

DRAFT

ENVIRONMENTAL ASSESSMENT

AND

FINDING OF NO SIGNIFICANT IMPACT

PRIVATIZATION OF THE

WATER TREATMENT AND DISTRIBUTION
SYSTEM

AND

WASTEWATER COLLECTION AND TREATMENT
SYSTEM

FORT BENNING, GEORGIA AND ALABAMA

AUGUST 2002

**Draft Environmental Assessment
and
Finding of No Significant Impact**

**Privatization of the Water Treatment and Distribution System
and the Wastewater Collection and Treatment System
Fort Benning, Georgia**

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

1. Name and Purpose of Action: The privatization of the water treatment and distribution system and the wastewater collection and treatment system on Fort Benning, Georgia and Alabama. This action is proposed in order to comply with Defense Reform Initiative Directive (DRID) #49 and provide the required utility service to Fort Benning.

2. Description: The purpose of this Environmental Assessment (EA) is to identify and assess the potential environmental impacts resulting from the privatization of the water and wastewater utility systems on Fort Benning. This proposed action would divest the US Army, Fort Benning, of ownership and responsibility for the operation and maintenance of these utility systems. The ownership of the utility systems would be transferred to a non-Federal entity that shall become responsible for operation, maintenance, and future upgrades. Although real property (water and wastewater utility systems' infrastructure) would be transferred, the land associated with the systems would not; access to the utility systems would be provided through easements.

3. Alternatives Considered:

Alternatives Considered but Eliminated from Detailed Consideration:

Consideration was given to privatizing the water system and the wastewater system separately. This would involve the issuance of two separate solicitations, and possibly two separate owners. An analysis conducted by the Department of the Army indicated that this would not result in a best value situation for the Government. Thus, this alternative was eliminated from detailed consideration.

Another alternative eliminated from analysis was the combination of utilizing one on-post treatment system (water or wastewater) and one off-post system (water or wastewater). This was eliminated because the environmental analyses of those combinations are fully encompassed within alternatives II and III. Fort Benning will comply with NEPA and AR 200-2 and may prepare a supplement to this EA if the new owner decides to utilize one on-post system and one off-post system. Any supplement would analyze this alternative, which would be a combination of the current alternatives II and III, and the associated environmental consequences.

Alternative I: No Action/Status Quo

Under this alternative, the Army would continue to own the utilities and be responsible for the operation of the systems, as well as all upgrades and modifications required by applicable Federal, state, local laws and regulations, and US Army regulations.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Under this alternative, ownership of the utility systems would be transferred to a non-Federal utility provider that would utilize on-post treatment plants. The new owner would be responsible for repairing, upgrading, maintaining, and operating the water and wastewater systems. The new owner would be required to adhere to all applicable Federal, state, local laws and regulations, and US Army

regulations, in regards to operating and maintaining these utility systems. Implementation of this alternative would allow the Installation to meet the requirements of DRID #49 and provide the Installation with dependable water and wastewater services.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

As with Alternative II, Alternative III would involve the transfer of the water and wastewater systems' equipment and infrastructure to a non-Federal utility provider; however, under this option, the new owner would utilize off-post treatment plants. This would include furnishing potable water to the Installation from a permitted off-post water treatment plant, and conveying wastewater from Fort Benning to an off-post treatment plant. Connection lines from the off-post plants would have to be constructed and tied into the Fort Benning systems requiring approximately 18 to 24 month period of use of existing treatment plants on Fort Benning. The new owner would be required to either mothball or demolish the current on-post plant facilities not being used.

4. Anticipated Environmental Effects

Alternative I: No Action/Status Quo

This alternative would prevent Fort Benning from realizing the benefits in regards to utility system repair and upgrade through privatization. Federal budget reductions have made it difficult, if not impossible, to obtain adequate funding levels to properly maintain the utility systems on the Installation. Consequently, failure to privatize the water and wastewater systems would mean that Fort Benning would, more than likely, continue to operate antiquated systems. This has led to numerous bypasses of untreated wastewater; it is presumed that the bypasses will continue since the system has not been upgraded. This alternative would have temporary and minor adverse effects on surface water, fisheries, and species of conservation concern due to the bypasses. There would also be an adverse impact to the utilities themselves (the water and wastewater systems). Under this alternative, there is a potential for adverse effects to historic properties that are part of the systems' infrastructure, if adequate resources are not provided to properly maintain the utility systems, or if maintenance and repair is not performed in compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

This alternative would have minor, positive effects on surface water, fisheries, and species of conservation concern, due to the repair of the utility systems and prevention of untreated bypasses. Alternative II would have a long-term, positive impact on the utilities, themselves. There would be a temporary and minor adverse effect on socioeconomics, due to the loss of Federal jobs.

