CESAS-OP-F (1145b)
DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT CORPS OF ENGINEERS
SAVANNAH, GEORGIA

CASE DOCUMENT AND ENVIRONMENTAL ASSESSMENT
APPLICATION NUMBER 200006560 FOR A
DEPARTMENT OF THE ARMY PERMIT
BY
CITY OF CANTON AND
COBB COUNTY-MARIETTA WATER AUTHORITY

PREPARED BY:

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PART I – INTRODUCTION

A. NAME AND ADDRESS OF APPLICANT:

City of Canton
Attention: Cecil Pruett, Mayor
687 Marietta Highway
Canton, GA 30114

Cobb County-Marietta Water Authority
Attention: Roy Fowler
1660 Barnes Mill Road
Marietta, GA 30062-7535

B. APPLICATION NUMBER: 200006560

C. APPLICATION RECEIVED: May 1, 2000

D. APPLICATION COMPLETED: December 27, 2000

E. APPLICATION REVISED: September 4, 2003

F. LOCATION OF PROPOSED ACTIVITY: The proposed dam site is located approximately 1.5 miles northeast of the City of Canton on Hickory Log Creek in Cherokee County, Georgia at latitude 34° 16' 02" North and longitude 84° 18' 30" West." The proposed diversion pump and intake site would be located on the Etowah River. The location of these facilities is shown on Figure 1.

G. PROJECT DESCRIPTION: To construct an earth and concrete dam or earthen dam to create a 369-acre pump-storage water supply reservoir, raw water intake, and raw water pump station to serve the City of Canton and the Cobb County-Marietta Water Authority ("Authority") and its customers (See Figure 2). The reservoir would be filled from Hickory Log Creek and the Etowah River. The project would release water into Hickory Log Creek for withdrawal by the City of Canton at its existing water intake on the Etowah River, located 1.6 miles downstream of the confluence of Hickory Log Creek with the Etowah River. The raw water intake is to be placed on the Etowah River in the Northeast quadrant of the I-575 and GA 5 interchange. The pump station would be placed on an upland site alongside the river. The pipe taking the water from the river to the proposed reservoir would cross a stream that is already placed in a pipe.

Construction of an earth and concrete dam (950 feet long and 180 feet high) would involve the discharge of approximately 210,000 cubic yards of fill material into waters of the United States (more material would be needed if an entirely earthen dam is constructed). The project would require the filling or inundation of approximately 19.27 acres of jurisdictional wetlands and

44,175 linear feet of jurisdictional waterways. A 20 acre lake(deep water habitat) is located within the proposed impoundment; the storage of water over the existing impoundment is not considered a discharge of fill. The normal pool elevation would be 1060 feet mean sea level. This would provide sufficient capacity to produce a safe yield of 44 million gallons per day (MGD) for the project (Figure 2).

To compensate for impacts to jurisdictional waters and to protect water quality within the Etowah River watershed, the applicants propose to implement the following compensatory mitigation plan. A total of approximately 22.5 acres of wetland would be restored at two mitigation sites within the Etowah River Watershed in Cherokee County. The first site, Mill Creek, combines 11 acres of wetland restoration and 8 acres of riparian enhancement along 5,500 linear feet of Mill Creek and its tributaries. The mitigation efforts at the second site, the Old Highway 5 site, would consist of 11.5 acres of wetland restoration and 6.5 acres of riparian enhancement along 4,700 linear feet of tributaries to the Etowah River.

In addition to the riparian mitigation at the wetland mitigation sites, the applicant proposes to preserve a 100-foot buffer on both banks of the Etowah River from Interstate 575 downstream to Georgia Highway 140. To protect water quality in Hickory Log Creek, above the reservoir's normal pool, a 100-foot natural buffer and a 150-foot horizontal setback would be established along each bank. The applicants also propose to protect, preserve, restore and enhance approximately 2.1 miles of Smithwick Creek and its tributaries and to conduct long-term monitoring on both Hickory Log Creek and the Etowah River. This proposed mitigation and monitoring is described in detail in the applicants' July 2002, Compensatory Mitigation for the Hickory Log Creek Water Supply Reservoir (See Appendix A).

H. BASIC PURPOSE AND NEED: To construct facilities for a multi-jurisdictional water supply system that would serve the residents of the City of Canton into the year 2050 and the customers of the Cobb County-Marietta Water Authority into the year 2020. The projected goal is to have a reliable yield of 44 MGD. This projected demand is supported by the State of Georgia (See Appendix B).

Future water requirements for the Authority were developed in the Cobb County-Marietta Water Authority Long-Range Water Supply Master Plan (2000 Addendum and 1996 Final Draft Report) by taking estimates of population growth, applying a factor of demand in gallons per capita per day and adding an allowance for commercial and industrial growth to arrive at annual average demands. Water conservation was considered as a factor in reducing the projected demand. Future water demands were projected in terms of average annual and peak day water use. Future water requirements for the City of Canton were developed in the March 2000, Final Technical Memorandum, City of Canton Water Demand Projections based on forecasted future population and per capita demand factors.

I. APPLICANTS SUPPLEMENTAL INFORMATION: The following information was provided by the applicants: 1. Cobb County-Marietta Water Authority Long-Range Water Supply Master Plan (2000 Addendum and 1996 Final Draft Report); 2. Final Technical Memorandum, City of Canton Water Demand Projections, dated March 2000; 3. Proposed

Hickory Log Reservoir Preliminary Engineering Assessment, dated December 1999; 4. Jurisdictional Waters Report, dated December 1999; 5. Results of a Protected Species Survey on Hickory Log Creek, dated January 1999; 6. Compensatory Mitigation Plan for the Proposed Hickory Log Creek Water Supply Reservoir, dated April 2000; 7. Compensatory Mitigation Plan for the Proposed Hickory Log Creek Water Supply Reservoir, dated February 2002; 8. Correspondence from Hal Bryan, Eco-South, re: proposed mitigation, dated April 15, 2002; 9. Compensatory Mitigation Plan for the Proposed Hickory Log Creek Water Supply Reservoir, dated July 2002. 10. Cultural Resource Survey, dated January 18, 2000; 11. Addendum to Phase I Cultural Resources Report, dated April 9, 2002; 12. Response to Comments, dated July 9, 2001; 13. Notification under the Alabama-Coosa-Tallapoosa River Basin Compact, dated September 19, 2000; 14. Biological Assessment for the Federally Threatened Cherokee darter (Etheostoma scotti), Federally Endangered amber darter (Percina antesella), and Federally Endangered Etowah darter (Etheostoma etowahae)on the Proposed Hickory Log Creek Reservoir, dated January 2002; 15. Correspondence from Dargan Scott Cole, Law Offices of William Thomas Craig, re: instream flows, dated May 8, 2002; 16. Correspondence from office of Thomas Craig amending the application, dated August 14, 2003; 17. Correspondence from office of Thomas Craig clarifying the amendment to application, dated September 4, 2003.

J. PROPOSED WORK SUBJECT TO THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS: The applicants propose to perform work in, or affecting waters of the United States.

K. APPLICABLE STATUTORY AUTHORITY: The applicants are making application pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

PART II – COORDINATION

A. PRE-APPLICATION ACTIVITIES: The US Army Corps of Engineers' first involvement in this project began with a presentation by the applicants' consultant at the March 15, 2000, complex project interagency meeting. A pre-application conference was held on April 28, 2000, at the Canton City Hall. A meeting was held October 31, 2000, with Gary L. Craig the new project manager.

B. JOINT PUBLIC NOTICE: On December 27, 2000, US Army Corps of Engineers, Savannah District (USACE) issued a Joint Public Notice advertising the proposed work. We mailed approximately 1000 notices to federal, state, and local agencies and the public. During the comment period, the applicants hosted a public information meeting. Representatives from all of the federal and state reviewing agencies were in attendance. Approximately 10 members of the general public attended.

C. RESPONSE TO JOINT PUBLIC NOTICE: Summary of Comments on the Public Notice. See Table 1 below.

Table 1. Summary of Comments

COMMENTOR	OBJECT	3(b) Y/N	NO OBJECT	NO OBJECT W/ CONDITION	DATE
Federal Agencies					
1. USACE, Mobile District	X				2/13/01
				X	4/08/02
			X		3/31/04
2. US Environmental Protection Agency	X				2/22/01
	X	Y			3/23/01
	X				3/22/02
		N	X		8/19/02
3. US Fish and Wildlife Service	X				2/28/01
	X	Y			3/15/01
	X				4/04/02
	X	N			10/16/02
4. National Marine Fisheries Service					*
5. Advisory Council on Historic Preservation					*
Georgia State Agencies					
6. State Clearinghouse				X	2/25/01
7. Georgia Department of Natural Resources (GADNR), Environmental Protection Division, Safe Dams Program			X		1/22/01
8. GADNR, Historic Preservation Division			X		2/07/01
				X	5/30/02
9. GADNR, Environmental Protection Division				X	11/20/00
10. GADNR, Wildlife Resources Department					*
11. Office of Planning and Budget				X	1/29/01
Others					
12. Atlanta Regional Commission				X	1/22/01
13. Georgia River Network, Southern Environmental Law Center, Coosa River Basin Initiative	X				Undated
14. Tim D. Robbs				X	1/11/01
15. Michael Murrell				X	Undated

* Indicates no comment received.

D. DISCUSSION OF RESPONSES:

1. USACE Mobile District letter of February 13, 2001:

Mobile District, Issue 1: Our questions on the Hickory Log Creek Joint Public Notice (JPN) are regarding the stated 45 million gallons per day yield for the project, particularly the implication that this is a "new" yield. Without knowing the explicit reservoir operating plans for the off-channel storage water supply reservoir, it is not possible to determine whether the storage/yield for the Hickory Log Creek Reservoir is "new" yield or if in fact it would result in a loss of yield for Allatoona Lake. It would seem to potentially make the storage less productive at Allatoona Lake if water is withdrawn from Hickory Log Creek. According to the project description in the JPN, Cobb County-Marietta Water Authority (CCMWA) wants to release from Hickory Log Creek Reservoir and pick it up at their existing water intake facility located on Allatoona Lake. However, we would not let CCMWA do that except under terms of their water supply storage contract for Allatoona Lake (i.e., all users of storage get any benefit of augmented inflow). For CCMWA to get the benefit, if any, of Hickory Log Creek Reservoir, we would first have to be assured that other users of storage do not have their storage yields harmed by Hickory Log Creek Reservoir operation. If there is any true additional yield, we may be able to enter into agreement with CCMWA for them to be credited with it at their Allatoona Lake water supply intake facility.

Applicants' Response: An initial meeting with representatives of the US Army Corps of Engineers, Mobile District was held on May 30, 2001. The applicants committed to work with the Mobile District to study operation models of Lake Allatoona and the proposed project to determine if the operation of the proposed project would have any significant adverse impact on the available storage of Lake Allatoona.

USACE Position: We continued to encourage the applicant to provide information on an accounting method for withdrawing from Lake Allatoona. Ultimately the applicant revised their application to withdraw water upstream and away from Lake Allatoona.

Mobile District, Issue 2: We would like to reiterate the need for close coordination between Savannah and Mobile Districts for regulatory permit issues dealing with water resources (especially municipal and industrial water supply and wastewater projects) within the Alabama-Coosa-Tallapoosa(ACT) and Apalachicola-Chattahoochee-Flint(ACF) basins. Water allocation formulas are being developed under Federal law in accordance with river basin compacts.

Applicants' Response: Article VII© of the Alabama-Coosa-Tallapoosa River Basin Compact (hereinafter referred to as the 'Compact'), requires written notification to the parties to the Compact in the event any person increases the withdrawal, diversion or consumption of specific water resources by more than 10 million gallons per day on an average annual daily basis, or in the event any person, who was not withdrawing, diverting or consuming any water resources from the Basin, seeks to withdraw, divert or consume more than one million gallons per day on an average annual daily basis. By letter dated September 19, 2000, the applicant provided the requisite notification regarding the filing of a Section 404 permit application with the US Army

Corps of Engineers to discharge 210,000 cubic yards of fill into Hickory Log Creek to construct a dam to impound a proposed 44 million gallon per day (mgd) water supply reservoir. Further coordination is an internal USACE matter.

USACE Position: The USACE has considered Mobile District's comments and the responses from the applicants. We agree with the Mobile District that coordination between Savannah and Mobile Districts is needed. We also agree this project may have some bearing on the ACT Compact. Therefore the Compact Commissioners were notified of this proposed activity, by the USACE, in accordance with Public Law 104-105 (the Compact).

USACE Mobile District letter of April 8, 2002: We met with the applicants, Cobb County-Marietta Water Authority, on February 14, 2002, to discuss the conjunctive operation of their proposed Hickory Log Creek Reservoir (HLC) with the downstream Allatoona Reservoir. We have no objection to the proposed HLC Reservoir provided that a water allocation agreement can be formulated that does not double count credits for releases, and thus adversely affect water storage space at the downstream Allatoona Reservoir. At the February meeting, we presented a method of water storage space accounting for the proposed HLC Reservoir that meets these criteria. This or an alternative method that meets the above criteria would be acceptable to the Mobile District. To reiterate, our acceptance of HLC Reservoir is contingent upon development of a technically sound water storage space accounting method that can be incorporated into a future storage allocation contract for Cobb County-Marietta Water Authority.

Applicants' Response: The Cobb County-Marietta Water Authority (CCMWA) and the Mobile District of the Corps of Engineers are continuing to work toward an accounting method for the treatment of water released by the proposed reservoir for withdrawal by the CCMWA from Lake Allatoona. It is the applicants' belief this comment can be included as a condition of a permit for the proposed reservoir to be resolved before CCMWA withdraws any water released by the proposed reservoir into Lake Allatoona.

USACE Position: After considering the comments from Mobile District and the responses by the applicants, we determined that the permit could not be conditionally authorized to wait for the withdrawal determination formula to be determined.

The applicant proposed taking water from the Etowah River during times of high flow and pumping it into Hickory Log Creek Reservoir(HLC). The water would later be released from HLC and allowed to flow to Lake Allatoona where the water would be removed at CCMWA's pump station. Multiple meetings were conducted with the applicant, Mobile District, and Savannah District to discuss a formula that could account for the volume of water released from HLC once it had reached Lake Allatoona. Although all parties tried, a mutually acceptable formula was never made.

The applicant revised their application on September 4, 2003. The revision called for the water, once it is released from Hickory Log Creek Reservoir, to be pumped for use at the City of Canton's water treatment facility thereby avoiding the need for a formula. The City's facility is alongside the Etowah River and well upstream and outside of Allatoona.

The applicant's revision would avoid pumping from Lake Allatoona, but there remained the concern of what impacts, if any, the withdrawal upstream would have upon Lake Allatoona. The concerns were for those impacts to hydropower and boater based recreation.

The Hydropower Analysis Center, Northwestern Division, Corps of Engineers, prepared a report for Mobile District: Allatoona Power Benefits Foregone Associated with the Construction of Hickory Log Creek, March 2004. The report(Appendix C) is an economic analysis of the alternatives for power benefits foregone that would result from increased water supply withdrawals. Mobile reviewed the report and did not identify any significant adverse impacts to Lake Allatoona.

USACE Mobile District, March 31, 2004: The Hydropower Analysis Center, Northwestern Division, Corps of Engineers prepared a report for Mobile District. The report, Allatoona Power Benefits Foregone Associated with the Construction of the Hickory Log Creek Project, March 2004(Appendix C), is an economic analysis of the alternatives for power benefits foregone that would result from increased water supply withdrawals.

USACE Position: The report(Appendix C) identified no significant adverse or significant impacts. We consider that the project using any of the alternatives would have no adverse impact to a federal project.

USACE Mobile District, March 31, 2004: The Mobile District prepared a report, Lake Allatoona Boater Based Recreation Impacts(Appendix D). The report is an economic analysis to assess the economic impact that lower water levels resulting from water withdrawals would have on boater-based recreation on Lake Allatoona.

USACE Position: The report(Appendix D) identifies no significant adverse or significant impacts. We consider that the project using any of the alternatives would have no adverse impact to a federal project. We also consider the information in Appendix C and Appendix D when combined would have no adverse or significant impacts to a federal project.

2. US Environmental Protection Agency: The US Environmental Protection Agency (EPA) commented on the project on several occasions. Each issue raised by the agency is stated below followed by the applicants' response and the Savannah District's (USACE) position, as appropriate.

a. EPA Letter of February 22, 2001: EPA raised the following issues: "In summary, EPA finds that, based on the information available, the applicant has not fully documented the need for the project, conducted an adequate alternatives analysis, documented all of the direct and indirect impacts of the proposed project and does not propose an adequate compensatory mitigation plan. For these reasons, EPA has determined that this project does not comply with the Section 404(b)(l) Guidelines and we recommend that a permit for the project, as proposed, be denied. EPA has also determined that the project may impact aquatic resources of national importance and thus we retain the option to refer this project through the procedures out lined in the 1992 Memorandum of Agreement between EPA and the Department of Army, Part IV,

Elevation of Individual Permits, paragraph 3(a), regarding section 404(q) of the Clean Water Act."

EPA Issue 1: The applicant has provided considerable information regarding the projected growth in population in the service area and a target peak service area demand of over 300 MGD in 2050, of which this reservoir would supply 45 MGD. The purpose is to serve the needs of the City of Canton (25% of the reservoir capacity) and the Cobb County-Marietta Water Authority ("CCMWA" 75% of reservoir capacity). While there is contractual relationship between CCMWA and Canton, the total makeup of the potential service area is unclear. As was suggested at the February 13 meeting, the applicant needs to provide a very well defined service area, preferably on a map, that can be used to assess the current and future population projections and thus establish the overall need for the project.

Applicants' Response: Georgia EPD certified the need for the reservoir in a letter dated November 20, 2000, attached. (See Appendix "B").

The overall project purpose is to provide a regional water supply source to meet a portion of the projected needs of the City of Canton (Canton) and the Cobb County-Marietta Water Authority (CCMWA). A service area map for CCMWA and Canton is attached. (See Figure 2). Table 2 list current CCMWA customers and projected maximum day water demand through the year 2050.

Table 2.

	Maximum Day Water Demand, mgd						
	1995	2000	2010	2020	2030	2040	2050
Cobb County (8 customers)	109.8	124.3	142.5	155.8	165.6	171.6	175.2
Paulding County WS	6.8	11.2	26.2	43.7	60.5	75.5	88.6
Cherokee Co. WSA	2.0	1.65	1.65	1.65	1.65	1.65	1.65
Douglas Co. WSA	1.8	3.5	7.3	10.3	14.2	18.1	22.0
City of Mountain Park	0.1	0.1	0.1	0.1	0.1	0.1	0.1
City of Woodstock	0.8	1.0	1.0	1.0	1.0	1.0	1.0
Total	121.3	141.8	178.8	212.6	243.1	268.0	288.6

Note that 91 percent of the CCMWA's projected maximum day demand in 2050 is from Cobb and Paulding Counties, the CCMWA's sole-source customers.

USACE Position: The Georgia Department of Natural Resources, Environmental Protection Division (EPD) has provided concurrence with the Authority's water needs projections. They are the entity that authorizes water allocations.

EPA Issue 2: We also question the validity of using the peak demand as the primary factor in determining the future need. It appears that relatively conservative factors have been used to

arrive at a high peak demand. Also, different peaking factors were used for the two principal partners. Finally, it appears the peak demand assumes no additional conservation measures would be implemented as conditions develop that would lead to peak demand.

Applicants' Response: Except in the case of extremely large reservoirs, peak demand is frequently used to determine the required water supply yield. This is a conservative, but well founded approach. A reservoir sized for average day demands may not provide sufficient yield under prolonged drought conditions and peak demand. The peaking factors utilized were determined using standard methods (ratio of maximum day to average day demands) and actual data for each participant (no additional safety factors were utilized). The different peaking factors for the CCMWA and Canton reflect their different customer bases. Canton has a higher industrial component than the CCMWA, which causes it to have relatively wide fluctuations. The CCMWA, on the other hand, has a larger percentage of residential demand.

Water conservation is included in the analysis provided as part of the joint application. As shown on pages 3-8 of the 2000 CCMWA Master Plan Update Addendum, in the CCMWA service area water conservation is expected to produce water savings of about 22 mgd in 2050. This savings reduces the water supply needed. The 2050 water demand in the CCMWA service area, based on present use rates is 289 mgd; however, with water conservation the actual water requirements were reduced to 267 mgd. Even with water conservation, the CCMWA's demand is large relative to their share of the HLC project (33 MGD).

