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**FINAL
ENVIRONMENTAL IMPACT STATEMENT**

**SOUTH FORK
WATERSHED**

Montgomery County, Arkansas



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE



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SOUTH FORK WATERSHED PROJECT
Montgomery County, Arkansas

FINAL ENVIRONMENTAL IMPACT STATEMENT

M. J. Spears, State Conservationist
Soil Conservation Service

Sponsoring Local Organizations

Montgomery County Conservation District
Box 236, Mount Ida, Arkansas 71957

The City of Mount Ida
Mount Ida, Arkansas 71957

Arkansas Soil and Water Conservation Commission
Little Rock, Arkansas 72201

March 1975

PREPARED BY

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Little Rock, Arkansas 72203

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II. USDA ENVIRONMENTAL IMPACT STATEMENT

South Fork Watershed Project Montgomery County, Arkansas

Prepared in Accordance with Section 102(2)(C) of Public Law 91-190

Summary

- I. Final.
- II. Soil Conservation Service.
- III. Administrative.
- IV. Description of Project Purpose and Action.

The South Fork Watershed Project is in Montgomery County, Arkansas and will provide watershed protection, flood prevention, and a dependable water supply for the City of Mount Ida. These goals will be achieved by the application of the necessary land treatment measures and the construction of two floodwater retarding structures and one multiple purpose structure for flood prevention and municipal and industrial water for Mount Ida.

- V. Summary of Environmental Impacts.

Flooding will be reduced on the 1,606-acre flood plain. The average annual area flooded will be reduced 62 percent from 1,434 acres to 539 acres. Erosion will be reduced by 18 percent. Sediment yield will be reduced by 17,400 tons or 49 percent annually. Stream pollution from sediment will be reduced by decreasing the average annual sediment concentration from 188 milligrams per liter to approximately 96 milligrams per liter. Damages to other agricultural and nonagricultural properties will be reduced by 75 percent. Lake fish habitat will be created on 193 acres of reservoirs. Flood plain scour damages will be reduced by 62 percent. Low-flow releases will help maintain streamflow downstream from the structures. The City of Mount Ida will have a dependable source of water for municipal and industrial use. The general economic and living conditions of the area will be improved. The structures and offsite borrow areas will require 52 acres of grassland and 257 acres of woodland. About five miles of natural streams will be converted to reservoir areas. Twenty-five farms in the flood plain will benefit from flood reduction.

VI. List of Alternatives.

1. Accelerated conservation land treatment measures only.
2. Accelerated conservation land treatment, securing municipal and industrial water from Lake Ouachita, and leveeing the urban flood plain.
3. Accelerated conservation land treatment, securing municipal and industrial water from ground water sources, and changing land use of the urban flood plain.
4. No project action.

VII. Comments on the draft statement were received from the following agencies:

Department of the Army
Department of the Interior
Department of Health, Education, and Welfare
Department of Transportation
Environmental Protection Agency
Advisory Council on Historic Preservation
Farmers Home Administration
Arkansas Department of Local Services, State Planning and
Development Clearinghouse

VIII. Draft Statement transmitted to CEQ on April 2, 1975.

III. PROJECT IDENTIFICATION AND ENVIRONMENTAL SETTING

USDA SOIL CONSERVATION SERVICE

FINAL ENVIRONMENTAL IMPACT STATEMENT 1/

for

A. South Fork Watershed, Arkansas

Installation of this project constitutes an administrative action. Federal assistance will be provided under authority of Public Law 83-566, 83d Congress, 68 Statute 666, as amended.

B. Sponsoring Local Organizations

Montgomery County Conservation District, Box 236, Mount Ida, Arkansas 71957.
The City of Mount Ida, Mount Ida, Arkansas 71957.
Arkansas Soil and Water Conservation Commission, Little Rock, Arkansas 72201.

C. Project Purposes and Goals

1. Watershed protection (conservation land treatment). The conservation land treatment program, which is an integral and essential part of watershed protection, is currently being conducted by the Montgomery County Conservation District. The program will be accelerated with the installation of this project. The purpose of the accelerated program is to result in the use of each acre of land within its capabilities and in its treatment according to its needs for protection and improvement.

The conservation land treatment practices that will be applied during the 5-year installation period will help to preserve or improve the soil resources of the watershed, to reduce downstream pollution caused by sediment, to improve the aesthetic values of the watershed, and to return economic benefits to the landowners.

The purpose of the accelerated land treatment measures planned on national forest lands is to reduce erosion to tolerable limits on 13 acres of gullies, 1 acre of streambank, 1 acre of stream channel, 20 miles of system or functional roads, 17 miles of abandoned roads and trails, and 2 acres where sheet erosion rates are high.

1/ All information and data, except as otherwise noted, were collected during watershed planning investigation by the Soil Conservation Service and Forest Service, U. S. Department of Agriculture.

Accelerated technical assistance for privately owned forest land will be to attain the most desirable forest succession type to meet the desired multiple use goals. The goals involve the improvement of the forest's hydrologic capabilities by creating a stand composition that will produce optimal development and protection of forest cover, litter, and humus through stand improvement measures.

2. Flood prevention. Flood prevention on the 1,606-acre flood plain will allow more efficient and intensive use of farmland. Flooding will continue to occur, and the larger the flood the less effect the project will have on flood reduction; however, the depth and duration of flooding on the entire flood plain will be reduced for each flood.

3. Municipal and industrial water supply. The City of Mount Ida, one of the sponsoring organizations, requested that additional storage be added to Structure Number 1 to provide the city with an adequate water supply to be used as a municipal water supply as well as for flood control purposes. Mount Ida's present water source has been barely adequate to supply their peak demands of 200,000 gallons per day.

A municipal and industrial water supply of 2,000,000 gallons of water per day will be needed by the City of Mount Ida. This amount will be adequate to supply the peak demand rate for future growth of the area to the year 2020 for a projected equivalent population of 7,275. The projected average use rate, including commercial and industrial use, is 275 gallons per capita per day.

With the guaranteed availability of water, the area will grow and expand. The city has agreed to sell 3,000,000 gallons of water per month to the Montgomery County Rural Water Users Association which will provide water to rural customers.

D. Planned Project

1. Land treatment measures. An effective conservation program is an integral and essential part of a sound program for watershed protection and flood prevention. Such a program is currently being conducted by the Montgomery County Conservation District by providing assistance to each district cooperator in the development and application of conservation plans with technical assistance provided by the Soil Conservation Service. Each plan and the overall program are based on the use of each acre of land within its capabilities and treatment in accordance with its needs for protection and improvement in the chosen use. Any conservation land treatment resulting from the technical assistance is voluntary action taken by individual farmers and operators.



The accelerated application and continued maintenance of land treatment measures is important for the protection of land above the proposed structures. These measures will produce onsite benefits, reduce the capacity that must be provided in the structure for sediment accumulation, and reduce runoff. Runoff from the uncontrolled area, which contributes to floodwater damages, will be reduced by land treatment measures.

About 400 acres of cropland will be treated with conservation measures. In the upland areas of the watershed, the trend has been to plant grass or trees on sloping cultivated land that was subject to excessive erosion. This trend is expected to continue. Landowners have indicated that they will convert about 600 acres of grassland and native pasture to cropland after project installation. This will increase the cropland acreage to about 400 acres in the flood plain and 255 acres in the upland area. Land treatment measures will include conservation cropping systems, fertilizing, liming, and proper tillage. Crop residue management will be applied on all cropland to help control erosion and to promote good land management. Cropping systems will include the use of cover and green manure crops and rotation of hay and pasture where the regular crops will not produce adequate residue to provide protective cover to control erosion and to maintain good physical condition of the soil. Field ditches will be needed on wet soils.

Five hundred acres of pastureland will be improved by proper management including brush management, weed control, fertilizing and liming, proper grazing use, renovation, and seeding additional grasses and legumes. About 1,400 acres of native pastures will be improved by proper grazing use, brush management, and weed control. Also, grazing will be improved on 600 acres of woodland by proper grazing use. Grazing distribution will be improved on grassland by the construction of 12 additional ponds.

The areas planned for accelerated land treatment on national forest lands are 13 acres of gullies, 1 acre of streambank, 1 acre of stream channel, 20 miles of system or functional roads, 17 miles of abandoned roads and trails, and 2 acres of sheet erosion to be protected by vegetative cover. The land treatment measures include roadbank and streambank stabilization, road drainage and diversions, and vegetation. About 5 tracts of 50 acres each will be regenerated each year in the national forest land.

Accelerated technical assistance to private landowners in the watershed will result in effective forestry practices applied to forest land. In harmony with sound watershed management, forest lands will be managed to fulfill wildlife, recreation, timber, and other environmental requirements. Forest management efforts will be directed to attain the most desirable forest succession type to meet desired multiple use goals.

The accelerated land treatment measures for the private forest are stand improvement measures on 1,200 acres. These are silvicultural measures designed to improve the forest's hydrologic capabilities by creating a



stand composition that will produce optimal development and protection of forest cover, litter, and humus. These practices include improvement cuttings, tree release, and cull removal. Accelerated forest land treatment practices will not be performed unless the tract is protected from harmful grazing.

2. Other measures. The National Park Service will be notified if any previously unidentified evidence of cultural values are discovered during detailed investigations or construction. The "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R., Part 800) will be followed in complying with Section 106 of Public Law 89-665 and Executive Order 11593. Any needed recovery, protection, or preservation operations will be performed in accordance with the Archeological and Historical Preservation Act (Public Law 93-291). Since this is a federally assisted local project, there will be no change in the existing responsibilities of any federal agency under Executive Order 11593 with respect to archeological and historical resources.

The Arkansas Archeological Survey will be requested to survey any additional areas required for construction roads or borrow areas.

The floodwater retarding structures do not provide complete urban protection from the 100-year frequency flood in Mount Ida. The structural measures provide the highest feasible level of protection. The Mount Ida City Council will initiate an ordinance prior to the installation of structural measures to restrict development within the area still subject to flooding. This information will be published at least once annually. Improvements, such as parking lots, recreational areas, or educational nature trails will be permitted. The city will consider development location, damageable values, flood proofing, and flooding depths before issuing development permits within the area of remaining flood hazard.

The Montgomery County Conservation District, as a sponsoring local organization, will discourage further development in the area of remaining flood hazard outside of the city limits.

3. Structural measures. Two single-purpose floodwater retarding structures and one multiple-purpose structure (flood prevention and municipal and industrial water supply) will be installed.

The structures will control floodwaters from 26.44 square miles, or about 38 percent of the total watershed. The structures are designed to provide temporary storage of runoff and then release the water at a rate that will reduce downstream flooding. Floodwater will be released through ungated, self-operating, reinforced concrete conduit principal spillways constructed on nonyielding foundations. The principal spillways will have single-stage inlets and will include a

drain valve to facilitate the installation of the dam by disposal of runoff during construction and to drain the impoundment, as needed, for repairs. Mid-level gates will be installed in Structures Numbers 2 and 3 to be used as fisheries and waterfowl management tools by making it possible to expose up to one-half of the bottom area of the sediment pools. This will allow the exposure of shallow edges for waterfowl plantings and manipulation of water levels for aquatic weed control and fish management operation. A plunge basin will be installed at the outlet of the principal spillways to reduce the energy of the water before it enters the downstream channel.

The structures will be earthfill with rock emergency spillways which will pass flows in excess of detention storage and conduit release. These spillways will have a 2 percent chance of operation or will be expected to function on a 50-year frequency.

The three structures will have a total storage capacity of 11,314 acre-feet. This will include 8,354 acre-feet for floodwater detention, 1,428 acre-feet for sediment accumulation, 1,352 acre-feet for municipal and industrial water supply, and 180 acre-feet for low-flow augmentation. Storage will be provided in the structures for the sediment that will accumulate during the life of the project (100 years) to protect the storage provided for other uses. The total sediment storage in the three structures will be 1,244 acre-feet for submerged sediment. An additional 184 acre-feet of aerated sediment is expected to accumulate in the flood pools. The sediment pools will initially fill with water but will gradually fill with sediment during the life of the project. Multiple Purpose Structure Number 1 will provide 1,352 acre-feet of storage for a municipal and industrial water supply for the City of Mount Ida. Of this total storage, 338 acre-feet will be for immediate use and 1,014 acre-feet will be deferred for future use. The municipal and industrial water supply pool will have a surface area of 87 acres.

Runoff from the drainage area above Structure Number 1 will provide a firm yield of high quality water to meet the anticipated demand. A separate intake structure for the city's water supply will be installed. The intake structure will be constructed of reinforced concrete and will have three control valved openings (slide gates) at different elevations to permit the selection of water from various depths. An 18 inch raw water line will be located through the dam and will be constructed of reinforced concrete with cutoff collars. The water will flow by gravity in the South Fork Ouachita River for about four miles to the existing intake structure, located near U.S. Highway 270 bridge on the west edge of the City. The water will be lifted out of the river at this point and pumped through a new 8 inch cast iron pipe raw water line to the new water treatment plant.

The water flowing down the river is not expected to become contaminated; however, a transmission line could be added at a later date to transport the water from the impoundment to the treatment plant, if a pollution



problem develops. A 300-foot buffer zone measured horizontally from the crest of the emergency spillway will be fenced to control access to the pool in accordance with Arkansas State Department of Health regulations.

The principal spillway crest of Structure Number 2 will be set at the 100-year sediment elevation and will inundate 56 acres. An ungated port with an average release rate of 0.30 cubic feet per second will be placed at the 50-year submerged sediment elevation. This port will release water from a cool-water inlet located 10 feet below the principal spillway crest.

Structure Number 3 will provide for storage of 180 acre-feet of water to mitigate the loss of stream fisheries caused by Floodwater Retarding Structure Number 2 and to minimize downstream impacts. This storage is in addition to that provided for other purposes. This water will be released through an ungated port at the 100-year submerged sediment elevation with an average release rate of 0.85 cubic feet per second. Water will be drawn through a cool-water inlet from a depth of 10 feet below the principal spillway crest. The low-flow augmentation pool at the principal spillway crest will inundate 50 acres.

The structures will store 8,354 acre-feet of floodwater between the crests of the principal spillways and the crests of the emergency spillways. The detention pools at the crests of the emergency spillways will have a total surface area of 541 acres. The 348 acres between the principal spillway crests and the emergency spillway crests will be subject to temporary inundation by floodwater. Floodwater detention capacities will range from 5.90 to 6.00 inches of runoff from the drainage areas above the structures.

All three sites have the potential for incidental recreation. However, the municipal and industrial water supply structure will not be used for recreation or other purposes in a manner whereby the water supply might become contaminated and thus become a potential hazard to public health. The sponsors will not provide public access to Floodwater Retarding Structures Numbers 2 and 3, and recreation use will be discouraged.

Suitable borrow material will be limited and an additional 93 acres outside the pool areas will be needed. When possible, the borrow areas will be selected where a 200-foot band of vegetation can be left to screen these areas from public view. Haul roads from the borrow areas to the structure sites will be planned to prevent objectionable views of the borrow areas.

Present land use in the pools, embankments, emergency spillways, and offsite borrow areas are tabulated as follows:



| Structure | Land Use | | Total (acres) |
|--|----------------------|------------------------|------------------|
| | Grassland (acres) | Forest Land (acres) | |
| Pools (at Crest of Principal Spillways) | | | |
| 1 | 12 | 75 | 87 |
| 2 | 10 | 46 | 56 |
| 3 | - | 50 | 50 |
| Subtotal | 22 | 171 | 193 |
| Embankments & Emergency Spillways | | | |
| 1 | - | 7 | 7 |
| 2 | - | 7 | 7 |
| 3 | - | 9 | 9 |
| Subtotal | - | 23 | 23 |
| Offsite Borrow Areas | | | |
| 1 | 15 | 15 | 30 |
| 2 | 9 | 25 | 34 |
| 3 | 6 | 23 | 29 |
| Subtotal | 30 | 63 | 93 |
| TOTAL | 52 | 257 | 309 |

Clearing during construction will be limited to areas required for embankments, spillways, borrow areas, and pools. Selective clearing will be utilized to preserve trees and shrubs useful for erosion control, wildlife habitat, screening objectionable views, and blending structural measures with the surroundings. Trees will be left standing in about 25 percent of the pool areas of Structures Numbers 2 and 3. Selected areas will be in the upper one-third of the pools and points where feeder streams enter. Stumps and logs will be piled to provide fish habitat after inundation.

Limits of areas to be cleared will be delineated well in advance of construction to allow for the removal of timber. Trees or other cleared materials not salvaged and other wastes generated during construction will be disposed of in accordance with appropriate state and local regulations. Waste products will be burned or buried, depending on the nature of the material. Approved Forest Service criteria for land



clearing, debris disposal, revegetation and similar works on national forest lands associated with the project will be followed. The revegetation plan and the fire protection plan will be approved by the Forest Service prior to construction.

The embankments and offsite borrow areas will be revegetated. Weeping lovegrass, sericea lespedeza, bahiagrass, white clover, fescue, and Korean lespedeza will be the principal plants used. When construction is complete, the periphery of the pools will be planted to Japanese or browntop millet. The areas in the flood pools subject to temporary inundation will remain in their present use.

The installation of structural measures will require the modification of one mile of Forest Service roads and one-half mile of county roads. Two and one-half miles of Forest Service property lines will be re-established and seven corners will be relocated with reference monuments.

During construction, all state and local health, safety, and air and water pollution regulations will be followed. The following actions will be taken to control erosion and pollution:

1. Sprinkling will be used to keep dust within acceptable limits.
2. Sanitary facilities will not be located over, or adjacent to, live streams or springs. The special provisions of construction contracts will require the contractor to comply with the manual, Safety and Health Regulations for Construction, published by the United States Department of the Interior, Bureau of Reclamation. In accordance with this manual a minimum of one of the following types of toilet facilities must be made available to each construction site depending on the number of people employed and site conditions and location:
 - a. Privies
 - b. Chemical toilets
 - c. Recirculating toilets
 - d. Combustion toilets
3. Measures such as diversions and water control structures will be provided at equipment storage and repair areas to divert runoff away from these areas and to prevent contaminants from reaching streams and ground water.
4. The following erosion and sediment control measures will be applied, as needed, to minimize stream turbidity at and downstream from the structures.



- a. Diversions, waterways, and terraces will be used to retard the rate of runoff and control runoff from the construction site.
 - b. Debris basins will be used to minimize sediment resulting from construction and dewatering operations.
 - c. Clearing and grubbing of construction sites and borrow areas will occur in stages as construction progresses.
 - d. Temporary vegetation and/or mulching will be used to protect the soils. Segments of work will be completed and protected as rapidly as is consistent with construction schedules.
 - e. Conduits or bridges will be installed where construction activities cross flowing streams.
5. Prior to construction, areas will be designated for the disposal of waste material.

Vectors should not be a problem because of the remoteness of the structure sites. However, practices to prevent and reduce mosquito and other aquatic insect breeding sites include the following:

1. All borrow pits and other potential ponding areas associated with construction of the dam and relocation of roads that are located above the maximum pool level will be made self-draining.
2. Prior to impoundage, borrow pits and depressions that will be flooded by the reservoirs at maximum pool levels and which would retain water at lower pool levels will be provided with drains to insure complete drainage of water within them.

Structure locations are shown on Appendix C, Project Map.

4. Operation and maintenance. Land treatment measures will be maintained by the landowners and operators in cooperation with the Montgomery County Conservation District. Representatives of the District and the Soil Conservation Service will make periodic inspections of land treatment measures and the District will encourage farmers to perform needed maintenance.