Implementation of Alternative II would have no adverse effect on historic properties. Although this alternative would result in the transfer of ownership of known historic properties from the Federal government to a non-Federal owner, the new owner would be required to comply with all applicable Federal, state, and local laws and regulations in regard to historic preservation.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

This alternative would have minor, positive effects on surface water, fisheries, and species of conservation concern, due to the repair of the utility systems and prevention of untreated bypasses. There would be a temporary and minor positive effect on socioeconomics, due to new construction and purchase of construction materials if community resources are used. Alternative II would have a long-term, positive impact on the utilities, themselves.

Temporary and minor adverse effects to groundwater, air quality, and fisheries are expected during construction of the new lines. There will also be a temporary and minor effect on socioeconomics, due to the loss of Federal jobs.

Minor, adverse effects are expected to vegetation, wetlands, wildlife, species of conservation concern, migratory birds, soils, and land use under alternative III.

Implementation of Alternative III is anticipated to have no adverse effect on historic properties. The new owner would be required to comply with all applicable Federal, state, and local laws and regulations in regard to historic properties.

5. Mitigation: Any adverse effects from alternatives II or III would be mitigated. Mitigation would consist of appropriate (Best Management Practices) measures during construction, restoration of resources, and proper coordination with Federal or state agencies as appropriate.

For both alternatives II and III, an easement would be granted for access to the system. The new owner would be required to adhere to all easement requirements. The easement would contain specific language in regard to natural and cultural resource management. Any activity undertaken on the utility systems and/or in the area surrounding the systems that has the potential to impact the environment would require the submission of a Fort Benning form FB-144-R / Record of Environmental Consideration (REC) to the EMD, prior to any activity (routine repairs, maintenance, upgrades, construction, etc.). This review process will analyze the potential environmental impacts of the activity and specify mitigation.

In the case of historic properties (such as archaeological sites and historic districts), Fort Benning would be responsible for coordination with the State Historic Preservation Office (SHPO), Federally recognized Native American Tribes, and others to identify and implement appropriate mitigation. In the case of historic structures where ownership has been transferred, the new owner would be responsible for the above-mentioned coordination with agencies, the EMD, and all other appropriate parties.

None of the alternatives would result in any significant cumulative impacts.

6. Finding of No Significant Impact (FONSI): This Environmental Assessment was conducted in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations, AR 200-2, and various applicable environmental laws, regulations, and executive orders. It has been concluded that none of the alternatives constitute a “major Federal action significantly affecting the quality of the human environment “ when considered in the context of individual and cumulative impacts. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required. Depending on results of contracting processes Fort Benning chooses to implement either alternative II or III as meeting the purpose and needs of the proposed action and minimizing the environmental impacts via mitigation.

7. Public Comment: In accordance with Army Regulation 200-2, the public is being given the opportunity to comment on this EA. Comments must be received within 30 days from the date of this publication in the Columbus Ledger-Enquirer.

The Draft EA and FONSI will be available at the following locations:

- W. C. Bradley Memorial Library, located at 1120 Bradley Drive, Columbus, Georgia. Open Monday through Saturday from 9:00 a.m. to 6:00 p.m. and Sunday from 1:30 p.m. to 6:30 p.m.
- South Lumpkin Library located at 2034 South Lumpkin Road, Columbus, Georgia. Open Monday, Wednesday, Friday and Saturday from 9:00 a.m. to 6:00 p.m. and on Tuesday and Thursday from 9:00 a.m. to 9:00 p.m.
- Fort Benning Main Post Library, located in Building 93, Fort Benning, Georgia. Open Monday through Thursday from 11:00 a.m. to 8:50 p.m., Saturday from 12:00 p.m. to 7:50 p.m., and Sunday from 12:00 p.m. to 8:50 p.m.