Reduced water demand due to water conservation was incorporated in Canton's projections in the declining per capita water use factor. The reduction in the aggregate water use factor from 263 gallons per capita per day (gcd) to 213 gcd in 2050 reflects the increasing effect of water conservation in addition to an increase in the residential population.

USACE Position: Our position is the same as our position to Item 1: The Georgia Department of Natural Resources, EPD has provided concurrence with the Authority's water needs projections.

EPA Issue 3: The reservoir will be located in Cherokee County but the yield of the reservoir will not be available to Cherokee County, only Canton. EPA would like to see regional solutions to water supply and thus the applicant should provide additional information on the role, if any, of Cherokee County and this project.

Applicants' Response: Canton approached the Cherokee County Water and Sewerage Authority (CCWSA) regarding the proposed project prior to contacting the CCMWA. The CCWSA declined to participate, as they were in the process of finalizing the Yellow Creek Reservoir and did not believe they had either the need or the financial resources to participate. The CCWSA would benefit from the project, however, as they are a CCMWA customer and expect to continue to purchase water from the CCMWA.

USACE Position: The applicants gave Cherokee County an opportunity to participate in a regional approach to water supply. Cherokee County decided not to participate in such an approach to water supply.

EPA Issue 4: The applicant has devised a number of scenarios that combine current or expanded withdrawals from the Chattahoochee River and Lake Allatoona with the implementation of conservation measures, development of groundwater resources, limited wastewater reuse and construction of a new water supply reservoir. However, the applicant has provided only a narrative "non-economic" comparison of the alternatives. Nowhere in the documentation is there a quantitative comparison of the alternatives and their environmental impacts. For the applicant to justify that the long range water supply alternative involving a reservoir on Hickory Log Creek is the least damaging practicable alternative, considerably more information on the stream and wetland impacts of the other alternatives must be presented and compared with the preferred alternative.

Applicants' Response: As reported in the 2000 Master Plan Addendum, preliminary wetlands and protected resource evaluations indicate a reservoir on Hickory Log Creek would have less environmental impact than many of the other options evaluated. Additional comparison of the alternatives is presented below.

1. *Protected Species.* According to Dr. Byron J. "Bud" Freeman of the University Of Georgia Institute Of Ecology, the federally threatened Cherokee darter, *Etheostoma scottii,* is present in the proposed reservoir area of Hickory Log Creek. Dr. Freeman reports that other streams in north Georgia considered as potential water sources (including Long Swamp, Sharp Mountain, Shoal, and Canton Creeks) also harbor protected darter species. However, Sharp Mountain and Long Swamp Creek support not only the Cherokee darter, but also the federally endangered Etowah darter *E. etowahii* A reservoir on one of these streams would have relatively more adverse impact on protected species than the proposed reservoir on Hickory Log Creek. Both Shoal and Canton Creeks support robust populations of Cherokee darters. Most streams in the Etowah River drainage that are of sufficiently good water quality to provide drinking water also provide habitat for one or more of these federally protected darter species. A significant advantage with Hickory Log Creek is that, unlike the other options, the creek is already impounded and therefore, fish populations are currently disjoint from others and from the main travel corridor of the Etowah River. This significantly decreases the adverse impacts to the Cherokee darter when compared to truncating an unregulated stream.

2. *Stream and Wetland Impacts.* The proposed Hickory Log Creek site also has the advantage of relatively low jurisdictional waters impacts (see response to Comment 2(a)(8)). The steep slopes in the Hickory Log Creek basin allow for increased yield with little added stream and wetland impact. Other potential reservoir locations (including Long Swamp, Sharp Mountain and Shoal Creeks) lie in broader, flatter basins and, as a result, have significantly greater wetland impacts.

3. *Cultural Resources.* A survey of cultural resources in the vicinity of the proposed Hickory Log Creek Reservoir was conducted by Steve Webb, R.S. Webb & Associates. Only two (2) potentially significant sites were identified in the project area. These include an archeological site that might be eligible for the National Register of Historic Places and an historic structure complex that is considered likely to be eligible for the National Register. While detailed cultural resources surveys were not conducted for other potential reservoir locations, a general comparison of potential impacts can be made based on documented listings of cultural resources in these areas and general knowledge of typical locations of cultural resources in North Georgia. Prehistoric or Native American settlements are typically found in fairly flat areas, not in the steep-sloped topography as is present in the Hickory Log Creek basin. Thus, a reservoir on Hickory Log Creek would be expected to have fewer cultural resource impacts than one on the other potential reservoir sites considered in the water supply alternatives analysis. Mr. Webb specifically noted that : (1) a fair amount of historic Cherokee activity has been reported in the vicinity of Long Swamp Creek, (2) Setting down Creek is known to have 3 to 4 significant sites in the vicinity of the Etowah River, and (3) the topography of the other reservoir options includes flatter areas that would be expected to have a higher likelihood of historic settlements.

4. *Displacements.* USGS topographic maps were used to identify roads, railroads, and buildings that would be displaced by reservoir development. The following table summarizes the displacement/relocation requirements associated with several alternative reservoir site(s):

Comparison of Relocation Requirements Associated with Proposed Reservoir Locations

Proposed Reservoir	**Roads[a], feet**	**No. of Homes/ Buildings[a]**
Long Swamp Creek	850	1
Shoal Creek	5,000	0
Settingdown Creek	6,150	2
Sharp Mountain Creek	3,500	9
Hickory Log Creek	800	1

[a] Approximations based on USGS 7.5-minute topographic maps.

The accuracy of this review is limited by the age of available topographic maps; however, as all of the maps were updated at approximately the same point in time, this information is considered sufficient for a comparative analysis. The information in this table indicates the proposed project compares favorably with other alternatives relative to required displacements. In conclusion, after consideration was given to stream and wetland impacts, protected species, cultural resources and displacements, the proposed project was selected as the preferred alternative.

USACE Position: The applicants' alternative analysis investigated ways to totally avoid wetland impacts and to minimize impacts. We have also conducted our own alternative analysis. (See Part III of this document).

EPA Issue 5: The State of Georgia has recently sued the US Army Corps of Engineers to change the management of Lake Lanier and increase the amount of water in the Chattahoochee River for consumption. Since all of the alternatives rely on withdrawal of water from the Chattahoochee River to satisfy part of the demand for the service area, the opportunity to increase withdrawal may influence the selection of a preferred alternative. We recognize that all this has happened after the application was submitted, but we would appreciate the applicant addressing this issue.

Applicants' Response: The CCMWA service area is in both the Chattahoochee and Coosa Basins and Canton is in the Coosa Basin. More water becoming available from Lake Lanier will provide additional Chattahoochee River Basin supply. The proposed project offers a new water source in the Coosa Basin. To minimize future interbasin transfers, the CCMWA and Canton seek to satisfy Coosa Basin demands with Coosa, not Chattahoochee Basin water. Thus the availability of additional water supply from Lake Lanier will not impact the CCMWA's and Canton's need for water from Hickory Log Creek.

USACE Position: The USEPA wanted the applicant to address issues that arose after the application was submitted. The applicants adequately responded to USEPA's request. The applicant's desire to withdraw water from the Catoosa Basin instead of the Chattahoochee Basin is a move that shows their attempts to avoid future interbasin transfer.

EPA Issue 6: We also note that the proposed Northern Arc of the Outer Perimeter may cross this reservoir. There is no mention on how this road may impact the selection of a preferred alternative and it is not shown on any maps of the site. Having a limited access highway carrying a large volume of truck traffic may not be a desirable feature for the immediate watershed of a water supply reservoir.

Applicants' Response: If the proposed Northern Arc of the Outer Perimeter is constructed in the vicinity of Canton, water demand in the CCMWA and Canton service areas is expected to be higher than that shown in the permit application. This expanded transportation system would accelerate growth in Canton and in the northern portion of the CCMWA's service area. In terms of water quality impacts, as the final route of the highway is not known and the accelerated growth could affect water quality in many other north Georgia streams, other water supply options could be equally impacted. Thus, development of a Northern Arc is not expected to affect the selection of the preferred alternative at this time.

USACE Position: The Northern Arc has been a topic of much discussion in the North Georgia area the last few years. Neither a commitment to construct the road nor a location of the road is determined. The road if built could not be assumed to affect the water quality of the proposed reservoir. Without a full knowledge of the road and its location neither the applicant nor the USACE can assess how it would affect the preferred alternative.

EPA Issue 7: The proposed Hickory Log Creek reservoir will be between 352 and 370 acres in surface area (figures vary in the application information).

Applicants' Response: The surface area of the proposed project is 370+ acres.

USACE Position: The applicants clarified that the size of the reservoir would be 370 acres.

EPA Issue 8: The proposed Hickory Log Creek reservoir will be between 352 and 370 acres in surface area (figures vary in the application information). The reservoir will act as a flow augmentation reservoir, pumping water from the Etowah River and storing flow from Hickory Log Creek for release back to the Etowah River for withdrawal by Canton and CCMWA (out of Lake Allatoona). There appears to be conflicting information in the application regarding the actual impacts of the proposed project. The Jurisdictional Waters Report states that 19.3 acres of wetlands (primarily riverine, palustrine, forested wetlands and scrub-shrub wetlands) will be impacted by the reservoir. According to JPN, an existing 20-acre lake will also be inundated. Also, 44,175 linear feet of streams (totaling 11.2 acres) will be impacted. Yet the JPN concludes that a total of 30.5 acres of waters of the U.S. will be impacted. This issue would have been clarified if the applicant provided a map of all jurisdictional waters. However, although the Jurisdictional Waters Report lists 30 separate wetlands and 20 waterways, none are located on any map provided to EPA. Enumeration and location of these wetlands are important as the wetlands to be impacted by this project perform a variety of hydrologic, biogeochemical and habitat functions. Hickory Log Creek is also the habitat of the federally protected Cherokee Darter.

Applicants' Response: Wetlands and waterways located within the proposed pool of the reservoir are summarized in the following tables:

WETLAND INVENTORY

Wetland	Area (acres)	Classification
A	0.01	PF01E
B	0.01	PF01E
C	0.01	PF01E
D	0.01	PF01E
E	0.15	PF01E
F	0.06	PF01E
G	0.14	PF01E
H	0.75	PF01E
I	0.01	PF01E
J	0.46	PF01E
K	2.5	PSS1F
L	1.5	PSS1F
M	1.3	PSS1F
N	0.03	PSS1F
O	0.01	PSS1F
Q	0.01	PSS1F
R	0.01	PSS1F
S	0.12	PSS1F
T	0.02	PSS1F
U	0.17	PSS1F
V	0.01	PSS1F
W	0.25	PFO1E
X	0.24	PFO1E
Y	1.4	PSS1F
Z	0.1	PEM1F
AA	9.0	PFO/PSS/PEM
BB	0.13	PFO1E
CC	0.02	PFO1E
DD	0.05	PFO1E
EE	0.8	PFO1E
TOTAL	**19.27 acres**	--------

WATERWAY INVENTORY

Waterway	Avg. Width (ft.)	Length (ft.)	Area (acres)
Hickory Log Creek	20'	18595'	8.5
A	4.5'	1915'	0.19
B	3'	650'	0.04
C	3'	705'	0.04
D	4.5	2745'	0.28
E	6'	1835'	0.25
F	6'	3945'	0.54
F1	3'	1165'	0.08
F2	3'	1095'	0.07
G	6'	2075'	0.28
H	3'	1850'	0.12
I	4.5'	625'	0.06
J	7.5'	2325'	0.4
K	3'	975'	0.06
L	3'	450'	0.03
M	3'	600'	0.04
N	3'	525'	0.03
O	4.5'	1350'	0.13
P	3'	300'	0.02
Q	3'	450'	0.03
TOTAL		**44,175 feet**	**11.19 acres**

The proposed project contains approximately 19.27 acres of jurisdictional wetland, 44,175 linear feet of stream channel, and 11.19 acres of bed-and-bank waterway in the area of proposed dam construction and impoundment. Jurisdictional waters of the US impacts total approximately 30.46 acres within a normal pool elevation of 1060 (MSL).

USACE Position: The applicants provided the requested clarification. The existing 20 acre lake is mentioned in the Joint Public Notice but does not show in the listed impacts. The lake, a deepwater habitat(not a vegetated wetland), would remain a deepwater habitat, only it would become deeper if the reservoir is constructed.

EPA Issue 9: There appears to be no analysis of measures to further minimize wetland and stream impacts on the project site. For a reservoir, this often includes an analysis of the impacts of various pool levels. The only impact analysis is for the preferred pool elevation of 1060 feet.

Applicants' Response: At its proposed elevation, 1060 MSL, the reservoir would impact 19.27 acres of wetlands. The applicants' engineers determined that approximately 9 acres of wetland impacts could be avoided by constructing the proposed reservoir at 1050 MSL; however, this change reduces the yield from 44 MGD to 36 MGD, a cost of nearly 1 MGD per acre of wetland. The proposed 1060 MSL normal pool elevation represents the maximum normal pool elevation possible with acceptable adverse impacts to existing structures and infrastructure.

USACE Position: The applicant desires to maximize the storage within the reservoir while minimizing the impact to the aquatic environment. The applicant determined that lowering the water level would reduce the impacts to the wetlands but would do so at the expense of 1 MGD per acre of wetland saved. We accept that the applicant has determined the amount of storage needed and that the state has approved this need. Unfortunately wetlands will be flooded as a result of the constructing the reservoir. We require, and the applicant has provided, a mitigation plan to compensate for the unavoidable loss to the wetlands.

(10) Issue 10: Another major concern of EPA is the potential impacts of the project on flows and water quality in both Hickory Log Creek and the Etowah River. The Etowah River at the withdrawal point is listed on the Georgia 303(d) list as only partially supporting its designated uses. The applicant has sized the reservoir and determined the yield based on the maintenance of flows at 7Q10 levels. We have often commented that sustained 7Q10 level flows could have severe water quality impacts. In October 1999, EPA endorsed more sophisticated in stream flow guidelines developed by the US Fish and Wildlife Service (FWS) and the US Geological Survey for the Apalachicola-Chattahoochee-Flint (ACF) basin. This approach indicates that 7Q10 flow is not acceptable for the long-term survival and propagation of stream biota. While we recognize that operation of this reservoir to augment flow in both Hickory Log Creek and the Etowah River may actually reduce the incidence of 7Q10 flows, we recommend the applicant employ this method, or an appropriate substitute, to demonstrate that biologically acceptable minimum flows in Hickory Log Creek and the Etowah River will be maintained. Any proposal for possible long-term 7Q10 flows in these streams is unacceptable.

Applicants' Additional Response: In the supplemental information provided May 8, 2002 the applicants propose to maintain a minimum release into Hickory Log Creek of 7Q10, or in flow, whichever is lower, as that value is actually greater than the value for 25% of Average Annual Flow (AAF). The applicants also propose to cease withdrawals from the Etowah River to the reservoir when the flow in the river drops below 292 cfs, 25% of AAF.

USACE Position: After considering the comments from EPA and the responses by the applicant, we agree that the State regulates the withdrawal of water from rivers and streams in Georgia. Current State regulations applicable to this project require that the withdrawal for drinking water cease whenever the flow of the stream is below 7Q10. The applicants shall comply with minimum flow requirements.

EPA Issue 11: Large reservoirs have the potential to significantly change water quality parameters in downstream waters. The application presents no specific design information as to how downstream dissolve oxygen and temperature will be maintained at natural levels in Hickory Log Creek. There should be specific dam design criteria such as a variable depth penstock and provision for artificial aeration if needed. There should be a plan to monitor upstream water quality and operate the dam discharge so as to minimize impacts to downstream water quality.

Applicants' Response: Detailed dam design would not be undertaken until a Section 404 permit is issued; however, the dam would be designed such that downstream dissolved oxygen and temperature mimic natural levels to the maximum extent possible.

USACE Position: A permit would have a condition requiring that dissolved oxygen and temperature mimic natural levels.

EPA Issue 12: The applicant's information on need indicates that the reservoir will be in a rapidly urbanizing area. Sedimentation, due to a lack of erosion control, is a major water quality problem in North Georgia. Many new lake designs need to accommodate the loss of storage space due to sedimentation. The applicant needs to present information that the impacts of sedimentation on the reservoir have been considered. Also, the reservoir's water quality could be affected by upstream watershed inputs. The applicant should demonstrate that the lake, which would be a water of the US, will meet all applicable water quality standards. This may require the modeling of nutrient inputs to the reservoir and additional storm water management actions in the reservoir's watershed. This is particularly important for this reservoir since the majority of the reservoir's watershed is in Cherokee County and thus outside of the service area and the applicants' authority to control. Any agreements with Cherokee County to protect the reservoir's watershed should be included in the application.

Applicants' Response: The impacts of sedimentation were considered in the safe yield analysis performed by the applicants' engineer and comprise part of the dead storage of the reservoir. The applicants are required by law to meet all applicable water quality standards and intend to comply with all applicable laws and regulations in this regard. State law additionally mandates watershed protection measures for the proposed reservoir.

USACE Position: We accept that the applicant would operate in their own best interest to keep the reservoir's water quality high and the sedimentation volume low. A permit would have conditions requiring compliance with Erosion and Sedimentation laws and regulations.

EPA Issue 13: EPA is also concerned about the secondary water quality impacts for the proposed project. As with all projects of this type, the increased water supply will promote numerous impacts related to the population growth that the reservoir will accommodate. One concern is the generation of additional wastewater. It has been EPA's experience that water supply development and wastewater management are two processes that should be closely integrated. We recognize and commend the applicant for including limited wastewater reuse as part of every alternative. However, the applicant needs to place this project in the context of

other water withdrawals, waste water management, storm water management and interbasin water transfer for the entire service area. This can be done by developing a water budget for the service area and describing the interrelationships for all aspects of surface and ground water management for the planning period.

Applicants' Response: The State of Georgia reviewed available surface and groundwater opportunities and concluded there exists a need for the proposed project and that the proposed project is consistent with the State's long-range water supply plan for the Piedmont region. The applicants would address wastewater treatment options once a long-term water supply is secured. In addition, the State issued it 401 Water Quality Certification on August 2, 2002, attached. (See Appendix E).

USACE Position: Any project that increases the reliable water supply in an area would attract both residential and industrial developers. Therefore, it can be anticipated that the counties and cities that would be serviced by the proposed project would encounter an increase in development following project implementation. Such development would also include construction of infrastructure such as roads and utilities. All of these activities have the potential to result in further impacts to both developable uplands and aquatic habitats in the area. Development of the upland resources would be regulated by local governments. Most development activities that would occur in aquatic sites would require prior authorization pursuant to Section 404 of the Clean Water Act. Therefore, there are programs in place to evaluate such impacts if they are proposed. In association with potential direct impacts, there would also be impacts associated with storm water runoff from newly developed areas. Such impacts are normally regulated by either the local governing body or the state.

EPA Issue 14: While we believe that the project has not complied with the Section 404(b)(1) Guidelines, we will also comment on the proposed compensatory mitigation plan. The project will impact approximately 19.3 acres of wetlands, an existing 20-acre lake and 44,175 linear feet of streams. We noted above some of our concerns about the exact extent of impacts to waters of the US. The applicant proposes 22.5 acres of wetland restoration and 10,200 linear feet of riparian buffer restoration at two sites. The applicant also proposes an unspecified amount of riparian preservation on Hickory Log Creek above the reservoir. This plan is far too conceptual and is inadequate for the proposed project impacts. EPA generally looks for a wetland restoration mitigation to be at a 2:1 ratio of mitigation to impacts. The current proposal falls well short of this amount. The applicant also needs to better define the target success criterion for the hydrological restoration. Merely establishing the minimum 1987 delineation manual hydrology may not be adequate for a riverine hardwood system. We recommend the applicant locate and monitor a reference site and use it to manage the mitigation sites and set the hydrological success criterion.

Applicants' Additional Response: In the July 2002 Compensatory Mitigation for the proposed Hickory Log Creek Reservoir the applicants propose the following mitigation: A total of approximately 22.5 acres of wetland would be restored at two mitigation sites within the Etowah River watershed in Cherokee County. The first site, Mill Creek, combines 11 acres of wetland restoration and 8 acres of riparian enhancement along 5,500 linear feet of Mill Creek and its

tributaries. The mitigation efforts at the second site, the Old Highway 5 site, would accomplish approximately 11.5 acres of wetland restoration and 6.5 acres of riparian enhancement along 4,700 linear feet of tributaries to the Etowah River.