The landowners and operators will maintain the forest land treatment measures on the private land under agreement with the Montgomery County Conservation District. The Arkansas Forestry Commission, in cooperation with the U. S. Forest Service, will furnish the technical assistance necessary for operating and maintaining the forest land treatment measures under the going Cooperative Forest Management Program. The Forest Service will maintain the land treatment measures on national forest land



in accordance with the multiple use and sustained yield management principles. Forest fire protection is provided by the Forest Service on national forest lands and by the Arkansas Forestry Commission through the going Cooperative Fire Control Program on private lands.

Multiple Purpose Structure Number 1 will be operated and maintained by the City of Mount Ida, Arkansas, at an estimated annual cost of \$1,000. Funds for operation and maintenance will be obtained from city water revenues. All applicable state and local laws will be complied with in the operation of the structure, including those of the Arkansas Department of Health.

The operation plan for Multiple Purpose Structure Number 1 provides that the withdrawal of municipal and industrial water storage for present use will be in the range of 735.7 to 730.5 feet mean sea level during the first ten years after the date of completion of this structure. Municipal and industrial water storage below 730.5 feet mean sea level is planned for future use and Public Law 566 funds will be advanced to pay for construction and engineering costs for this storage. It will be the responsibility of the City of Mount Ida, Arkansas, to notify the Soil Conservation Service State Conservationist, whenever the need to operate below the specified range arises. Municipal water will not be withdrawn below the elevation 730.5 feet mean sea level until arrangements for repayment of the advance are completed.

Floodwater Retarding Structures Numbers 2 and 3 will be operated and maintained by the Montgomery County Conservation District at an estimated annual cost of \$800. Funds for operation and maintenance will be obtained from taxes levied on the benefited area. Maintenance will be performed with contributed labor, district-owned equipment, by contract or force account, or a combination of these methods.

The Soil Conservation Service and the sponsors will make a joint inspection annually, after unusually severe floods, or in the event of other unusual conditions that may adversely affect the works of improvement, for three years following installation of each structure. Inspection after the third year will be made annually by the sponsors.

Annual maintenance will be needed to maintain an adequate vegetative cover on earthfills and borrow areas. During the life of the structures, it may be necessary to do major repair work to restore concrete that has deteriorated; replace gates, trash racks, or other metal works; remove and/or stabilize slide material; and replace eroded material and re-vegetate the emergency spillways. Fences will be maintained until there is mutual agreement that they are no longer needed to protect structural works of improvement.

Immediately following completion of the structures by the contractor, the appropriate sponsors will be responsible for and promptly perform, or have performed, without cost to the Soil Conservation Service, all maintenance of the structural measures as determined to be needed by



either the sponsors or the Soil Conservation Service. The sponsors will be responsible for maintenance of vegetation associated with structural measures after the initial vegetation work is adequately completed, as determined by the Soil Conservation Service, but no later than three years following completion of each structural measure.

The Soil Conservation Service, through the Montgomery County Conservation District, will participate in operation and maintenance only to the extent of furnishing technical assistance to aid in inspections, technical guidance, and providing information necessary for the operation and maintenance program.

Provisions will be made for free access for representatives of the sponsoring local organization and of Soil Conservation Service representatives to inspect and provide for maintenance of all structural measures and their appurtenances at any time. The sponsoring local organizations will maintain a record of all maintenance inspections and maintenance performed and have the record available for review by the Soil Conservation Service.

The sponsors fully understand their obligations for maintenance and will execute specific operation and maintenance agreements prior to the issuance of invitations to bid on the construction of the structural measures. This operation and maintenance agreement will contain a reference to the Soil Conservation Service publication "State of Arkansas Watersheds Operations and Maintenance Handbook," and an operation and maintenance plan will be prepared for the structural measures. The operation and maintenance agreement will include specific provisions for retention and disposal of property acquired or improved with Public Law 566 financial assistance.

All work will meet the requirements of Act 81 of the Arkansas General Assembly of 1957, as amended, which authorizes the Division of Soil and Water Resources to issue permits for construction of dams, inspect construction, and make annual operation and maintenance inspections after construction. The sponsors will be required to follow the Division's recommendations on needed maintenance work.

5. Project costs. The estimated project cost by structural measures and land treatment measures showing construction cost distributed to Public Law 566 and other funds are itemized in the following table:



| Installation Cost Item | Funds | | |
|--|---------------------|--------------------|--------------------|
| | PL-566 (dollars) | Other (dollars) | Total (dollars) |
| <u>Structural Measures</u> | | | |
| <u>Construction</u> | | | |
| Multiple Purpose Structure Number 1 | 251,259 | 281,241 | 532,500 |
| Floodwater Retarding Structures Numbers 2 and 3 | 807,300 | - | 807,300 |
| Total Construction | 1,058,559 | 281,241 | 1,339,800 |
| <u>Other 1/</u> | | | |
| Multiple Purpose Structure Number 1 | 22,421 | 95,079 | 117,500 |
| Floodwater Retarding Structures Numbers 2 and 3 | 72,100 | 17,000 | 89,100 |
| Total Other | 94,521 | 112,079 | 206,600 |
| Total Project Administration | 260,700 | 18,600 | 279,300 |
| Total Structural Measures | 1,413,780 | 411,920 | 1,825,700 |
| Total Land Treatment | 18,700 | 107,200 | 125,900 |
| Total Project | 1,432,480 | 519,120 | 1,951,600 |

1/ Includes land rights and engineering services.

E. Environmental Setting

1. Physical resources. The project area is 44,851 acres in Montgomery County in west-central Arkansas. The watershed is about 16 miles long and 5 miles wide and is in the Ouachita Water Resource Subregion of the Lower Mississippi Water Resource Region as delineated by the U. S. Water Resources Council (10). Mount Ida, population 819, is the county seat of Montgomery County, which has a total population of 5,821 (7). All but 1,465 of the County's residents live in unincorporated communities or rural areas. The watershed population is 1,383, which includes 819 in Mount Ida and 564 rural residents. The largest town within 50 miles of the watershed is Hot Springs, population 35,631 (7).



The watershed is in the Ouachita Mountains Land Resource Area (10). The upland part of the watershed is mountainous and the tributary streams with steep gradients pass through narrow valleys to the main streams. Elevations range from about 600 feet at the watershed outlet to 1,700 feet on Wheeler Mountain, which is 5 miles south of Mount Ida. Most of the mountainous area is between 700 and 1,000 feet above mean sea level.

The flood plain area is subject to frequent flooding and erosion. The South Fork Ouachita River is unable to provide an adequate and dependable supply of water for the present and future growth of the area.

The watershed is situated near the axis of the Ouachita anticlinorium which is the center portion of the Ouachita Mountain uplift. Bedrock in the watershed is of the oldest strata in the Ouachita Mountains. The strata include Collier Shale of Cambrian age overlain by Crystal Mountain Sandstone, Mazarn Shale, Blakely Sandstone, Womble Shale, Polk Creek Shale, and Bigfork Chert of Ordovician age.

Mineral resources in the watershed include limestone, slate, and quartz crystals. Limestone is found in the watershed in limited quantities. Limestone was mined at the Pipkin Quarry in the central portion of the watershed until 1951. A crushing plant at the quarry supplied roadstone, chat, and agricultural limestone. An estimated reserve of 100,000 tons of limestone remains in the quarry. Limited quantities of slate are available in the Mazarn Shale or Womble Shale in the southern part of the watershed. The chief use of the slate is for roofing granules. Quartz veins are present in the Crystal Mountain and Blakely Sandstones in the Ouachita Mountains. The most productive zones for quartz mining found to date are outside of the watershed and quartz mining in the watershed has been limited to hand diggings and exploration. The quartz has been used for gem material, mineral collections, tourist trade, optical equipment, and electrical oscillators (4).

Eighty percent of the soils in the watershed is on mountainous areas, 10 percent is on upland benches, and 10 percent is on stream terraces and flood plains.

Soils in the mountainous area are shallow (less than 20 inches) to deep, well-drained, moderately and slowly permeable, rolling to steep, gravelly and stony soils. They formed from steeply inclined, fractured and folded shale and sandstone. The soils are best suited for mixed hardwood and pine forest. A limited area of very shallow (less than 10 inches) rock land occurs as outcrops of folded and fractured shale, quartzite, or sandstone that is poorly suited to plants.

The upland soils are shallow to deep, well and somewhat excessively drained, loamy and clayey soils. They formed in weathered sandstone interbedded with thin layers of fractured and tilted shale. They are



well suited to shortleaf pine and red oaks. Small areas are suited for cultivated crops.

The nearly level to gently sloping loamy flood plain and stream terrace soils are well and moderately well drained. These soils are well suited to pine, black walnut, sweetgum, and sycamore trees. Some of these soils are well suited for cropland and grassland. Some of the level soils in the flood plain are somewhat poorly to poorly drained.

The land capability classes and subclasses of the soils in the watershed are as follows:

| <u>Land Capability Classes and Subclasses 1/</u> | <u>Acres</u> | <u>Percent</u> |
|--|---------------|----------------|
| IIe | 942 | 2 |
| IIw | 1,570 | 3 |
| IIIw | 628 | 1 |
| IIIe | 2,623 | 6 |
| IVe | 1,413 | 3 |
| VIe | 6,548 | 15 |
| VIIe | 16,371 | 37 |
| VIIIs | 14,756 | 33 |
| <u>Total</u> | <u>44,851</u> | <u>100</u> |

Briefly, the land capability classes (the Roman Numerals) are an interpretation of the suitability of the soil for cultivation and the subclasses (the lower case letters) indicate the most limiting factor in the use of the soil. Class II soils have moderate limitations; Class III soils have severe limitations; and Class IV soils have very severe limitations for crop production. Soils in Classes VI and VII should remain in permanent vegetation such as pasture, hay, or forest.

Subclass "e" indicates a potential erosion hazard because of the nature of the soil or the steepness of the slope. Subclass "w" indicates a limitation in use because of excess water either as overflow of flood-water, ponded surface water, poor internal drainage, a shallow water table, or combinations of these factors. Subclass "s" indicates that the soil is limited mainly because it is shallow, droughty, or stony. Capability classifications can change if the limiting factor is corrected. For example, if flooding is controlled on Class IIIw soil that is frequently flooded, the capability could change to a capability class with fewer limitations, depending upon the degree of flood control and other factors.

1/ Refer to Land Capability Classification, USDA, SCS, Agricultural Handbook Number 210, September 1961, for a complete description of land capabilities.



The land capability classes and subclasses of the soils in the flood plain are as follows:

| <u>Classes and Subclasses</u> | <u>Acres</u> | <u>Percent</u> |
|-------------------------------|--------------|----------------|
| IIe | 482 | 30 |
| IIw | 803 | 50 |
| IIIw | <u>321</u> | <u>20</u> |
| <u>Total</u> | <u>1,606</u> | <u>100</u> |

Sufficient quantities of ground water for domestic and nonirrigation farm uses generally are available in the Ouachita Mountains, but only one community that has a population greater than 500 uses ground water for municipal supply. Ground water should not be considered as a source of supply for municipal growth and economic development in the Ouachita Mountains unless the quantity needed is small (11).

Ground water reserves in the watershed are limited to small quantities which occur in gravels, porous sandstones, or highly fractured rock (4).

The streams of the Ouachita Mountains are the best potential source of water for municipal growth and economic development. With adequate storage facilities, surface water is the most reliable and, in many places, the only source of supply when water demands approach 50,000 gallons per day. The streams are utilized for municipal supply by nine of the ten communities in the mountains that have populations greater than 500 (11).

Normal precipitation is 53.90 inches per year with about 27 inches from April through September. Normal monthly rainfall is as follows:

| <u>Month</u> | <u>Inches</u> | <u>Month</u> | <u>Inches</u> |
|--------------|---------------|--------------|---------------|
| January | 4.67 | July | 4.44 |
| February | 4.33 | August | 3.46 |
| March | 5.18 | September | 3.82 |
| April | 5.44 | October | 3.62 |
| May | 6.13 | November | 4.45 |
| June | 3.75 | December | 4.61 |

The average annual temperature is 61 degrees Fahrenheit with extremes ranging from minus 21 degrees Fahrenheit to plus 116 degrees Fahrenheit. Temperatures average 41 degrees in January and 80 degrees in July. The average growing season is 202 days from April 10 to October 30.



Land use in the watershed is as follows:

| <u>Land Use</u> | <u>Acres</u> | <u>Percent</u> |
|--------------------|---------------|----------------|
| Cropland | 55 | 0.1 |
| Grassland | 3,043 | 6.8 |
| Forest Land | 40,789 | 90.9 |
| Urban and Built-up | 196 | 0.5 |
| Other Land | <u>768</u> 1/ | <u>1.7</u> |
| <u>Total</u> | <u>44,851</u> | <u>100.0</u> |

1/ Includes 742 acres of roads and 26 acres of miscellaneous land.

Ninety-one percent of the watershed is in forest cover. Most of the forest land is in the rolling and mountainous uplands. The higher elevations on the north slopes support upland hardwoods (oak-hickory). The predominant cover on the south slopes and the lower north slopes is shortleaf pine and pine-hardwoods. The most common tree species in the smaller, scattered forest tracts in the bottom lands are white and red oaks, sweetgum, elm, and blackgum.

About one-fourth (10,889 acres) of the forested land is in small farm holdings. Weyerhaeuser Company manages four separate tracts of forest land in the watershed totaling 1,100 acres. The remaining forest land, 28,800 acres, is administered by the Forest Service as part of the Ouachita National Forest.

The 1970 Arkansas fire loss index goal was 0.47 percent and watershed protection goal was 0.20 percent. The average percent burn for the watershed for the years 1966 through 1970 was 0.053 percent.

With few exceptions, forests are in fair hydrologic condition. Those in private ownerships tend to be below average. Less than ten percent of the forest area showed light to moderate damage from grazing. None of the forest area is severely overgrazed.

The South Fork Ouachita River flows from the southwest part of the watershed to the watershed outlet, which is about 3 miles upstream from Lake Ouachita. The named tributaries and their drainage areas are North Fork (10 square miles), Big Cedar Creek (6 square miles), Cedar Creek (3 square miles), Woods Branch (3 square miles), Barnes Branch (2 square miles), and Martin Creek (3 square miles). Several small unnamed tributaries (one to three miles long) empty into the South Fork Ouachita River. The flow characteristics of the smaller tributaries are intermittent. Although there are perennial springs present in some of the drainage areas, the flows from these springs are small enough that all the streams will usually cease to flow at some point during a normal year. Practically all the streams are tree lined. South Fork Ouachita River has not been classified by the Arkansas



Department of Pollution Control and Ecology, but has characteristics similar to those of the Ouachita River above Lake Ouachita, which has a Use Class A and Fishery Class S classification (14). This indicates that the water is suitable for primary contact recreation and other compatible uses and suitable for a smallmouth bass fishery.

The low population density of the watershed, the large percentage of forest land, the small amount of cropland, and the presence of springs are all conducive to the excellent quality of water. The water temperatures are generally cool and the average concentration of sediment (188 milligrams per liter), of dissolved solids, and of other pollutants is low.

South Fork Ouachita River varies from headwater characteristics (steep gradient; bedrock bottom; high riffle percentage; and shallow, infrequent pools) to a middle stream course (gentle gradient; rubble, gravel, and silt bottom; high pool percentage; and moderately deep, frequent pools).

Water quality analyses were made on South Fork Ouachita River near the bridge on U. S. Highway 270 at Mount Ida (Sample Station Number 1) by the U. S. Geological Survey from August 1969 to June 1972 (11). Tests run were dissolved oxygen, pH, specific conductance, and temperature. Other water quality analyses were made in February and April 1974 by the Arkansas Department of Pollution Control and Ecology on Big Cedar Creek approximately one-fourth mile downstream from Structure Number 1 (Sample Station Number 2). Also, in February 1968, the Arkansas State Department of Health made a water quality analysis on South Fork Ouachita River near the Mount Ida municipal intake (Sample Station Number 1). The following summary is the result of these analyses:



WATER QUALITY ANALYSES

18
Setting

| Tests | Range | Number of Samples | Log Mean | Arithmetic Mean | Arkansas Water Quality Standards (14) |
|---------------------------|-------------|-------------------|----------|-----------------|---------------------------------------|
| Iron | | | | | |
| Fe - mg/l | 0.10 - 0.30 | 3 | 0.16 | 0.18 | 0.30 1/ |
| Manganese | | | | | |
| Mn - mg/l | 0.01 - 0.03 | 2 | 0.02 | 0.02 | 0.05 1/ |
| Calcium | | | | | |
| Ca - mg/l | 26 - 35 | 3 | 31.4 | 31.7 | - |
| Magnesium | | | | | |
| Mg - mg/l | 5.0 - 9.0 | 3 | 6.2 | 6.4 | - |
| Alkalinity | | | | | |
| CaCO ₃ - mg/l | 82 - 111 | 3 | 103 | 101 | - |
| Sulfate | | | | | |
| SO ₄ - mg/l | 1.0 - 11.0 | 3 | 4.7 | 7.0 | 10 |
| Chloride | | | | | |
| Cl - mg/l | 0.6 - 4.0 | 3 | 1.9 | 3.0 | 10 |
| Nitrate | | | | | |
| N - mg/l | 0.1 - 2.8 | 2 | 0.5 | 1.4 | 10 |
| Phosphate | | | | | |
| P - mg/l | 0.01 - 0.01 | 2 | 0.01 | 0.01 | 0.10 |
| Total Hardness | | | | | |
| CaCO ₃ - mg/l | 86 - 126 | 3 | 104 | 106 | - |
| Conductivity | | | | | |
| Micromhos/cm | 132 - 197 | 30 | 165 | 167 | - |
| pH | 6.3 - 8.0 | 30 | 7.6 | 7.5 | 6.0-9.0 |
| Water Temperature | | | | | |
| °C | 6.0 - 26.5 | 29 | 14.7 | 16.0 | 30.0 |
| Color | | | | | |
| PT - CO Units | 1.0 - 5.0 | 2 | 2.3 | 3.0 | 75 |
| Turbidity | | | | | |
| JTU | 2.5 - 3.1 | 2 | 2.8 | 2.8 | 10 |
| Dissolved Oxygen | | | | | |
| DO - mg/l | 6.8 - 12.0 | 28 | 9.4 | 9.3 | 6.0 |
| Percent Oxygen Saturation | 76 - 110 | 28 | 92 | 91 | - |
| BOD | | | | | |
| 5-day - mg/l | 0.6 - 0.7 | 2 | 0.66 | 0.65 | - |
| Fecal Coliform | | | | | |
| No./100 ml | 1 - 8 | 2 | 3 | 4 | 200 |
| Total Coliform | | | | | |
| No./100 ml | 20 - 42 | 2 | 29 | 31 | 5,000 1/ |
| Fecal Strep. | | | | | |
| No./100 ml | 1 - 30 | 2 | 6 | 15 | - |
| Total Solids | | | | | |
| mg/l | 130 - 153 | 3 | 136 | 139 | - |
| Dissolved Solids | | | | | |
| mg/l | 130 - 151 | 2 | 140 | 141 | 150 |

1/ From Rules and Regulations Pertaining to Public Water Supplies by the Arkansas State Department of Health (13).



During July 1975, five samples were taken at two points and these samples were analyzed for bacterial quality. The two sample stations, mentioned above, are shown on the map on page 20. The results of these tests are summarized as follows:

BACTERIAL WATER QUALITY

| Bacterial Count | : Minimum | : Maximum | : Geometric Mean |
|---|-----------|-----------|------------------|
| Total Coliform (MPN/100 ml) | | | |
| Station Number 1 | 185 | 370 | 311 |
| Station Number 2 | 243 | 360 | 298 |
| Fecal Coliform (MPN/100 ml) | | | |
| Station Number 1 | 88 | 351 | 110 |
| Station Number 2 | 16 | 84 | 47 |
| Fecal Streptococcus (MPN/100 ml) | | | |
| Station Number 1 | 120 | 1,150 | 302 |
| Station Number 2 | 116 | 490 | 251 |

No large impoundments occur in the watershed but there are 36 farm ponds which have a total area of about 15 acres. There are no wetlands in the watershed (3).