Requests for additional information and submission of comments must be received within 30 days of the date of first publication of the Public Notice of Availability (NOA). Please send comments and/or requests to: Commander, Directorate of Facilities, Engineering and Logistics (DFEL), ATTN: ATZB-ELN-P (Mr. Patrick Chauvey), Bldg 6 (Meloy Hall), Rm. 310, Fort Benning, GA 31905-5122.

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1.0 PURPOSE AND NEED

Fort Benning proposes to privatize its water treatment and distribution system and wastewater collection and treatment system. These systems would be privatized as directed by Defense Reform Initiative Directive (DRID) #49. This initiative directs all Military Departments to privatize their utility systems (electric, water, wastewater and natural gas), except those needed for unique security reasons or when privatization is uneconomical. Privatization is defined as the transfer of ownership, responsibilities, investments, upgrades, plant replacement, and continued operation and maintenance to the non-Federal sector. The US Army Training and Doctrine Command (TRADOC) completed a programmatic Environmental Assessment (EA) for utility privatization in 1999 for 17 TRADOC Installations, including Fort Benning. While the programmatic EA analyzed privatization at a major command (MACOM) scale, this EA analyzes site-specific impacts from utility privatization on Fort Benning.

Two Environmental Screening Documents (ESDs) have also been prepared in support of the proposed privatization of the water and wastewater systems on Fort Benning (US Army Corps of Engineers, August 2002a, b). The purpose of each ESD is to investigate and document the presence of contamination of the property, and to report the presence of substances such as hazardous materials/waste, asbestos, lead-based paint, unexploded ordnance, etc. These documents can be reviewed at the Environmental Management Division (EMD) at Fort Benning.

Fort Benning has privatized its electrical and natural gas distribution systems. Privatization of the water distribution and wastewater collection systems would complete Fort Benning's requirements per DRID #49.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 LOCATION OF THE PROPOSED ACTION

Fort Benning is located near Columbus, Georgia, 100 miles south/southwest of Atlanta, Georgia (see figure 1). The Installation occupies land in Muscogee and Chattahoochee counties, Georgia, and Russell County, Alabama, and can be accessed by the following major highway routes: Interstate 185, US Route 27/Georgia Highway 520, Georgia Highway 26, and Alabama Highway 165.

Fort Benning occupies approximately 181,400 acres of land, of which approximately 169,262 acres are located in Georgia and 12,138 acres are located in Alabama. The Installation covers approximately 80 percent of the land in Chattahoochee County, Georgia, as well as small portions of Muscogee County, Georgia, and Russell County, Alabama. The Chattahoochee River, which serves as the border between Alabama and Georgia, traverses the southwest tip of the Installation. The Alabama portion of the Installation is accessed from the main post by a single bridge crossing the Chattahoochee River just south of Lawson Army Airfield via Sunshine Road.

The City of Columbus, Georgia, borders the Installation along its north and northwest boundary. Other major urban areas within a 100-mile radius include Albany and Macon, Georgia, and Phenix City, Montgomery, and Dothan, Alabama.



Figure 1: Location Map

2.2 DESCRIPTION OF THE PROPOSED ACTION

The proposed action consists of the privatization of Fort Benning's water treatment and distribution system and wastewater collection and treatment system. Fort Benning would transfer ownership, responsibilities, investments, upgrades, plant replacement, and continued operation and maintenance of these systems to the non-Federal sector. Currently, these utility systems are owned by Fort Benning and operated and maintained by Installation personnel.

The new owner would be required to furnish all required facilities, labor, materials, tools, and equipment necessary to ensure that adequate and dependable utility services are provided to each connection. The new owner would be required to comply with all applicable Federal, state, local laws and regulations, and US Army regulations. The new owner would also be required to obtain any permits and/or licenses required to operate the systems and would become the party of record for all environmental, health, and safety permits related to the operation of the systems. Fort Benning intends to transfer its National Pollutant Discharge Elimination System (NPDES) Permits and the operating permit for the water treatment plant to the new owner, but will

maintain the water withdrawal permit and water use rights, in accordance with TRADOC guidance. This guidance includes: Memorandum for Commanders: Subject - Policy Guidance on Water Rights at Army Installation in the United States, 19 October 1998; and Memorandum to Installations: Subject – Privatization of Army Owned Water Systems – Water Rights, 13 January 1999.