In addition to the riparian mitigation at the wetland mitigation sites, the applicants propose to preserve a 100-foot buffer on both banks of the Etowah River from Interstate 575 downstream to Georgia Highway 140. To protect water quality in Hickory Log Creek, above the reservoir's normal pool, a 100-foot natural buffer and a 150-foot horizontal setback from impervious surfaces on each bank would be implemented. Setback regulations would be enforced starting at the proposed reservoir pool and extending upstream on Hickory Log Creek until designated as intermittent on a current USGS 1:24,000 quadrangle. The applicants would also protect, preserve, restore and enhance approximately 2.1 miles of Smithwick Creek and its tributaries.

The applicants would establish continuous monitoring stations (gages) recording discharge, pH, temperature, conductivity, dissolved oxygen, and turbidity on both Hickory Log Creek and the Etowah River. Water Quality and Biological monitoring stations would be established upstream and downstream of the intake point on the Etowah River and downstream of the Hickory Log Creek dam. A minimum of three monitoring sites would be established for each Biological station and would measure geomorphology, periphyton, fishes, and aquatic macro-invertebrates. Gauging, water quality, and biological sampling would be initiated within six months of ACOE permit issuance to establish baseline conditions.

Both project impacts and compensatory mitigation sites are located in the Etowah River watershed. A more detailed wetland and stream bank mitigation plan (wetland restoration design, planting design, survey plats, conservation easements, groundwater wells and vegetative monitoring locations) would be completed after necessary surveying, associated engineering, and hydrologic studies have been completed. Wetland mitigation site acreage and stream lengths are approximate and are based upon tax map aerials, soil surveys, and USGS 1:24,000 quadrangles.

USACE Position: After considering EPA's comments concerning the compensatory mitigation we agreed that the initial submittal was inadequate. However, new versions of the compensatory mitigation plan have been provided. We find that the compensatory mitigation plan dated July 2002 (See Appendix A) is adequate to replace function and value lost by the project, as required by the 404(b) (1) Guidelines. A condition on the permit would require compliance with the mitigation plan.

EPA Issue 15: Regarding the stream mitigation, no widths are given for the riparian restoration areas at either mitigation site. Our measurements made from the figures in the mitigation plan indicate that considerably less of the streams may actually be buffered. Also, State regulations require establishment of buffers above a water supply reservoir and it is unclear if the applicants' proposal adds anything to this requirement. The Savannah District's stream standard operating procedure (SOP) provides guidance in determining an appropriate level of stream mitigation (though strict use of the stream SOP is limited to projects with 5000 linear feet of impact or less). We recommend the stream SOP should be applied to roughly gauge the additional amount of stream mitigation necessary. There is not enough information in the

application on the impacted streams or the proposed stream mitigation actions for EPA to accurately employ the stream SOP to this project.

Applicants' Response: The width of the riparian enhancement area located along the southern bank of Mill Creek ranges from 150 to 600 feet from top-of-bank. This area is presently a grazed fescue field with scattered shrubs and small trees along the stream banks. The width of the riparian enhancement areas located within the cleared floodplain adjacent to the Old Highway 5 site's tributaries range from 25 to 250 feet from top-of-bank. By state law, a 25-foot vegetated buffer is required along state waters. Cherokee County requires an additional 25-foot buffer.

USACE Position: After considering EPA's comments concerning the compensatory mitigation we agreed that the initial submittal was inadequate. However, new versions of the compensatory mitigation plan have been provided. We find that the compensatory mitigation plan dated July 2002 (See Appendix A) is adequate to replace function and value lost by the project, as required by the 404(b) (1) Guidelines.

EPA Issue 16: Currently there is considerable controversy about water use in the Alabama-Coosa-Tallapoosa (ACT) and Apalachicola-Chattahoochee-Flint (ACF) watersheds. The service area for this project spans both watersheds. Thus, EPA recommends that your office conduct a full assessment under the National Environmental Policy Act (NEPA) of the present and future water needs of the watershed, the extent of available water resources and the potential impacts of exploitation of these resources on waters of the US. Such a level of evaluation could range from an update of the Atlanta Regional Commission Regional Water Supply Study to preparation of an environmental impact statement (EIS) for this project or all water supply reservoir projects in the ACT/ACF watersheds. We believe that action should be withheld on this permit application until completion of a comprehensive regional evaluation and/or finalization of a resolution to the ACT controversy. At a minimum, since this is proposed to be a regional water supply reservoir, the applicant should prepare and submit to your office an environmental analysis that can be incorporated into an EIS on the water needs, alternative supplies and impacts for this particular project and service area. As part of this analysis we recommend that the applicant employ a more sophisticated method of wetland functional analysis, such as the hydrogeomorphic approach, to better assess the project's wetland impacts and adequacy of the any proposed compensatory mitigation.

Applicants' Response: The applicants are closely monitoring the negotiations regarding the ACT controversy. At this point, the applicant disagrees that the permit for the proposed project should be withheld until that controversy is resolved. The USACE will prepare an Environmental Assessment to determine the potential for adverse impacts as a result of the proposed project prior to issuance of a permit. The applicant would submit all necessary documentation required by the Corps.

USACE Position: The USACE has considered EPA's comments and the responses from the applicants. We agree with the EPA that this project may have some bearing on the ACT Compact. Therefore the Compact Commissioners were notified of this proposed activity, by the USACE, in accordance with Public Law 105-105 (the Compact). There has been no response

from the notification to indicate a decision on this permit should be withheld. The State's concurrence with the project need fulfills the 404(b)(1) Guidelines requirements for the project need. This environmental assessment will be the basis for our determination as to whether an EIS is required for this project. After reviewing the information in this document, the District Engineer will make a determination as to whether this project is considered a major Federal action significantly affecting the quality of the human environment. If so, an EIS will be required. If not, a Finding of No Significant Impact will be executed.

EPA Letter dated March 23, 2001: In their second letter EPA restated their original concerns and formalized their elevation option under paragraph 3(b) regarding section 404(q) of the Clean Water Act. The issues raised in their March 23, 2001 letter, are shown below:

EPA Issue 1: In a letter dated February 22, 2001, EPA presented detailed comments. In that letter, we noted that this application presents some positive features including wastewater reuse and water conservation programs as part of each alternative and we noted the applicants' attempt to find a site that minimized impacts to wetlands and streams. However, based on other concerns with the project, we found that the project did not comply with the Section 404(b) (1) Guidelines, and we recommended that a permit for the project, as currently proposed, be denied. Below is a summary of our original comments. Our concerns focused on:

a. Adequate description of the service area and potential users, especially in Cherokee County,.

b. The use and selection of the particular peak demand factor applied in this project;

c. The absence of a quantitative comparison of alternatives and the need for a clarification of the specific environmental impacts of the recommended alternative;

d. How the reservoir will be designed and implemented to minimize sedimentation leading to the loss of storage space, and potential water quality impacts from upstream watersheds;

e. The potential for secondary water quality impacts resulting from the project;

f. The adequacy and specificity of the proposed compensatory mitigation; and

g. The use of 7Q 10 stream flows as the prescribed maintenance level as opposed to the use of alternative methods for assuring that acceptable minimum flows, dissolved oxygen levels and temperature will be maintained.

At this time, EPA continues to find that, based on the information available, the applicant has not fully documented the need for the project, conducted an adequate alternatives analysis, documented all of the direct and indirect impacts of the project and does not propose an adequate compensatory mitigation plan. For these reasons, EPA has determined that this project does not comply with the Section 404(b)(1) Guidelines, and we recommend that a permit for the project, as proposed, be denied.

USACE Position: The USACE position on each of these comments is stated in responses to the initial EPA letter, above.

EPA Issue 2: We also repeat our recommendation that your office conduct a full assessment under the National Environmental Policy Act of the present and future water needs of the watershed, the extent of available water resources and the potential impacts of exploitation of these resources on waters of the US. Such a level of evaluation could range from an update of the Atlanta Regional Commission Regional Water Supply Study to preparation of an environmental impact statement (EIS) for this project or all water supply reservoir projects in the ACT/ACF watersheds. We recognize that recent action by the Georgia legislature will provide new encouragement for such planning and we would work with you in any way that could assist such efforts.

Applicants' Response: Whether to conduct such a comprehensive assessment is a Corps decision; however, the applicants submit that a programmatic assessment may be inappropriate when multiple projects are proposed by independent, unrelated applicants.

USACE Position: The USACE has considered EPA's comments and the responses from the applicant. We agree with the applicant that such a comprehensive assessment is not needed in connection with this project.

c. Letter dated March 22, 2002: EPA stated the following:

EPA Issue 1: We appreciate the effort the applicant has expended to address many of our original comments. The applicant has provided a satisfactory description of the service area and potential users. We accept the selection and use of the particular peak demand factor applied in this project. The applicant has provided further information comparing alternatives and the specific environmental impacts of each alternative. However, we believe it is premature to comment further on this proposed permit without certain key information.

EPA Issue 2: It has been EPA's experience with past permits for water supply reservoirs that could impact threatened or endangered species that the applicant's biological assessment, which may recommend mitigative measures, and FWS' Biological Opinion, which may require certain measures, are key elements in determining permit conditions that address such issues as flow below the dam and its potential impact on water quality and the biological integrity of downstream waters. Thus we need to review the entire applicants' biological assessment and FWS' Biological Opinion, when it is available, to see if our previously stated concerns about flow and its impacts will be addressed in the permit conditions. We request that you forward copies of these documents, and any others related to this issue to us as soon as possible.

EPA Issue 3: We also feel that is it premature to comment until the applicant has finalized the mitigation plan. The applicant is currently proposing to restore 22.5 acres of wetlands and enhance 10,200 lf of riparian buffers at two mitigation sites and preserve 24,700 lf of riparian buffers on Hickory Log Creek and the Etowah River. The recent site visit showed that additional

wetland and stream mitigation sites are being evaluated. These include Cherokee Darter habitat streams that may be preserved or enhanced. While some candidate streams were visited in the field, the applicant has not formally offered these sites for mitigation or described the proposed mitigative actions. These streams could enhance the overall mitigation plan as well as provide mitigation focused on ameliorating impacts to Cherokee Darters. Thus, while there is considerable merit in the applicant's proposed mitigation sites, the mitigation proposal remains incomplete.

EPA Issue 4: In summary, based on the information referenced in your February 12, 2002 letter, EPA has inadequate information to formulate additional specific comments. We appreciate the applicant resolving a number of issues raised in our past letters. However, we need a complete copy of the applicant's biological assessment, FWS' forthcoming Biological Opinion, any proposed flow related permit conditions and a final, detailed mitigation plan that describes the Cherokee Darter mitigation streams for us to assess this project's compliance with the Section 404(b)(1) guidelines. We have not yet received a response from you office regarding our recommendation that your office conduct a full assessment under the National Environmental Policy Act of the present and future water needs of the watershed, the extent of available water resources and the potential impacts of these projects on waters of the US.

Applicants' Response: As requested, the Applicants' July 2002 Compensatory Mitigation Plan was provided to EPA July 19, 2002. The Applicants also provided EPA with a copy of their biological assessment and the FWS's Biological Opinion.

USACE Position: The applicants provided the information EPA requested. We consider that all issues of Threatened and Endangered Species will be coordinated with the US Fish and Wildlife Service.

Letter dated August 15, 2002 from EPA to USACE:
EPA has reviewed the draft Case Document, EA and SOF. We appreciate the efforts made by your office and the applicant to address our concerns regarding the proposed project and the revisions in the project address some of the concerns we have previously raised. Although we still have some concerns regarding the adequacy of the mitigation for the project to meet the requirements of the Clean Water Act's Section 404(b)(1)Guidelines, EPA will not request a higher level of review for this project.

3. U S Fish and Wildlife Service: The US Fish and Wildlife Service (FWS) commented on this project on several occasions. Each issue raised by the agency is stated below followed by the applicants' response and the Savannah District's (USACE) position, as appropriate.

a. FWS Letter of February 28, 2001: FWS raised the following issues which are followed by the applicants' response and the USACE position:

FWS Issue 1: Dr. Byron J. Freeman, University of Georgia, conducted a survey for federally-protected fish in Hickory Log Creek in January 1999 and queried distributional databases to obtain historical records in the basin. The federally-threatened Cherokee darter

(Etheostoma scotti) was found in both reaches surveyed and was collected in 1959, 1993, 1994, 1995, and 1998 at other locations in Hickory Log Creek and its tributaries. Dr. Freeman stated in a February 10, 2000, meeting between FWS biologists and the applicants' agents that construction of the proposed reservoir could adversely impact up to 10,000 Cherokee darters by inundating suitable habitat within the reservoir footprint. Construction and operation of the reservoir and/or construction of the raw water transmission main also may impact Cherokee darters upstream and downstream of the dam.

Pumping of water from the Etowah River and/or release of water from the reservoir during low flows may affect populations of two fish species of concern that may be listed before this project is completed. These species, the freckled darter (Percina lenticula) and the frecklebelly madtom (Noturus munitus), occur in only a few locations in the Upper Etowah River system, including the reaches of the Etowah River just upstream and downstream of its confluence with Hickory Log Creek. Because we know that Cherokee darters occur within the project area (i.e., listed species would be affected), formal consultation under section 7 of the ESA is required. The request to the Service to initiate formal consultation should be made in writing.

In the interim between these comments and the initiation of formal consultation, we strongly encourage extensive dialogue between the USACE, applicant, USFWS, and other appropriate entities to address the project, its potential impacts, and any measures to avoid or minimize these impacts.

Applicants' Response: In January 2002 the applicants submitted a Biological Assessment for the federally threatened Cherokee darter (*Etheostoma scotti*), federally endangered amber darter (*Percina antesella*); and federally endangered Etowah darter (*Etheostoma etowahae)* on the proposed Hickory Log Creek Reservoir.

USACE Position: A survey for such species was required and the FWS issued a Biological Opinion for the project. The Biological Opinion included an Incidental Take Statement and Reasonable and Prudent Measures for the incidentally taking of Cherokee, Etowah, and amber darters. The Biological Opinion, attached (See Appendix F) listed several terms and conditions which must be implemented to minimize the take of this species. Complying with these terms and conditions would be made part of any permit issued.

FWS Issue 2: The Hickory Log Creek Reservoir is one of six proposed reservoirs in Georgia north of the Fall Line for which the Corps has issued Joint Public Notices regarding application for a Clean Water Act Section 404 permit during the past 2.5 years. These six reservoirs will inundate approximately 5,000 acres of diverse wildlife habitat, including 489 acres of wetlands and 62.3 linear miles of stream channel. We are aware of an additional 11 reservoirs that may be proposed for construction in north Georgia in the near future. Reservoir construction can have significant impact on aquatic communities by fragmenting and destroying stream and wetland habitat, altering normal flows, and inducing changes in stream morphology.

Applicants' Response: Whether to conduct a programmatic assessment is a Corps decision.

USACE Position: The USACE has considered FWS' comments and the responses from the applicant. We agree that there is an overall impact to wildlife habitat by fragmenting and destroying wetland habitat. The mitigation will compensate for the wetlands and stream loss associated with this project.

FWS Issue 3: Loss and fragmentation of natural stream habitat are two major ecological impacts of dams and their impoundments (Ward and Stanford 1989, Dynesius and Nilsson 1994, Collier et al. 1996). Impoundment transforms a stream from a lotic to a lentic habitat, with a corresponding shift in the biological community. Reservoirs tend to have habitat better suited to many non-native biota, or to a subset of native fauna, than to natural aquatic assemblages. Fish tolerant of reservoir conditions have been introduced widely beyond their native ranges to supply sport fisheries.

Dams and impoundments fragment natural stream habitat and can block fish migration andrecolonization. Atlantic and Pacific coast salmon (*Oncorhynchus spp. Salmo spp.*), sturgeon (*Acipenser spp" Scaphirhynchus spp.*), shad and herring (*Alosa spp.*), American eel (*Anguillia rostrata*), and other anadramous fish species have been extirpated or reduced in upstream portions of their native freshwater ranges, in part, because dams block passage to spawning and summer habitat (Pringle et al, 2000). Likewise, several species of freshwater migratory fish, including the robust redhorse (*Moxostoma robustum*) in south Atlantic Slope rivers, have had their native ranges reduced, in part, by mainstem impoundments (Pringle et al. 2000). Fragmentation of stream habitat also can impact smaller riverine fish, such as minnows, darters, and madtoms. Populations isolated in areas upstream of dams are subject to extirpation when reproductive failure or high mortality due to drought or other factors cannot be counterbalanced by recolonization from downstream sources (Winstonet al. 1991).

In contrast, research indicates that disturbed fish communities can quickly return to their original abundances if fish have unrestricted access to the reaches and the environment returns to its original state (Peterson and Bayley 1993). Curtailment of fish migrations in rivers is thought to have contributed to the precipitous decline in North American mussels. Nearly all native mussels depend on one or more fish species to serve as hosts for the immature stage, the glochidia. By blocking fish movements, dams have eliminated host fish availability in reaches otherwise supportive of mussel populations (Williams et al. 1993).

Hickory Log Creek already has a small mill dam upstream of the proposed reservoir dam. To a degree, therefore, the system has experienced some localized habitat degradation and fragmentation of aquatic species associated with dam construction. However, construction of the 370-acre Hickory Log Reservoir, which would inundate 8.3 miles of the creek and its tributaries, would result in significantly greater loss and fragmentation of aquatic community habitat. Degradation or channel widening in Hickory Log Creek downstream of the dam are likely, further increasing habitat loss for aquatic organisms.

Applicants' Response: The applicant agrees that free-flowing stream would be lost; however, it is important to note that additional fragmentation should be limited as Hickory Log Creek is currently impounded and the impoundment is located within the proposed reservoir pool. In addition, the dam would be designed such that releases minimize degradation or channel widening in Hickory Log Creek downstream of the dam.

USACE Position: The USACE agrees that fragmentation of the aquatic community would be caused by constructing a dam. The fact that a dam already exist on the stream reduces the damage that a larger dam would have on the aquatic environment. The Biological Opinion's reasonable and prudent measures would be included as conditions of the permit. Mitigation to compensate for the stream loss would be a condition of a permit.

EPA Issue 4: Dams alter downstream flow regimes, including peak flows, seasonal patterns, and duration of low flows. These changes, in turn, can affect downstream aquatic communities and their habitats. In one study of 21 dams throughout the US, it was found that flood peaks were decreased by an average 39% (ranged from 3-91 % of pre-dam values at the 21 dams) (Williams and Wolman 1984). In the southeast, median springtime monthly flows have been reduced 42% in April in the middle Tallapoosa River since Harris Dam was constructed. Flows in October and/or November, in contrast, are significantly higher, when compared to pre-dam periods, in the middle Tallapoosa River below Harris Dam, Etowah River below Allatoona Dam, and Chattahoochee River below Buford Dam (EPA/FWS 1999). Many riverine organisms have life history features that are adapted to the natural seasonal patterns of river flow. Some species use rising flows in the springtime as cues to migrate to spawning areas or to initiate spawning. Other species depend on spring high currents to keep their eggs and larvae suspended while they develop and/or to clean and aerate gravel nests.

Species that spawn in the areas nearer the stream margins often depend on naturally high spring flows that create suitable spawning habitat conditions in these shallow-water areas. Late summer and early fall, which are periods of naturally low and stable flows, are the principle reproductive periods for other animals, as well as periods of juvenile growth for many fish and invertebrate species (EPA/FWS 1999). Several changes in aquatic communities in Southeastern rivers are likely the result of seasonal flow alteration. In the middle Tallapoosa River, suckers are disproportionately reduced in numbers downstream from Harris Dam, along with numerous other springtime spawning fishes. Fishes that can spawn in both the spring and summer dominate fish samples in the middle Tallapoosa, suggesting that lower spring flows and loss of flow stability in the spring may reduce density of spring-spawning fishes. Higher fall flows in the Mobile Delta reportedly have shortened the normal occurrence of saltwater invasion in the Delta during late summer and fall, resulting in loss of marsh vegetation and decline in use by estuarine and marine species (EPA/FWS 1999).

Extreme low flows are among the most stressful natural events faced by river biota. As flow level decreases, available habitat constricts and portions of the channel eventually become dry. Animals either die in place, burrow into the moisture of the stream bed, or move to remaining pools, where they become concentrated and vulnerable to predation. During warm months, extreme low water levels are accompanied by higher than normal water temperatures

and low dissolved oxygen levels, further stressing aquatic biota (EPA/FWS 1999). Although low flows "are part of a natural hydrologic regime, it is likely that the annual duration of low flows in riverine systems impacted by the proposed reservoirs would increase, since the majority of the six proposed reservoirs, as well as the rivers below the intake structures, for pump storage reservoirs, will be managed based on a proposed minimum 7Q10 downstream flow.