2. Present and projected population. The 1970 population for Montgomery County was 5,821 (7). Projected population for the county in the year 2000 is 8,326. Of the projected population, 3,780 will be urban and 4,546 will be rural.

The present population of the watershed is 1,383, of which 564 are rural and 819 are urban. Projected to the year 2000, rural population will be 690 and urban 2,015.

Projected populations are based on statistical data obtained from the United States Census of Population.

The major motivating factor in migration from the general area has been the lack of employment opportunities. Changes in the area's population are functions of changes in unemployment. Social conditions tend to improve as the resources of an area are developed and more employment opportunities become available. With industrial employment now increasing, population is expected to increase.

3. Economic resources. The major source of income is from the sale of timber, timber related products, livestock, and livestock products. Open land in the watershed is devoted almost entirely to the support of livestock. The cleared upland portion of the watershed is used primarily



SOUTH FORK WATERSHED

Water Quality Sample Stations





for grazing, and most of the bottom land is in improved pasture and meadow. Average annual agricultural yields per acre in the flood plain consists of hay, 3.5 tons; pasture, 9 animal unit months; and soybeans, 37 bushels. Average annual yields in the upland areas of the watershed are hay, 2 tons; and pasture, 5 animal unit months.

From 1964 to 1969, the average value of land and buildings in Montgomery County increased from \$14,751 to \$30,208 per farm unit (6). The flood plain land is valued at about \$300 per acre. The value of the upland varies according to the location and intended use. The upland suitable for agricultural use is valued at about \$200 per acre.

From 1964 to 1969, the number of farms in Montgomery County decreased from 666 to 424, while the average size increased from 154 to 157 acres. In 1969, 152 farms or 36 percent of the farms in Montgomery County, had sales under \$1,000. Farms with sales under \$2,000 were 52 percent of the total. Of the total number of farms in the county, 239 were fully owner-operated, 78 were part-owner operated, and 17 were tenant-operated (6).

With the increase in unemployment, brought about by the decline in the number of farms, an exodus of the rural population began. Because there were no large urban areas in the county offering industrial employment, this surplus labor force was forced to seek employment outside the county.

This trend of outmigration continued until about 1960 when Montgomery County reached a low of 5,370 inhabitants. To help reverse this trend of outmigration, the residents of Mount Ida and Montgomery County began seeking new sources of employment. By 1968, a total of five industries were located in the county, including a garment factory and a shoe factory at Mount Ida. Total industrial employment now numbers about 450 and total population for the county increased to 5,821 in 1970 (7).

There are 85 farms in the watershed with an average size of 175 acres. About 25 of these farms are located in the flood plain.

Mount Ida, the county seat of Montgomery County, is the principal trade center for the watershed. Services available in Mount Ida are as follows: (1) health facilities (county hospital), (2) news media (weekly newspaper), (3) transportation facilities, (4) educational facilities (grade and high schools), and (5) churches.

The transportation needs are served by a system of state highways, county roads, and Forest Service roads which provide access to all parts of the watershed except during flood stage. The paved highways consist of U. S. Highway Number 270 and Arkansas State Highway Number 27.



Despite the increase in nonagricultural employment, per capita income for this area remains far below the State average. In 1970, the per capita income was \$1,784, compared to the State average of \$2,649. The unemployment rate for the Mount Ida work area was 6.9 percent (1).

The watershed is located in an area that is economically depressed, as evidenced by the fact that the entire county has been designated eligible to receive assistance under Titles IV and V of the Public Works and Economic Development Act of 1965. The watershed is located in the West Central Arkansas Planning and Development District (established under Title IV of the Public Works and Economic Development Act) and is within the Ozarks Economic Development Region (Title V).

The West Central Arkansas Planning and Development District includes ten counties and was established in order that economic development projects of broad geographical significance might be planned and carried out. The primary purpose of this district is to improve the economic and social conditions within this depressed area.

The Ozarks Economic Development Region has many of the same goals as the Planning and Development District but covers a much larger area (multi-state).

4. Plant and animal resources. Trees are the dominant plant resource in the watershed. The higher elevations on the north slopes support an oak-hickory association. The predominant trees on the lower north slopes and south slopes are shortleaf pine and pine-hardwood mixture. The common trees on the small, scattered forest tracts in the bottom land are white oak, red oak, sweetgum, elm, and blackgum. The estimated average timber resource is as follows:

| | |
|--------------------|---------------------------|
| Pine sawtimber | 3,000 board feet per acre |
| Hardwood sawtimber | 500 board feet per acre |
| Pine pulpwood | 2 cords per acre |
| Hardwood pulpwood | 1.2 cords per acre |

There are five forest wildlife habitat types within the watershed; (1) white oak-red oak-black oak, (2) post oak-blackjack oak-black hickory, (3) eastern redcedar, (4) silver maple-river birch-elm, and (5) shortleaf pine-oak-hickory. The most prevalent forest type is shortleaf pine-oak-hickory. The silver maple-river birch-elm type is generally restricted to streambanks. The eastern redcedar (cedar glade) type is localized where underlying shale or limestone has been exposed. The post oak-blackjack oak-black hickory type is found on the southerly exposed, drier sites. The white oak-red oak-black oak type is found on moist, protected sites.

The major agricultural plant resources are 1,818 acres of native pasture and 1,225 acres of improved pasture (fescue and bermudagrass). Some of the pastureland is used for hay production during the first part of the growing season and is then grazed during the late summer and fall.



Beef cattle production is the major farm enterprise in the watershed. Most are cow-calf operations. There are 58 head of cattle permitted on national forest land. The number of cattle in the watershed is below the estimated carrying capacity.

The watershed's land use pattern strongly favors forest wildlife species. There are approximately 41,000 acres of pine-hardwoods on Land Capability Classes IV through VII. Estimated fall-game populations on these forest lands are one deer per 175 acres, one turkey per 125 acres, and one squirrel per 10 acres.

Openland wildlife habitat is found along the wider floodplains, stream terraces, and upland benches. Estimated fall-game populations are one cottontail per five acres and one bobwhite per 150 acres. Rabbit, quail, and dove hunting may be excellent at specific locations; but, as the density figures indicate, the watershed's openland wildlife population is poor.

Wetland wildlife habitat is found along streams and farm ponds. Except for occasional migratory waterfowl, wood duck is the only significant waterfowl species. Woodcock are common along upland wooded flood plains, while Wilson's snipe are occasionally found in wet pastures.

Examples of resident non-game birds principally found are warblers (8 species), vireos (3 species), thrushes (2 species), wrens (3 species), nuthatches (3 species), owls (3 species), hawks (3 species), and woodpeckers (7 species).

The red-cockaded woodpecker should be reported as a possible resident of the watershed. It is found in open pine stands, but usually is found in the pine woodlands of the Gulf Coastal Plain to the south of this watershed.

Examples of nongame mammals are short-tailed shrew, prairie mole, big brown bat, armadillo, eastern chipmunk, flying squirrel, wood mouse, and striped skunk.

Populations of whitetail deer and squirrel are presently "moderate" or "low" relative to the watershed's potential. Black bear inhabit the large, relatively undisturbed acreages of the watershed.

A population of wild canids with some individuals having red wolf characteristics has been reported from the watershed vicinity. Red wolves may also be in the watershed.

A recent publication by the Arkansas Game and Fish Commission listed the major smallmouth bass streams of Arkansas. A reach of the Ouachita River immediately north of this watershed and a reach of the Caddo River immediately south of this watershed were among the streams listed. South Fork Ouachita River is also a smallmouth bass stream, but not of the same reputation.



Fish population samples conducted by the Arkansas Game and Fish Commission indicate standing crops of approximately 250 pounds per acre of stream pool in South Fork Ouachita River. In addition to smallmouth bass, the catchable sport fish population included longear sunfish, channel catfish, spotted bass, green sunfish, largemouth bass, black crappie, bluegill sunfish and rock bass. Sample results from headwater reaches were more variable, 150 to 300 pounds per acre of stream pool. Most of the same sport species were present; however, the sunfishes comprise a larger percent of the standing crops.

The stream reaches which will be inundated by project structures are headwater in nature. Examples of riffle fish species inhabiting these waters are banded darter, orangebelly darter, greenside darter, and slim minnow. Species that inhabit the interface between riffles and pools are channel darter, stoneroller, and bigeye shiner. Species inhabiting the clear, shallow pools of this habitat type include redbfin shiner, creek chub, creek chubsucker, freckled madtom, and brook silverside.

Three rare fish species have been collected from watersheds adjacent to the South Fork Watershed. These species are the paleback darter (Etheostoma pallididorsum), Kiamichi shiner (Notropis ortenburgeri), and the colorless shiner (Notropis perpallidus). Although none of these species are known to have been collected within the South Fork Watershed, the proximity of the collections to this watershed and the habitat preferences of these species indicate that any of them could possibly exist in this watershed.

The following information on these species was obtained from the Arkansas Natural Area Plan (15).

The paleback darter prefers clear, shallow, backwater pools or spring areas with mud-gravel bottoms, often covered with dead leaves or other organic matter. It is also found occasionally on shallow riffles with loose gravel bottoms and patches of detritus. It occurs mainly in the extreme headwaters of the Caddo River in Montgomery County and has also been located in a headwater creek of the Ouachita River.

The Kiamichi shiner is found primarily in clear streams with permanent flow and gravel bottoms. Earlier collections of this species were from nine localities in the Ouachita Mountains of southwestern Arkansas. Recent collections have been made from tributaries of the Fourche La Pave River and Ouachita River.

The colorless shiner inhabits small to moderate-sized warmwater rivers with a variety of bottom types in slow or quiet water. The largest collections of this species have been from clear, gravel-bottomed streams of the Ouachita River system. Its known range in Arkansas is the eastern Saline River, Ouachita River, Caddo River, and Little Missouri River.



An evaluation of the stream fish habitat downstream from the proposed structures has been conducted. Physical parameters, such as pool riffle ratio, average pool area, average pool depth, bottom type, and stream shelter were evaluated. Based upon this survey, affected stream reaches were rated regarding quality of habitat. The stream reach downstream from Structure Number 2 received the highest rating, followed by the stream reach downstream from Structure Number 3. The stream reach downstream from Structure Number 1 received the lowest rating.

5. Recreational resources. The only developed recreational area in the watershed is the Mount Ida School playground. Other recreational activities are fishing, swimming, horseback riding, hiking, nature walking, birdwatching, wildlife photographing, picnicking, camping, sightseeing, pleasure driving, game hunting, and mineral collecting. Recreational facilities have been developed on Lake Ouachita, which is located near Mount Ida. Within a distance of 14 road miles from Mount Ida there are seven recreation facilities along the Lake Ouachita shoreline. Five of these are Corps of Engineers facilities, one is a Ouachita National Forest facility, and one is a privately owned camp. All of the facilities, except the privately owned camp, are open to the general public.

Float fishermen use the section of South Fork Ouachita River from U. S. Highway 270 to the watershed outlet. The section from U. S. Highway 270 up to the point where the stream turns south is mainly used by wade fishermen.

6. Archeological and historical resources. No areas within Montgomery County are listed in, pending inclusion in, or currently under consideration for nomination to the National Register of Historical Places. According to the Arkansas Archeological Survey, there are no known archeological resources in the areas surveyed for structural measures.

7. Soil, water, and plant management status. Landowners in the watershed are provided technical assistance by the Arkansas Forestry Commission in cooperation with the U.S. Forest Service and by the Soil Conservation Service field office at Mount Ida. The Ouachita National Forest Land is managed by the U.S. Forest Service to fulfill wildlife, recreation, timber, and other environmental requirements. About 57 landowners in the watershed presently cooperate with the Montgomery County Conservation District. Conservation plans that cover 52 percent of the privately owned land have been developed for these cooperators and about 65 percent of the planned conservation land treatment measures have been applied. Practices applied are as follows:



| <u>Land Treatment Measures</u> | <u>Unit</u> | <u>Amount Applied as of April 1974</u> |
|--------------------------------|-------------|--|
| Conservation Cropping System | Acre | 32 |
| Contour Farming | Acre | 9 |
| Crop Residue Use | Acre | 30 |
| Brush Management | Acre | 1,200 |
| Pasture and Hayland Planting | Acre | 325 |
| Pasture and Hayland Management | Acre | 400 |
| Proper Grazing Use | Acre | 400 |
| Diversions | Feet | 5,000 |
| Ponds | Number | 36 |

These land treatment measures represent an expenditure of \$37,096.

In past years, a large part of the flood plain of the South Fork Watershed was intensively farmed. As damages from flooding increased and markets grew more competitive, farmers were forced to convert to grassland-type operations. With adequate flood protection, more intensive use of the flood plain is anticipated.

8. Projects of other agencies. South Fork Watershed outlets into the flood pool of Lake Ouachita. This lake was formed by the construction of Blakely Mountain Dam on the Ouachita River about 10 miles northwest of Hot Springs, Arkansas. This project was constructed by the Corps of Engineers for flood control and power generation. Recreational facilities have been developed at many locations on the lake, including several areas near Mount Ida (5).

South Fork Watershed will provide flood protection to agricultural areas above the elevation of the flood pool of Lake Ouachita. The operation of Lake Ouachita will not affect the floodwater retarding structures included in the South Fork Watershed Work Plan.

F. Water and Related Land Resource Problems

1. Land and water management. Proper land treatment practices such as conservation cropping systems, proper crop residue management, minimum tillage, and on-farm drainage cannot be practiced on the areas of the flood plain that are frequently flooded, nor can these areas be used to their greatest capability. Much of the flood plain is in pasture and hayland that could be used for cropland if flooding were controlled.

The management of grassland needs to be improved to reduce erosion and runoff. Practices needed include renovation and seeding additional grasses and legumes, brush management, weed control, fertilizing and liming, and proper grazing use.

The major part of the drainage area above the proposed structures is federal land administered by the Forest Service. Areas that need conservation land treatment measures include 13 acres of gullies, 1 acre



of streambank, 1 acre of stream channel, 20 miles of system or functional roads, 17 miles of abandoned roads and trails, and 2 acres of critical sheet erosion.

Stand improvement measures are needed on about 1,200 acres of privately owned forest land. Most of this is in small farm holdings that have been neglected and not managed for timber production. Less than ten percent of the forest area has light to moderate damage from grazing. Efforts to bring the privately owned forest land under proper forest management will require concentrated planning. The examples of good national forest and industrial management, together with the relative ease of applying the needed land treatment measures, should make motivation easier.

2. Floodwater damage. About 1,606 acres of bottom land in the watershed are subject to floodwater damages by a 100-year frequency flood.

To analyze flood damages, the flood plain was divided into two evaluation reaches. These reaches were selected after considering the width of the flood plain, land use, and frequency of flooding. The location, total flood plain, and average annual area flooded by reaches are as follows:

| Reach | Location | Total Flood Plain (acres) | Average Annual Area Flooded (acres) |
|--------------|---|------------------------------------|---|
| I | Watershed Outlet to Arkansas Highway 379 Bridge | 1,002 | 750 |
| II | Arkansas Highway 379 Bridge to Structures Numbers 2 and 3 | <u>604</u> | <u>684</u> |
| Total | | 1,606 | 1,434 |

This table reveals that the average annual area flooded in Reach II is greater than the total flood plain. This indicates that flooding occurs several times each year. The average annual area flooded is the cumulative acres flooded by each flood in a 100-year period divided by 100.

Minor flooding is experienced an average of three times annually in Reach II. A major flood, or a flood that inundates at least one-half of the total flood plain, can be expected annually.

Because of the frequency of flooding and the physical characteristics of Reach II, land use in the agricultural flood plain has been restricted. Projected land use (without project) on the 604-acre flood plain in Reach

The first part of the document discusses the importance of maintaining accurate records of all transactions.

It is essential to ensure that all entries are clearly legible and that the appropriate columns are used for recording each type of transaction.

The following table provides a summary of the key components of the accounting system and their respective functions.

The system is designed to facilitate the efficient processing of financial data, ensuring that all information is captured and analyzed accurately.

Regular audits are conducted to verify the integrity of the data and to identify any potential discrepancies or errors.

The final section of the document outlines the procedures for handling any issues that may arise during the course of the accounting process.

II is grassland, 574 acres and other land, 30 acres. Average annual floodwater damages for Reach II are estimated to be \$22,280 and include crop and pasture, other agricultural, and nonagricultural.

In Reach I, minor flooding can be expected an average of twice annually with a major flood once every seven years. Because of the less frequent flooding and the physical characteristics of the flood plain in Reach I, a more intensive use of the flood plain for agricultural production can be realized. The projected land use (without project) of the 1,002 acres of flood plain is cropland, 301 acres; grassland, 651 acres; and other land, 50 acres. Average annual floodwater damages for Reach I are estimated to be \$40,710. Average annual floodwater damages for Reach I include crop and pasture, other agricultural, and nonagricultural.

The City of Mount Ida is located in Reach I on the south bank of South Fork Ouachita River. Most of the city is above the flood plain and is not affected by flood flows. The city limits of Mount Ida extend to the edge of the river. About 41 acres within the incorporated area are subject to flooding from a 100-year frequency flood and 11 properties are subject to damage. Damages result from first floor flooding to commercial, industrial, and residential properties.

An additional 112 acres are subject to flooding in the remainder of the flood plain on the north side of the river adjacent to Mount Ida. Some development is occurring in this flood plain and six properties are subject to damage. The areas subject to flooding are shown on Appendix B, Urban Flood Plain Map, Mount Ida, Arkansas.

Indirect damages result from threatened or actual flooding and include interruption of travel; loss of income by workers who commute or are unable to work in the fields; loss or delay in sales by local merchants; additional time, distance, costs and general inconvenience associated with marketing of farm products, delivering mail, and transporting children to school. Indirect damages of \$14,510 are about 15 percent of the direct damages.

Average annual floodwater damages for the entire flood plain are estimated to be \$68,450. These include crop and pasture, \$30,840; other agricultural, \$7,300; and nonagricultural, \$30,310.

Damages from the May 1968 flood, a 50-year event, caused an estimated \$131,815 in damages. Damages in Reach I were estimated as follows: Urban, \$70,415; crop and pasture, \$22,000; and other agricultural (fence damage), \$5,200. Eleven residential properties, three industrial properties, and three commercial properties were damaged in the urban area. Damages in Reach II from the May 1968 flood were estimated as follows: road and bridge, \$19,500; crop and pasture, \$8,000; and other agricultural, \$6,700.



3. Erosion damage. Erosion rates are generally low throughout the watershed. The average annual gross erosion rate is 2.64 tons per acre. The annual sheet erosion rate is 1.55 tons per acre. Roadside erosion constitutes about 40 percent of the gross erosion. Streambank erosion and gully erosion are not major problems in the watershed.

About 425 acres in Reach I and 229 acres in Reach II are damaged by scour erosion. Of the total, 196 acres are damaged 10 percent, 163 acres are damaged 20 percent, 201 acres are damaged 30 percent, 69 acres are damaged 40 percent, and 25 acres are damaged 50 percent. The damages occur on agricultural land and are equal to an annual loss of \$12,160 of agricultural production.

4. Sediment damage. Sedimentation by overbank flooding damages 330 acres of the flood plain. Most of the damage occurs as localized deposits of relatively infertile coarse grain materials. About 251 acres in Reach I and 79 acres in Reach II are damaged by sediment. Of the areas involved, 193 acres are damaged 10 percent, 120 acres are damaged 20 percent, 14 acres are damaged 30 percent, and 3 acres are damaged 40 percent. The damages occur on agricultural land and are equal to an annual loss of \$3,850 of agricultural production.