The Government would retain ownership of all land associated with the utility systems. The new owner would be given 50-year term easements to operate and maintain the utility systems. The easements are defined as follows: the width of the easement will not exceed 15 feet for all water and wastewater system lines. In cases where the line comes within 7.5 feet of an improvement (building, fence, etc.), the easement will start from the outside of the improvement's foundation/footer and extend out to 15 feet. The easement would be updated annually when construction and/or abandonment of portions of the systems occur. Additions to the systems, due to Army construction, would be transferred to the new owner.

Any activity that has the potential to impact the environment undertaken by the new owner on the utility systems and/or in the area surrounding the systems would require the submission of a Fort Benning form FB-144-R / Record of Environmental Consideration (REC). The new owner would be required to submit the REC prior to any activity (routine repairs, maintenance, upgrades, construction, etc.) to the EMD for review and approval; this process can be expedited for emergency situations. This approval process will analyze the potential environmental impacts of the activity and specify mitigation.

2.2.1 Water Treatment and Distribution System

The water treatment and distribution system to be transferred includes a 12 million-gallon per day (MGD) treatment plant located on Marne Road. The plant withdraws water from adjacent Upatoi Creek under a state of Georgia permit. This plant was built in 1940 with an original design capacity of 6 MGD and improved over the years to its current state licensed 12 MGD capacity. The treatment plant includes a one million gallon sedimentation waste lagoon, a 250,000-gallon filter backwash lagoon, and associated piping system and pumping equipment. The backwash water is recycled to the fresh water intake. There are three raw water pumps with a combined capacity of 12 MGD. There are eight clear-well pumps; four are currently operational and have a combined capacity of approximately 19 MGD. The remaining four are currently non-operational. There is a 5 MGD diesel engine driven pump included in each operating clear-well pump.

There are approximately 232 miles of water distribution lines associated with the potable water system. The water distribution system begins at the treatment plant through two 24-inch ductile iron pipes and one 20-inch cast iron pipe to supply water to several substations in the Main Post, Sand Hill, Custer Terrace, Kelley Hill, Harmony Church, and family housing areas. There is a 20-inch line from the treatment plant and a 14-inch line from the two 24-inch lines supplying water to Kelley Hill and Harmony Church areas. These two lines branch off into four sub-loops that feed Martin Army Hospital, the Main Mall, Kelley Hill, and Harmony Church. Two 16-inch ductile iron lines from two 24-inch lines change to a 12-inch line and a 10-inch line to supply water to Sand Hill and Custer Terrace Family Housing Areas. Two 24-inch lines branch into one 18-inch, one 16-inch, and one 14-inch line to supply water to the Main Post subsystem.

The Main Post subsystem is the largest on Fort Benning and is comprised of one hundred loops. The pipe sizes range from 2 inches to 24 inches in the system. Laterals can be as small as one inch. The pipe material includes cast iron, ductile iron, steel, PVC, and asbestos cement pipe. Most pipes are made of cast iron.

In regards to water storage facilities, there are two clear wells at the water treatment plant with a storage capacity of 1.75 million gallons. Total water storage capacity at Fort Benning is approximately 6,735,000 gallons. This storage includes nine elevated tanks and two underground tanks. The system also includes four booster pump stations and approximately 1,400 fire hydrants and numerous valves. Underground wells serve Camp Darby, Griswold Range, Carmouche Range, Hasting Range, and the McKenna MOUT site (two wells) in Georgia; the Uchee Creek Recreation Area (three wells) and Fryar Field (one well) in Alabama are also served by underground wells.

2.2.2 Wastewater Collection and Treatment System

The wastewater collection and treatment system has approximately 135 miles of collection lines. The predominant pipe material used is vitrified clay with small sections of cast iron, concrete, reinforced concrete, and PVC. Generally, the entire collection system is aging. Most pipes are forty years old or older. These collection lines do not include storm water collection lines, which constitute a separate system and are not part of the privatization proposal. Industrial waste sources that enter the system consist of motor pools, weapons pool, and central energy plants.

