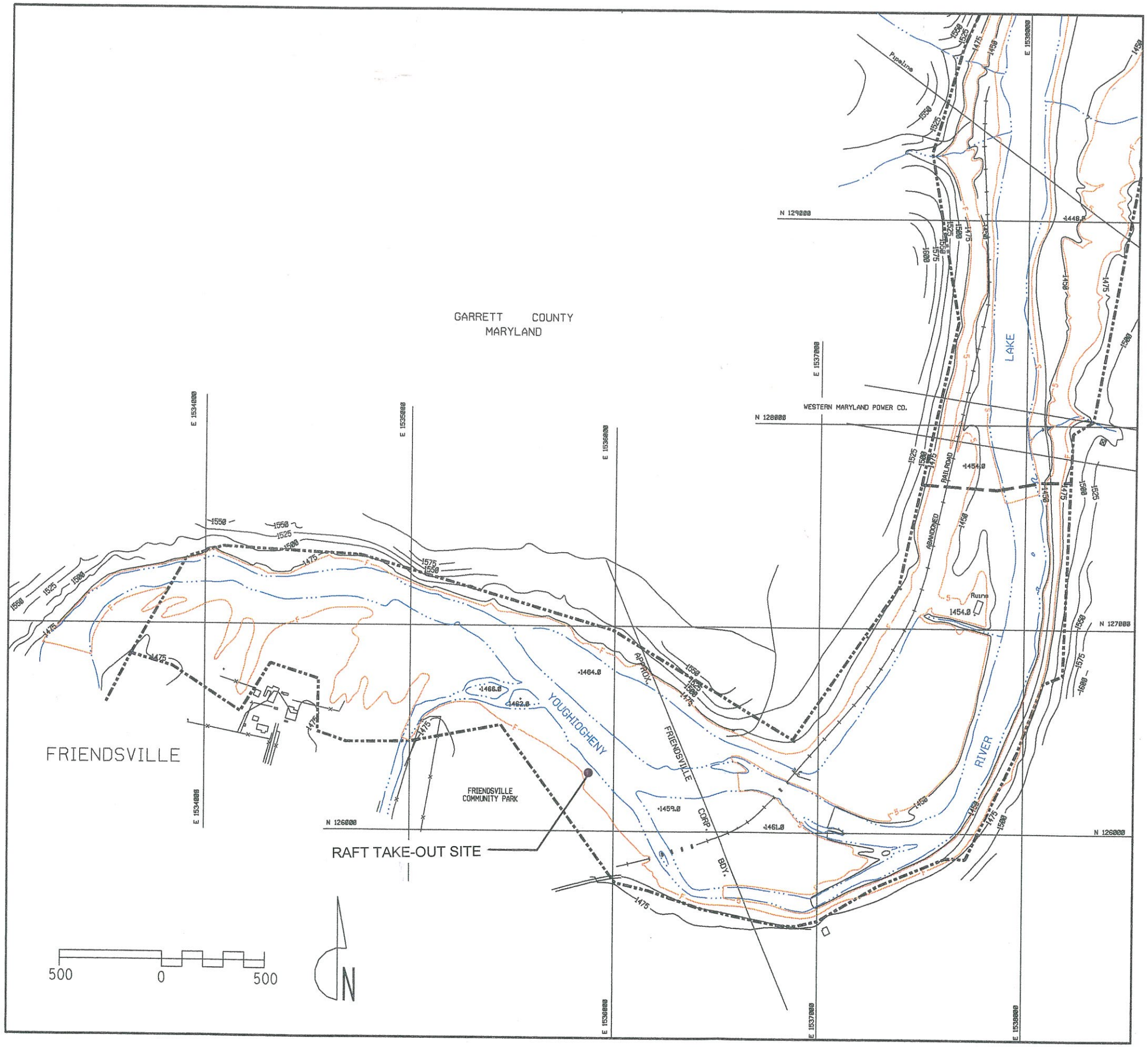
MANAGEMENT UNIT L

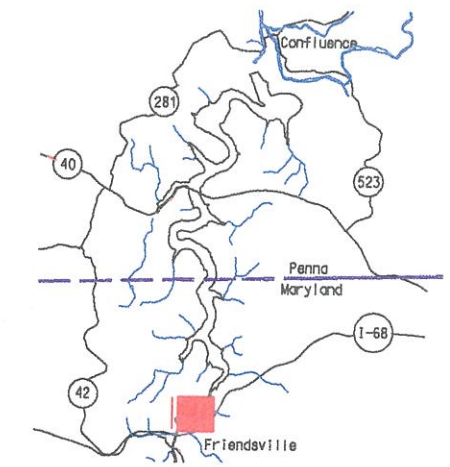
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0

FUTURE DEVELOPMENT
INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.13

BEAR CREEK NATURAL AREA

MANAGEMENT UNIT M

ENVIRONMENTALLY SENSITIVE

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1419.0
- 5 — 5-YEAR POOL ELEVATION
- F — FULL POOL ELEVATION 1490.0