The average annual sediment yield at the mouth of the watershed is about 35,500 tons. Although sediment is not a major problem at the watershed outlet, sediment pollution in Lake Ouachita is increased by sediment from South Fork Watershed. The average annual sediment concentration at the watershed outlet is about 188 milligrams per liter.

5. Drainage problems. About 500 acres of the soils in the watershed are classified as poorly drained. Drainage of these wet soils may be accomplished by onfarm drainage systems.

6. Municipal and industrial water problems. The City of Mount Ida has obtained its water from the South Fork Ouachita River for several years. The demand for water has been at a rate of up to 200,000 gallons per day and the river has never ceased to supply this amount of water. Although the river has been able to supply this demand, it has become very low and almost stopped flowing during dry periods. The 7-day, 2-year low flow record from 1949 to 1960 at Mount Ida is 0.047 cubic feet per second per square mile which is equivalent to 1.9 million gallons per day. The 7-day, 5-year low flow is 206,720 gallons per day, i.e., 1 year in 5 or a 20 percent chance water will be scarce. No flow is indicated for the 7-day, 10-year low flow record (12).

The area in and around Mount Ida is expected to grow and expand in the near future, especially east of the city. At the present time, a Rural Water Users Association is planning to install a water distribution system to serve about 200 families.



As projected by the city's engineering consultant, the expected population equivalent to be served by the year 2020 is 7,275 persons, with a demand rate (peak daily usage including commercial and industrial) of 275 gallons per capita per day. With this demand, the South Fork Ouachita River will not be able to provide enough water for Mount Ida during a dry season.

7. Plant and animal problems. The low flows that occur in South Fork Ouachita River during dry periods limit the value of this stream as a smallmouth bass fishery.

Fishing opportunities in the watershed are insufficient to satisfy demand. However, Corps of Engineers' reservoirs and numerous rivers in the vicinity easily satisfy residents' fishing demand.

Very little waterfowl hunting is provided within the watershed. Farm game hunting is good locally, but the amount and distribution of farm game habitat is very poor. Whitetail deer hunting is poor, as indicated by leral deer harvests from Montgomery County for the past two years.

Where timber management favors mature stands of pine rather than mature mixed stands, the diversity of non-game wildlife populations is decreasing. Regeneration is needed annually in the extensive, densely forested national forest land for timber management and wildlife habitat diversity. This diversity also decreases when native pastures are changed to improved pastures.

8. Water quality problems. There are no major water quality problems in the South Fork Watershed. Water quality data is limited with information available from only one regular sampling point. The sampling point is located at a bridge on U. S. Highway 270 at Mount Ida and the period of record is from August 1969 to June 1972. The lowest percent saturation of dissolved oxygen during the sampling period was 76 percent with an average of 91 percent. The watershed is 91 percent woodland and the land use is not expected to change appreciably in the future. Very small quantities of fertilizers and pesticides are used in the watershed; therefore, they are not expected to cause a water quality problem. Mount Ida's sewage lagoon effluent empties into South Fork Ouachita River about one-half mile downstream from the bridge on U. S. Highway 270 at Mount Ida. This sewage effluent is the only source of pollution that might cause a water quality problem in the watershed.

9. Economic and social problems. In 1969, 152 farms, or 36 percent of the farms in Montgomery County, had sales under \$1,000. Farms with sales under \$2,000 were 52 percent of the total (6).

The watershed is in an area which has been declared eligible for aid under the Public Works and Economic Development Act of 1965.

Additional employment opportunities are needed. The unemployment rate is 6.9 percent and the per capita income is \$1,784 for Montgomery



County (1). This low income reduces the individual purchasing power and the tax base. Rural community development is needed in the watershed.

IV. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

There are no known conflicts with the objectives or specific terms of approved or proposed federal, state, or local land use plans, policies, or controls.

V. ENVIRONMENTAL IMPACT

A. Conservation Land Treatment

Practically all of the land in the watershed will receive some treatment during the installation period and all needed treatment will be installed on about 400 acres of cropland, 2,000 acres of grassland and 2,900 acres of forest land. These measures will reduce surface water runoff by increasing rainfall infiltration.

No significant land use changes are expected in the watershed as a result of conservation land treatment measures; however, proper management of grassland and forest land will increase production. Specific wildlife species will be favored on the odd areas depending on the type of habitat that is developed. The 12 farm ponds to be constructed will encourage proper distribution of grazing and will benefit those species of wildlife that require open water as part of their habitat. Uniform grazing helps prevent areas from being overgrazed and trampled, which can result in increased erosion and lead to the development of critically eroding areas.

Gross erosion in the watershed will be reduced 18 percent, and sheet erosion rates on woodland and grassland will be reduced 19 and 26 percent, respectively.

Sediment yield from the watershed uplands will be reduced about 17,400 tons per year or 49 percent by land treatment and structural measures. Stream pollution caused by sediment will be reduced 49 percent by the project. The present average annual sediment concentration of 188 milligrams per liter will be reduced to about 96 milligrams per liter at the point where South Fork Ouachita River enters Lake Ouachita. Land treatment measures will provide flood damage reduction benefits of about \$3,230 annually.

The reduction of the flood threat will allow 214 acres to be restored to its former productivity. This land has been in cropland or hayland in the past, but due to flooding has been allowed to return to an unmanaged condition of native grasses.



More intensive land use will occur on 1,145 acres of land in the flood plain as a result of the reduction of damaging floods. This will be the result of more production inputs, such as seed and fertilizer, and the use of more profitable crops.

Forest land management will result in the fulfillment of wildlife, recreation, timber, and other environmental requirements by the attainment of the most desirable forest succession types to meet the desired multiple use goals. Through stand improvement measures the forest's hydrologic capabilities will be improved by creating stand compositions that will produce optimum development and protection of forest cover, litter and humus through stand improvement measures.

B. Other Measures

Based on a survey by the Arkansas Archeological Survey, the potential direct impact of the project, from an archeological perspective, would not destroy any resources. If unidentified archeological sites are disturbed during construction, their values will be partially or completely lost.

C. Structural Measures

The conversion of 52 acres of grassland and 257 acres of woodland to spillways, embankments, and pools will not affect any unique wildlife habitat. About 5 miles of the watershed's streams will be inundated by the sediment pools. The reservoirs created by the structures will create 193 acres for fish habitat. This includes 87 acres in Structure Number 1 (the municipal and industrial water supply pool), 56 acres in Structure Number 2, and 50 acres in Structure Number 3. The acreages are maximum values and they will be reduced as water is used for various purposes. Additional lake fish habitat will be created by construction of 12 farm ponds under the land treatment program. These ponds will average about one-half acre.

At the location of Structure Number 2, streamflow is perennial. At the location of Structures Numbers 1 and 3, streamflow is intermittent. Water released from the low-flow augmentation pool of Structure Number 3 and the municipal and industrial water pool of Structure Number 1 will change the flow characteristics downstream from the structure location on these streams from intermittent to perennial flows.

Wildlife habitat in the construction area will be disturbed. The top of the dam lengths will be 800 feet for Structure Number 1, 850 feet for Structure Number 2, and 1,600 feet for Structure Number 3. After construction, 116 acres will be grassland (embankments, emergency spillways, detention pools, and borrow areas) and 193 acres will be water (municipal and industrial water supply pool, low-flow augmentation pool, and 100-year sediment pool). The present land use of 309 acres supports about 25 annual man-days of hunting.



The installation of structural measures will cause an increase in available habitat for fish and wildlife species such as bluegill sunfish, largemouth bass, channel catfish, bullfrog, diamondbacked watersnake, reared turtle, wood duck, pied-billed grebe, belted kingfisher, beaver, racoon, and big brown bat. There will be a decrease in available habitat for such species as stoneroller, paleback darter, Kiamichi shiner, redfin darter, creek chub, central dusky salamander, northern fence lizard, speckled kingsnake, ovenbird, brown thrasher, pine warbler, flying squirrel, pine vole, and gray squirrel.

The planned reservoirs will inundate approximately 5 miles of headwater streams, which is estimated to be less than 3 percent of the total length of streams in the South Fork Watershed.

These reservoirs will alter some habitat of the paleback darter and Kiamichi shiner, two rare species which could possibly be in the watershed. The colorless shiner is another rare species which could be in the watershed, but is not expected to be affected by the planned reservoirs. This shiner prefers a river habitat with slow or quiet water (15); such habitat is downstream from the reservoir sites.

The projected 100 acre increase in cropland as a result of the reduction in flooding will benefit game species. This increased acreage will be located in a relatively narrow flood plain. These locations mean a larger amount of "edge" between the cropland and grassland or forest land. The gain in cropland acreage will be at the expense of grassland.

The installation of structural measures will require modification of one mile of Forest Service roads and one-half mile of county roads and re-locating one hunting club building.

The proposed project will reduce flooding on the 1,606-acre flood plain. The flood plain represents the area that would be inundated by a flood having a frequency of occurrence of once in 100 years, on the average. The average annual area flooded will be reduced 62 percent, from 1,434 acres to 539 acres. The variation by reaches of the average annual area flooded is as follows:



| Reach | Location | Average Annual Area Flooded | | Reduction (percent) |
|--------------|---|-----------------------------|----------------------|---------------------|
| | | Without Project (acres) | With Project (acres) | |
| I | Watershed Outlet to Arkansas Highway 379 Bridge | 750 | 321 | 57 |
| II | Arkansas Highway 379 Bridge to Structures Numbers 2 and 3 | 684 | 218 | 68 |
| Total | | 1,434 | 539 | 62 |

The following table lists the reduction in acres flooded by reaches for the 1-year, the 3-year, and the 25-year frequency floods.

| Flood Frequency (average) | Reach | Without Project (acres) | With Project (acres) | Reduction (percent) |
|---------------------------|--------------|-------------------------|----------------------|---------------------|
| One year | I | 308 | 133 | 57 |
| | II | 306 | 100 | 67 |
| | TOTAL | 614 | 233 | 62 |
| Three year | I | 479 | 294 | 39 |
| | II | 374 | 223 | 40 |
| | TOTAL | 853 | 517 | 39 |
| Twenty-five year | I | 799 | 514 | 36 |
| | II | 516 | 312 | 40 |
| | TOTAL | 1,315 | 826 | 37 |

The average annual floodwater damages for the entire flood plain are estimated to be \$68,450. Estimated average annual floodwater damages with project will total \$17,770.

Flooding disrupts long-range planning and orderly conservation crop rotations in the flood plain. With the high level of protection provided, a high level of production can be expected.



Land use and crop yields as projected by the Economic Research Service, were used as guides in determining future conditions. Projected land use in the flood plain is shown in the following table for "without project" and "with project" conditions for major land uses.

| Projected Flood Plain Land Use | : Without : Project (acres) | : With : Project (acres) |
|--------------------------------|-----------------------------------|--------------------------------|
| Cropland | 301 | 401 |
| Grassland | 1,225 | 1,125 |
| Miscellaneous | 80 | 80 |
| Total | 1,606 | 1,606 |

The quantity of water available as stream flow will be reduced until the pools of the structures are filled. After the reservoirs are filled, the quantity will be reduced by seepage and evaporation losses from the pools.

The water quality will not be greatly affected by the structures. During low flow periods (July, August, and September) most or all of the out flow from Structures Numbers 2 and 3 will pass through cool-water intakes and low flow ports. This measure should insure that low flow discharge temperatures are approximately the same as inflow temperatures. The absence of developments in the drainage areas of the structures and the fact that most of this land is in the Ouachita National Forest where development is restricted, indicates that the quality of water will remain in its present state.

The municipal and industrial water storage provided by this project will enhance the potential of the area for future industrial development, both in seeking new industry and expanding existing enterprises.

Runoff from the drainage area above the municipal and industrial water supply site will provide a dependable yield of high quality water to meet projected needs. The expected population equivalent to be served by the year 2020 is 7,275, with a demand rate (peak daily usage including commercial and industrial) of 275 gallons per capita per day, as projected by the City's engineering consultant.

Damages to roads and bridges in the flood plain will be reduced by about 75 percent. Crop and pasture damages will be reduced by about 73 percent. Flood plain scour damages will be reduced 62 percent.

The area flooded by a 100-year frequency flood in Mount Ida will be reduced from 41 acres to 27 acres, or 34 percent. Flooding on the area adjacent to Mount Ida will be reduced from 112 acres to 43 acres, or 62 percent. Damage to 11 properties within the city limits would be reduced from \$14,440 to \$3,060, a reduction of 79 percent. Six

properties adjacent to Mount Ida would have damages reduced from \$17,005 to \$1,600, a reduction of 94 percent.

The project will eliminate flooding from floods of less than a 12-year frequency. Six residences or businesses will still be subject to damage from a 100-year frequency flood after project installation. Five of these properties are within the city limits of Mount Ida, and one is in the flood plain adjacent to Mount Ida.

D. Economic and Social

The project will serve as an immediate stimulus to the local economy by providing new employment opportunities. The employment multiplier was used to measure the total effect of creating additional employment. The multiplier was derived from the occupational classifications of the employed labor force. Basic data for estimating the number of jobs created by the project were obtained from OBERS projections and from U. S. Census of Population, Arkansas, 1970.

The analysis indicates that 36 new jobs will be created by providing employment opportunities for local labor during the construction period. In addition, there will be 38.3 new jobs, associated with basic and derivative industries, that will continue after construction is completed.

This effect of the project is particularly significant due to the high rate of unemployment and underemployment in the local area. The use of local labor for operation and maintenance of the project will provide a continuing favorable effect on the local economy. Loss of agricultural production in the pool area will cause a minor loss of agricultural income.

Additional income will be received by the laborers employed during construction and by farmers from the increased sales of farm products as a result of damage reduction and agricultural enhancement. The increased purchase of items or services required to produce and market the expanded production represents new income to local farm supply dealers, transporters, and processors.

Storage is included in Multiple Purpose Structure Number 1 for municipal and industrial water for the City of Mount Ida. This municipal and industrial water storage will enhance the potential of the area for future industrial development, both in seeking new industry and expanding existing enterprises.

The additional income generated by the project will enable the community to better support new or improved schools, parks, roads, health facilities, and other projects that will add to the enjoyment of life.

Knowledge of the protection afforded by the project will give the residents a greater sense of security. Families can offer their children greater



incentives to continue their education and remain in the community. The family-farm pattern of agriculture will be strengthened, which will help maintain population stability.

Installation of the South Fork Watershed Project will help achieve the goals of both the West Central Arkansas Planning and Development District and the Ozarks Economic Development Region by increasing employment, raising per capita income, and improving the standards of living for residents of the area.

E. Favorable Environmental Impacts

1. The average annual area flooded will be reduced 62 percent from 1,434 acres to 539 acres.
2. Erosion will be reduced 18 percent.
3. Surface runoff will be reduced.
4. Rainfall infiltration will be increased.
5. Efficiency of farming operations will be increased.
6. Sediment yield will be reduced 17,400 tons or 49 percent annually.
7. Flood plain scour damages will be reduced 62 percent.
8. Stream pollution from sediment will be reduced by decreasing the average annual sediment concentration from 188 milligrams per liter to approximately 96 milligrams per liter.
9. Livestock losses will be reduced.
10. Fish habitat and waterfowl resting and feeding areas will be created on 193 acres of permanent pools.
11. Average annual flood damages will be reduced \$69,950.
12. The overall flow characteristics of the streams downstream from the structures will be improved by the augmentation flow.
13. Damages to roads and bridges will be reduced about 75 percent.
14. General economic and living conditions of the area will be improved.
15. Two million gallons of water a day will be made available for the City of Mount Ida to insure the present and future growth of the area.

16. Average annual benefits will be \$14,310 from more intensive land use.
17. The aesthetic and environmental quality of the watershed will be enhanced.
18. Increased income will result from the sales of more and better farm products.

F. Adverse Environmental Effects

1. The floodwater retarding structures will require 52 acres of grassland and 257 acres of woodland.
2. The project will convert 5 miles of natural streams to reservoir areas.
3. Sedimentation, noise, and air pollution will be increased during construction.
4. Some natural upland wildlife habitat will be lost at the structure locations.
5. Some conservation land treatment measures will change the existing wildlife habitat.
6. If unidentified archeological sites are disturbed, their values will be partially or completely lost.

VI. ALTERNATIVES

The following are alternatives to the recommended plan for the use of available resources.

(1) Accelerated conservation land treatment measures only.

This alternative consists of accelerating the present program of land treatment for watershed protection. The land treatment measures to be applied would be the same as those described in the land treatment section of the recommended plan. However, the acreages would be different because there would be no restoration of land to its former productivity without flood control. This would mean fewer acres of cropland and grassland to be treated. The forestry measures would be practically the same as described in the recommended plan.

The installation of the land treatment measures would reduce erosion 18 percent and floodwater damages 5 percent. Surface water runoff would be reduced by increasing rainfall infiltration.



The environmental effects of the land and forestry treatment measures are discussed in the environmental impact section. This alternative would have an estimated cost of \$125,900. Approximately 95 percent of the benefits would be foregone if this alternative were implemented.

- (2) Accelerated conservation land treatment, securing municipal and industrial water from Lake Ouachita, and leveeing the urban flood plain.

The land treatment measures to be applied would be the same as those described in the land treatment section of the recommended plan.

Although Lake Ouachita was not constructed as a source of municipal water supply, the Office of Chief of Engineers, U. S. Army Corps of Engineers, has the authority under the Water Supply Act of 1958 to supply water to small municipalities.

The installation of the alternative would involve attainment of about a 50-foot wide easement from the lake to the treatment plant; construction of a pumping plant with two pumps near the lake; laying 5.5 miles of 16-inch high pressure water line; purchase of about 12 acres of land for the levee and borrow area; relocation of 4 residential houses; construction of about 3/4 mile levee with an average height of 10 feet; and the installation of a pumping plant to remove water from inside the levee.

Implementation of this alternative would provide all the water needed for future growth in the Mount Ida area. About 41 acres of urban flood plain would be protected from flooding by South Fork Ouachita River. Construction would cause a temporary increase in sedimentation until the areas were revegetated. About 41 acres protected by the levee could be developed for urban use.

The levee would protect 5 residential properties, 1 industrial property, and 1 commercial property. Four residential properties would have to be relocated to build the levee.

About 34 acres of the urban flood plain are undeveloped. The total construction costs are estimated to be \$616,000, of which the levee and pump would be \$185,000; the water line, \$406,000; and the pumping plant, \$25,000. The annual pumping costs would be about \$6,000.

About 46 percent of the annual benefits would be foregone should this alternative be implemented.

- (3) Accelerated conservation land treatment, securing municipal and industrial water from ground water sources, and changing land use of the urban flood plain.



The land treatment measures to be applied would be the same as those described in the land treatment section of the recommended plan.

The average ground water yield from a 3-inch well in the watershed is about 10 gallons per minute. To meet the future demand rate of two million gallons per day would require 140 wells. The wells should not be located within 1,000 feet of each other in an east-west direction. The wells would average about 350 feet deep. About 85,000 feet of collection water line would be required to deliver the water to the treatment plant. The wells would be cased in the top 100 feet. A small pump would be installed in each well. The wells could be installed at a rate that would satisfy the growing demands for water in the area. The present water supply would continue to be used whenever water was available in the river because pumping costs would be less expensive.

The estimated installation cost of the well system, excluding pump houses, land rights, and power lines to the pump, is \$712,000.

Damages could be reduced in the urban flood plain by changing the land use to one that has little or no damageable value such as a park, playground, or ball field. This would require relocating a lumber yard and sawmill, a sale barn, a warehouse, an office building, and 7 residential properties. The estimated value of these properties is \$200,000. Relocation costs were not estimated.

Only small areas of the environment would be disturbed by well installations at any one time because the complete installation would take place over a 40 or 50 year period. The collection water lines would be small in diameter so their installation would not alter the environment significantly at any location. About 15 acres would be required for pump locations and water lines.