Fort Benning is served by two separate wastewater collection systems. These systems collect and route raw sewage to wastewater treatment plants 1 and 2. Each system consists primarily of gravity flow lines but is supplemented in several areas with lift stations and force mains.

Wastewater Treatment Plant (WWTP) number 1 is located on Marne Road. The collection system for Plant Number 1 has several subsystems to collect sewage from all of Sand Hill, Custer Terrace Housing area, Kelley Hill, Harmony Church, Bouton Heights/Davis Hill Family Housing area, Fort Benning Mall, Martin Army Hospital, and the northeast portion of the Main Post Family Housing area. Plant Number 1 is located on Marne Road and has a capacity of 4.6 MGD. It was built in 1964. It provides secondary treatment with the effluent being discharged to the Chattahoochee River.

Wastewater Treatment Plant number 2 is located on Dixie Road in the southwestern end of Lawson Army Airfield. The collection system for Plant Number 2 collects sewage from Main Post and Lawson Army Airfield. It was constructed in 1964 and has a capacity of 3.8 MGD. The plant provides secondary treatment before the effluent is discharged to the Chattahoochee River.

The effluent from both plants is discharged into the Chattahoochee River as authorized by National Pollutant Discharge Elimination System (NPDES) permits issued by the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (GADNR).

There are approximately 32 lift stations located throughout the Installation. They either serve as influent pump stations for the sewage treatment plants or as lift stations within the main trunk sewer serving remote areas.

Currently, approximately 50,000 gallons per month of aerobically digested sewage sludge from the wastewater treatment plants is applied to the land at several locations on Fort Benning. These sites are monitored monthly in order to evaluate compliance with Fort Benning's NPDES permit number GA0000973 (Wilkins, August 2002). The solicitation for the utilities service contract allows for the new owner to use these sludge application sites on Fort Benning, provided only sludge from Fort Benning (on-post treatment plants) is applied and is coordinated with Fort Benning. The land associated with these sites will not be transferred as part of the privatization package. The new owner would be responsible for compliance with the NPDES permit, if the sites are used.

The Installation has septic tanks, field latrines, and sewage holding tanks at the ammunition supply area, the golf course, building 9096, the skeet range, and ranges within the Malone Complex. These facilities are not included in the privatization proposal; the government will maintain these tanks and dispose of the pumped material at one of the plants.

Fort Benning's wastewater collection and treatment system is failing due to age and a prolonged lack of sufficient funds with which to perform proper maintenance. Bypasses of untreated wastewater from the wastewater collection system occur due to a deteriorating collection system and clogging of sewer lines (US Army Corps of Engineers August 2002a). In the past 18 months Fort Benning has been aggressively sliplining existing sewer mains, which significantly reduces the potential for bypasses.

2.3 ALTERNATIVES CONSIDERED

A preferred alternative is not identified; both alternatives II and III would fulfill the Army's requirement under DRID #49. The solicitation allows either option.

2.3.1 Alternatives Considered but Eliminated from Detailed Consideration

Consideration was given to privatizing the water system and the wastewater system separately. This would involve the issuance of two separate solicitations, and possibly two separate owners. An analysis conducted by the Department of the Army indicated that this would not result in a best value situation for the Government. Thus, this alternative was eliminated from detailed consideration.

Another alternative eliminated from analysis was the combination of utilizing one on-post treatment system (water or wastewater) and one off-post system (water or wastewater). This was eliminated because the environmental analyses of those combinations are fully encompassed within alternatives II and III. Fort Benning will comply with NEPA and AR 200-2 and may prepare a supplement to this EA if the new owner decides to utilize one on-post system and one off-post system. Any supplement would analyze this alternative, which would be a combination of the current alternatives II and III, and the associated environmental consequences.

2.3.2 Alternative I

No Action/Status-Quo

Under this alternative, the Army would continue to own the water treatment and distribution system and the wastewater collection and treatment system and be responsible for the operation of the systems, as well as all upgrades and modifications required by applicable Federal, state, local laws and regulations, and US Army regulations.