Operation of the reservoir also is likely to alter downstream flow regimes in Hickory Log Creek below the proposed dam and in the Etowah River below the intake structure. Pumping of water from the Etowah River and retention of flows in Hickory Log Creek to fill the reservoir are likely to moderate peak flows in both streams and may alter the seasonal pattern of flows essential for successful spawning and juvenile growth for many fish and invertebrate species. Minimum 7Q10 flows are proposed below the dam, and it is our understanding, based on an April 28, 2000, meeting with the applicants that pumping of water from the Etowah River into the reservoir will be authorized at flows down to the 7Q10. The 7Q10 flow, by definition, is a 10-year drought event. Repeated reduction of flows to this level and/or 7Q10 flows over extended time periods generally result in habitat reduction, lost productivity, and a decline in fisheries resources. The 7Q10 flow is a standard used to establish effluent limits that prevent pollution concentrations from exceeding acceptable concentrations under extreme low flow conditions, but it does not establish base flow conditions that protect aquatic habitat. We currently recommend maintenance of flows consistent with the in stream flow guidelines signed by the Service's Region 4 Director and EPA Regional Administrator on October 25, 1999, or, if a regulatory framework for flows consistent with the ACF/ACT guidelines has not been developed, maintenance of flows consistent with those described in Evans and England (1995) (i.e., instantaneous flows below the Etowah River withdrawal site should be at least 30% of the annual average discharge and instantaneous flows below the Hickory Log Creek dam should vary from a minimum of 30-60% of the average annual discharge, depending on season).

Applicants' Response: Addressed in response to EPA comment 2a 10.

USACE Position: The State regulates the withdrawal of water from rivers and streams in Georgia. Current State regulations applicable to this project require that the withdrawal for drinking water cease whenever the flow of the stream is below 7Q10. The applicants voluntarily offer to move to a protected flow of 25% of AAF on the Etowah River. Our position is the same as that stated in response to EPA in 2a10.

FWS Issue 5: The applicant proposes to mitigate for loss of 19.27 acres of wetlands and 8.3 miles of Hickory Log Creek by (1) restoring 22.5 acres of wetlands and enhancing 10,200 linear feet of riparian buffer along Mill Creek and an unnamed Etowah River tributary in Cherokee County, (2) preserving a 100-foot buffer on each bank of 17,200 linear feet of the Etowah River through the City of Canton, and (3) protecting Hickory Log Creek above the reservoir's normal pool (7,500 linear feet) with a 100-foot natural buffer and a 150-foot horizontal setback from impervious surfaces on each bank.

The proposed mitigation does not adequately compensate for lost stream function in the Hickory Log Creek system (less than 40% of what would be required under the Savannah

District's June 2000 stream mitigation guidelines, based on our rough worksheet calculations). The majority of the stream mitigation involves buffer preservation; however, the application provides no description of current conditions in these buffers, particularly the proposed buffer through the City of Canton, which may already contain considerable urban development and limited natural buffering vegetation. Many of the streams where vegetative buffers are proposed to be enhanced already are channelized and entrenched, and the Old Highway 5 Site has an existing sanitary sewer line traversing the property where a 20-foot wide easement will be maintained.

USACE Position: After considering FWS's comments concerning the compensatory mitigation, we agreed that the initial submittal was inadequate. However, new versions of the compensatory mitigation plan have been provided. We find that the compensatory mitigation plan dated July 2002 is adequate to replace function and value lost by the project, as required by the 404(b) (1) Guidelines.

FWS Issue 6: Subsequent submittals from the applicant should include an alternatives analysis for long-term water supply for the City of Canton. All alternatives analyses presented in the April 2000 application are for CCMWA's long-term water supply needs;

Applicants' Response: Canton evaluated numerous water supply options before moving forward with the proposed project. The majority of the water supply options documented in the CCMWA Long-Range Master Plan were also considered over the last 5 to 10 years as potential sources for Canton. The exception is the Chattahoochee River, which is not a viable option for Canton due to inter basin transfer concerns. Otherwise the analysis that was conducted for the CCMWA is applicable to Canton. Additionally, as stated previously, a cooperative venture by the CCMWA and Canton would likely result in less long-term environmental impact than if these two entities pursue separate projects.

Canton currently obtains its water supply from the Etowah River. To have more flexibility in supplying future requirements, an off-line storage reservoir was preferred over an increased direct withdrawal from the Etowah River (in order to be able to store water during high flow periods). To take advantage of existing facilities, an off-line storage reservoir upstream of the Etowah River intake was preferred. As noted in the CCMWA Master Plan many of the streams in north Georgia (including Long Swamp, Sharp Mountain, Shoal, and Canton Creeks) contain protected darter species. Additionally, environmental studies to date and the presence of an existing dam on Hickory Log Creek indicate there would be fewer environmental issues associated with the proposed project than with reservoirs on other streams in the area.

This comment was also addressed in response to EPA's comments.

USACE Position: The applicants' alternative analysis investigated ways to totally avoid wetland impacts and to minimize impacts. We have also conducted our own alternative analysis (See Part III of this document). We found that avoidance of impacts to the aquatic environment, the no build alternative, would result in the applicant, City of Canton, having an unmet supply of water for their near future. We found that water conservation, if it could be made workable,

would still not provide sufficient water to supply the applicant's long term needs. We found that recycle and reuse water is not adequate to satisfy water needs. Groundwater, we determined, would only provide a minor amount of water. We considered surface water supply alternatives. A traditional reservoir, no pump storage, would likely result in similar environmental impacts to the one proposed. Constructing several reservoirs would also result in a cumulative impact equal to the environment impacts to the reservoir proposed. A river intake without storage would limit the use during low river flow. The absence of storage would leave the applicant vulnerable during those times the river was too low for pumping. We concluded that the best plan, in light of all the preceding alternatives, is to use a stream/river as a supply source and a storage reservoir to augment the water supplied by the stream during drought times.

FWS Issue 7: Subsequent submittal from the applicants should include an updated alternative analysis for the CCMWA's long term water supply needs that reevaluates possible reallocation of Lake Lanier and Lake Allatoona's stored water supplies to drinking water use, give the possible resolution of the Alabama-Coosa-Tallapoosa water allocation disputes and the State of Georgia's recent lawsuit against the Corps regarding water allocation in Lake Lanier.

Applicants' Response: This issue was previously addressed in response to EPA comment 2a(5). Additionally, the possible resolution of the ACT water dispute is not expected to change the conclusions and recommendations of the alternatives analysis. An off-line storage reservoir on Hickory Log Creek offers the CCMWA and other Allatoona water users an advantage over increasing direct withdrawals from Lake Allatoona as it would effectively extend the yield of the Etowah River. This additional management capability can in turn have a regional benefit.

USACE Position: The applicants' alternative analysis investigated ways to totally avoid wetland impacts and to minimize impacts. We have also conducted our own alternative analysis. A summary of the alternatives analysis is shown in Issue 6, above. (See Part III of this document). A summary of the alternatives analysis is shown above in our position in response to Item 6.

FWS Issue 8: Subsequent submittals from the applicants should include an evaluation of the level of inter basin transfer of water from the Etowah River basin to the Chattahoochee River basin.

Applicants' Response: The CCMWA historically tries to balance water treatment plant capacities in the Coosa and Chattahoochee Basins, and monitors wastewater discharges within its service area to minimize potential inter basin transfers. Currently there is a net transfer of about 37 mgd from the Coosa to the Chattahoochee Basin resulting from the CCMWA's operations. However, as demand in the Coosa basin portion of the CCMWA service area increases (at a faster rate than demand in the Chattahoochee Basin portion of the service area), net inter basin transfers would decline. An analysis conducted for the CCMWA Master Plan Update projected a 17 mgd net transfer from the Coosa Basin to the Chattahoochee Basin in 2050.

USACE Position: The applicants provided the evaluation of the inter basin transfer. The established networks of water distribution lines make inter basin issues difficult to resolve in the short term. With the master plan update inter basin transfers will be minimized in the long term.

FWS Issue 9: Subsequent submittals from the applicants should include information on wetland and stream impacts at maximum pool impoundment, if the 1060-foot MSL indicated in the application represents normal pool elevation.

Applicants' Response: The applicants provided this information in response to EPA's comment 2a (9).

USACE Position: The applicants supplied the requested information.

FWS Issue 10: Subsequent submittals from the applicants should include an evaluation of: (1) flows in the Etowah River at the withdrawal site and (2) how pumping water from the Etowah to fill/maintain levels in the Hickory Log Reservoir will affect peak lows, seasonal flows, and duration of low flows in these systems.

USACE Position: The applicants supplied the information on how pumping will affect in stream flows.

FWS Issue 11: Subsequent submittal from the applicants should include an evaluation of changes in storage capacity in the Hickory Log Reservoir if flows downstream of the dam and Etowah River withdrawal site are required to meet the October 25, 1999, FWS/EPA in stream flow guidelines or Evans and England's (1995) recommendation, rather than the 7Q10.

Applicants' Response: The applicants' submitted the following:

USFWS In stream Flow Guidelines
Comparison of Baseline Criteria to Flow Altered By Project
(Note that altered flows also include 40 MGD Upstream Withdrawal by the Cherokee County Water and Sewerage Authority)

	One Day Minimum Exceeded in all years			One Day Minimum Exceeded in 3 of 4 years			One Day Minimum Exceeded in 1 of 2 years		
	Baseline	Reach 1	Reach 2	Baseline	Reach 1	Reach 2	Baseline	Reach 1	Reach 2
Jan	334	319	301	602	531	513	812	749	732
Feb	445	383	365	728	665	648	988	924	907
Mar	310	319	301	933	869	852	1160	1095	1078
Apr	450	385	367	969	902	885	1190	1123	1106
May	215	284	267	722	656	639	957	891	873
Jun	198	267	250	605	539	521	677	611	593
Jul	122	191	174	448	382	365	584	518	501
Aug	132	201	184	357	319	301	462	398	380
Sep	152	221	204	324	319	301	383	319	302
Oct	169	238	221	317	319	301	406	344	326
Nov	240	309	291	384	319	301	482	403	386
Dec	299	319	301	455	393	375	567	504	487

Number of Low Flow Days Worst Year	
Baseline	77
Reach 1	55
Reach 2	67

Number of Low Flow Days Exceeded in 1 of 4 Years	
Baseline	2
Reach 1	0
Reach 2	6

Number of Low Flow Days Exceeded in 1 of 2 Years	
Baseline	0
Reach 1	0
Reach 2	2

Notes:

1. Baseline flow is USGS Gage No. 02392000 – Etowah River at Canton
   Period of record is 1986 – 1905 and 1936 – 1999
2. Reach 1 is the Etowah River between Hickory Log Creek and Canton Intake
3. Reach 2 is the Etowah River between Canton Intake and Lake Allatoona

USACE Position: The FWS requested an evaluation of changes in storage capacity as it to downstream flow guidelines versus 7Q10. The applicants provided an evaluation in table form making the comparison. We consider FWS request to have been met.

FWS Issue 12: Subsequent submittal from the applicants should include a comprehensive mitigation plan that fully compensates for lost functions and values of stream habitat in the Hickory Log Creek basin. We suggest the following modifications to the stream mitigation plan:

1. Incorporate mitigation that compensates for loss of one of the most important functions of the Hickory Log Creek system—threatened Cherokee darter habitat. Freeman and Wenger (2000) have identified the following high priority streams for Cherokee darters, based on species presence and health and size of the tributary systems: Long Swamp Creek, Cherokee and Pickens Counties; Sharp Mountain Creek, Cherokee and Pickens Counties; Shoal Creek, Cherokee County; Shoal Creek, Dawson County; and Raccoon Creek, Bartow and Paulding Counties. We are available to assist the applicant in identifying suitable Cherokee darter habitat for restoration or protection to ensure that this important stream function is adequately mitigated.

2. Eliminate the Mill Creek site from the stream mitigation plan. Planting vegetation along the banks of this short reach of stream and its channelized tributaries is not likely to significantly improve water quality or fish/aquatic species habitat either on site or downstream of the enhancement area, given the overall degraded quality of the stream, the highly developed watershed, and likely impacts on the enhancement area from upstream areas and urban runoff.

3. Fully restore stream geomorphology of channelized streams at the Old Highway 5 site. Placing buffers on channelized streams is likely to have little impact on bank erosion rates if the streams do not have stable patterns, profiles and dimensions. We need information on channel classification for this stream to provide additional comments on stream restoration potential. Rock check dams should not be placed in stream channels on site to restore wetland hydrology unless they are appropriate to the geomorphic characteristics of the valley.

4. Implement mitigative measures that would improve water quality in Etowah River basin streams but that do not involve direct manipulation of a stream or its buffers. Examples include implementation of ordinances requiring wider buffers than are State-mandated; retrofitting storm water detention facilities, prohibitions on sewer lines within the floodplain or within a protective riparian buffer, and ordinances that eliminate requirements for mandatory curbing and guttering in favor of use of grassed swales. We would be happy to provide the applicant with a list of watershed-oriented mitigation measures.

5. Provide a full description of success criteria, including survival and growth of planted vegetation, and a monitoring plan for both biological and physical parameters.

Applicants' Response: The applicants addressed this issue in response to the comments of Issue 15 of EPA regarding mitigation.

USACE Position: After considering FWS' comments concerning the compensatory mitigation we agreed that the initial submittal was inadequate. However, new versions of the compensatory mitigation plan have been provided. We find that the compensatory mitigation plan dated July 2002, is adequate to replace function and value lost by the project, as required by the 404(b) (1) Guidelines.

FWS Letter of March 15, 2001: The FWS wrote: "In accordance with the 1992 404(q) Memorandum of Agreement (MOA) between our agencies, the enclosed letter/report provides the recommendations of the Department of the Interior in response to the above application for a Department of the Army Permit. Pursuant to part IV.3 (b) of the MOA, I have determined that the proposed work would have substantial and unacceptable impacts on aquatic resources of national importance if permitted as specified in the public notice, without incorporating our recommendations."

USACE Position: On August 13, 2002, we requested a final position from the FWS regarding this request for elevation of the permit decision. On August 14, 2002, the USACE received notification that the FWS is not going to elevate this permit decision.

FWS E-mail of April 4, 2002:

FWS Issue 1: The applicants' evaluation of flows in the Etowah River at the withdrawal site and how pumping from the Etowah to fill/maintain levels in Hickory Log Creek Reservoir will affect peak flows, seasonal flows, and duration of low flows in the River.
Applicants' Response: Using the 7Q10 amount for Hickory Log Creek and 292cfs for 25% AAF for the Etowah River, the applicants have evaluated how the proposed operation of the reservoir affects the flows in Hickory Log Creek and the Etowah River. Each system has been evaluated during an average year (1969), a dry year (the year in which the average annual flow for the year is exceeded 75% of the time, (1947) and the drought of record (1986-89). The results are as follows:

1. Hickory Log Creek

a. Average year - 1969. In an average year, there is enough flow in Hickory Log Creek to maintain a full reservoir by replacing the storage lost to evaporation and to maintain minimum downstream flows. Additionally, there is enough flow in the Etowah River so that releases from the reservoir to augment the flows in the River are not necessary.

b. Dry year - 1947. During a dry year, there is enough flow in Hickory Log Creek to maintain a full reservoir by replacing the storage lost to evaporation and to maintain a minimum downstream flow of 7Q10. In a dry year, the Etowah River has sufficient flow to accommodate water supply use of 45 MGD and 25% of AAF without augmentation by the reservoir until August. In August, the reservoir is utilized for water supply increasing flows in Hickory Log Creek from about 5 cfs to around 50 cfs. Once sufficient flows return to the Etowah River in October, Hickory Log Creek is utilized to refill the reservoir through November.

c. Drought years of 1986-1989. During the drought of record, the flows in Hickory Log Creek vary widely. Only in early 1986 and the spring/early summer of 1987 do flows approximate pre-project flows. The remainder of this period is spent at the 7Q10 flow of 3.6 cfs during reservoir refilling or near 70 cfs when the reservoir is used to augment low flows in the Etowah River.

d. Conclusion. The results of the modeling show that the flows in Hickory Log Creek post-project would approximate natural flows well over 75% of the time. However, during periods of reservoir releases, the flow in the creek would swell from the natural flow of 3 to 6 cfs to 50 cfs during a dry year and to over 70 cfs during drought years. While the flows are not unusual during heavy rain events, their duration during reservoir operation would be lengthened. For this reason, the applicants propose to utilize the pipeline carrying water from the River to the reservoir to release water from the reservoir to the River when augmenting the flows in the River. Utilizing this proposal, post-project flows in Hickory Log Creek would approximate pre-project flows except during reservoir refilling.

2. Etowah River.

a. Average Year 1969. During an average year there is sufficient flow in Hickory Log Creek that pumping form the River is not needed to maintain a full reservoir.

b. Dry Year 1947. From late August to mid-October, the proposed reservoir is needed to augment the flows in the River for downstream water supply. At no point do the additional flows account for more than 23% of the flow in the River (October 7, 1947). From that point to mid-November, water is being pumped from the River to the reservoir. At a proposed maximum pumping rate of 39 mgd (60 cfs), the water withdrawn to refill the reservoir results in no more than a 14% reduction in flow in the River (October 29, 1947).

c. Drought of Record 1986-1989. As is expected, during this severe drought, the reservoir is needed to augment low flows in the River a total of 407 days or 27.8% of the time. During the worst of the drought, when natural flows in the River were below 200 cfs, water from the reservoir accounts for more than 35% of the flow in the River (67 days). During reservoir refilling, post-project flows vary more than one percent from pre-project flows for only 331 days or 22.7% of the period. During this period the reduction in flows is more than 10% of pre-project flows for only 137 days with the maximum reduction in flows being 14.65%.

d. Conclusion. Even during the worst drought of record, 1986-1989, post-project flows are within are within one percent of natural flows for 50% of the period. During the dry year modeled, 1947, post-project flows were within one percent of natural flows for over 80% of the period. Therefore, while the duration of the low flows (less than 320 cfs) during dry periods would be minimized the flows in the River would closely approximate the natural flows well over 75% of the time. Furthermore, even during reservoir operation, the "peaks and valleys" of the low flows are maintained on a regular basis. Therefore, the applicants contend that the operation of the reservoir would have minimal effect on the Etowah River.

USACE Position: Withdrawing water from the Etowah during peak flows in order to fill Hickory Log Creek Reservoir combined with the addition of water from Hickory Log Creek into the reservoir will keep the stream flowing below the dam into the creek even though there is some evaporization from the lake. The historical data illustrates that in dry years and drought years the reservoir's operation would have only a minimal impact to the river and stream.

US Fish and Wildlife Service letter dated October 16, 2002: This letter stated, "we are notifying you that we will not request higher level review by the Department for public notice number JPN 200006560, Hickory Log Creek, Cherokee County, Georgia."

USACE Position: The outstanding issues of the US Fish and Wildlife Issues have been resolved.

4. National Marine Fisheries Service (NMFS): No comments.

5. Advisory Council on Historic Preservation: No comments.

6, 11 and 12. Atlanta Regional Commission, State Office of Planning & Budget, and Georgia State Clearinghouse: By letter dated January 2, 2001, the Atlanta Regional Commission stated that staff is aware of this proposal but the proposed reservoir has not been reviewed under the Georgia Development of Regional Impact (DRI) review process. A DRI review will need to be processed before any local government takes action such as issuance of permits. We have discussed the need for a DRI review with Jim Parsons of the Cobb County-Marietta Water Authority and it is our understanding that the Authority and the City are waiting on Corps approval before requesting any other action. By letter dated January 29, 2001, the Office of Planning and Budget repeated the ARC's concerns. By letter dated, February 25, 2001 the State Clearinghouse repeated the ARC's concerns.

Applicants' Response: The applicant intends to fully comply with the request of the Atlanta Regional Commission.

USACE's Position: A permit condition would be added to ensure that Atlanta Regional Council's concerns are addressed.

7. Georgia Department of Natural Resources, Environmental Protection Division (GAEPD), Safe Dams Division: On January 22, 2001 the GAEPD Safe Dams Division advised that due to the presence of mobile homes and other development along the Etowah River, the dam will be classified as Category I (high hazard). Our office is currently working on developing a dam breach model to define the inundation zone below the dam in the event of such failure. That will determine if the dam will be regulated and permitted under the Safe Dams Act. Regardless of the classification of the dam, it is the Environmental Protection Division's Policy that all new water supply dams must meet the requirements of the Georgia Safe Dams Act and Rules for Dam Safety.

Applicants' Response: The applicants intend to comply with the requirements of the Georgia Safe Dams Act and Rules for Dam Safety.

USACE Position: A permit condition would be added to ensure compliance with Safe Dams provisions.