Land use changes in the developed urban flood plain would require about 10 acres of development outside the flood plain and could make this area of the flood plain available for recreational activities that do not require damageable values for development.

About 73 percent of the annual benefits would be foregone should this alternative be implemented.

(4) No project action.

With no project action, flood damages will continue to occur. Land treatment measures will continue to be installed at about the present rate. Wildlife habitat will remain in its present state or change at a normal rate for improvement or deterioration in quality for individual



species. The fishery resource will probably remain in its present state. No land will be required for construction purposes and no production will be lost in construction sites. The net annual monetary benefits that will be foregone by not implementing the project will be \$32,410.

Critical area stabilization and forestry management practices on the national forest land will be included in the Forest Service's long-range plan for the Ouachita National Forest.

Growth and development of the Mount Ida area will be restricted by the present water supply and the rationing of water is imminent during dry periods even with a slight increase in growth. The City would be unable to assume full financial responsibility for a single-purpose municipal and industrial water supply reservoir.

VII. SHORT-TERM VS. LONG-TERM USE OF RESOURCES

The major land use conversions that are expected to occur after the project is installed are 100 acres of woodland to grassland, 500 acres of grassland to cropland, 138 acres of woodland to other, 300 acres of rangeland to pasture, and 100 acres of native pasture to cropland.

The accelerated land treatment measures planned on National Forest lands are: 15 acres of gully control, streambank and channel stabilization; 37 miles of roads and trail stabilization; and 2 acres of sheet erosion control.

Flood reduction benefits will be realized as soon as the project is installed and farmers can begin to make land use and management adjustments. The project will permit the most intensive long-term use of the resources available to agriculture for present and future generations.

The structures will provide storage for 100 years of accumulated sediment. With the sediment pools filled, Multiple Purpose Structure Number 1 will continue to trap sediment at about the same rate, and Structures Numbers 2 and 3 will trap sediment at a lower rate, and the effectiveness of the flood prevention capability will gradually decrease.

The South Fork Watershed is in the Ouachita Water Resource Subregion which has two watersheds authorized for operations, three authorized for planning and seven in the application stage in Arkansas. The twelve watersheds represent 17 percent of the Subregion in Arkansas. All the watersheds are for flood control by floodwater retarding structures and include accelerated application of conservation land treatment measures as a basic part of the program. Two of these watersheds include some channel work. South Fork Watershed is about one percent of the region; so if all twelve watersheds were installed, the cumulative effects would be similar to South Fork Watershed and would cover 17 percent of the region.



VIII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The project will require 23 acres of woodland for embankments and emergency spillways. The pools at the crests of the principal spillways will inundate 193 acres. The land use in the pools above the principal spillway crests is 22 acres of grassland and 171 acres of woodland. These 193 acres are considered as permanent pools that are committed to the project. About 348 acres between the principal spillway crests and the emergency spillway levels will be inundated periodically for a few days following floodwater runoff. The use of this land will not change significantly as a result of the project.

Approximately 5 miles of stream fish habitat will be permanently inundated by the three structures. Structures Numbers 1 and 3 will inundate sections with intermittent flow. Structure Number 2 will inundate a reach with perennial flow.

Limited grazing of the vegetated embankment and emergency spillway is generally permitted. The project sponsors are responsible for operation and maintenance.

Materials, labor, equipment, fuel, and capital used in the project would be irretrievably committed.

IX. CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS

1. General. Consultation and coordination among federal, state, and local agencies have been initiated during the development of the plan.

Application for assistance was made to the Arkansas Soil and Water Conservation Commission on February 25, 1965. The Montgomery County Conservation District and the City of Mount Ida are sponsors of the project. The application was amended on October 2, 1965, to include Williams Creek (15,000 acres), as a part of the South Fork Watershed.

Preliminary investigations started in 1969 showed that the project was physically and economically feasible.

Meetings with the sponsors of the project and local landowners were held during the planning of the project. During this stage, the mayor of Mount Ida requested that a dual purpose reservoir be considered to furnish water to the City of Mount Ida.

In March 1974, in a letter submitted to the Secretary of Agriculture by the sponsoring organizations, it was requested that the Williams Creek drainage area be withdrawn from the South Fork Watershed. This reduced the watershed area to 44,851 acres which is the same as the acreage in the original application.



The U. S. Forest Service and the Arkansas Forestry Commission provided technical assistance in the planning and application of the forest land treatment measures.

The Arkansas Soil and Water Conservation Commission, Arkansas Game and Fish Commission, and Bureau of Sport Fisheries and Wildlife participated in the planning of the project.

Mehlburger Engineers, Inc. Little Rock, Arkansas, a consulting engineering firm, was retained by the City of Mount Ida to make a study to determine the feasibility of incorporating municipal and industrial water storage in Multiple Purpose Structure Number 1. They determined that Cedar Creek would yield a dependable supply of high quality water and recommended the City include municipal and industrial water storage in Multiple Purpose Structure Number 1.

The National Register of Historic Places has been reviewed and no sites listed will be affected by this project. The Arkansas Archeological Survey has surveyed the proposed site locations and no archeological values were identified.

Discussion and disposition of each comment on
draft environmental impact statement

Comments on the draft environmental impact statement were requested from the following:

Department of the Army
Department of Commerce
Department of the Interior
Department of Health, Education, and Welfare
Department of Transportation
Environmental Protection Agency
Office of Equal Opportunity, USDA
Advisory Council on Historic Preservation
Federal Power Commission
Farmers Home Administration
Arkansas Department of Local Services, State Planning and Development Clearinghouse
West Central Arkansas Planning and Development District

Comments were received from all except the Department of Commerce, Office of Equal Opportunity, (USDA), Federal Power Commission, and West Central Arkansas Planning and Development District.

Comments from the State Planning and Development Clearinghouse included the following:

Arkansas State Board of Health
Arkansas Department of Planning
Arkansas Department of Commerce
Arkansas Game and Fish Commission



Copies of the letters of comments are given in Appendix D.

Department of the Army

- (1) **Comment:** We have reviewed the work plan and foresee no conflicts with any projects or current proposals of this Department. The draft environmental impact statement is considered to be generally satisfactory. Our specific comment on the report is inclosed.

Page 1 of the work plan and page 2 of the environmental impact statement state the Montgomery County Rural Water Users Association will serve four Corps of Engineers' public-use areas on Lake Ouachita. By letter, dated 12 March 1974, the Association was notified the Corps of Engineers could not legally enter into the proposed water-use contract which included a contribution to the Association. The work plan and impact statement should be revised to reflect this change.

Response: Reference to the Corps of Engineers' public-use areas was deleted. The Montgomery County Rural Water Users Association is reworking its financial arrangements in light of the loss of the expected revenue.

Department of the Interior

Work Plan

- (1) **Comment:** Page 22, paragraph 5, and page 29, paragraph 5 -- It is stated that the municipal and industrial water supply structure (Structure Number 1) will not be used for recreation or other purposes in a manner whereby the water supply might become contaminated and a potential hazard to public health, and that the sponsors will not provide public access to Structures Numbers 2 and 3. We believe that public use of the municipal and industrial water supply reservoir for hunting, fishing, and wildlife-oriented recreation would be possible without imposing any health hazards. The Department's Fish and Wildlife Service has responsibility for recommending that public-use facilities be provided at federal water-development projects of this type. In keeping with this responsibility and stated recommendations of the Committee on Government Operations contained in the October 21, 1971, House Report Number 92-586 entitled, "Public Access to Reservoirs to Meet Growing Recreation Demands," we recommend that adequate public access to municipal and industrial reservoirs and the two floodwater retarding structures be provided.



Response: The Arkansas State Department of Health has responsibility for determining if a municipal and industrial water supply lake can be used for recreation or other purposes without imposing any health hazards. The sponsors will operate the water supply in accordance with Health Department Regulations.

The sponsors have considered providing public access at the two floodwater retarding structures. After due consideration it was decided that this would not be necessary due to the close proximity of recreation areas on Lake Ouachita.

(2) **Comment:** Page 27, paragraphs 1 and 2 -- It should be clarified how benefits can be claimed from accelerated technical assistance for forest management and proposed accelerated land-treatment measures when the lands involved may not be protected from grazing. The second paragraph states that, "Accelerated forest land treatment practices will not be performed unless the tract is protected from grazing." We agree that grazing would negate benefits that could be expected from these measures. Binding agreements by the landowners to properly fence areas where forest management and land-treatment measures are proposed should be a prerequisite to implementation of other features of the work plan.

Response: Conservation plans covering 52 percent of the privately owned land in the watershed have been developed. On these lands forest grazing will be adequately controlled. Less than 10 percent of the forest area has light to moderate grazing damage. With proper planning, harmful grazing damage will be adequately controlled.

The word harmful preceding grazing in second paragraph, page 27, in the work plan was inadvertently omitted and will be added.

(3) **Comment:** Page 28, paragraph 4 -- The statement that downstream water temperatures will be maintained within preimpoundment ranges by "cool-water" intakes in Structures Numbers 2 and 3 is questionable. Cool-water bypasses would help avoid damages from summer heated surface waters and should be incorporated into the plans.

Response: Structures Numbers 2 and 3 will have cool-water bypasses for low flows with inlets located 10 feet below the principal spillway crest (normal water level).



(4) **Comment:** Page 28 paragraph 5 -- It is mentioned that a transmission line could be added to convey municipal and industrial water to a treatment plant at Mount Ida if pollution problems develop. A cool-water port should be provided in Structure Number 1 which could be plugged until such time as transmission by the pipeline may be effected. Zoning the flood plain above U. S. Highway 270 to prevent agricultural encroachment would help avoid pollution problems. Fencing of the stream to restrict use by livestock to selected areas would also be of benefit. In view of the small amount of cropland in the basin, easements or landowner agreements to assure preservation of the flood plain in a natural condition to avoid damages to the water supply appear to be most advisable.

Response: Municipal and industrial water will be released through an intake structure constructed for that purpose. If a transmission line is added later it will be connected to the outlet end of the intake structure. Three openings (at different elevations) will be included in the intake structure to allow selection of water from various depths depending on temperature and water quality considerations.

The Arkansas Water Quality Standards have classified the Ouachita River above Lake Ouachita in the Use Class A. This indicates much higher quality water than the minimum suitable for raw water supply. The assurance of adding a transmission line, if needed, will eliminate the possibility of the water supply being jeopardized by pollution problems that might develop later.

(5) **Comment:** Pages 62-64 -- Data from the stream gage on the South Fork Ouachita River in Mount Ida from June 1949 to September 1970 could be analyzed to show the percent frequency that flows of various magnitudes can be expected during each month of the year. This analysis would provide a basis for understanding quantities of flows needed in the vicinity of the project and downstream from Mount Ida to sustain the stream fishery. This information should be provided in a later draft of the work plan, showing instantaneous low-flow releases.

Response: Pages 62-64 of the Draft Work Plan are in the Investigations and Analyses Section and detailed data is not normally included in this section.



Low flow data for the South Fork Ouachita River at Mount Ida are included on page 18 of the Draft Work Plan. This and additional information can be found in Reference 15, United States Department of the Interior, Geological Survey, Water Supply Characteristics of Selected Arkansas Streams, Water Resources Circular Number 9, Little Rock, Arkansas, 1965.

Average rates for low flow release are found on pages 28 and 29 of the Draft Work Plan.

Draft Environmental Statement

(6) Comment: Page 4, paragraph 3 -- Inasmuch as the Soil Conservation Service is responsible for archeological resources on lands affected by their projects, the Soil Conservation Service should be prepared to fund archeological salvage operations which may be required should funding through the National Park Service, Division of Interagency Service, not be available.

Response: In accordance with Public Law 93-291, the National Park Service has responsibility for the salvage of archeological resources.

(7) Comment: Page 16, paragraph 5 -- The classification of streams that have drainage areas of 4 to 8 square miles as intermittent should be clarified since there are perennial springs present in the drainage area.

Response: This section was changed on page 16 as follows: The flow characteristics of the smaller tributaries are intermittent. Although there are perennial springs present in some of the drainage areas, the flows from these springs are small enough that the streams will usually cease to flow at some point during a normal year.

(8) Comment: Page 22, paragraphs 8 and 9 -- The discussion of endangered species is inadequate. The paleback darter (Etheostoma pallidodorsum), Kiamichi shiner (Notropis ortenburgeri), and colorless shiner (Notropis perpallidus) are listed as endangered species by Arkansas Planning Board publications. The paleback darter has recently been found in a headwater creek of the main Ouachita River drainage. A discussion of these rare and endemic Arkansas fishes should be included in the final statement.



Response: The Soil Conservation Service has received copies of the Arkansas Natural Area Plan, prepared by the Arkansas Department of Planning. This document is the most authoritative publication known on the threatened plant and animal species in Arkansas to date. Dr. Thomas Buchanan prepared the part of the plan entitled "Threatened Native Fishes of Arkansas," from which the following information was derived.

The following information has been added to the plan and on page 24 of the impact statement.

Three rare fish species have been collected from watersheds adjacent to the South Fork Watershed. These species are the paleback darter (Etheostoma pallididorsum), Kiamichi shiner (Notropis ortenburgeri), and the colorless shiner (Notropis perpallidus). Although none of these species are known to have been collected within the South Fork Watershed, the proximity of the collections to this watershed and the habitat preferences of these species indicate that any of them could possibly exist in this watershed.

The following information on these species was obtained from the Arkansas Natural Area Plan (15).

The paleback darter prefers clear, shallow, backwater pools or spring areas with mud-gravel bottoms, often covered with dead leaves or other organic matter. It is also found occasionally on shallow riffles with loose gravel bottoms and patches of detritus. It occurs mainly in the extreme headwaters of the Caddo River in Montgomery County and has also been located in a headwater creek of the Ouachita River.

The Kiamichi shiner is found primarily in clear streams with permanent flow and gravel bottoms. Earlier collections of this species were from nine localities in the Ouachita Mountains of southwestern Arkansas. Recent collections have been made from tributaries of the Fourche La Fave River and Ouachita River.

The colorless shiner inhabits small to moderate-sized warmwater rivers with a variety of bottom types in slow or quiet water. The largest collections of this species have been from clear, gravel-bottomed streams of the Ouachita River system. Its known range in Arkansas is the eastern Saline River, Ouachita River, Caddo River, and Little Missouri River.

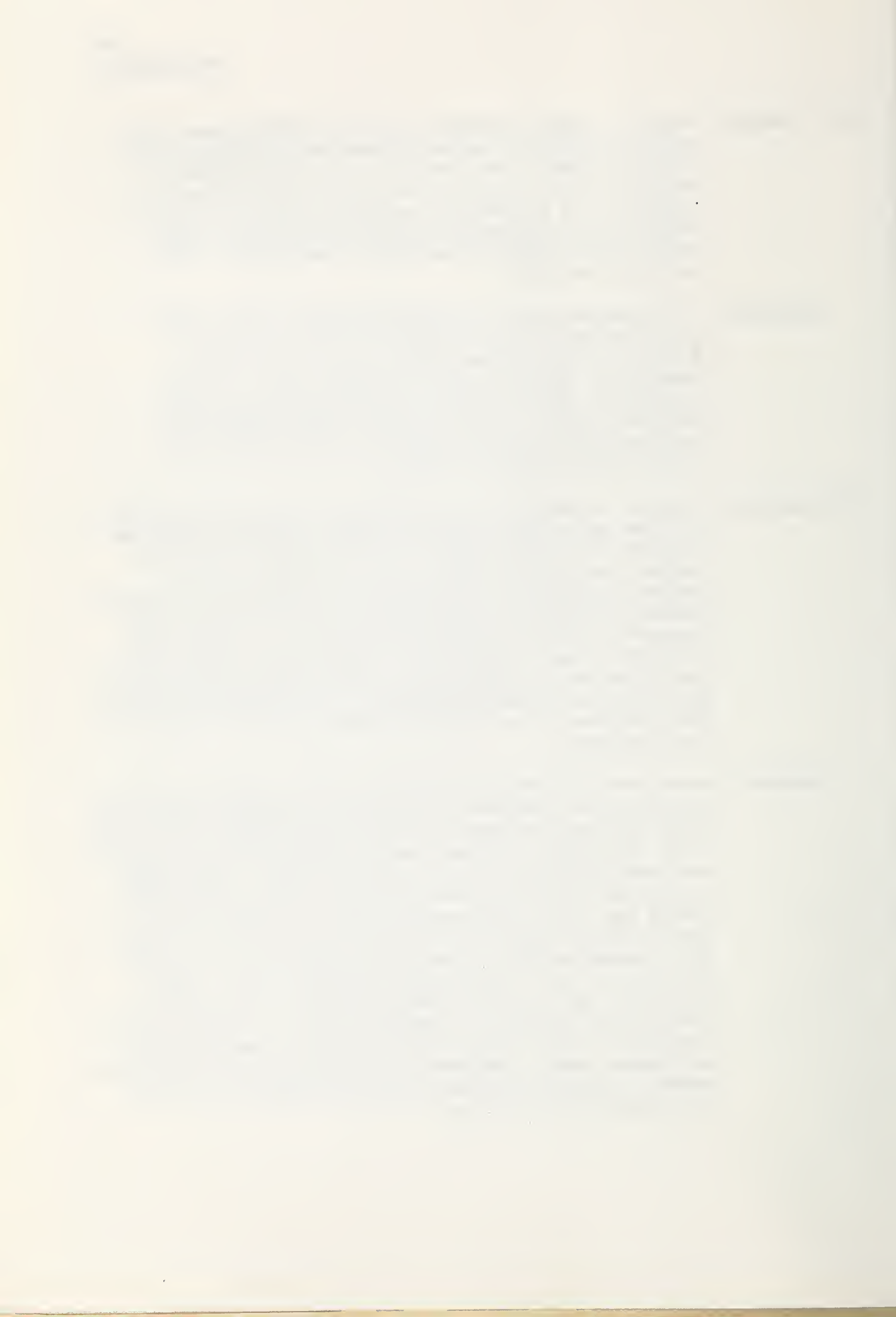


(9) **Comment:** Page 33 -- Data on current land use of the flood plain would be helpful in understanding trends that are expected to occur. In view of the fact that there are presently 55 acres of cropland in the entire basin (page 16), it is somewhat surprising that 301 acres of cropland are expected to develop in the flood plain during future without-the-project conditions. This could be clarified.

Response: The projected acres of cropland without project are considered realistic. From interviews with local farmers it was learned that this area had been in cropland in the past and if a profit could be made they would consider returning this land to cropland. Because of this it was felt that data obtained from the Economic Research Service could be used in projecting future land use data.

(10) **Comment:** Page 33, paragraph 3 -- The statement that water quality will not be greatly affected by the structure should be clarified. Should reservoir water levels rise to elevations that exceed spillway crests, heated surface waters may degrade the downstream smallmouth bass fishery. Neither the effects of the withdrawal of municipal and industrial water on streamflow regimens nor the effects of return flows of water to streams after municipal and industrial use are discussed. The effects of the project on streamflow regimens and water quality downstream from Mount Ida should be carefully examined and discussed in the statement.

Response: Water released from the multiple-purpose structure for municipal and industrial use will be released through the inlet structure equipped with multilevel gates. This will allow selection of release depth to minimize temperature and water quality effects of the structure. As stated on page 33 cool-water inlets on the low flow ports will offset any rise in temperature of the surface waters in the floodwater retarding structures during low flow periods (summer months). The size, short detention times (10-days or less), and depth characteristics of these reservoirs do not lead to any significant temperature rises during periods of significant flow. Municipal and industrial water returned to the stream after use will be through sewage treatment processes and under discharge permits controlled by the Arkansas Department of Pollution Control and Ecology.



(11) Comment: Page 35 -- Two of the favorable impacts listed need further explanation. Item 3 states that surface runoff will be reduced and item 4 states that rainfall infiltration will be increased. It should be explained whether the water retained in the area will be discharged by evapotranspiration or represent the increased utilization by the City of Mount Ida or percolate downward to groundwater reservoirs.