GARRETT COUNTY
MARYLAND

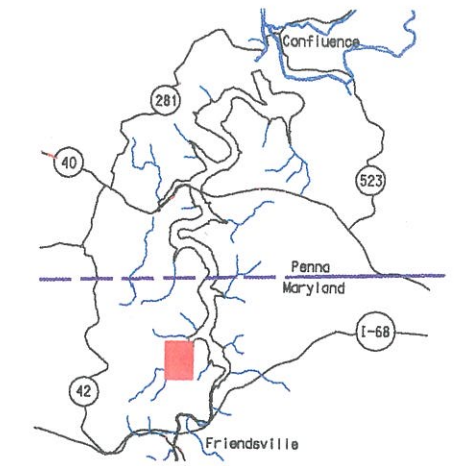
BUFFALO RUN

RESTORE WETLAND HYDROLOGY
AFFECTED BY ROAD CONSTRUCTION

SECURE GOVERNMENT
R/W TO UNIT

Ruins

500 0 500



LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.14

BUFFALO RUN NATURAL AREA

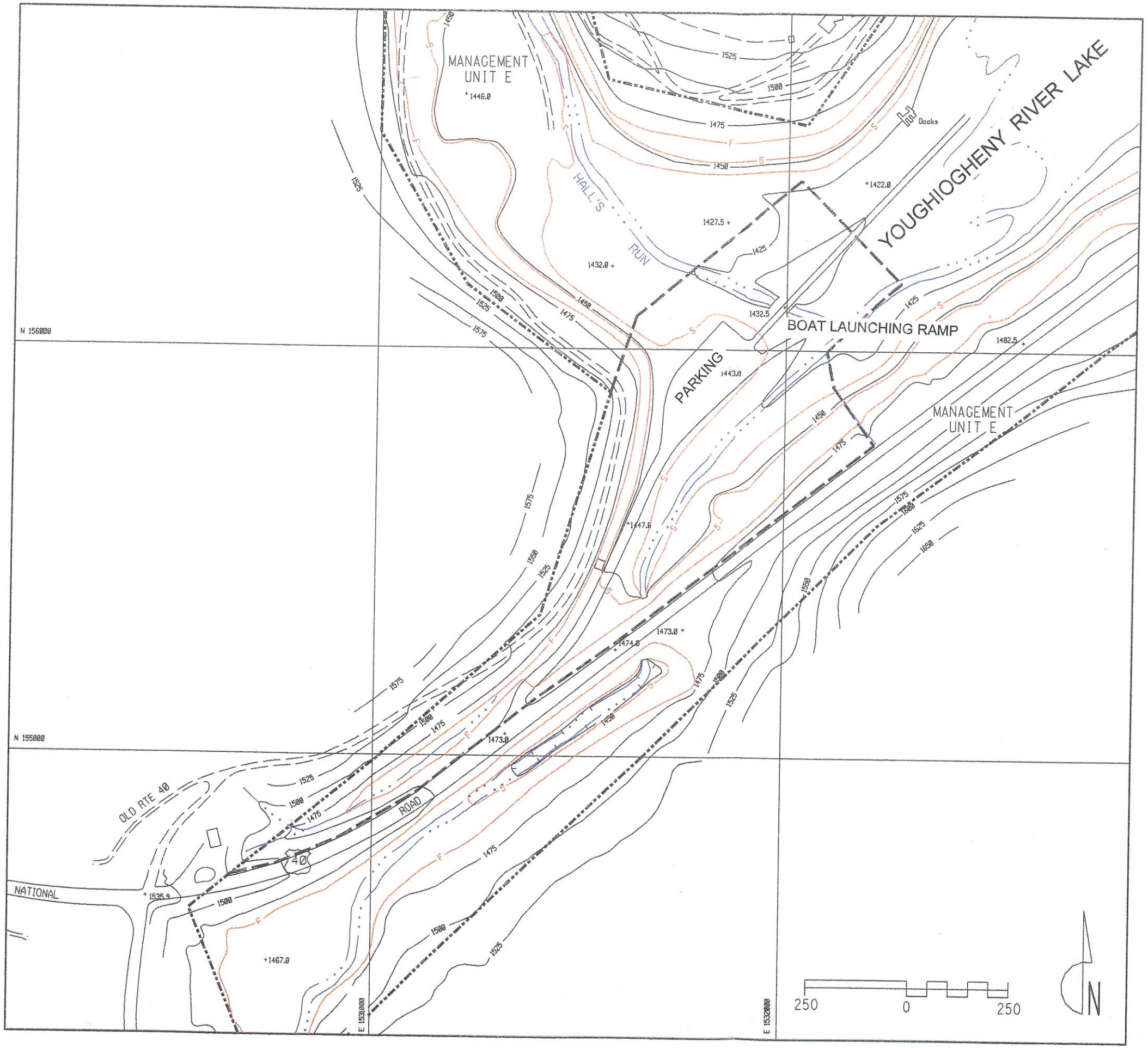
MANAGEMENT UNIT N

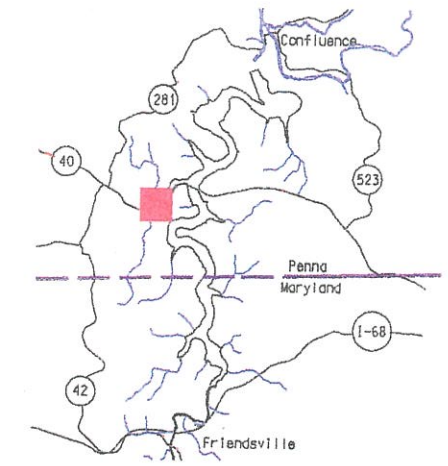
ENVIRONMENTALLY SENSITIVE

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- SUMMER POOL ELEVATION 1439.0
- 5-YEAR POOL ELEVATION 1452.5
- FULL POOL ELEVATION 1470.0
- GATE