8. Georgia Department of Natural Resources, Historic Preservation Division (GAHPD): On February 7, 2001, the Historic Preservation Division (GAHPD) commented that it has received the information submitted concerning the proposed project to build a dam in order to construct a water supply reservoir for the City of Canton and Cobb County-Marietta Water Authority in Canton, Cherokee County, Georgia. Our comments are offered to assist the City of Canton and Cobb County-Marietta Water Authority and the Corps of Engineers in complying with the provisions of Section 106 of the National Historic Preservation Act. However, insufficient information was provided on which to complete this review. In order to complete the review and make a determination of effect, we will need to receive both an archeological survey and a historic structures survey for the project's area of potential effects.

Applicants' Response: A Phase I cultural resources survey of the proposed reservoir was performed by R. S. Webb & Associates. The resulting report was submitted to the Corps on February 15, 2001 for review and comment before submission to the State Historic Preservation Office for review.

The Addendum to Phase I Cultural Resources Report, dated April 9, 2002, concluded, it is our opinion that the proposed reservoir undertaking would not effect historic structures or complexes eligible for the National Register of Historic Places(NRHP). Archeological testing at site 9CK1074 indicates that this site is severely disturbed, is ineligible for the NRHP, and warrants no further investigation. Shovel testing at Stafford Home Place produced no evidence that intact 19th or early 20th century archaeological deposits are present and the site is considered ineligible for the NRHP. Archaeological testing at site 9CK1073 indicates that the site could be a single component prehistoric occupation dating to the Late Archaic period. Though the site has been disturbed, it is our opinion that Site 9CK1073 contains significant information on Late Archaic settlement and use of the Etowah drainage. This site is recommended eligible for the NRHP. On May 30, 2002 the GAHPD stated that, based on the information provided, HPD agrees that archaeological site 9CK1073 should be considered eligible for listing in the National Register of Historic Places (NRHP). HPD also agrees that archaeological site 9CK1074 should be considered not eligible for listing in the NRHP. Regarding historic structural resources, HPD believes that the Hickory Log District should be considered eligible for listing in the NRHP, but believes that the proposed undertaking would have no adverse effect to the historic buildings and structures in this eligible district.

Applicants' Response: The applicants agree with this response.

USACE Position: A Memorandum of Agreement (MOA) was signed by USACE on December 18, 2002,(See Appendix G) addressing the effects of this project on site 9CK1073. The applicant and SHPO, also signed the MOA. Compliance with the MOA would be a condition of any permit issued.

9. Georgia Department of Natural Resources, Environmental Protection Division (GAEPD), Water Resources Branch: On November 20, 2000, GAEPD wrote, EPD concurs with the population growth and water demand projections employed to justify need for the Project. In addition we approve and accept the following: (1) the applicants have appropriately adopted a 50-year planning horizon, and (2) the applicants have successfully demonstrated future water demand for service delivery areas for which they bear service responsibility under intergovernmental agreements executed pursuant to House Bill 489. In conclusion, the proposed reservoir on Hickory Log Creek is consistent with the State's long-range water supply plan for the Piedmont region of the State and is expected to meet 45 MGD of forecasted need. EPD has long encouraged a multi-jurisdictional approach to water supply planning and supports this current effort by these partners.

EPD Issue 1. The EPD issued a Water Quality Certification for the project on August 2, 2002, attached (See Appendix E). The certification included the following conditions:

1. All work performed during construction will be done in a manner so as not to violate applicable water quality standards.

2. No oils, grease, materials or other pollutants will be discharged from the construction activities that reach public waters.

USACE Position: The permit would have Water Quality Certification conditions to ensure compliance.

10. Georgia Department of Natural Resources, Wildlife Protection Division: No comments.

13. The Georgia River Network, the Southern Environmental Law Center, and the Coosa River Basin Initiative: By an undated letter, the Georgia River Network, the Southern Environmental Law Center, and the Coosa River Basin Initiative stated they are extremely concerned about the environmental primary, secondary, and cumulative impacts associated with the construction of a water supply reservoir on Hickory Log Creek in Cherokee County. They commented on the following issues:

GRN Issue 1: According to the JPN, the stream, both above and below the impoundment, contains a population of Federally Threatened Cherokee Darters. The following excerpts appeared in the Federal Register in 1995 regarding the Cherokee darter and the Etowah darter and certainly have relevance to this permit. "The Cherokee darter is now known from approximately 20 small tributary systems of the Etowah River, but healthy populations are known from only a few sites. The Etowah darter is known from the upper Etowah River main stem and two tributary systems. Impoundments and deteriorating water and benthic habitat

quality resulting from siltation, agricultural runoff, other pollutants, poor land use practices, increased urbanization, and waste discharges have resulted in the restriction and fragmentation of these species' current ranges. These factors continue to impact the species and their habitat.

Impoundments have destroyed a significant portion of the free-flowing stream habitat in which the Cherokee darter lives, and to a lesser extent they have impacted the Etowah darter as well. Based on museum records, at least five pre-impoundment populations of the Cherokee darter were extirpated by the inundation of the 4,800 hectare (11,856 acre) Allatoona Reservoir, which was completed in 1955. Undoubtedly other, undocumented, Cherokee darter populations were destroyed by the filling of Allatoona Reservoir. The lower portions of some of the tributary systems that harbor populations of the Cherokee darter are inundated by Allatoona Reservoir, isolating these populations from other populations in adjacent tributaries. These tributaries include Butler, Shoal, and Stamp Creeks. Besides Allatoona Reservoir, numerous small impoundments and ponds are scattered throughout the range of the Cherokee darter and Etowah darter.

Impoundments directly destroy stream habitat by converting free-flowing streams to man-made lakes and ponds and by causing population isolation. Furthermore, small impoundments are numerous enough in the Etowah system to have a negative effect on both of these species by causing population fragmentation and isolation, thereby blocking genetic interchange.

Impoundments also alter the thermal regimen of the stream sections immediately below the dam and can cause community shifts favoring centrarchid fishes (Brim 1991), potential predators on both Cherokee darters and Etowah darters. The Yellow Creek population of the Cherokee darter is directly threatened by a proposed water supply impoundment planned by the Cherokee County government. During low flow periods, 30 percent of the flow in the Etowah River above a known Etowah darter site would be comprised of water from Yellow Creek reservoir. Although the effects of this flow augmentation in the Etowah River are not known, the change in water quality and temperature could potentially have a negative impact on the Etowah darter.

The current rate of development in the counties surrounding Atlanta is very high. The most rapid development appears to be in Gwinnett, Cobb and Fulton Counties, but it is also high in Cherokee County, which is in the heart of the Cherokee darter's current range. The effects of creeping urbanization may be seen as far away as Dawson County, where the majority of Etowah darter populations, as well as some Cherokee darter populations, are known. One of the principal concerns to the continued existence of the Cherokee darter and Etowah darter is the trend of converting farmland into localized subdivisions in areas relatively remote from Atlanta.

Associated with increased development and land clearing is increased siltation from erosion, accelerated runoff, and transport of pollutants into the Etowah River system.

The range of the Cherokee darter has been fragmented, and a significant portion of the middle Etowah River system has been permanently altered by Allatoona Reservoir. The streams inhabited by the Cherokee darter and Etowah darter exhibit, on average, moderate to heavy degradation from poor land use practices and small impoundments. These strong negative forces

have caused local extirpation of both Cherokee darter and Etowah darter populations and have induced range fragmentation and subsequent isolation of the Cherokee darter into small populations. Genetic diversity has subsequently been lost due to these population losses. The genetic diversity of all populations may be needed to provide the species enough genetic variability to adapt to environmental change and thus assure long-term viability. The restricted distribution of both the Cherokee darter and Etowah darter also makes populations vulnerable to extirpation from catastrophic events, such as an accidental toxic chemical spill. Range fragmentation and loss of genetic diversity, independently and in concert, clearly threaten the continued existence of these species.

The information in the Joint Public Notice is inadequate for the public to be able to evaluate whether the project's mitigation measures would adequately address the presence of a Federally threatened species. Furthermore, we understand that the permittees for several other previously permitted reservoirs in Georgia have been unable to fulfill their mitigations measures. We request that the US Army Corps of Engineers ensure that these proposed mitigation measures are feasible before issuing any permits, and we further request active monitoring and enforcement by the US Army Corps of Engineers if this permit is granted to ensure that these mitigation measures are carried out. We respectfully request a public hearing to address this and other important issues related to this project.

Applicants' Response: The protected species issue was previously addressed in the applicants' response to comments of the FWS(Issue 1 and 3). In addition, mitigation would be a condition of the Section 404 permit and the applicants intend to fully comply with all permit requirements.

USACE Position: The applicants held a public information meeting on March 21, 2001. Compliance with the July 2002 Mitigation Plan and the conditions contained in the Biological Opinion serve as sufficient mitigation for this project and would be a condition of any permit issued.

GRN Issue 2: Inadequate Information in the Joint Public Notice Regarding In-Stream Flow Protection. The Joint Public Notice states that water will be withdrawn from the Etowah River to fill the reservoir. However, there is no description of how much or how often water will be transferred into the reservoir, nor how this need for water in the reservoir will be balanced with the needs of fish and wildlife or downstream users. More information needs to be included in the joint public notice to allow for substantive comments from citizens regarding stream flow protection.

Applicants' Response: The in stream flow issue was addressed in the applicants' response to comments of the EPA and FWS.

USACE Position: The applicants provided the requested information under c1.

GRN Issue 3: Inter-basin Transfer Issues. The Joint Public Notice does not adequately explain that this reservoir permit will result in the transfer of waters from the Etowah to the Chattahoochee basins, nor does the notice address how the potential impacts from this transfer

will be resolved. More information needs to be provided so that the public can analyze this important issue and provide informed comments.

Applicants' Response: This comment was previously addressed in response to comments from the FWS. As stated above, interbasin transfer as a percent of total water withdrawals in the CCMWA service area is expected to decline over time as the Coosa basin portion of the CCMWA service area grows and more of the water withdrawn from the Coosa Basin is discharged back to the basin. The CCMWA would continue to monitor transfers and make an effort to balance water withdrawals in the two basins to minimize interbasin transfers.

USACE Position: We accept that CCMWA will monitor transfers and they will strive to minimize the transfers.

GRN Issue 4: An Environmental Impact Statement Must Be Prepared.
The National Environmental Policy Act Mandates an EIS in this instance. The National Environmental Policy Act (NEPA) requires a federal agency to prepare an environmental impact statement (EIS) for all "major Federal actions significantly affecting the quality of the human environment" 42 U.S.C. § 4332(2)©. The construction of the proposed reservoir by the Army Corps of Engineers and the State constitutes a major Federal action, and thus requires an EIS. An EIS must be sufficiently detailed to serve two functions. 42 U.S.C. §§ 4231 et seq.

First, the EIS should demonstrate that the agencies took a hard look at the environmental effects of a proposed project, and second, it should ensure that relevant information regarding the proposed project is available to members of the public so that they may play a role in the decision making process. see Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). An agency, in assessing the project's environmental effects, is required to take a "hard look" rather than merely relying on the unsupported (and contradicted) conclusions of staff. See Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437,445 (4th Cir. 1996) ("HWRC 1") (finding Corps failed to take hard look at zebra mussel infestation where record provided no basis for evaluating the opinions or qualifications of staff). Beyond straight environmental analysis, NEPA requires agencies to balance a project's adverse environmental consequences against its economic benefits. See Calvert Cliffs' Coordinating Comm. v. United States Atomic Energy Commission, 449 F.2d 1109, 1113 (D.C. Cir. 1971); see also HWRC I, 81 F.3d at 446.

The EIS must include a detailed statement on the "environmental impact of the proposed action" as well as "any adverse environmental effects which cannot be avoided should the proposal be implemented." Id. at §§ 4332© (I), (u). The discussion must address all significant impacts, whether direct, indirect, or cumulative. 40 C.F.R. §1508.8. "Cumulative impact" is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other actions." 40 CFR § 1508.7. The appropriate environmental impact statement for this project, because it is only one of several proposed reservoirs must devote significant time to studying the cumulative impacts which will undoubtedly arise from the construction of all of the reservoirs

The document must analyze the environmental impacts of both the proposed action and alternatives to the proposed action, in comparative form to "sharply define the issues and provide a clear basis for choice among options by the decision maker and the public." 40 C.F.R. §1502.14. Moreover, in determining whether to prepare an EIS, regulations issued by the Council on Environmental Quality (CEQ) require the Corps to determine whether the project is one which "normally requires an [EIS]." 40 C.F.R. § 1501.4(a). In many instances across the nation, construction of a dam and reservoir is an action which necessitates the preparation of an EIS and, accordingly, the Corps has been required to perform an EIS for such projects. E.g Warm Springs Dam Task Force v. Gribble, 439 U.S. 1292 (1978) (EIS filed prior to award of contract for major segment of dam); Environmental Defense Fund v. Tennessee Valley Auth., 468 F.2d 1164 (6th Cir. 1972)(requiring agency to file EIS for dam and reservoir project); Johnston v. Davis, 500 F. Supp. 1323 (D. Wyo. 1980) (EIS prepared and filed for construction of Toltec Reservoir).

Clearly, an EIS must be prepared for the proposed Hickory Log Creek reservoir. The proposed reservoir will significantly affect the quality of the human environment and will have large impacts in the Coosa river basin, specifically in Hickory Log Creek itself as well as in the Etowah River, and must not be permitted or constructed until sufficient studies have been completed. Regulations issued by CEQ define the effects which must be considered in an EIS to include ecological, aesthetic, historic, cultural, economic, social, or health effects. 40 C.F .R. § 1508.8(b). The definition is broad, encompassing "effects on natural resources and on the components, structures and functioning of affected ecosystems." Id. Clearly, construction of the proposed reservoir necessitates an EIS. Reservoirs alter the natural hydrologic regime of streams and rivers and change the timing, amounts and duration of upstream and downstream flows. Stream flow is critical to the viability of native species inhabiting Hickory Log Creek and the Etowah River. Additionally, the public and the environment will suffer a net loss of water as a result of increased evaporation and water diversions from this impoundment. Further, the direct impacts to wetlands are significant. A full EIS should be performed before the proposed permit is granted.

In addition to the direct impacts mentioned, indirect and cumulative impacts must be considered by the Corps and the State in a complete EIS. Hydrologic impacts in the area immediately affected as well as throughout the basin and the state must be assessed. Unplanned growth resulting from reservoirs and impoundments must be analyzed. Indirect impacts are defined by CEQ regulations to include "growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." 40 C.F.R. § 1508.8(b). The indirect impacts of increased urbanization may include additional impacts to the water quality of Hickory Log Creek and its tributaries, additional loss of wetland habitat, additional loss of terrestrial habitat, additional loss of biological diversity, an increase in urban storm water runoff and other non-point source pollution, and an increase in wastewater discharges. These indirect impacts can only be addressed fully in an EIS.

Applicants' Response: The USACE will prepare an Environmental Assessment to determine the potential for adverse impacts as a result of the proposed project prior to issuance of a permit.

USACE Position: This Case Document and Environmental Assessment is prepared to determine the potential for significant adverse impacts as a result of the proposed project prior to issuance of a permit. See response to EPA at 2a16 above.

(5) Issue 5: A Programmatic EIS should be prepared in connection with all reservoir projects currently planned for north Georgia. Currently, there are three proposals to construct reservoirs in North Georgia to meet water supply needs in the Atlanta area. Therefore, we request that a programmatic EIS for these three proposals (Hickory Log Creek, Black Branch, and Tussahaw Creek) be performed. NEPA requires that "where several foreseeable similar projects in a geographical region have a cumulative impact, they should be evaluated in a single" programmatic environmental impact statement ("PEIS").

City of Tenakee Springs v. Clough. 915 F2d 1308, 1312 (9th Cir.1990); see Kleppe v. Sierra Club, 427 U.S. 390,408-415 (1976) (programmatic EIS required where sufficiently "related" actions will have "cumulative or synergistic" environmental impacts); 40 C.F.R. § 1508.18(b)(3), (4) ("federal action" includes "adoption of programs, such as a group of concerted actions to implement a specific policy or plan," "systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive," and "approval of specific projects, such as construction or management activities located in a defined geographic area"); id,. § 150825(a)(1)(w) (connected actions should be treated in same statement if they are "interdependent parts of a larger action and depend on the larger action for their justification").

The Supreme Court has stated that there are instances in which an agency must evaluate the effects of several related actions. Kleppe v. Sierra Club, 427 U.S. 390, 409-10 (1976). After this decision, CEQ issued regulations that dictate when multiple actions must be considered within a single EIS. According to the regulations, there are three types of activities that must be considered within one EIS: connected, cumulative, and similar activities. 40 C.F.R. § 150825(a). Connected actions are those that are "closely related," such as actions that are "interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 50825(a)(1). Cumulative actions are those that "have cumulatively significant impacts and should therefore be discussed in the same impact statement." Id. at § 150825(a)(3). Finally; similar activities that have "common timing or geography." Id. at § 150825(a)(3).

Based on these CEQ regulations alone, a programmatic EIS must be prepared for a number of reasons. First, these three proposals to construct reservoirs are closely related because they are intended to serve the same goal of supplying drinking water to the burgeoning Atlanta area. Second, the proposals will have cumulative impacts on the northern half of the State, including, but not limited to, problems associated with low in-stream flows. Third, it appears from the joint public notices that the impoundments will all be constructed at approximately the same time. Lastly, a single programmatic EIS should be prepared in connection with these three proposals because are all located in the same geographic area, northern Georgia. These projects must not be considered in isolation—the Corps and the State must consider the net impact all of these projects might have on the environment. City of Tenakee Springs, 915 F.2d at 1312.

In summary, we respectfully request the completion of both a public hearing and a programmatic Environmental Impact Statement before any permit is issued.

Applicants' Response: Whether or not to conduct a programmatic EIS is a USACE decision however; the applicants submit that a programmatic assessment may be inappropriate when multiple projects are proposed by independent, unrelated applicants.

USACE Position: The USACE has considered this comment and the responses from the applicant. See response to EPA at 2a16 above.

14. Tim D. Robbs: By letter dated January 11, 2001, stated "I am requesting a public hearing because I feel the Hickory Log Creek reservoir will cover my property with water and make my house unlivable. While the maps provided do not provide the level of detail to exactly determine where the high water line of the lakeshore will be, it does appear that my property will be submerged".

Applicants' Response: The project site has been surveyed and detailed information regarding the homes and land to be inundated by the proposed reservoir is available from the applicant. Mr. Robbs has been informed of his property's relation to the proposed project. A public information meeting was held March 21, 2001.

USACE Position: The applicants adequately responded to this comment. The commenter was reassured that his property would not be flooded. There is no need for a public hearing because the applicant conducted a public information meeting which was advertised and held in Canton. Only ten members of the public attended.

15. Michael Murrell: By an undated letter, Mr. Murrell states "I am requesting that studies be conducted for the presence of the Etowah Darter (*Etheostoma etowahae*) and the Cherokee Darter (*Etheostoma scotti*). Both of these fish require clean gravel and flowing water to reproduce. I am afraid we will lose these fish species in the near future and ask that studies be done to see if they or other endangered species are present."

Applicants' Response: This information is contained in the permit application on file with the Corps and is also available from the applicant.

USACE Position: The FWS has provided a biological opinion in response to the applicant biological assessment. Studies have been done to determine the approximate number of darters. Erosion and sediment control measures will be a condition of a permit to keep sediments from harming the fish in the remaining streams.

E. ADDITIONAL COORDINATION OF PROJECT REVISIONS: In response to issues/concerns raised during the public notice comment period the applicant submitted revised mitigation plans on February 26, 2002 and July 19, 2002. The applicants submitted the results of an in stream flow study on May 8, 2002.

F. ADDITIONAL COORDINATION UNDER SECTION 404(Q) MOA: By letter dated March 15, 2001 the US Fish and Wildlife Service indicated that they have determined that the project would impact an aquatic resource of national importance and retains the option to refer the project through the procedures outlined in the 1992 Memorandum of Agreement (MOA), paragraph 3(b). On June 28, 2002, USFWS provided their Biological Opinion.

On October 16, 2002, we received correspondence from the Service withdrawing their threat to elevate the permit decision. By letter dated March 23, 2001 the US Environmental Protection Agency indicated that they have determined that the project would impact an aquatic resource of national importance and retains the option to refer the project through the procedures outlined in the 1992 Memorandum of Agreement (MOA), paragraph 3(b).
On August 15, 2002, we received correspondence from EPA withdrawing their threat to elevate the permit decision.

G. COORDINATION WITH ALABAMA-COOSA-TALLAPOOSA COMPACT: The original public notice for the project was provided to the Federal and state commissioners for comment. On September 19, 2000, a letter was sent to the Federal and state commissioners notifying them of the proposed withdrawal in accordance with the stipulations of the Compact. No comments were received in response to the notification.