Response: Surface runoff will be reduced by both land treatment measures and structural measures. That portion reduced by land treatment is expected to be discharged primarily by evapotranspiration. A small portion of the water retained by the reservoirs is expected to percolate downward into the groundwater table, and about 45 inches per year of evaporation is expected from each of the reservoirs. The increased utilization of water by the City of Mount Ida is expected to be gradual and will not significantly reduce runoff for several years.

(12) Comment: Page 38 -- The statement should furnish more information in discussing the groundwater alternative. For example, the nature and general distribution of the aquifer should be given in order to permit appraisal of the evaluation of the alternative. Presumably, the gravels mentioned on page 15 are not saturated alluvial gravels and are not being considered on page 38. This should be clarified in the statement.

Response: The groundwater alternative is not a feasible alternative because of the lack of a suitable aquifer. Groundwater yields are low due to the nature of the bedrock, which is primarily hard shale and sandstone of Cambrian and Ordovician ages. These rocks make up the core of the Ouachita Mountains, and the primary porosity has been destroyed by compaction due to deep burial and deformation pressures. Groundwater principally occurs in secondary openings such as joints and separations along bedding planes, and most wells in these openings yield less than 50 gpm. In fact, wells in the area that will yield more than 10 gpm continuously for a week are considered "large-yield" wells. According to U.S. Geological Survey Water-Supply Paper 1809-J, "Groundwater should not be considered as a source of supply for municipal growth and economic development in the Ouachita Mountains unless the quantity needed is small."

The shallow occurrence of bedrock in the watershed prohibits the consideration of alluvial gravels as a groundwater source. Gravel deposits are small and localized and do not produce significant aquifers in this area.



Department of Health, Education, and Welfare

- (1) Comment: Accordingly, our review of the Draft Environmental Statement for the project discerns no adverse effects that might be of significance where our program responsibilities and standards pertain, provided that appropriate guides are followed in concert with State, County, and local environmental laws and regulations.

Response: None.

Department of Transportation

- (1) Comment: The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to this project.

Response: None.

Environmental Protection Agency

- (1) Comment: On page 2 it is stated that the project induced guaranteed availability of water will cause the project area to experience increased growth and expansion. Although the area may benefit economically from the project, increases in air, water, noise, and solid waste pollution may accompany this growth. These secondary impacts often prove to be environmentally significant and should be discussed in the statement.

Response: The type of factory expansion and industrial growth that is expected to occur will not affect local pollution to any great extent. Improved municipal services will adequately control any potential pollution sources that may occur.

- (2) Comment: The statement indicates that grassland will be converted to cropland as a result of project implementation. The land treatment measures proposed as a part of the overall project will aid in reducing sedimentation. However, the expected intensification of agricultural activities will likely be accompanied by increased use of fertilizers and pesticides and could therefore adversely affect the quality of water in the area. A discussion of these possible impacts would strengthen the statement.

Response: The installation of planned land treatment measures will (a) reduce flooding, erosion and resultant sediment, which will lessen the loss of pesticides and chemical nutrients that commonly ride "piggy-back" on moving soil particles;



and (b) permit improved cropping patterns and systems which will help reduce the growth of weeds and harmful insects, thereby reducing the need and use of chemical controls. Good land use management will also improve soil tilth and increase the production and decomposition of crop residues, bringing about increases in crop yields that are now being obtained by chemical fertilizers.

- (3) **Comment:** Additional water quality data should be provided in the statement. The data should be obtained from the proposed damsite for Structure Number 1. The water quality analyses provided in the statement were taken in 1968 and are for an area some distance downstream from the proposed multi-purpose structure. Also, we should point out that the Arkansas Water Quality Standards state that fecal coliform determinations are to be based on a minimum of not less than five samples over a 30 day period. The data provided in the statement indicates that only two samples were taken at that time. Because this structure will provide a source of municipal water supply for the City of Mount Ida, it is necessary to provide current water quality data so that an adequate determination can be made as to what the future water quality will be in the multi-purpose structure.

Response: The water quality summary included in the statement includes two samples taken by the Arkansas Department of Pollution Control and Ecology in 1974 about one-fourth mile downstream from the proposed water supply structure. The data presented indicates that there is not a large variance of water quality between different points in the watershed.

In view of the Arkansas Water Quality Standards requirement for fecal coliform determinations based on a minimum of 5 samples in 30 days, five additional samples collected at two locations during July 1975 were analyzed for total coliform, fecal coliform and fecal streptococcus. The results of these tests were included in the statement on page 19.

- (4) **Comment:** The statement should more fully describe the type of sanitary facilities which will be utilized during construction. Also, the specific measures which will be provided at equipment storage and repair areas to prevent contaminants from reaching streams and groundwater should be further discussed.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It is essential to ensure that every entry is properly documented and verified. This process helps in identifying any discrepancies or errors early on, which can be corrected before they become a problem. Regular audits are also recommended to ensure the integrity of the data.

In addition, it is important to establish clear policies and procedures for handling sensitive information. This includes defining roles and responsibilities, as well as implementing appropriate security measures. By doing so, the organization can minimize the risk of data breaches and ensure that all information is protected.

The second part of the document focuses on the financial aspects of the organization. It provides a detailed overview of the budget and how it is being managed. The budget is broken down into various categories, such as salaries, benefits, and operating expenses. This allows for a clear understanding of where the money is being spent and whether it is staying within the allocated amounts.

Key performance indicators (KPIs) are also discussed, as they provide a way to measure the organization's progress and success. By tracking these indicators, management can identify areas where the organization is performing well and areas where it needs to improve. This information is used to make informed decisions and adjust the budget as needed.

Finally, the document concludes with a summary of the findings and recommendations. It emphasizes the need for continued monitoring and reporting to ensure that the organization remains on track and achieves its goals. The recommendations include implementing the suggested changes and maintaining a high level of transparency and accountability.

Response: Items 2 and 3 on page 8 were expanded as follows:

The special provisions of construction contracts will require the contractor to comply with the manual, Safety and Health Regulations for Construction, published by the United States Department of the Interior, Bureau of Reclamation. In accordance with this manual a minimum of one of the following types of toilet facilities must be made available to each construction site depending on the number of people employed and site conditions and location:

- a. Privies
- b. Chemical toilets
- c. Recirculating toilets
- d. Combustion toilets.

Measures such as diversions and water control structures will be provided at equipment storage and repair areas to divert runoff away from these areas and to prevent contaminants from reaching streams and ground water.

(5) **Comment:** On page 24 it is stated that the operation of Lake Ouachita will not affect the operation of the flood-water retarding structures. However, further discussion should be included discussing the possible impacts which the South Fork Watershed project may have on Lake Ouachita. Included should be possible alterations in temperature, flow, changes in various water quality parameters, and possible impacts that these water quality changes may have upon the quality of water in Lake Ouachita. Because Mount Ida's wastewater treatment facility discharges into the South Fork above Lake Ouachita it is important that these possible impacts be considered in the statement.

Response: Due to the small amount of runoff affected by the structures (compared to total runoff into Lake Ouachita) and measures included in these structures to minimize impacts on temperature and water quality, any impact of this project on Lake Ouachita would be minimal. The only effect of this project on Mount Ida's wastewater treatment facility would be the possible increase in water use due to the firm supply of water. The waste treatment plant is presently being upgraded and will be sufficient to handle any increase in sewage due to the increase in water use.



Advisory Council on Historic Preservation

(1) Comment: However, the Council notes in its review that should previously unidentified cultural remains be discovered during the construction phases of the project, arrangements will be made to avoid or salvage them. The Soil Conservation Service is reminded that if such remains are encountered, prior to initiating any action which would result in the destruction or substantial alteration of the property, it should seek a determination from the Secretary of the Interior respecting the property's eligibility for inclusion in the National Register of Historic Places. Further, should the Secretary of the Interior determine such properties are eligible for inclusion in the National Register, it is required to afford the Council an opportunity to comment in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) which sets forth the steps for compliance with section 106 and the Executive Order 11593.

Response: The following paragraph was added on page 4.

The National Park Service will be notified if any previously unidentified evidence of cultural values are discovered during detailed investigations or construction, the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) will be followed in complying with Section 106 of Public Law 89-665 and Executive Order 11593. Any needed recovery, protection or preservation operations will be performed in accordance with the Archeological and Historical Preservation Act (Public Law 93-291). Since this is a federally assisted local project, there will be no change in the existing responsibilities of any federal agency under Executive Order 11593 with respect to archeological and historical resources.

Farmers Home Administration

(1) Comment: We have reviewed the Draft Work Plan and Draft Environmental Impact Statement for the South Fork Watershed Project in Montgomery County, Arkansas and have no comments to offer at this time.

Response: None.

Arkansas State Board of Health

(1) Comment: In the Draft Work Plan, on page 28, it talks about releasing water from Structure Number 1 and allowing this water to flow downstream to the existing water intake. If the other two structures are built and used for recreation and flood

control, this will effect the quality of water being delivered to the existing intake. Also, if Structures Numbers 2 and 3 are built and need to be drawn down or if low flow augmentation is needed, the water being released from the low level of the reservoirs will be of very undesirable quality and will cause Mount Ida increased treatment cost and more water quality problems. This will also make the raw water line from the reservoir to the water treatment plant a must at present.

Response: The two single purpose structures are planned for flood prevention only. Recreation use will be discouraged by the sponsors. Water for low flow augmentation will be released from 10 feet below the water surface and will not be "of very undesirable quality". Water will be released from the drain valves at the bottom of the principal spillways only in an emergency such as damage to the dam needing repairs. Except in such an emergency, water released from the single purpose structures will be similar in quality to that from the municipal water supply.

(2) **Comment:** If the impoundments permit prolific algal growths or blooms to occur, additional chemical costs will be incurred by Mount Ida in treating the water for taste and odors. Taste, odor, and color problems are also created from lignins and tannins that leach out of plants from uncleared reservoirs. Therefore, if the impoundments are not cleared of brush and trees, some taste, odor, and color problems will more than likely occur.

Response: Prolific algae growths have not been a problem in similar impoundments in Arkansas. The municipal and industrial water supply pool of Multiple Purpose Structure Number 1 will be cleared of brush and trees. Some trees will be left in the upper one-third of the pools of the single purpose structures. Significant flow will occur from the single purpose reservoirs only during periods of surface runoff. At this time any contribution by the structures to taste, odor, and color in the South Fork Ouachita River would be minimal compared to runoff from forests, etc. During periods of low flow in the river when water is being released from Structure Number 1 for municipal and industrial use the only flow from the single purpose structures would be the low flow augmentation. This low flow is not expected to be significant.

(3) **Comment:** We feel that with three impoundments being proposed and only one being used for water supply and adequate area for recreation will be provided by the other two impoundments. We feel that this fact should keep the City of Mount Ida from having to pay a special use fee.



Response: The question of the special use fee will have to be resolved by the City of Mount Ida and the U.S. Forest Service.

(4) **Comment:** With flood control structures being constructed on the South Fork more land along the river will be opened up to development and thereby increase the possibility of pollution between the impoundments and the water intake.

Response: The level of protection along the river will reduce agricultural damages, but it will not be sufficient to encourage residential development in the flood plain.

(5) **Comment:** We recommend that the Soil Conservation Service and Mount Ida's Engineers get together and try to design a combination intake structure.

Response: The installation of a separate municipal and industrial water intake structure will simplify operation of the structures and will facilitate installation of a raw water line if one is added later.

Arkansas Department of Planning

(1) **Comment:** The data given on page 3 of the Draft EIS stating that landowners have indicated that they will convert 900 acres of grassland to cropland in the watershed after the flood prevention measures are installed appears to conflict with the 401 acres of cropland expected with the project on page 32.

Response: Data on page 3 states that 600 acres of grassland will be converted to cropland after the project is installed. These are total watershed figures, page 35 gives only those acres that are to be converted in the flood plain.

(2) **Comment:** On page 13 of the EIS it states that soils in the flood and stream terraces are well and moderately well drained. A contradiction to this statement is found on page 26 under Drainage Problems where it states that the soils on about 500 acres in the watershed are classified as poorly drained and farm drainage systems are necessary to correct this problem. Drainage of these wet soils would have to be accomplished before maximum agricultural productivity could be attained. Are there any assurances that the farmers are willing to be out the expense for necessary drainage systems? If there are no assurances from the farmers then the benefits computed using maximum productivity levels are subject to question. If public monies are expected to be used in providing drainage, this should be stated and figured as a cost.

Response: The following sentence was added to paragraph 2 page 14 "Some of the level soils in the flood plain are somewhat poorly to poorly drained." Land treatment measures are installed voluntarily by the individual farmers at their own expense. The conservation district will encourage landowners and operators to install all needed land treatment measures. Maximum production is not expected on all of the 1,606-acre flood plain; therefore, benefits were not computed on this basis.

(3) **Comment:** What data is there to substantiate the 301 acres of cropland projected without the project on page 32 of the EIS. This figure appears to be high considering there are only 55 acres of cropland in the watershed now and land suitable for cropland production is limited because of flooding.

Response: As recently as 1967, soybeans were grown in the flood plain of South Fork below U.S. Highway Number 270 bridge. Based on soils information and projections made by the Economic Research Service, areas of this type will be used for row crop production in the future. The projection of 301 acres to cropland is considered realistic.

(4) **Comment:** The Draft EIS states that there are 25 farms in the flood plain. Using the 401 acres of projected cropland with the project, the average cropland per farm would be approximately 16 acres. To convert the present use of this acreage from grassland to cropland and purchase necessary equipment to farm 16 acres would be in our estimation prohibitive.

Response: The Draft EIS or Draft Work Plan does not state that all 25 farms in the flood plain will convert 16 acres to cropland. Row cropping is not restricted to the flood plain, and much of the better soils that do not presently flood could also be converted to cropland in the future. The only statement that is made concerning the 25 farms in the flood plain is that all will receive flood prevention benefits after the project is installed.

(5) **Comment:** Under Economic Resources, page 18, yields per acre in the flood plain for soybeans is given as 37 bushels. This figure appears to be high considering 500 acres are poorly drained and average yields statewide for soybeans is only 20 bushels per acre. If benefits were figured at this high rate of yield, it is the Department's contention that the figures are unrealistic.

Response: These yields are based on the type soils and projections made by the Economic Research Service. These are flood free yields and should not be confused with the State average. Many areas yield only 9-10 bushels because of flooding or poor soils, but are used in obtaining the average yield per acre in the State.

(6) **Comment:** The project provides for municipal water to be pumped out of the South Fork at Mount Ida and the EIS states that water flowing down the stream is not expected to become contaminated. If 400 to 900 acres of cropland were a reasonable figure for future land use in the watershed, this statement could be questioned. With increased sediment loads and chemical pollution associated with cropland production as projected, it could be assumed that contamination could become a problem.

Response: Much of the conversion to cropland will be made below the City of Mount Ida; therefore, the statement that water flowing downstream is not expected to become contaminated is true. In addition, proper land treatment measures applied to cropland will help decrease the amount of sediment and chemical pollutants entering South Fork Ouachita River.

(7) **Comment:** The applicant should consider the following alternative: Conservation land treatment and construction of only Structure Number 1 for municipal and industrial water.

Response: Should this alternative be considered, the objectives of the sponsors could not be met.

State of Arkansas - Department of Commerce

(1) **Comment:** The report seems to be well written and concise. Our position on this project is on record with SCS as of the public meeting held at Mount Ida on February 21, 1975. Therefore, we have no further comments concerning this report.

Response: None.

Arkansas Game and Fish Commission

(1) **Comment:** Low flow bypasses should be included to insure adequate flows below all dams.

Response: Low flow augmentation ports with cool water intakes will be provided in Floodwater Retarding Structures Numbers 2 and 3. Multiple Purpose Structure Number 1 will have gates at three elevations for release of municipal and industrial water. The provisions should maintain flow below the dams.

(2) **Comment:** Cool water bypasses are needed to maintain water quality below the dams.

Response: The features mentioned in the above response will help to maintain water quality below the dams.

(3) **Comment:** Public access should be provided at all sites. We understand that Arkansas Health Department regulations may prohibit use of Structure Number 1, the multiple use site, for recreation; however, we know of no case where sport fishing could be detrimental to a municipal water supply and we recommend that public fishing be allowed.

Response: The sponsors have considered providing public access to the proposed sites. After consideration of the fishing opportunities in the area (primarily in Lake Ouachita) and the possibilities of pollution problems developing, it was decided not to provide public access. Recreation use of the sites will be discouraged by the sponsors.

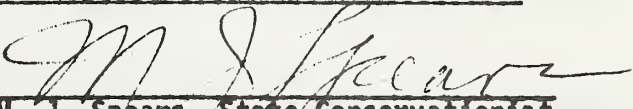
(4) **Comment:** Mitigation of wildlife losses by acquisition of land to compensate for that which will be inundated by the reservoirs. This land should be dedicated to wildlife management and public access provided.

Response: Ninety-one percent of the watershed is in forest cover which is the primary land use affected by the proposed structures. About seventy percent of the forest land is in the Ouachita National Forest where public access is provided. Considering the vast amount of this type habitat that is available, mitigation of wildlife losses on affected areas (257 acres) by land acquisition to provide public access seems unnecessary.