FUTURE DEVELOPMENT
INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.15

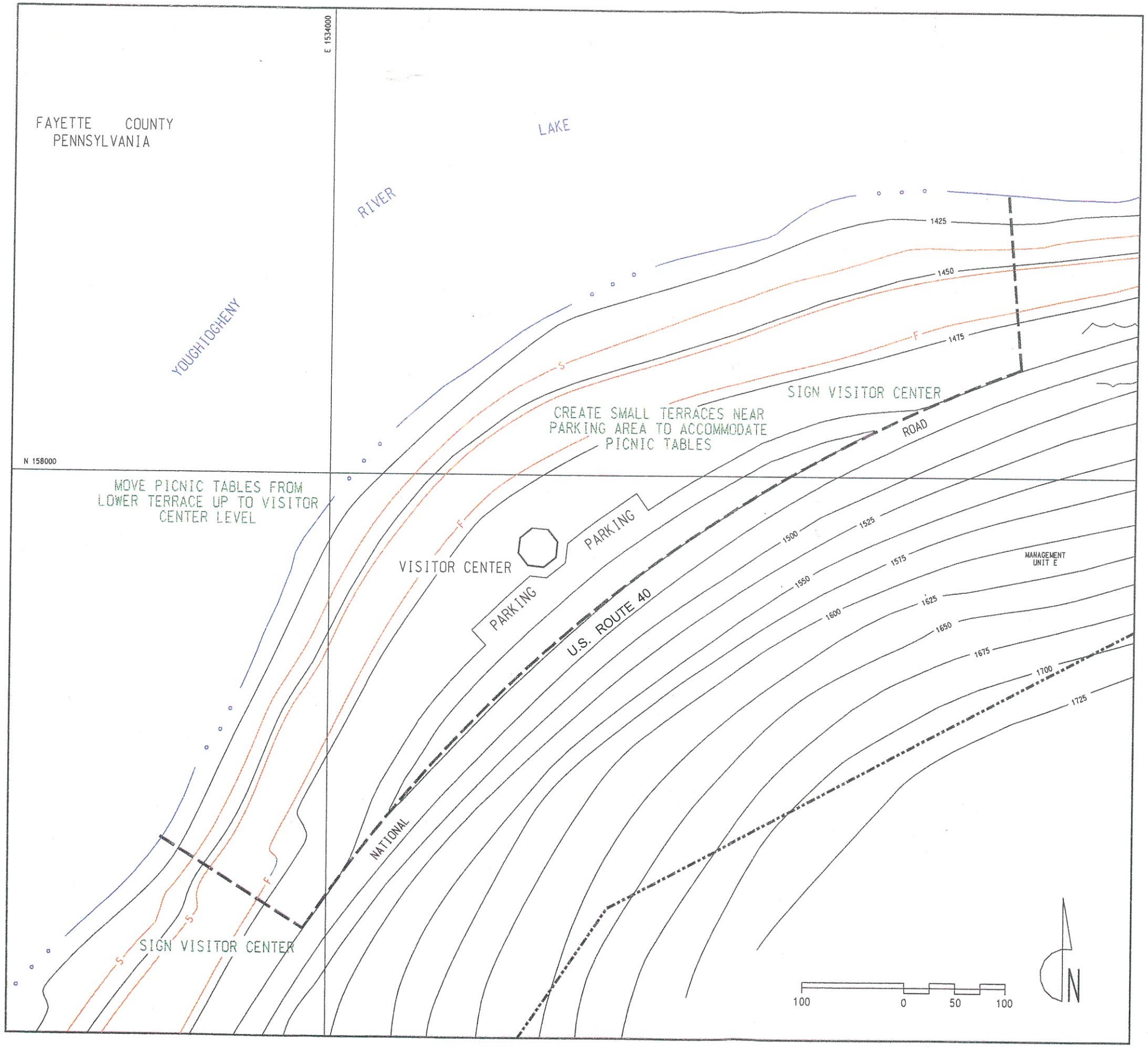
JOCKEY HOLLOW BOAT LAUNCHING AREA

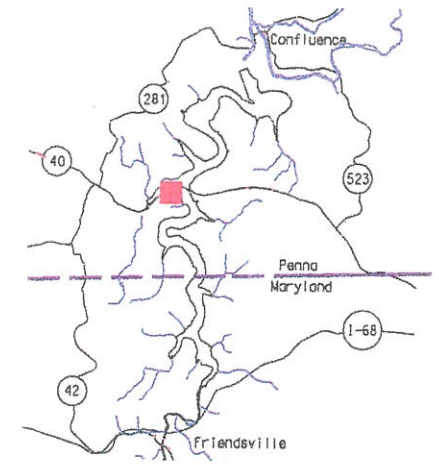