2.3.3 Alternative II

Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Under this alternative, ownership of the utility systems would be transferred to a non-Federal utility provider that would utilize the existing on-post treatment plants. No land would be transferred to the new owner. The new owner would be granted easements (as defined in Section 2.2), where the facilities are located, for maintenance and replacement activities. The new owner would be responsible for repairing, upgrading, maintaining, and operating the water and wastewater systems to current code. The new owner would be required to adhere to all applicable Federal, state, local laws and regulations, and US Army regulations, in regards to operating and maintaining the utility systems in order to provide dependable service to Fort Benning. The new owner would also be required to obtain any permits and/or licenses required to operate the systems and would become the party of record for all environmental, health, and safety permits related to the operation of the systems, with the exception of the current water withdrawal permit for the operation of the existing water treatment plant; Fort Benning would maintain this permit initially.

Implementation of this alternative would allow Fort Benning to meet the requirements of DRID #49 and provide the Installation with dependable water and wastewater services.

2.3.4 Alternative III

Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

As with Alternative II, Alternative III would involve the transfer of the water and wastewater systems' equipment and infrastructure to a non-Federal utility provider; however, under this option, the new owner would utilize off-post treatment plants. This would include furnishing potable water to the Installation from a permitted off-post water treatment plant, and conveying wastewater from Fort Benning to an off-post treatment plant. The new owner would be required to adhere to all applicable Federal, state, local laws and regulations, and US Army regulations, in regards to operating and maintaining the utility systems in order to provide dependable service to Fort Benning.

No land would be transferred to the new owner. The new owner would be granted easements (as defined in Section 2.2), where the facilities are located, for maintenance and replacement activities.

Connection lines from the off-post plants would have to be constructed and tied into to the Fort Benning systems. The new owner would be required to either mothball or demolish the current on-post plant facilities not being used. The new owner would then use the existing infrastructure on Fort Benning to distribute water and to collect raw sewage. In order to plan and execute the water and wastewater systems tie in from off-post, a start up lag time of approximately 18-24 months is expected. During this lag time, the new owner would operate the on-post (existing) water and wastewater plants in order to provide the Installation with water and wastewater services. See appendix A for the proposed routes for the new water and wastewater lines. If the new owner uses routes other than the proposed routes evaluated in this EA, additional NEPA analysis will be required.

The new owner shall notify the Contracting Officer of his intent for the on-post facilities (mothball or demolish) at the time of award, and will notify the Contracting Officer if and when the intent changes. If the intent is to mothball the on-post facilities for potential future use, these facilities shall be maintained in a state of good condition for use in the event of an emergency. If the intent is to abandon the use of any or all of the on-post facilities, these facilities shall be demolished at the new owner's expense within two years of declaring intent. The demolition or mothballing may apply to a portion or to the entirety of the on-post plant(s). The new owner would be required (by the easement) to coordinate with Fort Benning and the Georgia State Historic Preservation Officer (SHPO) when taking any action that could affect transferred historic structures and buildings or other historic properties.

Implementation of Alternative III would allow Fort Benning to meet the requirements of DRID #49 and provide the Installation with dependable water and wastewater services. As with Alternative II, the new owner would be required to adhere to all applicable Federal, state, local laws and regulations, and US Army regulations, concerning repair, upgrade, maintenance and operation of the water and wastewater systems. The new owner would also be required to obtain any permits and/or licenses required to operate the systems and would become the party of record for all environmental, health, and safety permits related to the operation of the systems, with the exception of the current water withdrawal permit for the operation of the existing water treatment plant; Fort Benning would maintain this permit initially.

3.0 AFFECTED ENVIRONMENT

3.1 NATURAL ENVIRONMENT

3.1.1 Physiographic Characteristics

Fort Benning lies just below the Fall Line, which extends from central Alabama to southern New York and is a linear transition zone between the higher Piedmont physiographic province to the

north and west, to the lower Coastal Plain physiographic province to the south and east. The Fall Line is identified by a series of rapids and falls in streams and rivers as they transit from one physiographic province to the other. This is also the area where the Piedmont basement rocks are first exposed in streams flowing to the Atlantic Ocean and the Gulf of Mexico.