X. LIST OF APPENDIXES

- Appendix A - Comparison of Benefits and Costs for Structural Measures
- Appendix B - Urban Flood Plain Map
- Appendix C - Project Map
- Appendix D - Letters of Comments received on the Draft Environmental Impact Statement

XI. Approved by


M. J. Spears, State Conservationist

Date

12-9-75



XII. LITERATURE CITED

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APPENDIX A - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES

South Fork Watershed, Arkansas

(Dollars)

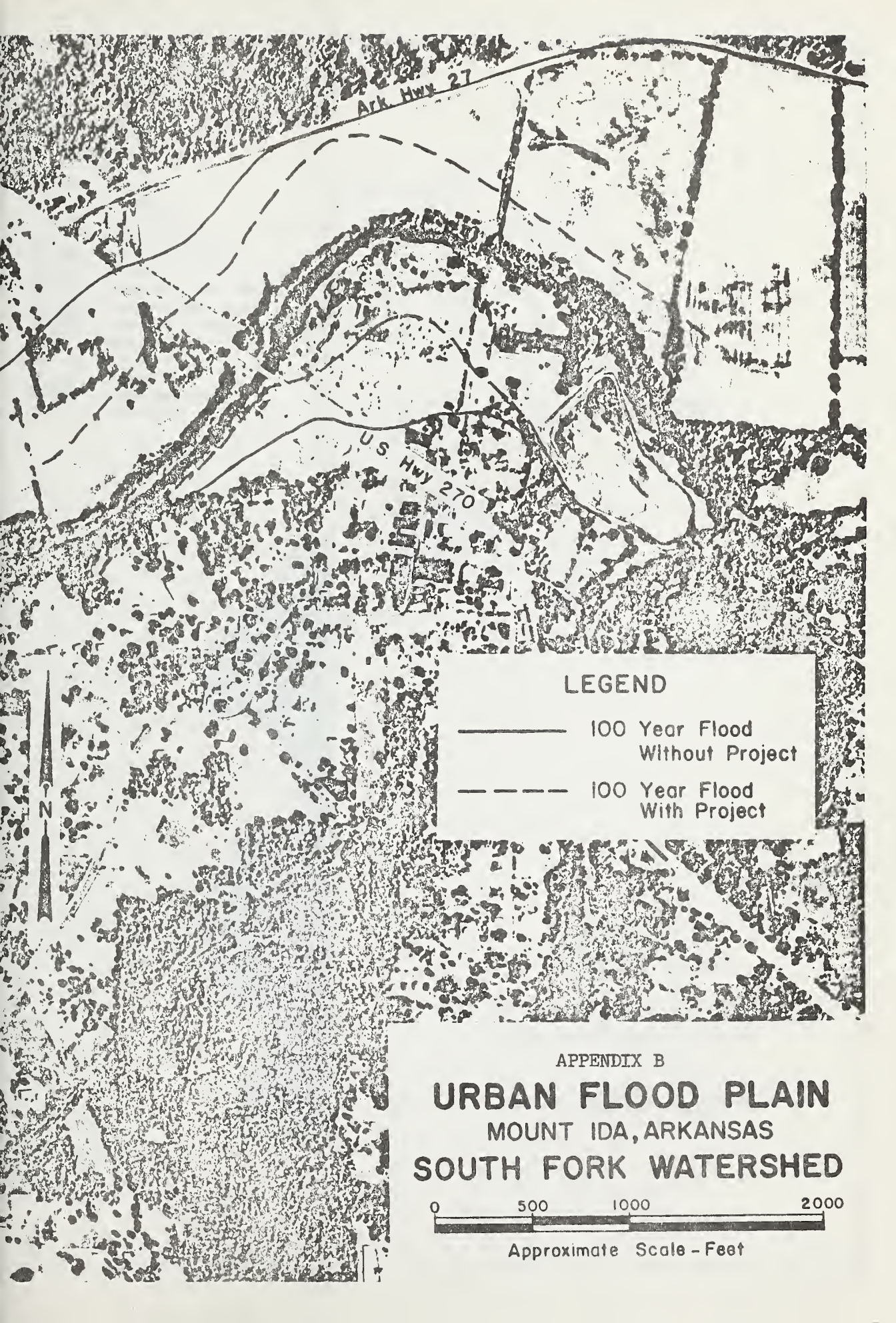
| Evaluation Unit | Average Annual Benefits 1/ | | | | | | :Average:Benefit : Annual: Cost :Cost 3/: | Ratio |
|--|---|---------------|---------------------------|---------------|---------------|----------------|---|--------------|
| | : More : Damage : Intensive: Water :Reduction: Land Use : | Supply | :Redevelopment:Secondary: | Total | XXX | XXX | | |
| Multiple Purpose Structure Number 1 and Floodwater Retarding Structures Numbers 2 and 3 | 66,720 | 14,310 | 34,830 | 13,770 | 12,200 | 141,830 | 92,960 | 1.5:1 |
| Project Administration | XXX | XXX | XXX | XXX | XXX | XXX | 16,460 | XXX |
| GRAND TOTAL | 66,720 | 14,310 | 34,830 | 13,770 | 12,200 | 141,830 | 109,420 | 1.3:1 |

1/ Price Base: Crop and pasture benefits current normalized prices; all other benefits 1974 prices.

2/ In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$3,230 annually.

3/ 100 years at 5-7/8 percent interest.

April 1974



Ark Hwy 27

U.S. Hwy 270

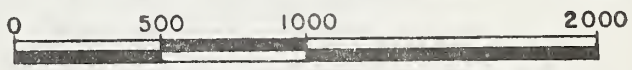
N

LEGEND

- 100 Year Flood Without Project
- - - - 100 Year Flood With Project















APPENDIX B

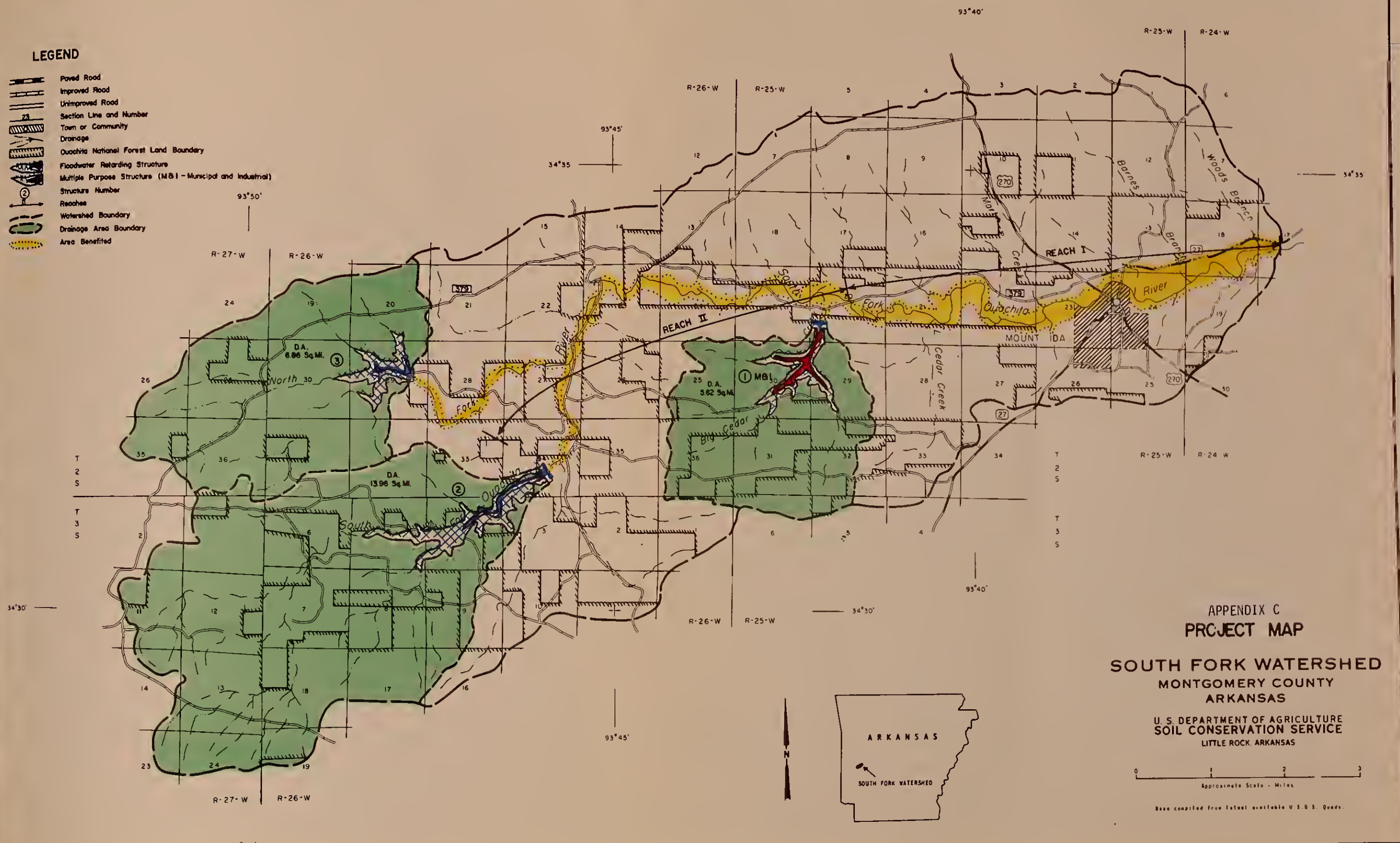
**URBAN FLOOD PLAIN
MOUNT IDA, ARKANSAS
SOUTH FORK WATERSHED**



Approximate Scale - Feet

LEGEND

-  Paved Road
-  Improved Road
-  Unimproved Road
-  Section Line and Number
-  Town or Community
-  Drainage
-  Ouachita National Forest Land Boundary
-  Floodwater Retarding Structure
-  Multiple Purpose Structure (MBI - Municipal and Industrial)
-  Structure Number
-  Reaches
-  Watershed Boundary
-  Drainage Area Boundary
-  Area Benefited



**APPENDIX C
PROJECT MAP**

**SOUTH FORK WATERSHED
MONTGOMERY COUNTY
ARKANSAS**

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
LITTLE ROCK, ARKANSAS



Base compiled from latest available U. S. G. S. Quads.



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

66

9 JUN 1975

Honorable Robert W. Long
Assistant Secretary of Agriculture
Washington, D. C. 20250

Control No. 00685

Referred to: SCS

Date: JUN 12 1975

B

Dear Mr. Long:

In compliance with the provisions of Section 5 of Public Law 566, 83d Congress, the State Conservationist, on behalf of the Administrator of the Soil Conservation Service, by letter dated 2 April 1975, requested the views of the Secretary of the Army on the Watershed Work Plan and the Draft Environmental Impact Statement for the South Fork Watershed, Montgomery County, Arkansas.

We have reviewed the work plan and foresee no conflicts with any projects or current proposals of this Department. The draft environmental impact statement is considered to be generally satisfactory. Our specific comment on the report is inclosed.

Sincerely,

Charles R. Ford
Deputy Assistant Secretary of the Army
(Civil Works)

1 Incl (dupl)
As stated

COMMENTS ON SCS WATERSHED WORK PLAN
FOR
SOUTH FORK WATERSHED

Page 1 of the work plan and page 2 of the environmental impact statement state the Montgomery County Rural Water Users Association will serve four Corps of Engineers public-use areas on Lake Ouachita. By letter dated 12 March 1974, the Association was notified the Corps of Engineers could not legally enter into the proposed water-use contract which included a contribution to the Association. The work plan and impact statement should be revised to reflect this change.

United States Department of the Interior

OFFICE OF THE SECRETARY
SOUTHWEST REGION

Room 4030, 517 Gold Avenue SW.
Albuquerque, New Mexico 87101

June 4, 1975

ER-75/347

Mr. M. J. Spears
State Conservationist
Soil Conservation Service
P.O. Box 2323
Little Rock, Arkansas 72203

Dear Mr. Spears:

This is in response to your letter of April 2, 1975, requesting our views and comments on the draft environmental impact statement and work plan for the proposed South Fork Watershed Project, Montgomery County, Arkansas. Comments on both documents are presented below.

Work Plan

The proposed action will not adversely affect any existing or proposed unit of the national park system, nor any site eligible for registration as a national historic, natural, or environmental education landmark.

We believe additional measures to avoid damages to environmental resources and assure optimum public use of these resources are justifiable and should be incorporated into the work plan.

Page 22, paragraph 5, and page 29, paragraph 5 -- It is stated that the municipal and industrial water supply structure (structure No. 1) will not be used for recreation or other purposes in a manner whereby the water supply might become contaminated and a potential hazard to public health, and that the sponsors will not provide public access to structures No's. 2 and 3. We believe that public use of the municipal and industrial water supply reservoir for hunting, fishing, and wildlife-oriented recreation would be possible without imposing any health hazards. The Department's Fish and Wildlife Service has responsibility for recommending that public-use facilities be provided at federal water-development projects of this type. In keeping with this responsibility and stated recommendations of the Committee on



APPENDIX D

Save Energy and You Serve America!



Government Operations contained in the October 21, 1971, House Report No. 92-586 entitled, "Public Access to Reservoirs to Meet Growing Recreation Demands," we recommend that adequate public access to municipal and industrial reservoirs and the two floodwater-retarding structures be provided.

Page 27, paragraphs 1 and 2 -- It should be clarified how benefits can be claimed from accelerated technical assistance for forest management and proposed accelerated land-treatment measures when the lands involved may not be protected from grazing. The second paragraph states that, "Accelerated forest land treatment practices will not be performed unless the tract is protected from grazing." We agree that grazing would negate benefits that could be expected from these measures. Binding agreements by the landowners to properly fence areas where forest management and land-treatment measures are proposed should be a prerequisite to implementation of other features of the work plan.

Page 28, paragraph 4 -- The statement that downstream water temperatures will be maintained within preimpoundment ranges by "cool-water" intakes in structures No's. 2 and 3 is questionable. Cool-water bypasses would help avoid damages from summer heated surface waters and should be incorporated into the plans.

Page 28, paragraph 5 -- It is mentioned that a transmission line could be added to convey municipal and industrial water to a treatment plant at Mount Ida if pollution problems develop. A cool-water port should be provided in structure No. 1 which could be plugged until such time as transmission by the pipeline may be effected. Zoning the flood plain above U.S. Highway 270 to prevent agricultural encroachment would help avoid pollution problems. Fencing of the stream to restrict use by livestock to selected areas would also be of benefit. In view of the small amount of cropland in the basin, easements or landowner agreements to assure preservation of the flood plain in a natural condition to avoid damages to the water supply appear to be most advisable.

Pages 62-64 -- Data from the stream gage on the South Fork Ouachita River in Mount Ida from June 1949 to September 1970 could be analyzed to show the percent frequency that flows of various magnitudes can be expected during each month of the year. This analysis would provide a basis for understanding quantities of flows needed in the vicinity of the project and downstream from Mount Ida to sustain the stream fishery. This information should be provided in a later draft of the work plan, showing instantaneous low-flow releases.

Draft Environmental Statement

Page 4, paragraph 3 -- Inasmuch as the Soil Conservation Service is responsible for archeological resources on lands affected by their projects, the Soil Conservation Service should be prepared to fund archeological salvage operations which may be required should funding through the National Park Service, Division of Interagency Service, not be available.

Page 16, paragraph 5 -- The classification of streams that have drainage areas of 4 to 8 square miles as intermittent should be clarified since there are perennial springs present in the drainage areas.

Page 22, paragraphs 8 and 9 -- The discussion of endangered species is inadequate. The paleback darter (Etheostoma pallidodorsum), Kiamichi shiner (Notropis ortenburgeri), and colorless shiner (Notropis perpallidus) are listed as endangered species by Arkansas Planning Board publications. The paleback darter has recently been found in a headwater creek of the main Ouachita River drainage. A discussion of these rare and endemic Arkansas fishes should be included in the final statement.

Page 33 -- Data on current land use of the flood plain would be helpful in understanding trends that are expected to occur. In view of the fact that there are presently 55 acres of cropland in the entire basin (page 16), it is somewhat surprising that 301 acres of cropland are expected to develop in the flood plain during future without-the-project conditions. This could be clarified.


Page 33, paragraph 3 -- The statement that water quality will not be greatly affected by the structure should be clarified. Should reservoir water levels rise to elevations that exceed spillway crests, heated surface waters may degrade the downstream smallmouth bass fishery. Neither the effects of the withdrawal of municipal and industrial water on streamflow regimens nor the effects of return flows of water to streams after municipal and industrial use are discussed. The effects of the project on streamflow regimens and water quality downstream from Mount Ida should be carefully examined and discussed in the statement.

Page 35 -- Two of the favorable impacts listed need further explanation. Item 3 states that surface runoff will be reduced and item 4 states that rainfall infiltration will be increased. It should be explained whether the water retained in the area will be discharged by evapotranspiration or represent the increased utilization by the city of Mount Ida or percolate downward to groundwater reservoirs.

Page 38 -- The statement should furnish more information in discussing the groundwater alternative. For example, the nature and general distribution of the aquifer should be given in order to permit appraisal of the evaluation of the alternative. Presumably, the gravels mentioned on page 15 are not saturated alluvial gravels and are not being considered on page 38. This should be clarified in the statement.

We hope these comments will be of assistance to you in preparing your final documents.

Sincerely yours,


for Willard Lewis
Special Assistant to the Secretary

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGIONAL OFFICE

1114 COMMERCE STREET
DALLAS, TEXAS 75202

April 18, 1975

OFFICE OF
THE REGIONAL DIRECTOR

Our Reference: EI# 1275-523

M. J. Spears, State Conservationist
United States Department of Agriculture
Soil Conservation Service
P. O. Box 2323
Little Rock, Arkansas 72203

RE: South Fork Watershed Proj.
Arkansas

Dear Mr. Spears:

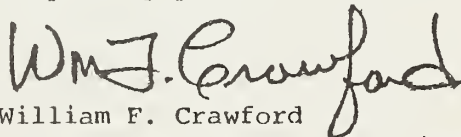
Pursuant to your request, we have reviewed the Environmental Impact Statement for the above project proposal in accordance with Section 102(2) (c) of P. L. 91-190, and the Council on Environmental Quality Guidelines of April 23, 1971.

Environmental health program responsibilities and standards of the Department of Health, Education, and Welfare include those vested with the United States Public Health Service and the Facilities Engineering and Construction Agency. The U.S. Public Health Service has those programs of the Federal Food and Drug Administration, which include the National Institute of Occupational Safety and Health and the Bureau of Community Environmental Management (housing, injury control, recreational health and insect and rodent control).

Accordingly, our review of the Draft Environmental Statement for the project discerns no adverse effects that might be of significance where our program responsibilities and standards pertain, provided that appropriate guides are followed in concert with State, County, and local environmental laws and regulations.

We therefore have no objection to the authorization of this project insofar as our interests and responsibilities are concerned.

Very truly yours,



William F. Crawford
Environmental Impact Coordinator



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

73

MAILING ADDRESS:
U.S. COAST GUARD (G-WS/73)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: (202) 426-2262

• 29 APR 1975

Mr. M. J. Spears
State Conservationist
Soil Conservation Service
P. O. Box 2323
Little Rock, Arkansas 72203

Dear Mr. Spears:

This is in response to your letter of 2 April 1975 addressed to Commandant, U. S. Coast Guard concerning a draft environmental impact statement for the South Fork Watershed Project, Montgomery County, Arkansas.

The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to this project.

The opportunity to review this draft statement is appreciated.

Sincerely,

S. A. WALLACE
Captain, U. S. Coast Guard
Acting Chief, Office of Marine
Environment and Systems



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ENVIRONMENTAL PROTECTION AGENCY

REGION VI

1600 PATTERSON, SUITE 1100

DALLAS, TEXAS 75201

June 3, 1975

OFFICE OF THE
REGIONAL ADMINISTRATOR

Mr. M. J. Spears
State Conservationist
United States Department of Agriculture
Soil Conservation Service
P. O. Box 2323
Little Rock, Arkansas 72203

Dear Mr. Spears:

We have reviewed the Draft Environmental Impact Statement for South Fork Watershed Project, Montgomery County, Arkansas. The proposed action calls for the application of land treatment measures, construction of two floodwater retarding structures and one multiple purpose structure for flood prevention and municipal and industrial water for Mount Ida, Arkansas.

The statement discusses many of the environmental impacts which could be associated with the project; however, we offer the following comments for your consideration in developing the Final Environmental Impact Statement:

1. On page 2 it is stated that the project induced guaranteed availability of water will cause the project area to experience increased growth and expansion. Although the area may benefit economically from the project, increases in air, water, noise, and solid waste pollution may accompany this growth. These secondary impacts often prove to be environmentally significant and should be discussed in the statement.

2. The statement indicates that grassland will be converted to cropland as a result of project implementation. The land treatment measures proposed as a part of the overall project will aid in reducing sedimentation. However, the expected intensification of agricultural activities will likely be accompanied by increased use of fertilizers and pesticides and could therefore adversely affect the quality of water in the area. A discussion of these possible impacts would strengthen the statement.

2

3. Additional water quality data should be provided in the statement. The data should be obtained from the proposed damsite for structure number one. The water quality analyses provided in the statement were taken in 1968 and are from an area some distance downstream from the proposed multi-purpose structure. Also, we should point out that the Arkansas Water Quality Standards state that fecal coliform determinations are to be based on a minimum of not less than five samples over a 30 day period. The data provided in the statement indicates that only two samples were taken at that time. Because this structure will provide a source of municipal water supply for the City of Mount Ida, it is necessary to provide current water quality data so that an adequate determination can be made as to what the future water quality will be in the multi-purpose structure.

4. The statement should more fully describe the type of sanitary facilities which will be utilized during construction. Also, the specific measures which will be provided at equipment storage and repair areas to prevent contaminants from reaching streams and ground water should be further discussed.

5. On page 24 it is stated that the operation of Lake Ouachita will not affect the operation of the floodwater retarding structures. However, further discussion should be included discussing the possible impacts which the South Fork Watershed project may have on Lake Ouachita. Included should be possible alterations in temperature, flow, changes in various water quality parameters, and possible impacts that these water quality changes may have upon the quality of water in Lake Ouachita. Because Mount Ida's wastewater treatment facility discharges into the South Fork above Lake Ouachita it is important that these possible impacts be considered in the statement.