H. COORDINATION WITH GAEPD ON WATER WITHDRAWAL: Section 404 Clean Water Act implementing regulations provide that actions affecting water quantities are subject to Congressional policy as stated in section 101(g) of the Clean Water Act, which provides that the authority of states to allocate water quantities shall not be superseded, abrogated, or otherwise impaired (33 CFR §320.4 (m)). In view of the State's overriding authority in water allocation matters, to properly evaluate this project there was a need to coordinate with the GAEPD to determine if they agreed with the applicants' need assessment. By letter dated November 20, 2000 they supported the applicants' needs assessment of 44 MGD (annual average).
PART III ALTERNATIVES/SECTION 404(b)(1) ANALYSIS

1. AVOIDANCE ALTERNATIVES:

a. No Action: This alternative would eliminate the construction of any new facilities for water supply. The no action alternative would result in the City of Canton and the Cobb County-Marietta Water Authority having to continue to use existing water sources for their water needs. The City of Canton currently obtains water from a pump station on the Etowah River. The current permitted water withdrawal is 5.45 MGD (peak and average annual), valid through 2010 and it is expected that the City alone would need an average annual demand of 14.79 MGD by 2050 and a peak demand of 26.63 MGD. This results in an unmet future average annual demand of 9.34 mgd and unmet peak demand of 21.28 mgd. The Cobb County-Marietta Water Authority is one of the largest suppliers of wholesale water in Georgia. The Authority has a current withdrawal capacity of 136 mgd. The 33 mgd available from the proposed project is only a small

component of the Authority's proposed long-term plan to supply the 289 mgd necessary to fulfill peak demand in 2050.

If this alternative is chosen the impacts from construction of the proposed reservoir would not be realized; however, the applicants' goal of developing a multi-jurisdictional water supply project could not be met. The applicants, as well as their customers, would soon have to investigate other potential water supply sources to accommodate projected population growth in the area. This alternative was rejected since it cannot meet the applicants' purpose and needs.

b. Water Conservation: This alternative would involve the implementation of water conservation measures to reduce the amount of demand in an attempt to eliminate the need for the proposed project. Based on information provided in the Authority's Long Range Water Supply Master Plan, water conservation alone would only provide for a savings of 22 MGD provided the public cooperates and the plan is adequately enforced and implemented. Even if this can be accomplished, conservation alone cannot provide the additional water that would be needed by multiple users of the system through 2050. Therefore, some other system would have to be developed to provide the remaining water needs. Unfortunately, since water conservation would not be a guaranteed success, the proposed project or some other additional source would have to be developed assuming conservation savings are not realized, since the applicant would not want to have to later modify the water supply project to gain the savings that were not achieved by use of conservation practices. Therefore, this alternative was eliminated since there would be no reduction in the size of the water supply project or the impacts that would result from the project due to uncertainty of the conservation savings. Even though this not a practicable alternative for meeting all of the applicants' purpose and needs, it does significantly reduce the projected unmet water demand within the applicants' service areas.

c. Recycle and Reuse of Wastewater: This alternative would use recycled wastewater to meet the projected water demand. Based on information provided in the Authority's Long Range Water Supply Master Plan, wastewater reuse is a component of the Authority's long-term plan but would provide for a savings of 6 MGD. Therefore, this alternative is not practicable for meeting the applicants' present goals and was eliminated from further review. However, this alternative remains a component of the applicants' plan to satisfy future water demand.

d. Groundwater: This alternative would be to construct more groundwater wells to provide for the project water demand. Based on the Authority's Long Range Water Supply Master Plan, the use of groundwater wells would provide for a savings of 5 MGD; therefore, it does not appear that use of groundwater alone could possibly supply the water needed by the applicant. In view of this, the groundwater alternative was eliminated. However, this alternative remains a component of the applicants' plan to satisfy future water demand.

2. SURFACE WATER SUPPLY ALTERNATIVES:

a. Traditional Reservoir (no pumped storage): This alternative would result in a reservoir being built either on a stream or a river system to store water to supply the applicants' and their customers needs. Such a reservoir would result in a continuous in stream flow once it is

completely filled; however, a much larger reservoir than the one being proposed by the applicants would have to be constructed to meet the applicants' needs. Constructing a larger reservoir would result in a greater potential for impacts to various environmental parameters such as wetlands, endangered species, wildlife, and cultural resources simply because more surface area would be covered by water. Also, with construction of a larger reservoir there may be more potential for water quality issues (low dissolved oxygen) both up and downstream of the dam. This alternative was eliminated from further review since it would result in greater impacts and possibly costs than the proposed project.

b. Construction of Several Reservoirs: This alternative would allow the City of Canton and the Cobb County-Marietta Water Authority, as well as each of their customers, to construct their own reservoirs. This alternative would likely result in smaller impacts per reservoir; however, overall it is likely that the cumulative total impacts of all the reservoirs would be greater than the proposed water supply system. In addition, the combined cost of the all the reservoirs and associated treatment systems would far exceed the cost of constructing the single multi-jurisdiction project. Therefore, this alternative was eliminated from further review.

c. River or Stream Intake System (no storage reservoir): This alternative would consist of construction of water intake lines on a stream or river large enough to provide the volume of water needed by the applicant and their customers. Based on the information available, this may be a viable source of water during high stream or river flows; however, when moderate to low flows are experienced a stream or river would not be able to provide a reliable source of water. Also, this system would provide no storage for times when the stream or river system falls below the 7Q10 when further water withdrawals would have to be curtailed according current State regulations. If pumping were to proceed even when flows are below 7Q10, there would likely be severe impacts on the stream or river system well beyond those proposed by the applicants. If each potential user was to construct their own intake system, there would not be sufficient water supply during drought conditions and they each would also have to construct their own water treatment systems. These costs would likely be much greater than the cost of the applicants' proposed alternative. Since this alternative would not provide a reliable source of water to the potential water users during times of low flows, this alternative was eliminated from further review.

d. River or Stream Intake with One Storage Reservoir (Proposed Alternative): In view of the above, it appears that the best plan would be to utilize a stream as the supply source and a storage reservoir that would augment the water supplied by the stream during drought conditions, when stream withdrawal would be curtailed. Such a system can operate in several ways. The operation can be tailored to maintain sufficient flows in the stream. This arrangement allows for the following modes of operation: withdrawing only from natural stream flow or augmenting natural stream flow with releases from a reservoir to accommodate water supply need and in stream flow protection.

The following table identifies resources the Authority evaluated for potential water supply:

River Basin	Stream/ reservoir	Description of Option	Potential water supply available to the CCMWA, mgd (1996 estimate)		Comments
			Avg. annual	Max. day	
Chattahoochee	Chattahoochee/ Lanier	Allocation of additional water available from a change in the COE WCP for Lake Lanier	---	46	Change in the WCP is still uncertain, but EPD advises to apply for what is needed.
Coosa	Settingdown Creek	Construction of a new dam and reservoir	25	37	Off-line storage; discharge to Etowah River and Lake Allatoona
	Long Swamp Creek	Construction of a new dam and reservoir	35	53	Off-line storage; discharge to Etowah River and Lake Allatoona
	Sharp Mountain Creek	Construction of a new dam and reservoir	30	45	Off-line storage; discharge to Etowah River and Lake Allatoona
	Shoal Creek	Construction of a new dam and reservoir	20	29	Off-line storage; discharge to Etowah River and Lake Allatoona
	Lake Allatoona	Allocation of discretionary conservation storage in Lake Allatoona to allow additional water supply withdrawals	48	72	COE believed some water can be made available from the discretionary conservation storage. EPD advises to apply for what is needed.
		Allocation of additional water available from a change in the COE WCP for Lake Allatoona	---	25	Change in WCP is still uncertain, but EPD advises to apply for what is needed.
	Pumpkinvine Creek	Construction of a new dam, reservoir, intake and pump station near the Paulding County-Bartow County line	37	56	Off-line storage project; water to be pumped to Lake Allatoona for withdrawal at existing intake
Tallapoosa	Tallapoosa River	Participation in the West Georgia Regional Water Authority dam and reservoir project in Haralson County	27	40	Depends on outcome of WGRWA study. CCMWA to purchase raw water and sell finished water on wholesale basis

Considering the alternatives available to the Authority and the City of Canton, the Applicants concluded Hickory Log Creek was the largest off-line storage reservoir of sufficient size to serve both the Authority and the City of Canton.

e. Construction of Several Intakes with Storage Reservoirs: This alternative would involve construction of several reservoirs with stream or river intakes. This alternative would likely have greater impacts than the applicants' proposal since many different streams would be impacted and the construction costs would be much greater. Therefore, this alternative was removed from further consideration.

3. MINIMIZATION ALTERNATIVES:

a. Combine Water Conservation With Applicants' Proposal: The applicants developed water conservation plans for their service areas. However, such plans depend on a cooperative public. Therefore, they would have to construct the reservoir as if no conservation measures were going to be followed, so that water needs can be met if the water conservation plans in place should fail to produce the 22 MGD water saving expected from the plan. Moreover, the proposed project would need to be constructed even if the applicants realize all of the projected 22 MGD conservation savings. Therefore, this minimization alternative was considered and incorporated into the applicants' analysis.

b. Combine Groundwater Use With Applicants' Proposal: According to information in the Authority's Long Range Water Supply Master Plan, groundwater can supply 5 MGD of future demand. Therefore, this alternative is incorporated in the applicants' analysis.

c. Reduce the Size of the Reservoir For Applicants' Proposal: This alternative would likely result in a slight reduction in the amount of wetlands to be impacted by the project. However, reducing the size of the reservoir reduces the yield of a project that already only satisfies a portion of projected demand. Reducing the size of the reservoir increases the likelihood multiple reservoirs would be needed to adequately meet future water demand. Based on the above this alternative would not meet the applicants' purpose and need.

d. Continue Use of Existing Water System with Construction of a Smaller Reservoir: This alternative would allow current water supply facilities to continue to be used by the applicants and their customers so that the amount of water needed from any new system proposed could be reduced. However, the continued and increasing utilization of existing water supplies has already been factored into the projected need for this project. Reducing the size of the reservoir increases the likelihood multiple reservoirs would be needed to adequately meet future water demand. This alternative has been considered and was incorporated into the applicants' analysis.

4. CONCLUSION: Based on the above, we have concluded the applicants' proposal is the least environmentally damaging practicable alternative that would meet their basic purpose and need.

E. SECTION 404(b)(1) ANALYSIS:

- Evaluation of the project reveals that there is no basis for denial of the project under the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act (33 U.S.C. 1344 (b)).

a. The projects discharge represents the least environmentally damaging, practicable alternative. In addition, significant adverse impacts on the aquatic environment (including wetland functions and values) would be compensated for by the proposed mitigation.

b. The discharge does not cause or contribute to the violation of any applicable State water quality standard, does not violate any applicable toxic effluent standard and with applicable conditions, the project does not jeopardize the continued existence of any endangered species (or adversely affect "critical habitat") or affect any marine sanctuary.

c. This discharge does not cause or contribute to the significant degradation of the waters of the United States in consideration of parts 230.10 through 230.61 of 40 CFR.

d. All appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem in consideration of Parts 230.70 through 230.77 of 40 CFR. The proposed discharge, with the standard conditions placed on Department of the Army permits, mitigation, and other special conditions (found at part V-D of this case document) complies with the guidelines promulgated by the Administrator of the US Environmental Protection Agency pursuant to Section 404(b) (1) of the Clean Water Act.

PART IV PUBLIC INTEREST REVIEW

A. ENVIRONMENTAL SETTING/EXISTING CONDITIONS: The majority of the proposed reservoir site has historically been undeveloped or used for agricultural purposes. The existing lake on the property was used as a water supply reservoir in the past. The steep sloping hillsides around the perimeter of the proposed reservoir pool are dominated by mid to late successional oak/hickory forests. The floodplain and associated wetland areas within the upper most portion of the reservoir, upstream and directly downstream of Fate Conn Road, have been severely altered due to previous ditching, logging, and agricultural practices. The remainder of the floodplain downstream of the ditched field at Fate Conn Road to the dam site is narrow and contains numerous small forested, scrub-shrub, and emergent vegetative wetlands. An existing 8.5 acre impoundment is located just upstream of the proposed dam location. The reservoir site is drained by Hickory Log Creek, a third order tributary of the Etowah River.

B.ENVIRONMENTAL IMPACTS: The US Army Corps of Engineers Regulatory Program considers the full public interest, reflecting the protection and utilization of important resources.

a. Table 6 is a summary of our public interest review for the proposed activity, which assesses the impacts of the proposed permit action on environmental and other public interest factors (33 CFR 320.1(a)(1), 320.4 and 325.3(c)).

Table 6. Summary of Project Impacts

FACTORS	No Effect	Negligible	Undetermined	Beneficial Major	Beneficial Minor	Adverse Major	Adverse Minor
1. Economics/Social					X		
2. Education/Scientific		X					
3. Aesthetics		X					
4. Food-Fiber Production		X					
5. Historical/Architectural Archaeological							X
6. Recreation		X					
7. Land Use		X					
8. Mineral Resources		X					
9. Soil Conservation		X					
10. Water Supply Conservation					X		
11. Water Quality							X
12. Air Quality							X
13. Noise Levels							X
14. Public Safety							X
15. Energy Needs		X					
16. National Security	X						
17. Navigation		X					
18. Shoreline Erosion Accretion		X					
19. Flood Hazards					X		
20. Flood Plain					X		
21. Wetlands							X
22. Refuges	X						
23. Fish							X
24. Wildlife							X
25. Food Chain Organisms		X					
26. Shellfish Production	X						
27. Threatened and Endangered Species							X
28. General Environmental Concerns							X
29. Property Ownership		X					
30. Mineral Needs		X					
31. Other/streams							X

C. DISCUSSION: Below is a discussion of the impacts of the applicants' proposed project on public interest factors. A comparison of the impacts of project alternatives is presented above and in the Section III, 404(b) (1) analysis.

1. Economics/Social: As evidenced by the applicants' analysis of the projected need for a reliable source of water, the proposed reservoir would meet the service areas' anticipated water demands until approximately the year 2050 for the City of Canton and 2020 for the CCMWA. This project would provide adequate water for the continued growth in population and industry. This proposal is also the most cost-effective of the alternative reservoir construction sites evaluated.

5. Historical/Archaeological/Architectural: The applicant performed a cultural resource survey of the area of potential affect. This survey found one prehistoric archaeological site that was determined potentially eligible for inclusion in the National Register. The site is located within the proposed normal flood pool of the proposed reservoir. No other National Register eligible historic properties were identified within the project's area of potential effect. The applicants, GASHPO, and the USACE executed a Memorandum of Agreement, dated April 12, 2004, for the mitigation of unavoidable adverse impacts to these sites. The permit, if issued, would include a special condition to require the applicant to complete the requirements as stipulated in the MOA.

10. Water Supply/Conservation: Water conservation is included in the applicants' measures to reduce future water demands. This would reduce environmental impacts of the project. The GAEPD is authorized to regulate the use of both surface water and groundwater sources and all activities pertaining to public water supply systems. All requests for new or expanded water withdrawals in excess of 100,000 gallons per day must be approved and permitted by the GAEPD. New applications for withdrawal permits must be accompanied by details relating to the source of withdrawals, demand projections, water conservation measures, low flow protection measures and raw water storage capacities. GAEPD permits identify the source of withdrawal, the monthly average and maximum 24-hour withdrawal, the standard and special conditions under which the permit is valid, and the expiration date of the permit. Water supply systems must abide by the State's Emergency Water Shortage Plan in periods of serious droughts.

The proposed reservoir would serve the needs of the City of Canton and the customers of the Cobb County-Marietta Water Authority. GAEPD concurs with the population studies and concurs with the water demand forecast contained in the application.

The Georgia Safe Drinking Water Act of 1977 and the Rules for Safe Drinking Water adopted under the act require any person who owns and/or operates a public water system to obtain a permit from the GAEPD. The owner must provide detailed description of the project, demonstrate the reliability of the water sources site, render plans and specifications of demonstrating construction integrity of wells, plants and distribution systems, conduct preliminary water sample testing and submit legal documentation including application to operate a public water system.

In 1989, the Georgia General Assembly passed legislation that mandates the Georgia Department of Natural Resources (GADNR) to establish minimum criteria for watershed protection to be adopted by local governments. The GADNR, pursuant to O.C.G.A. 12-2-8, has established minimum criteria for the protection of drinking water watersheds. Primary protection is accomplished through zoning practices, land use regulation, construction standards, erosion control and density limitations of developments. The criteria includes establishing buffer zones around streams and specifying allowable impervious surface densities within watersheds. In addition, a Water Supply Reservoir Management Plan must be developed.

The City of Canton and The Cobb County-Marietta Water Authority have taken a number of steps to conserve water. Conservation efforts are more significant in the residential usage category, as new construction provides higher efficiency fixtures based on modern building code requirements, and the citizens become more environmentally conscious. It was estimated that water conservation efforts could account for 22 mgd in 2050. This savings reduces the water supply needed. The 2050 water demand in the CCMWA service area based on present use rates is 289 mgd, however, with water conservation the actual water requirements were reduced to 267.

Based on the above, the City and the Authority would be implementing water conservation measures as required by the GAEPD. In addition, the proposed pumped storage reservoir is a method for conserving water for use during periods of low flow in the river. Therefore, the project as proposed would only have a minor adverse impact on water conservation in the Etowah Basin.

11. Water Quality: Hickory Log Creek and the Etowah River have been found to be acceptable for potable water. GAEPD issued Section 401 water quality certification for this project on August 2, 2002. With this certification, the State has verified that this project meets all applicable state water quality standards and also complies with Section 401 of the Clean Water Act. To insure future water quality, a watershed management plan and lakeshore management plan have been adopted by the applicant. The watershed above the project area has been protected by county ordinance.

As with any construction project, there would be temporary impacts to water quality during construction and immediately thereafter. To minimize these impacts a condition would be placed on any permit issued requiring that all work conducted under this permit shall be located, outlined, designed, constructed and operated in accordance with the minimal requirements as contained in the Georgia Erosion and Sedimentation Control Act of 1975, as amended. Based on our review of this data, the withdrawals from the Etowah River would have some minor impacts on water quality mainly due to an increase in duration of low flow conditions during some years. This may result in slightly lower dissolved oxygen as well as elevated concentrations of other pollutants due the reduced volume of water to dilute existing discharges into the system. These potential impacts would be minimized by operating the reservoir so that water withdrawals from the river are reduced to the extent practicable and ceased during low flow periods. A condition would be added to the permit to ensure that minimal impacts would occur.

12. Air Quality: Pollutants would be discharged by heavy earthmoving equipment, trucks and other machines used during construction of the proposed dam and reservoir. This equipment would also generate particulate matter (dust) during dry periods. Dust can be controlled to some degree. These adverse effects to air quality would be minimal and temporary.

13. Noise Levels: The above mentioned equipment would also have a temporary minor adverse effect on ambient noise levels of the vicinity around the project area, but impacts would cease following construction. The overall impact to this factor is negligible.

14. Public Safety: The State of Georgia rated the proposed structure a "Category I" dam, with probable loss of life in the event of failure. The dam would be constructed, maintained, operated, and inspected in accordance with the Georgia Safe Dams Act. However slight, there would be an increased risk to human life due to the presence of the dam and the possibility of failure.

19 and 20. Flood Hazards/Flood Plain: Since the reservoir would be for water storage, the entrapment of flood flows would act to buffer moderate storm surges and the effects of downstream flooding. The applicant is required to maintain a flood storage easement to protect adjacent property owners from potential damage. The Federal Emergency Management Agency (FEMA) requires that the applicant revise the county flood plain maps to reflect the change that this reservoir would effect. A condition would be placed on any permit issued requiring the applicant to comply with FEMA's regulations. The distance between Hickory Log Creek and the Etowah River is relatively short and impacts to flooding would be minor. The section of the Hickory Creek nearest the river would have no significant change in its flooding frequency because the river dictates the flooding frequency and duration in that area.

21 and 31. Wetlands and streams: The project would result in the filling and/or inundation of 19.27 acres of jurisdictional wetlands and 44,175 linear feet of jurisdictional waterways. There would be a minimal net loss to overall wetlands function due to the time lag between reservoir impoundment and the return of wetland functions to the mitigation areas. The project may also result in a minor adverse impact to wetlands located downstream of the proposed dam site. The reservoir is designed to trap minor flood flows for the storage of water to be used later during dry periods. This reduction in downstream flooding could have the effect of reducing the amount of water currently reaching wetlands located within the floodplain of Hickory Log Creek. This minor reduction would not result in the destruction or in a more than minimal adverse impact to these downstream wetlands, since the other sources of water (ground water, side slope seepage and rain) would not be affected.