MANAGEMENT UNIT O

RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0
- VAULT RESTROOM





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.16

JOCKEY HOLLOW RECREATION AREA

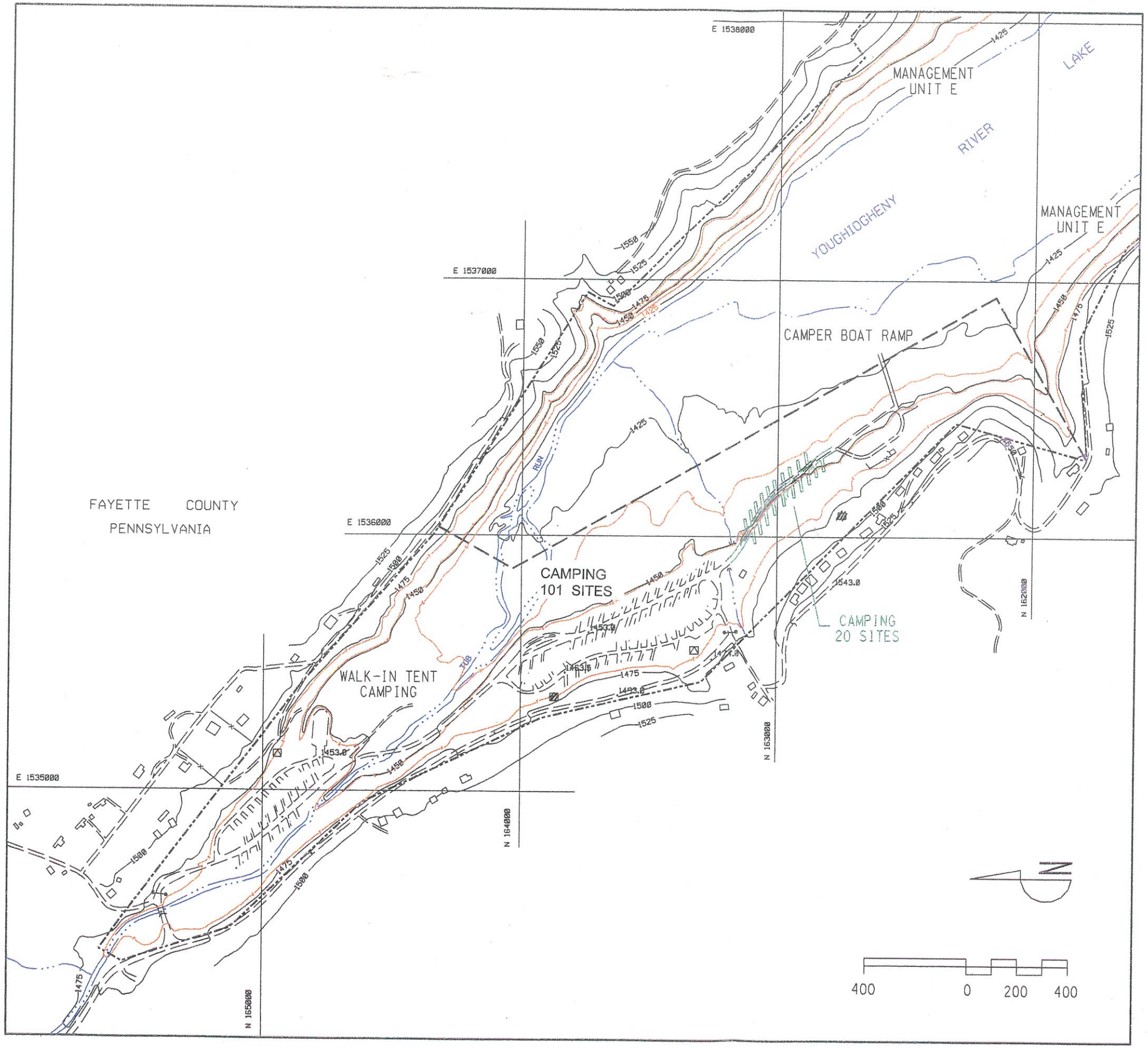
MANAGEMENT UNIT P

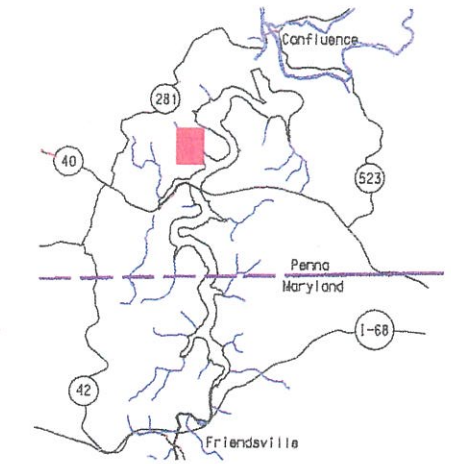
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0