The Fort Benning military Installation is located at the intersection of the East Gulf Coastal Plain to the south and the Piedmont to the north. The Fall Line Hills are characterized by fairly deep valleys forming a valley, ridge, and plateau system ranging in altitudes from 100 to 200 feet above sea level (ASL). The hills define the rim of the Chattahoochee basin. Elevations within Fort Benning range from 190 to 735 feet ASL. Two land form types make-up the military Installation: low plains and high plains. The low plains are defined as flat to gently rolling in floodplain areas and gently to moderately rolling elsewhere. They are found along the Chattahoochee River and its tributaries. The high plains consist of moderately rolling to hilly, irregularly shaped plains. At Fort Benning, the high plains generally occur at elevations between 300 and 500 feet ASL.

3.1.2 Geology and Soils

Geological formations of the Fort Benning study area date to the Upper Cretaceous and Recent epochs. The Recent alluvium and undifferentiated terrace deposits occur along the Chattahoochee River and Upatoi and Oswichee Creeks. These alluvia are immature soils comprised of lenses of sand, silt, and clay.

The uplands (sand hills) are made up of Cretaceous deposits. In general, the Cretaceous materials decrease in age as one moves seaward from the Fall Line. From youngest to oldest, the Cretaceous deposits are the Cusseta, Blufftown, Eutaw, and Tuscaloosa. The Cusseta sand deposits occur only in the extreme southern and southeastern portions of the Installation. These deposits consist of relatively fine, loose yellowish sand with some clay underlain by coarse, cross-bedded, loose yellowish sand with pebbles (Cooke 1943; Poplin and Goodwin 1988:9). Blufftown deposits occur throughout much of the southwestern portion of the Installation. They include gray calcareous sand, micaceous black and gray clay, and calcareous rock layers, with coarse sand and sandstone at the lowest levels of the formation. These deposits are the parent material for the fine micaceous sand soils, which support relatively dense deciduous forests.

The Eutaw formation is found across the southern and eastern one-third of Fort Benning. It consists of some 30 meters of clay sand and platy sandy clay overlying a gray or iron stained coarse sand. Soils derived from these deposits are well drained and support relatively open vegetation (Dickinson and Wayne 1985:2-7; Shogren 1992:6). The Tuscaloosa formation occurs across the northern two-thirds of the Installation and consists of firm, buff colored sand and clay. It is primarily cross-bedded and contains lenses of sandy clay. Near the margins of the Piedmont are found significant amounts of angular quartz pebbles, with grain size decreasing as one moves away from the Piedmont (Cooke 1943; Poplin and Goodwin 1988:7-11). Many of the well drained to excessively well-drained soils are derived from the Tuscaloosa formation. These soils support relatively less dense vegetation. It is in these soils that one finds major stands of sand hill vegetation, including longleaf pine (*Pinus palustris*) and scrub oaks (Kohler et al. 1980:1; Shogren 1992:6).

The soils at Fort Benning reflect the geologic landforms on which they occur. There are two basic soil regimes on Fort Benning: the Sand Hill uplands and the topographically lower drainage ways. The soil surveys completed at this time by the US Department of Agriculture, Natural Resources Conservation Service (NRCS) {formerly the Soil Conservation Service (SCS)} for the Installation are for Chattahoochee and Muscogee Counties, Georgia. There is an unpublished soil survey for the part of Fort Benning that is in Russell County, Alabama.

Because of the size of the Installation and the scale of the soil survey maps, a detailed discussion of the soils encountered on the Fort Benning military Installation can not be included in this report. An environmental overlay map showing highly erodible soils or other soils that may inhibit development, restrict land use, or present other hazards has been prepared for the Master Planning Office, Directorate of Facilities, Engineering, and Logistics (DFEL), Fort Benning. The Muscogee County, Georgia, Soil Survey and Chattahoochee County soil survey are available for review at the Fort Benning Conservation Branch. An "Engineering Soils" map is included in the Fort Benning Terrain Analysis, which is also available for review at the Environmental Management Division.

3.1.3 Vegetation

Fort Benning is included within the broad, oak-hickory-pine forest area of the southeastern United States. However, as a result of changes in agricultural and forestry practices and of land ownership through the past 150 years, the original vegetative cover has been modified to a predominantly coniferous or coniferous/deciduous mixture.