The function and associated values of these lost wetlands would be partially compensated for by the reservoir. A majority of the lost wetland functions would be replaced by the applicants' compensatory wetland mitigation plan. The compensatory mitigation plan, dated July 2002, (Appendix A) has been accepted by the USACE, USFWS, and USEPA as adequate to replace unavoidable wetland impacts that would result from construction of the project. To compensate for the 19.27 acres of wetland impacts, the applicants propose to restore 11 acres of wetlands on Mill Circle in South Cherokee County near Woodstock and 11.5 acres of wetlands on an unnamed tributary of the Etowah River at the Old Highway 5 site. The applicants propose

to mitigate for the 44,175 linear feet of stream impact by providing approximately 53,400 linear feet of stream protection. The components of this stream mitigation plan are summarized as follows: (1) 7,500 linear feet of stream preservation on Hickory Log Creek upstream of the reservoir; (2) 17,200 of river preservation on the Etowah River in the City of Canton; and (3) 10,200 linear feet of stream enhancement at the applicants' proposed wetland mitigation sites. Any permit issued would contain special conditions requiring that the mitigation plan be implemented.

23. Fish: The project would replace over eight miles of stream with the lentic waters of a reservoir (from lotic to lentic). Many of the fish native to the streams, including the federally-threatened Cherokee darter, would be lost to those areas. The proposed reservoir would likely provide habitat for non-native fish and/or only a small subset of native fish. Hickory Log Creek does not support a population of any trout species, and is not regulated by the State of Georgia as trout water. Fish populations both downstream in Hickory Log Creek and the Etowah River may be impacted by changes to water quality and the flow regimes of these two systems.

24. Wildlife: This project would result in the loss of approximately 370 acres of open and forested lands. This rural area is considered valuable wildlife habitat. The preservation of the reservoir buffer combined with the wetland mitigation areas would help to offset this minor negative effect.

27. Threatened or Endangered Species: The Federally threatened Cherokee darter was found within the project impact area on Hickory Log Creek. The Cherokee darter, a small percid fish, is associated with large gravel, cobble, and small boulder substrates, but is uncommonly or rarely found over extensive areas of bedrock, fine gravel, or sand. It is most abundant in sections of smaller streams with relatively clear water and clean substrates with little silt deposition. The federally Endangered Etowah and Amber darters are downstream of the proposed project in the Etowah River. The Etowah darter, a small percid fish, lives in warm and cool, medium and large creeks or small rivers of moderate or high gradient with rocky bottoms. The Amber darter, a small slender fish, occurs in relatively low densities in stream riffles that generally supported large populations of other species of small benthic fish. The USACE initiated Section 7 Formal Consultation with the United States Department of the Interior, US Fish and Wildlife Service under the Endangered Species Act. Following consultation, the FWS rendered a Biological Opinion that provided that the project, as proposed, is not likely to jeopardize the continued existence of these species. No critical habitat has been designated for Cherokee, amber, or Etowah darters in the Etowah River watershed.

For the purpose of consultation under Section 7 of the Act, the "action area" is defined at 50 CFR 402 to mean "all areas affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The effects of the Hickory Log Creek Reservoir, particularly with regard to stimulating future development, may extend well beyond the construction footprint. Therefore, the Service has defined the action area as the service area for the reservoir that lies within the Etowah Basin, (See Appendix F) Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. The incidental take is anticipated to

be in the form of:

1. Habitat modification or degradation of 5 miles of occupied stream habitat, such that Cherokee darters are unable to breed, feed, or shelter.

2. Death of or harm to Cherokee darters, including larvae or eggs, crushed or injured when the dam is constructed.

3. Death or harm to listed fish, including larvae or eggs, due to short-term increases in water turbidity during and immediately after dam construction.

4. Death or harm to Cherokee darters, including larvae or eggs, due to altered flows (particularly low spring flows and high flows) in Hickory Log Creek below the dam.

5. Death or harm to listed fish, including larvae or eggs, due to changes in water temperatures, changes in dissolved oxygen levels, or contaminants/excess nutrients in water released from the reservoir.

6. Loss of stream habitat in Hickory Log Creek downstream of the dam due to geomorphic changes in stream pattern, profile, and dimension associated with altered flows/sediment transport in the lower portion of Hickory Log Creek.

7. Changes in gene diversity in Cherokee darter populations above and below the reservoir due to restricted fish movement and fragmented populations.

8. Death or harm to Etowah and amber darters, including larvae or eggs, due to entrainment at the pump in the Etowah River.

However, the FWS determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat. Reasonable and prudent non-discretionary measures were found by FWS to be necessary and appropriate to minimize the extent of the incidental take anticipated from a proposed action. These measures can include only actions that occur within the action area, involve minor changes to the project, and are within the legal authority and jurisdiction of the FWS or applicant to carry out. Considering that all listed darters are expected to be taken during the course of the action, the level of incidental take is exceeded only if the scope of the action increases to include other darter streams.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of Cherokee, Etowah, and Amber darters:

1. Water Quality

a. Design the dam to release waters at temperatures suitable for survival of Cherokee, Etowah, and Amber darters (i.e., no more than a four-hour average water temperature difference of more

than two degrees Celsius in the Etowah River at the confluence of Hickory Log Creek, as compared to temperatures above the confluence). Potential measures to control temperatures of water released from the reservoir include fixed and adjustable surface outlets that allow water to be drawn from different depths of the reservoir, surface pumps or draft tube mixers that pump or guide warm surface water to intake structures at the bottom, and submerged curtains of flexible rubber fabric that surround the existing outlet and extend upward to draw water from the surface.

b. Install an oxygen diffuser to ensure dissolved oxygen concentrations in water released from the reservoir are similar to those in the Etowah River at the confluence of Hickory Log Creek.

c. Establish three continuous monitoring gauge stations that record discharge, pH, temperature, specific conductivity, dissolved oxygen, turbidity, and nutrient levels on Hickory Log Creek and the Etowah River. The two gauges on the Etowah River should be placed above and below the confluence of Hickory Log Creek to monitor water quality parameters. Contingency plans will be developed to modify dam operation procedures if water released from the dam causes a four-hour average water temperature difference of more than 2oC in the Etowah River at the confluence of Hickory Log Creek, as compared to temperatures above the confluence, or if dissolved oxygen levels, as measured at the gauge downstream of the reservoir dam, fall below critical levels.

(1) Establish a minimum of three biological monitoring stations for each of the three flow/water quality gauges to measure stream geomorphology, periphyton, fishes, and aquatic macro invertebrates.

(2) Report data from gauges and biological monitoring stations to the Service, as well as the State of Georgia, USACE, and USEPA, annually, with an analysis of the data provided at minimum five-year increments.

a. Implement a 100-foot buffer on both banks of Hickory Log Creek above the reservoir's normal pool upstream until the creek is designated as intermittent on a USGS 1:24,000 quadrangle. This buffer will support undisturbed native vegetation; no construction, land clearing, or vegetation removal (including mowing or hand clearing) will be permitted.

b. Ensure proper closure and/or removal of existing septic systems, close all petroleum tanks, and allow agricultural land in the proposed reservoir footprint to lie fallow for two years prior to impoundment of the reservoir.

c. At a minimum, implement BMPs endorsed by the State of Georgia for erosion and sediment control during land clearing and construction activities. The applicants will submit to the Service before construction operations begin:

(1) a copy of the primary permittee's Notice of Intent for use of the State of Georgia General NPDES Permit for Storm Water Discharges from Construction Activities (General NPDES Permit),

(2). a copy of the certified Erosion, Sedimentation, and Pollution Control Plan, as required under Part IV of the General NPDES Permit, and

(3). a copy of the Comprehensive Monitoring Program under the General NPDES Permit. Monthly monitoring reports, as described in Part V of the General NPDES Permit, will be provided to the Service by the fifteenth day of the month following the reporting period.

(a) Submit to the Service a copy of the primary permittee's Notice of Termination under the General NPDES Permit when activities authorized by the General NPDES Permit have ceased.

(b) To the maximum extent practicable, limit land clearing activities and dam construction to times outside of the suspected spawning period of the Cherokee darter (April 1 to June 15).

2. Dam Operation

a. Maintain 7Q10 flows in Hickory Log Creek below the reservoir. Adopt the Georgia Department of Natural Resources (GADNR) April 1, 2001, interim minimum flow protection requirements for flows in the Etowah River below the reservoir intake. A copy of the requirements is attached to this biological opinion.

b. Release waters from the dam such that maximum releases do not exceed peak flows that would have occurred in Hickory Log Creek prior to dam construction under a normal flow regime.

3. Fish Impingement

- Utilize best available technology to minimize fish impingement at structures in the Etowah River where water is withdrawn to fill the reservoir.

4. If a dead, injured, or stressed Cherokee, Etowah, or Amber darter is located, the finder must immediately notify the Georgia Field Office (706-613-9493). Care should be taken in handling specimens to ensure effective treatment or to preserve biological materials to analyze cause of death. The finder is responsible for ensuring evidence intrinsic to the specimen is not unnecessarily disturbed.

The non-discretionary measures would be a mandatory condition of any permit issued and the entire Biological Opinion would be incorporated and made part of the permit. Absent monitoring and data to document the impacts on the listed darters by this proposed impoundment, short and long term effects may not be known.

28. General Environmental Concerns: The environmental concerns for this project focus on the potential impacts of this reservoir on wetlands, cultural resources, fish, wildlife, and food chain organisms. Each of these concerns was discussed above.

D. US ARMY CORPS OF ENGINEERS' WETLAND POLICY: The proposed wetland alteration is necessary to realize the project's purpose and should result in minimal adverse environmental impacts. The benefits of the project would outweigh the minimal detrimental impacts. Therefore, the project is in accordance with US Army Corps of Engineers' Wetland Policy (33 CFR 320.4(b)).

E. CUMULATIVE IMPACTS:

a. Water Quantity:

The Alabama-Coosa-Tallapoosa River Basin Compact ("ACT") was passed by the Georgia Legislature on February 11, 1997 (Ga. Code Ann. §12-10-110 et seq,) and the Alabama Legislature on February 18, 1997 (Ala. Code §33-18-1 et seq.,). It was passed by the United States Congress on November 7, 1997, and signed by the President on November 20, 1997, as Public Law No. 105-105, 111 Stat. 2233. Under the ACT River Basin Compact, the State Commissioners must negotiate and agree on a proposed allocation formula and present the formula to the Federal Commissioner for concurrence before the allocation formula can be implemented. The Compact will dissolve if the parties fail to approve water allocation formulas. The Compact directs the parties to the Compact to...develop an allocation formula for equitably apportioning the surface waters of the ACT among the States while protecting the water quality, ecology, and biodiversity of the basin...

If an allocation formula is adopted, each and every officer, agency and instrumentality of the United States shall have an obligation and duty, to the maximum extent practicable, to exercise their powers, authority, and discretion in a manner consistent with the allocation formula so long as the exercise of such powers, authority, and discretion is not in conflict with federal law.

At the time of preparation of this record, a draft water allocation formula is being considered by the ACT Commissioners of the States and the Federal Commissioner. Once the water allocation formula is adopted, the issue of water allocation may be governed by the Compact. Even absent a water allocation formula, the issue of water quantities remains the authority of the states.

The ACT Federal and state commissioner's were notified of this project; however, no comments were received. GAEPD approved the increase in withdrawal capacity consistent with the ACT River Basin Compact (Public Law 105-105), and allows the continued withdrawals of water from the basin in accordance with laws of the respective State and applicable Federal law and regulation. The compact also provides for reasonable increases in demand pending agreement on an allocation formula, provided approvals of such withdrawals do not include a grant of any permanent, vested or perpetual right to the amount of water used.

Based on the above, there would be impacts to the amount of water available for future users if the proposed project is constructed. However, the GAEPD is aware of this project, as well as other present and future proposals for reservoirs and intake structures, and have determined that the project should proceed. Section 404 Clean Water Act implementing

regulations provide that actions affecting water quantities are subject to Congressional policy as stated in section 101(g) of the Clean Water Act, which provides that the authority of states to allocate water quantities shall not be superseded, abrogated, or otherwise impaired (Title 33 Code of Federal Regulations Part 320.4 (m)).

b. Water Quality: Water quality is affected by changes to the environment (referred to as stressors) which adversely affect aquatic life or impair human uses of a water body. Point sources are municipal and industrial wastewater discharge. Non-point sources consist of sediment, litter, bacteria, pesticides, fertilizers, metals, oils, grease, and a variety of other pollutants that are washed from rural and urban lands by storm water. Expected growth in population and employment in the basin will mean more potential stress from storm water runoff as well as non-point source loading.

c. Wetlands: According to the Regulatory Analysis and Management System (RAMS) database, as of August 8, 2002 the Savannah District has permitted approximately 17.16 acres of wetland impacts in Cherokee County, Georgia. The RAMS database also indicates that approximately 12.48 acres of mitigation were required. The Georgia Natural Heritage Program Project Report 26 indicates that 7247 acres of wetlands exist in Cherokee County, Georgia.

d. Stream Impacts: We have no data on stream impacts from past permitted activities. Many projects that impact streams have been permitted in the Etowah Basin, but there are also many miles of stream still in existence in the basin. The loss of the 44,175 linear feet of stream impacted by this project would have a minor impact on stream resources in the Etowah Basin and Cherokee County, but these impacts would be partially offset by the applicants' mitigation plan.

e. Aquatic Species: We acknowledge that past, present, and future water withdrawal permits on the Etowah River would result in additional water quality impacts and thereby impact species which depend on the aquatic system to survive. However, if each permitted project has to comply with conditions similar to those outlined for this project, these impacts would be minor. In addition, since the proposed reservoir would have releases even during drought conditions, there would be some benefit to aquatic species by having at least some flow in Hickory Log Creek during all times of the year. This flow would also supplement the Etowah River flow during times of drought.

f. Conclusions: The foregoing cumulative impacts assessment considered the impacts of the proposed project, past projects and reasonably foreseeable future projects on streams, wetlands, water quantity, water quality and aquatic species. Based on the preceding assessments, it is our contention that the proposed project will not result in a significant cumulative impact on the environment. A more detailed discussion of cumulative impacts prepared by the applicant using data provided by this office and edited by this office is attached as Appendix H.

F. SECONDARY/INDIRECT IMPACTS: Any project that increases the reliable water supply in an area would attract both residential and industrial developers. Therefore, it can be anticipated that the counties and cities that would be serviced by the proposed project would encounter an increase in development following project implementation. Such development

would also include construction of infrastructure such as roads and utilities. All of these activities have the potential to result in further impacts to both developable uplands and aquatic habitats in the area. Local governments would regulate development of the upland resources. Most development activities that would occur in aquatic sites would require prior authorization pursuant to Section 404 of the Clean Water Act. Therefore, there are programs in place to evaluate such impacts if they are proposed. In association with potential direct impacts, there would also be impacts associated with stormwater runoff from newly developed areas. Either the local governing body or the state regulates such impacts.

G. IRREVERSIBLE AND IRRETRIEVABLE RESOURCE COMMITMENTS: Authorization of the applicant's preferred alternative, or any other build alternative, could result in an irreversible and irretrievable commitment of a range of natural, physical, human and fiscal resources.

The fossil fuels, labor and construction materials that would be expended if the project is constructed are generally not considered irretrievable resources. In addition, these resources are not in short supply and their use would not have an adverse effect upon their continued availability.

H. EVALUATION - EFFECT ON FEDERAL PROJECT: We have determined (33 CFR 320.4(g)) that the proposed activity would not have a significant adverse effect on any Federal Project.

PART V PERMIT ACTION ALTERNATIVES

A. TO ISSUE THE PERMIT IN ACCORDANCE WITH THE PLANS SUBMITTED BY THE APPLICANT: This course of action would, by itself, be inappropriate because it does not include provision for special conditions (see D. below).

B. TO DENY THE REQUEST FOR A PERMIT: Denial of the permit would not be an appropriate course of action. The proposed activity would not have significant adverse effects on navigation, the environment or other public interest factors

C. TO ISSUE THE PERMIT AFTER SUBMITTAL OF MODIFIED PLANS BY THE APPLICANT WITH SPECIAL CONDITIONS: This course of action would not be warranted. Our review of the applicants' plans and alternatives showed the applicants' proposed activity to be the most practicable way to accomplish the applicants' overall purpose

D. TO ISSUE THE PERMIT IN ACCORDANCE WITH THE PLANS SUBMITTED BY THE APPLICANT WITH SPECIAL CONDITIONS: This would be the appropriate course of action to follow. In order to protect the public interest, the following special conditions would be placed on the permit:

1. The attached Biological Opinion (BO) contains mandatory terms and conditions to implement the following reasonable and prudent measures that are associated with an "incidental take". Your authorization under this Department of the Army permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take as contained in the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions contained in the BO, where the take of the listed species occurs, would constitute an unauthorized take, and would also constitute non-compliance with your Department of the Army permit.

a. Minimize changes in water quality in Hickory Log Creek and the Etowah River below the confluence during reservoir construction and in water releases from the reservoir.

b. Operate the dam such that downstream changes in stream channel morphology and impacts to aquatic communities will be minimized.

c. Minimize fish impingement at he Etowah River intake structures.

2. Prior to beginning construction of the dam, the permittee shall implement and comply with all stipulations contained in the attached Memorandum of Agreement submitted to the Advisory Council on Historic Preservation pursuant to Title 36 Code of Federal Regulations Part 800.6(a).

3. Prior to initiating any work authorized under this permit, the permittee shall provide written documentation that the project will comply with all applicable rules, regulations and requirements of the Federal Emergency Management Agency pertaining to construction activities in designated flood plains and/or flood ways. The permittee shall perform any necessary mapping to document changes in flood plains and/or floodways that may be affected by the permitted activity.

4. All dredged or borrowed material used as fill on this project will come from within the limits of lands purchased for construction of the reservoir. This material will be obtained from clean, uncontaminated sources; free from cultural resources.

5. The permittee shall construct, operate, maintain, and protect the Hickory Log Creek Reservoir and its watershed in accordance with Georgia Department of Natural Resources, Rules for Environmental Planning Criteria, Chapter 392-3-16. Should any requirement of these rules, as now enacted or as amended in the future, conflict with other conditions of this permit, the State Rule shall take precedence.

6. Prior to construction of the proposed dam, on all property referenced in the compensatory mitigation plan with the exception of the Cherokee Darter Streams ("CDS"), Smithwick Creek and other CDS tributaries, the permittee shall have an attorney prepare a draft Declaration of Covenants and Restrictions with exhibits utilizing the USACE Savannah District's model draft and directions. This model draft document with instructions is located on the Savannah District

web site at www.sas.usace.army.mil. Select the yellow box entitled, "Permitting Info" and scroll down to find the Declarations of Covenants and Restrictions with Instructions being a separate file.

a. Restrictive covenants shall be placed upon all real property referenced as wetland compensatory mitigation by the issuance of this permit and acquired by the permittee. Prior to the construction of the proposed dam, the permittee shall have an attorney prepare both a Conservation Easement and a Declaration of Covenants and Restrictions on riparian mitigation sites with the exception of the Cherokee Darter Streams, Smithwick Creek and other CDS tributaries. The Declaration of Covenants and Restrictions shall be signed by the owner/s of the property and the Conservation Easement shall be granted by the owner to the permittee.

b. The Conservation Easement shall be drafted pursuant to the Georgia Uniform Conservation Easement statute and shall also be in compliance with the provisions regarding required language provided in the USACE instructions. The instructions are located at the same web site referenced above. Scroll down to find the file entitled, "Conservation Easements."

c. Upon written approval of the Declaration of Covenants and Restrictions and the Conservation Easements by the USACE, Savannah District Office of Counsel, the attorney for the permittee shall execute and record the document with exhibits in the Office of the Clerk of the Superior Court of the county in which the land lies. The Office of Counsel shall be furnished with a copy of the recorded Declaration of Covenants and Restrictions and the recorded Conservation Easements At such time as Office of Counsel receives a copy of the recorded documents showing book and page numbers of their recorded location, this special condition will be completed. This special condition shall supersede any provision of the compensatory mitigation plan to the contrary.

7. The permittee shall completely implement the attached compensatory mitigation plan. Titled "Compensatory Mitigation Plan for the Proposed Hickory Log Creek Reservoir" dated July 2002. The permittee shall provide the Corps of Engineers with specific work plans for the implementation of this mitigation plan prior to initiating any work. Upon notification by the Savannah District's acceptance of this work plan, the permittee shall proceed with implementation in accordance with the plan. All site preparation, land modifications, and stream enhancement activities associated with the wetland and stream restoration, enhancement and/or creation work described under this plan shall be accomplished prior to beginning any land disturbing activities associated with construction of the dam.