FUTURE DEVELOPMENT
INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.17

TUB RUN RECREATION AREA

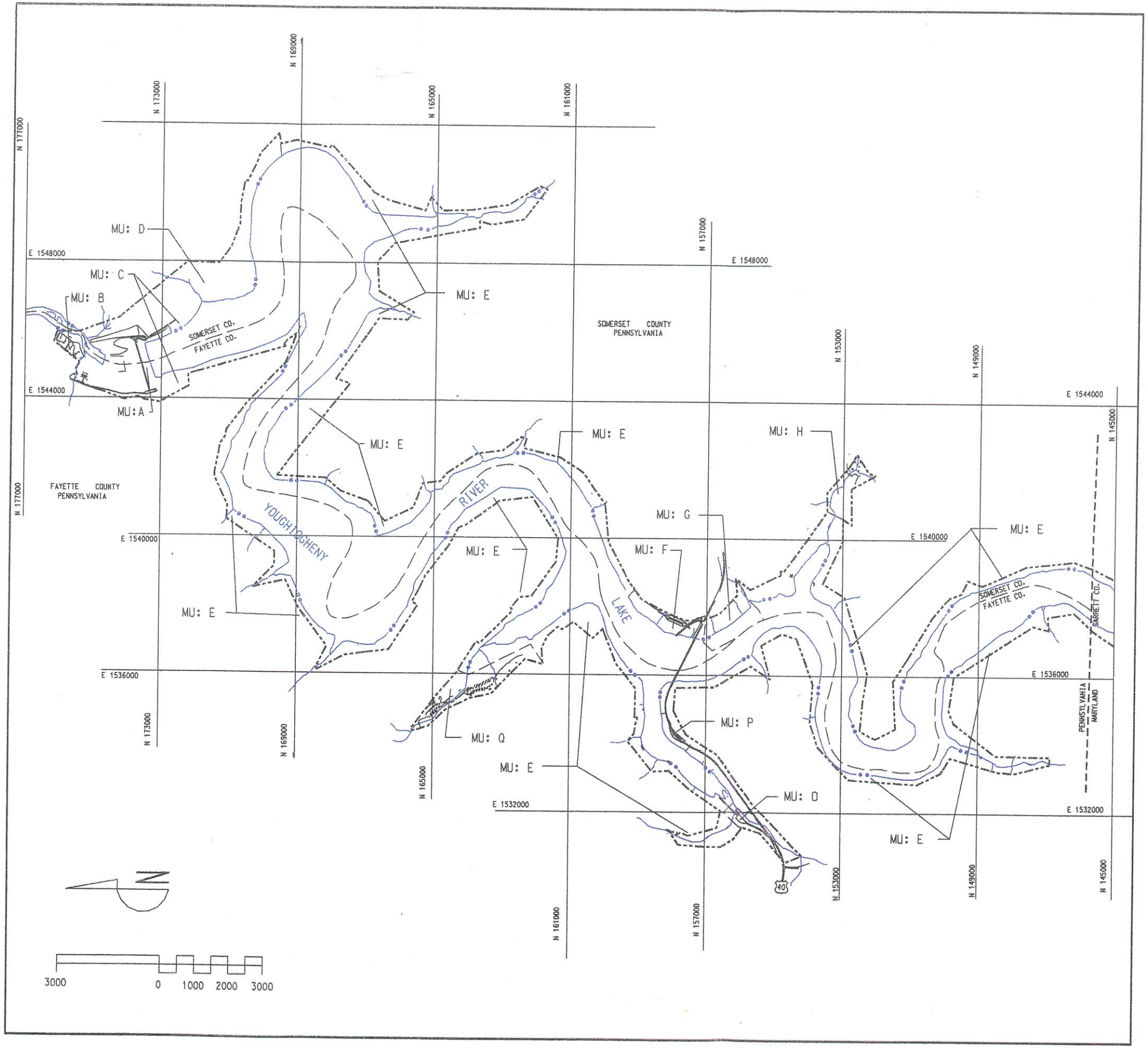
MANAGEMENT UNIT Q

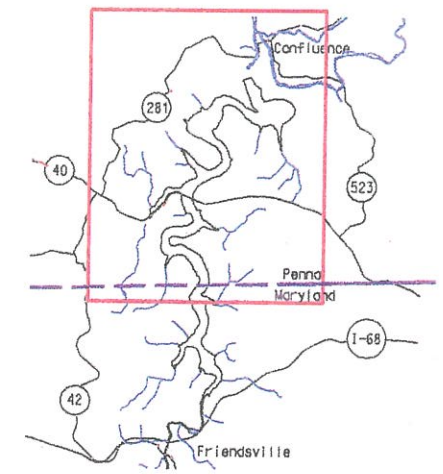
RECREATION

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- SUMMER POOL ELEVATION 1439.0
- 5-YEAR POOL ELEVATION 1452.5
- FULL POOL ELEVATION 1470.0
- WATERBORNE RESTROOM
- WASHHOUSE
- GATE