The above comments also apply to the Draft Work Plan.

These comments classify your Draft Environmental Impact Statement as LO-2. Generally, we have no objection to the project as proposed. However, we are requesting additional information be provided concerning existing water quality. The classification and the date of our comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions, under Section 309 of the Clean Air Act.

Definitions of the categories are provided on the attachment. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and on the adequacy of the impact statement at the draft stage, whenever possible.

3

We appreciate the opportunity to review the Draft Environmental Impact Statement and will be happy to discuss our comments with you. Please send us two copies of the Final Environmental Impact Statment at the same time it is sent to the Council on Environmental Quality.

Sincerely yours,

George J. Putnick
Regional Administrator

Enclosure

ENVIRONMENTAL IMPACT OF THE ACTION

IO - Lack of Objections

EPA has no objections to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER - Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to re-assess these aspects.

EU - Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

ADEQUACY OF THE IMPACT STATEMENT

Category 1 - Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2 - Insufficient Information

EPA believes the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3 - Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement. If a draft statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

**Advisory Council
On Historic Preservation**

1515 F Street N.W. Suite 430
Washington D.C. 20004

Mr. M. J. Spears
State Conservationist
Soil Conservation Service
U. S. Department of Agriculture
P. O. Box 2323
Little Rock, Arkansas 72203

APR 21 1975

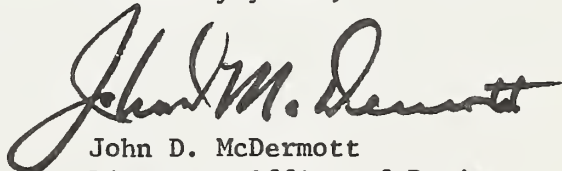
Dear Mr. Spears:

This is in response to your request of April 2, 1975 for comments on the draft environmental statement (DES) and watershed work plan (WWP) for the South Fork Watershed, Arkansas. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined that the DES and WWP appear adequate concerning compliance with Section 106 of the National Historic Preservation Act of 1966 and the provisions of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971.

However, the Council notes in its review that should previously unidentified cultural remains be discovered during the construction phases of the project, arrangements will be made to avoid or salvage them. The Soil Conservation Service is reminded that if such remains are encountered, prior to initiating any action which would result in the destruction or substantial alteration of the property, it should seek a determination from the Secretary of the Interior respecting the property's eligibility for inclusion in the National Register of Historic Places. Further, should the Secretary of the Interior determine such properties are eligible for inclusion in the National Register, it is required to afford the Council an opportunity to comment in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) which sets forth the steps for compliance with Section 106 and the Executive Order 11593.

Should you have questions or require additional assistance in this matter, please contact Michael H. Bureman of the Council staff at (303) 234-4946.

Sincerely yours,



John D. McDermott
Director, Office of Review
and Compliance

APPENDIX D

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Main body of faint, illegible text, appearing to be several lines of a document or letter.

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UNITED STATES DEPARTMENT OF AGRICULTURE
FARMERS HOME ADMINISTRATION
Post Office Box 2778
Little Rock, AR 72203

Mr. M. J. Spears
State Conservationist
Soil Conservation Service
Post Office Box 2323
Little Rock, AR 72203

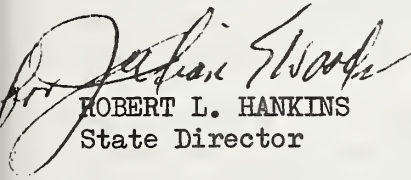
April 24, 1975

RE: South Fork Watershed
Montgomery County, Arkansas

Dear Mr. Spears:

We have reviewed the draft work plan and draft environmental impact statement for the South Fork Watershed Project in Montgomery County, Arkansas and have no comments to offer at this time.

Sincerely,



ROBERT L. HANKINS
State Director

cc: District Director 8

County Supervisor, 03-49

APPENDIX D

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY LABORATORY

REPORT ON THE RESEARCH OF
DR. J. H. VAN VLECK
DURING HIS VISIT TO THE
PHYSICAL CHEMISTRY LABORATORY
OF THE UNIVERSITY OF CHICAGO
IN THE YEAR 1934

BY
DR. R. W. WOODRUFF
AND
DR. J. H. VAN VLECK

CHICAGO, ILLINOIS
UNIVERSITY OF CHICAGO PRESS
1935



STATE OF ARKANSAS
DEPARTMENT OF PLANNING
400 TRAIN STATION SQUARE • VICTORY AT MARKHAM
LITTLE ROCK 72201

DAVID PRYOR
GOVERNOR
CHARLES T. CROW
DIRECTOR

May 29, 1975

Mr. M.J. Spears
State Conservationist
Soil Conservation Service

Re: Draft Environmental Impact
Statement and Work Plan for
South Fork Watershed

Dear Mr. Spears:

The State Planning and Development Clearinghouse has distributed the above cited documents for review and comment to the Agencies represented on the Technical Review Committee.

The Chairman of the Committee, Mr. John P. Saxton, has submitted comments from the Department of Planning, Department of Health, Division of Soil and Water Resources, Department of Commerce, and the Arkansas Game and Fish Commission to this office for transmittal to your Agency for your consideration.

The Department of Health stressed the need for a commitment by the City to construct a raw water transmission line in accordance with a definite timetable. The Department believes the line will be necessary to protect the South Fork as a water supply but also understands the City of Mount Ida difficulty in raising funds to construct the line. A copy of the Department of Health's review letter on the preliminary draft documents is enclosed for your information.

The Department of Planning review has identified several statements in the documents which require further explanation. It recommended that conservation land treatment and construction of only Structure #1 for municipal and industrial water.

The Division of Soil and Water Resources in the Department of Commerce determined the documents to be well written and concise.

Mr. M.J. Spears
Page 2
May 29, 1975

The Arkansas Game and Fish Commission has commented directly to you concerning its review of the Draft Environmental Impact Statement and Work Plan. The Commission Staff is presently working with the Montgomery County Conservation District in regard to the utilization of the impoundments for public fishing as well as other wildlife mitigation proposals.

Sincerely,

A handwritten signature in cursive script that reads "Fred Kleihauer".

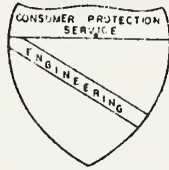
Fred Kleihauer, Program Assistant
State Clearinghouse

FK/dn

Enclosure

ARKANSAS STATE DEPARTMENT OF HEALTH
4815 WEST MARKHAM STREET
LITTLE ROCK

82



April 29, 1975

Mr. John P. Saxton
Chairman of the Technical Review Committee
Division of Soil and Water Resources
1200 West Park, 3rd Floor
Little Rock, Arkansas 72204

Re: Watershed Work Plan and
Environmental Impact Statement
South Fork Watershed Project
Montgomery County
Mount Ida, Arkansas
75 E 401

Dear Mr. Saxton:

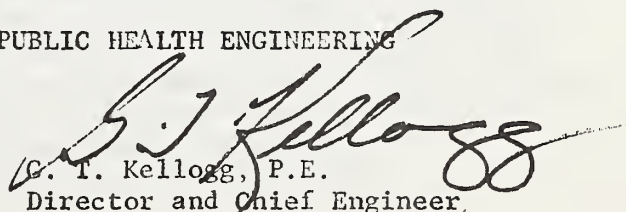
The above referenced reports have been reviewed and we find that very little has changed from the original report which we received January 28, 1975. A copy of our February 25, 1975, letter is attached for your information.

We still feel that a raw water transmission line is needed at present. With flood control structures being constructed, land along the South Fork will be opened up to development and thereby increase the possibility of pollution between the impoundments and the water intake.

We can understand the problems that the City of Mount Ida has with obtaining the necessary funds to construct a raw water transmission line but we feel that a strong commitment must be made to construct the line in accordance with a definite timetable.

Yours truly,

BUREAU OF PUBLIC HEALTH ENGINEERING


G. T. Kellogg, P.E.
Director and Chief Engineer,

GTK:ALP:dkb

cc: Mr. M. J. Spears, State Conservationist
Mr. James McClelland

APPENDIX D

LITTLE ROCK

February 25, 1975

75 E 401

Mr. M. J. Spears, State Conservationist
U. S. Department of Agriculture
Soil Conservation Service
Post Office Box 2323
Little Rock, Arkansas 72203

Re: Watershed Work Plan and
Environmental Impact Statement
South Fork Watershed Project
Montgomery County
Mount Ida, Arkansas
75 E 401

Dear Mr. Spears:

In doing more intensive investigation into the above referenced project, it has come to our attention that the following comments should be made:

1. In the Draft Work Plan, on Page 28, it talks about releasing water from Structure Number One and allowing this water to flow downstream to the existing water intake. If the other two structures are built and used for recreation and flood control, this will effect the quality of water being delivered to the existing intake. Also, if structures Two and Three are built and need to be drawn down or if low flow augmentation is needed, the water being released from the low level of the reservoirs will be of very undesirable quality and will cause Mount Ida increased treatment cost and more water quality problems. This will also make the raw water line from the reservoir to the water treatment plant a must at present.
2. If the impoundments permit prolific algal growths or blooms to occur, additional chemical costs will be incurred by Mount Ida in treating the water for taste and odors. Taste, odor, and color problems are also created from lignins and tannins that leach out of plants from uncleared reservoirs. Therefore, if the impoundments are not cleared of brush and trees, some taste, odor, and color problems will more than likely occur.

February 24, 1975

3. We feel that with three impoundments being proposed and only one being used for water supply and adequate area for recreation will be provided by the other two impoundments. We feel that this fact should keep the City of Mount Ida from having to pay a special use fee.
4. With flood control structures being constructed on the South Fork more land along the river will be opened up to development and thereby increase the possibility of pollution between the impoundments and the water intake.
5. We recommend that the Soil Conservation Service and Mt. Ida's Engineers get together and try to design a combination intake structure.

The above comments in general point to the fact that Mount Ida needs the raw water line now, when the impoundment is constructed. If the impoundments are built and the raw water line is not, the acceptance of the South Fork as a water supply would be put in jeopardy.

Yours truly,



T. A. Skinner, P.E., Director
Division of Engineering

TAS:JWM:ALP:wt

cc: Mr. John P. Saxton
Division of Soil and Water Resources

Mr. James McClelland
Mehlburger Engineers, Inc.

Mr. Waymon A. Gaston, Supt.
Municipal Water System
Mount Ida, Arkansas 71957

State Planning and Development Clearinghouse

David Pryor
GOVERNOR

CHARLES T. CROW
DIRECTOR

STATE OF ARKANSAS
DEPARTMENT OF PLANNING
400 TRAIN STATION SQUARE • VICTORY AT MARKHAM
LITTLE ROCK 72201

M E M O R A N D U M

TO: State Planning and Development Clearinghouse
FROM: Charles T. Crow *CC*
SUBJECT: South Fork Watershed Project
DATE: February 18, 1975

The South Fork Watershed Project is in Montgomery County, Arkansas and is to provide watershed protection, flood prevention, and a dependable water supply for the City of Mount Ida. This is to be achieved by the application of land treatment measures and the construction of two floodwater retarding structures and one multiple purpose structure for flood prevention and municipal and industrial water for Mount Ida.

The Arkansas Department of Planning wishes to submit the following comments concerning the Draft Environmental Impact Statement and Work Plan for the South Fork Watershed, Montgomery County.

1. The data given on page 3 of the Draft EIS stating that landowners have indicated that they will convert 900 acres of grassland to cropland in the watershed after the flood prevention measures are installed appears to conflict with the 401 acres of cropland expected with the project on page 32.
2. On page 13 of the EIS it states that soils in the flood and stream terraces are well and moderately well drained. A contradiction to this statement is found on page 26 under Drainage Problems where it states that the soils on about 500 acres in the watershed are classified as poorly drained and farm drainage systems are necessary to correct this problem. Drainage of these wet soils would have to be accomplished before maximum agricultural productivity could be attained. Are there any assurances that the farmers are willing to be out the expense for necessary drainage systems? If there are no assurances from the farmers then the benefits computed using maximum productivity levels are subject to question. If public monies are expected to be used in providing drainage, this should be stated and figured as a cost.
3. What data is there to substantiate the 301 acres of cropland projected without the project on page 32 of the EIS. This figure appears to be high considering there are only 55 acres of cropland in the watershed now and land suitable for cropland production is limited because of flooding.

MEMORANDUM

-2-

February 18, 1975

4. The Draft EIS states that there are 25 farms in the flood plain. Using the 401 acres of projected cropland with the project, the average cropland per farm would be approximately 16 acres. To convert the present use of this acreage from grassland to cropland and purchase necessary equipment to farm 16 acres would be in our estimation prohibitive.
5. Under Economic Resources, page 18, yields per acre in the flood plain for soybeans is given as 37 bushels. This figure appears to be high considering 500 acres are poorly drained and average yields statewide for soybeans is only 20 bushels per acre. If benefits were figured at this high rate of yield, it is the Department's contention that the figures are unrealistic.
6. The project provides for municipal water to be pumped out of the South Fork at Mount Ida and the EIS states that water flowing down the stream is not expected to become contaminated. If 400 to 900 acres of cropland were a reasonable figure for future land use in the watershed, this statement could be questioned. With increased sediment loads and chemical pollution associated with cropland production as projected, it could be assumed that contamination could become a problem.
7. The applicant should consider the following alternative: Conservation land treatment and construction of only Structure #1 for municipal and industrial water.

CTC/mrf



DONALD V. ALLEN
DIRECTOR OF COMMERCE

JOHN P. SAXTON
DIRECTOR
(501) 371-1611


DEPARTMENT OF COMMERCE
DIVISION OF SOIL AND WATER RESOURCES

1200 WESTPARK DRIVE, ROOM 308
LITTLE ROCK, ARKANSAS 72204

May 5, 1975

MEMORANDUM

TO: ~~Norman F. Williams, State Geologist~~
~~Geology Division~~

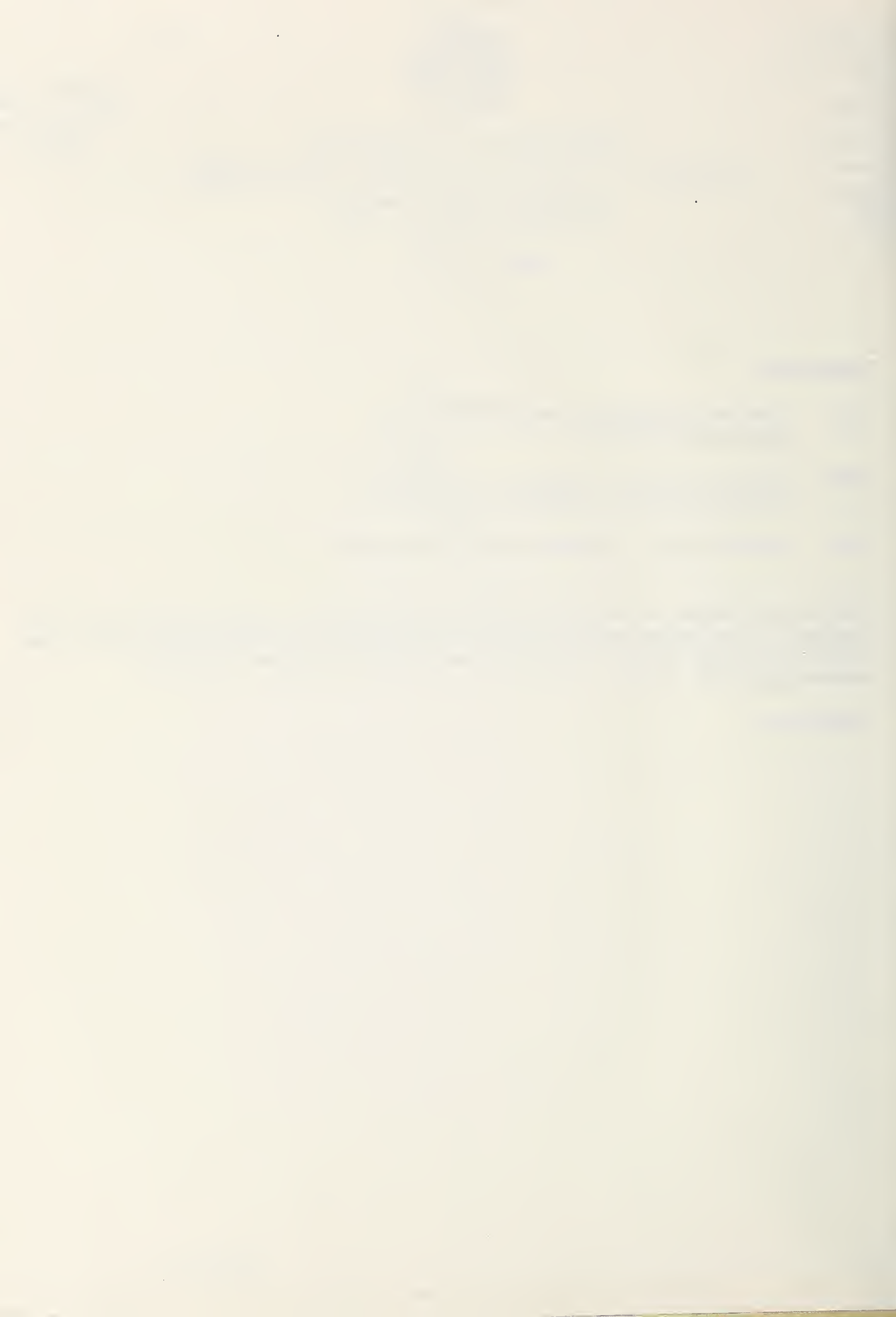
FROM: John P. Saxton, Director 
Division of Soil and Water Resources

RE: Draft E.I.S. for South Fork Watershed

The report seems to be well written and concise. Our position on this project is on record with SCS as of the public meeting held at Mt. Ida on February 21, 1975. Therefore, we have no further comments concerning this report.

JPS:ADF:cc

APPENDIX D



MISSIONERS

JOE D. SCOTT
CHAIRMAN
NASHVILLERALPH B. GRIFFIN
VICE CHAIRMAN
JONESBOROR. A. NELSON
BLYTHEVILLEGUY FENTER
CHARLESTONALPH H. BOWERS
HARRISONMAEL F. MAHONY
EL DORADOWM. F. WRIGHT
LITTLE ROCKP. M. JOHNSTON
FAYETTEVILLE

Arkansas

Game and Fish Commission

LITTLE ROCK, ARKANSAS 72201

March 12, 1975



Mr. M. J. Spears
U. S. Department of Agriculture
Soil Conservation Service
P.O. Box 2323
Little Rock, Arkansas 72203

Dear Mr. Spears:

Our staff has reviewed the Draft Work Plan and Draft Environmental Impact Statement on the South Fork Watershed, Montgomery County, P.L.566 Project.

The Draft Environmental Statement is reasonably accurate and we have only a few recommendations to be included in your final work plan:

1. Low flow bypasses should be included to insure adequate flows below all dams.
2. Cool water bypasses are needed to maintain water quality below the dams.
3. Public access should be provided at all sites. We understand that Arkansas Health Department regulations may prohibit use of site #1, the multiple use site, for recreation; however, we know of no case where sport fishing could be detrimental to a municipal water supply and we recommend that public fishing be allowed.
4. Mitigation of wildlife losses by acquisition of land to compensate for that which will be inundated by the reservoirs. This land should be dedicated to wildlife management and public access provided.

We very much appreciate the opportunity to comment on this project.

Very truly yours,

Andrew H. Hulsey
Andrew H. Hulsey,

AHH:DGC:ac

ROUTE
M. J. S.

* ✓ 2ED
✓ OK

by: *albert*