8. The permittee shall submit a detailed plan for monitoring each of the proposed mitigation sites for our review and approval prior to the initial mitigation activities being completed. This plan shall state the factors that would be monitored, the methods to be used, and a statement of the success criteria to be used for each site.

9. The permittee shall take immediate remedial action to correct deficiencies where mitigation areas fail to meet the objectives as outlined in the attached mitigation plan.

10. The permittee shall perform maintenance on each mitigation area for five consecutive years upon completion of restoration or enhancement work. Should a major deficiency be identified, remedial action shall be completed and the five year maintenance and monitoring period shall start over, if determined necessary.

11. Upon completion of the stated objectives of the attached mitigation plan and compliance with applicable permit special conditions, the permittee shall provide sufficient information to this office for jurisdictional determinations to be made on each wetland restoration, enhancement, and preservation area. The determinations of this office will be made under the criteria of the 1987 "Corps of Engineers Wetland Delineation Manual," with the understanding that this office used this manual to verify the 19.27 acres of wetland impacts authorized by this permit.

12. Should a jurisdictional determination of this office verify that a wetland restoration, enhancement, or preservation area is deficient in meeting replacement acreage, as described in the attached mitigation plan; the permittee shall provide supplemental compensatory mitigation necessary to offset this deficiency.

13. All work conducted under this permit shall be located, outlined, designed, constructed and operated in accordance with the minimal requirements as contained in the Georgia Erosion and Sedimentation Control Act of 1975, as amended. Utilization of plans and specifications as contained in "Manual for Erosion and Sediment Control, Third Edition, Latest Edition," published by the Georgia Soil and Water Conservation Commission or their equivalent will aid in achieving compliance with the aforementioned minimal requirements.

14. All work will be performed in accordance with the plans and drawings which are incorporated in and made part of the permit:

a. Project vicinity map.

b. Location map of reservoir.

c. Conceptual plan view of dam site.

d. Conceptual cross section of dam site.

e. Mitigation Plan

f. Section 106 MOA

g. Biological Opinion dated June 28, 2002

15. Prior to impounding Hickory Log Creek, pumping from the Etowah or releasing water into the Etowah, the applicant shall coordinate with USACE Mobile District.

16. The Permittees shall implement the following measures to protect, preserve and enhance an existing Cherokee darter population in one stream (the "Cherokee Darter Stream" or "CDS"). This is referenced in the Compensatory Mitigation Plan regarding Smithwick Creek and its tributaries or other suitable CDS streams.

a. The present status of the Cherokee darter and the locations of stream reaches encompassing required aquatic habitat features in the CDS system shall be determined by a qualified scientist(s), in coordination with the FWS. Stream reaches of the CDS shall be prioritized based on the quality and quantity of habitat available for the Cherokee darter and upon the immediacy of pending threats to the habitat from development or other sources. This study shall be completed within one year from permit issuance, and a written completion report shall be submitted to the USACE and to the FWS.

b. The Permittees shall perpetually protect, 3.5 to 5.0 miles on both banks of the CDS, depending upon the percentage of stream restoration, enhancement or preservation. Protection shall be either through direct acquisition by the permittee and the recording of Declarations of Covenants and Restrictions, or by the recording of Declaration of Covenants and Restrictions by the owners, and if permittee is not the owner, then also by Conservation Easements ("Easements"). The drafts of the documents shall be forwarded to Office of Counsel for written approval prior to recording. Easements shall be of sufficient width and include sufficient restrictions necessary to prohibit further land disturbing activities in order to protect the water resources, aquatic life and habitat, and aesthetic values of the CDS. Easements shall extend 100 feet (measured horizontally) on each side of the stream, or the distance needed to provide adequate protection, not to exceed 200 feet, unless restricted by topography and existing land use. Easements shall be no less than the Cherokee County adopted 50-foot buffer zone on each side of the stream. Acquisition of easements on other important stream reaches may be substituted for easements on the CDS on a case-by-case basis where the USACE and FWS concur that the greatest benefit to the protection of the Cherokee darter and other native species will result.

c. Prior to the impoundment of the Hickory Log Creek Reservoir, the Permittees shall insure that the CDS corridor has been acquired and/or protected as specified in paragraph B. Permittee shall notify USACE and USFWS in writing, prior to impoundment that all CDS mitigation property has been legally protected by a Declaration of Covenants and Restrictions and, if the permittee is not the owner, then additionally by Conservation Easement. This special condition supersedes any language in the Compensatory Mitigation Plan to the contrary.

d. Five years from the date of impoundment of the Hickory Log Creek Reservoir, the Permittees shall conduct a survey of the Cherokee darter to determine population stability since last surveyed. The Permittees shall submit a written completion report to the USACE and the FWS.

e. If the permittee proceeds to impoundment without compliance with the provisions in Paragraph 16, then a compliance penalty may be assessed against the permittee by the USACE.

17. The following is an integral part of the mitigation plan for Hickory Log Creek Reservoir: To compensate for the 19.27 acres of wetland impacts, the applicants will restore 11 acres of wetlands on Mill Circle in South Cherokee County near Woodstock and 11.5 acres of wetlands on an unnamed tributary of the Etowah River at the Old Highway 5 site. The applicants will mitigate for the 44,175 linear feet of stream impact by providing approximately 53,400 linear feet of stream protection. The components of this stream mitigation plan are summarized as follows: (1) 7,500 linear feet of stream preservation on Hickory Log Creek upstream of the reservoir; (2) 17,200 of river preservation on the Etowah River in the City of Canton; and (3) 10,200 linear feet of stream enhancement at the applicants' proposed wetland mitigation sites.

18. The permittee shall coordinate all proposed activities with Atlanta Regional Commission and the State Office of Planning and Budget.

19. Applicant shall comply with requirements of Georgia Safe Dams and Rules for Dam Safety.

PART VI - FINDING OF NO SIGNIFICANT IMPACT

- Based on a review of the applicant's plans and the information that has been made available to the District Office, we have determined that the proposed work will not have significant adverse effects on the quality of the human environment. The proposed action does not constitute a major federal action significantly affecting the quality of the human environment; and, therefore, does not require the preparation of a detailed statement under Section 102 (2) (c) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

STATEMENT OF FINDINGS
(Application No. 200006560
by City of Canton, Georgia and
Cobb County Marietta Water Authority
for a Department of the Army Permit)

1. As District Engineer, Savannah District, US Army Corps of Engineers, it is my duty to review and evaluate, in light of the overall public and private interests, the documents concerning the proposed action; the stated views of other interested agencies and the concerned public. It is also my responsibility to review the various practicable alternatives to develop the proposed Hickory Log Creek Reservoir in Cherokee County, Georgia.

2. The possible consequences of these alternatives have been studied for environmental, social well-being, and economic effects, including regional and national economic development and engineering feasibility.

3. I find that the proposed action will not significantly affect the quality of the human environment. In reaching this finding, I considered the various factors potentially affected by the project. These factors are discussed in Part III of the Case Document on the proposed action.

4. I find that there is no basis for denial of the project, with special conditions, under the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

5. I find that the project, as presented, is the best possible course of action. It is, therefore, my decision that the permit be issued in accordance with the plans submitted with special conditions more specifically described in the case document, Part V, D.

6. The proposed project has been analyzed for conformity applicability pursuant to regulations implementing Section 176 of the Clean Air Act. I have determined that the activities proposed under this permit will not exceed de minimis levels of direct emissions of a criteria pollutant or its precursors and are exempted by Title 40 Code of Federal Regulations Part 93.153. Any later indirect emissions are generally not within the USACE continuing program responsibility and generally cannot be practicably controlled by the USACE. For these reasons a conformity determination is not required for this permit action.

7. I find that the action proposed is based on thorough analysis and evaluation of various practicable alternative courses of action for achieving the stated objectives; that wherever adverse effects are found to be involved, they cannot be avoided by following reasonable alternative courses of action which would achieve the specified purposes; and that where the proposed action has adverse effect, this effect is either ameliorated or substantially outweighed by other considerations of national policy.

8. The recommended action is consonant with national policy, statutes, and administrative procedures; and issuance of the permit would not be contrary to the public interest.

Roger A. Gerber

for Roger A. Gerber
Colonel, US Army
District Engineer

14 MAY 2004
(Date)

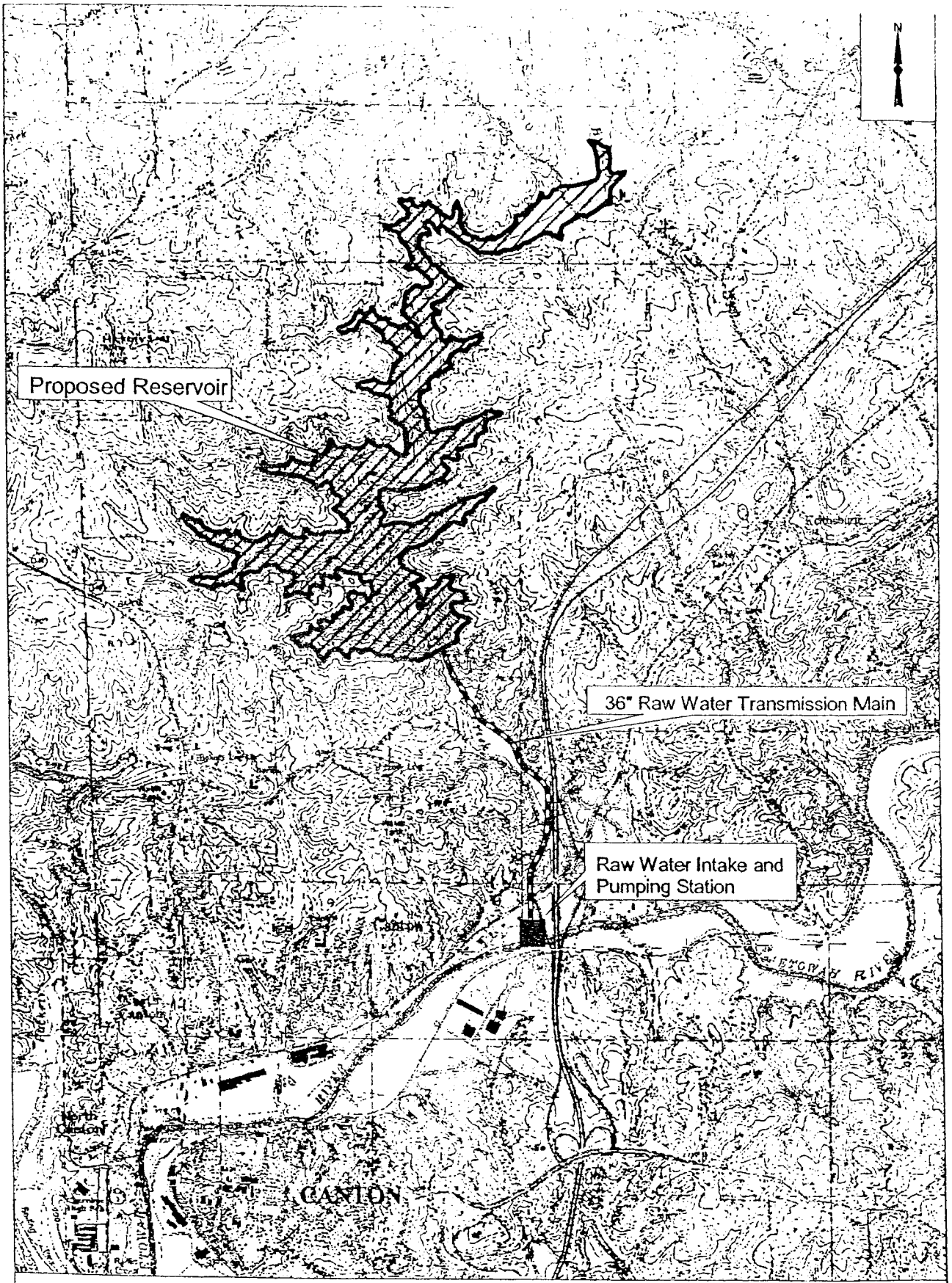
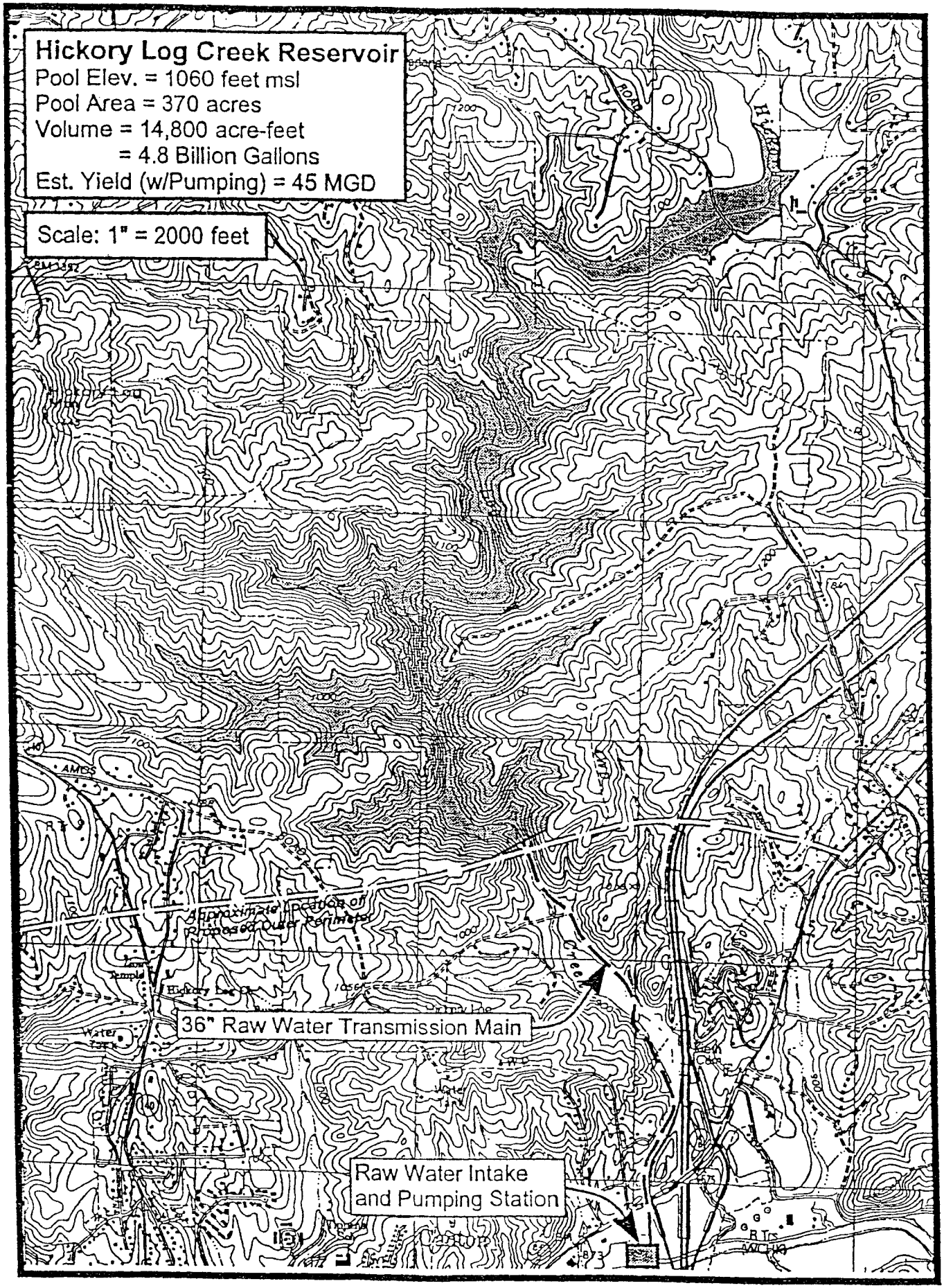


Figure 3-2. Proposed Locations of Hickory Log Creek Project Elements

Source: USGS 7.5 minute 1:24,000 Scale Topographic Map
Ballground West Quadrangle
Canton Quadrangle
South Canton Quadrangle
Waleska Quadrangle

Finino 1


Hickory Log Creek Reservoir
Pool Elev. = 1060 feet msl
Pool Area = 370 acres
Volume = 14,800 acre-feet
= 4.8 Billion Gallons
Est. Yield (w/Pumping) = 45 MGD
Scale: 1" = 2000 feet
Approximate Location of Proposed Dam Perimeter
36" Raw Water Transmission Main
Raw Water Intake and Pumping Station

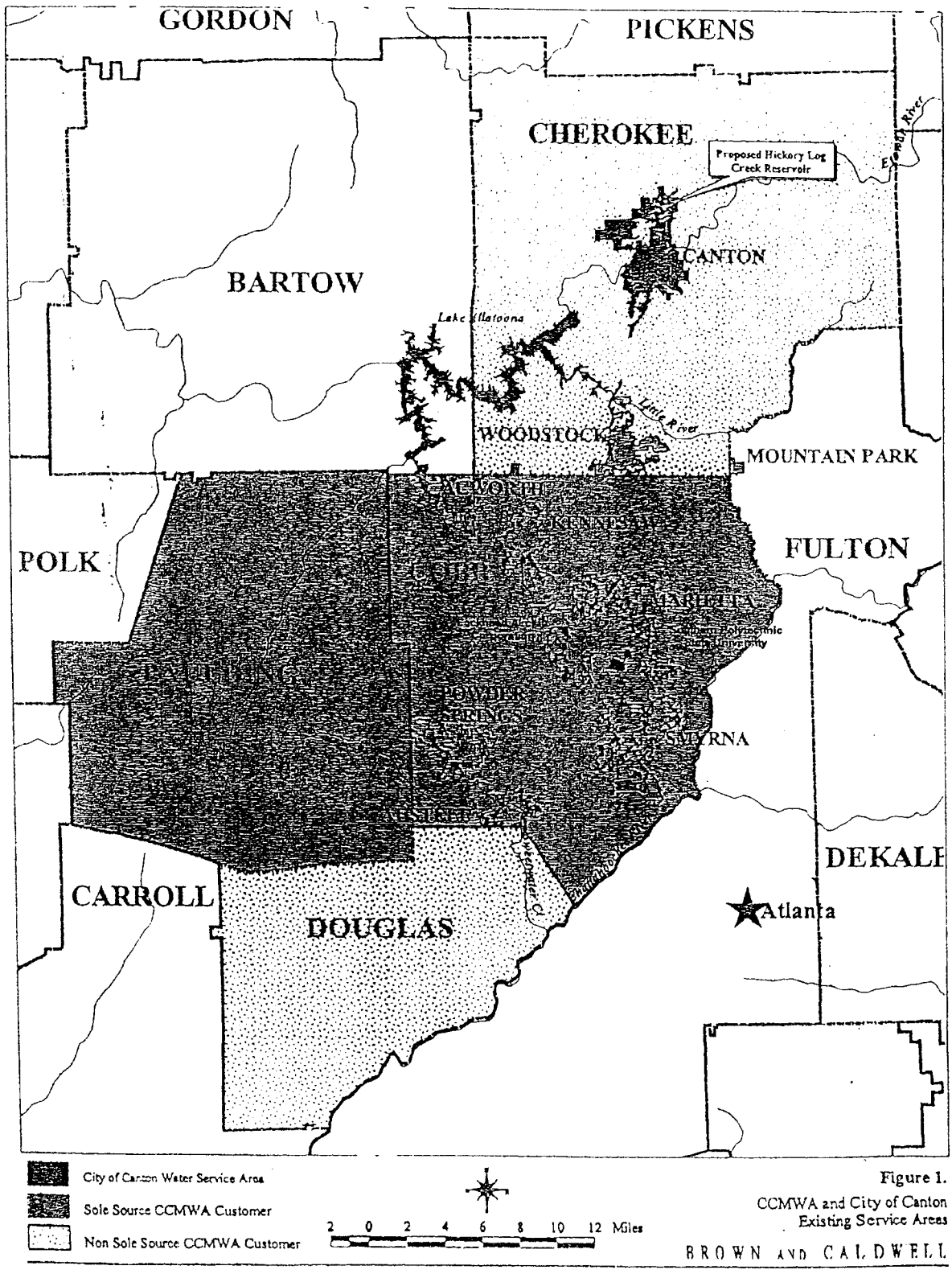


Fig. 2. Hickory Log Creek Reservoir proposed service area.

Figure 2