FUTURE DEVELOPMENT INDICATED IN GREEN





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

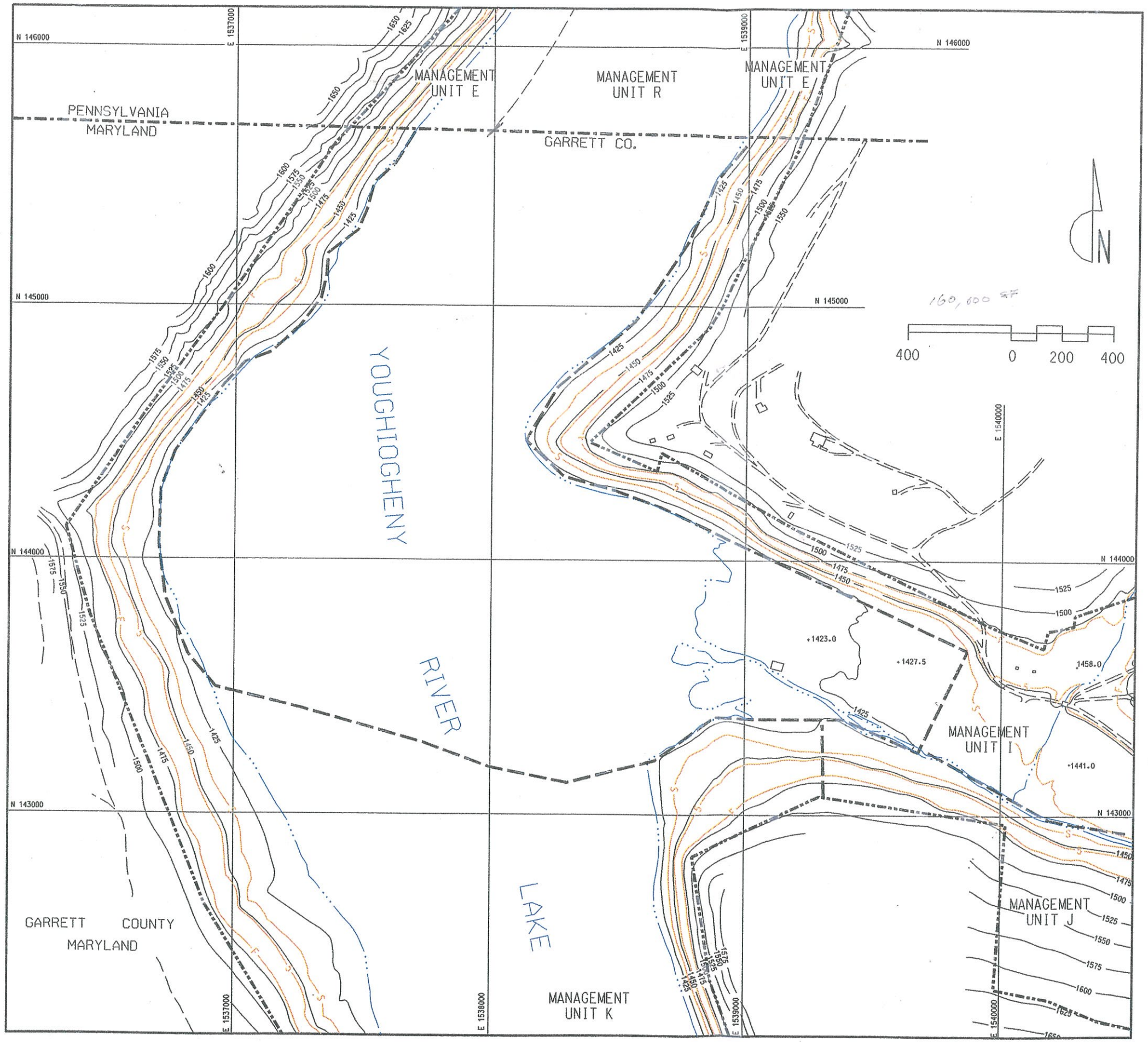
PLATE 6.18

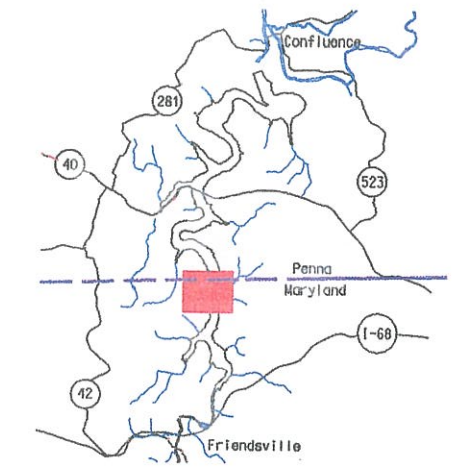
LAKE AREA PENNSYLVANIA

MANAGEMENT UNIT R

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY





LOCATION MAP

MASTER PLAN

YOUGHIOGHENY RIVER LAKE

U.S. ARMY CORPS OF ENGINEERS
PITTSBURGH DISTRICT

PLATE 6.19

LAKE AREA MARYLAND

MANAGEMENT UNIT S

LEGEND

- U.S. GOVERNMENT PROPERTY LINE
- MANAGEMENT UNIT BOUNDARY
- S — SUMMER POOL ELEVATION 1439.0
- 5 — 5-YEAR POOL ELEVATION 1452.5
- F — FULL POOL ELEVATION 1470.0