Vegetated acreage on Fort Benning consists of approximately 16,000 acres of lawn and grassed areas, 3,000 acres of open land and old-field, and approximately 161,000 acres of woodland. Loblolly pine (*Pinus taeda*) and longleaf pine (*Pinus palustris*) are the principal conifers on the Installation and comprise approximately 64,000 acres of the woodlands. The remaining 97,000 acres of woodland are comprised of approximately 21,000 acres of mixed pine and hardwoods, and 76,000 acres of hardwood forest (Georgia Forestry Commission, 1981).

Four basic ecological terrain types make-up the hardwood areas. The scrub oak ridge type and oak-hickory type are characterized by the oaks (*Quercus spp*) – red oak (*Quercus rubra*), white oak (*Quercus alba*), and black oak (*Quercus velutina*), blackgum (*Nyssa silvatica*), dogwood (*Cornus florida*), hawthorn (*Crataegus flava*), and numerous herbaceous plants. These two types produce mast and seed for white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), and squirrel (*Sciurus spp*).

The bottomland hardwood type is found along stream borders and floodplains. The principal species found there are sweetgum (*Liquidamber styraciflua*), blackgum (*Nyssa silvatica*), water oak (*Quercus nigra*), laurel oak (*Quercus laurifolia*), swamp chestnut oak (*Quercus michauxii*), American holly (*Ilex opaca*), and loblolly pine (*Pinus taeda*). This type provides excellent escape cover for game. In addition, large quantities of browse, seeds, and mast are produced here.

In the wooded swamp type, the predominant species are tupelo gum (*Nyssa ogeche Bartr.*), blackgum (*Nyssa silvatica*), and sweetleaf (*Symplocos tinctoria*) as well as grasses, sedges

(*Cyperacea spp*) and rushes (*Juncacea spp*); water lilies (*Nymphaeaceae spp*) grow in some of the shallow ponds. Vines such as greenbriar (*smilax spp*) also occur here and are good browse plants for deer.

Vegetation in built-up areas mostly consists of cultured, grassed areas or lawns, and either trees which were left at the time of development for landscaping or have come in through natural regeneration or man made landscaping. Most open sites around the buildings are subject to occupants' foot traffic and occasional vehicle traffic for building operation and maintenance. The landscaping is generally well maintained and manicured.

3.1.4 Ground Water

The state of Georgia possesses some of the largest and purest ground water aquifers in the world. Fort Benning is in the Coastal Plain hydrogeologic province of Georgia and Alabama, whose principal ground water source is the Cretaceous aquifer system. The recharge area for these aquifers is the Sand Hills area, which includes Fort Benning (Georgia Department of Natural Resources 1986).

The Georgia Geologic Survey identifies the Cretaceous aquifers in the Fort Benning area as the A-3 through A-6 aquifers. The confining strata above and below the aquifers are designated C-3, C-4 and C-5. Aquifer A-6 is part of the upper Tuscaloosa and the overlying Lower Eutaw formations. This aquifer typically has the capacity to yield approximately 50 gallons of water per minute (gpm) near the Fall Line, but yields increase down dip to approximately 700 gpm near the southern Installation boundary. Aquifer A-6 water is usually of uniformly good quality.

Aquifer A-5 is part of the basal sedimentary sequence of the Blufftown Formation. The A-5 water is more acidic than that of A-6. Some sedimentary lenses of the A-5 aquifer contain gypsum crystals, which result in a high sulfate content. Aquifer A-4 is in the upper sedimentary sequence of the Blufftown Formation, and it has increasing amounts of dissolved solids, sodium and bicarbonate concentrations down dip. Both the A-5 and A-4 aquifers have low yields and are usually combined with other aquifers to produce adequate supplies.

The A-3 aquifer correlates with the Cusseta Sand Formation. Yields from this aquifer range from one to 10 gpm in the area around the Installation. This aquifer is not considered an individual source aquifer (Pollard and Vorhis 1980).

Typical well completion techniques and hydrologic conditions for the Fort Benning area are exemplified by the Georgia Geologic Survey observation well 06S001 at Lawson Field. This is a 12 inch diameter well drilled to a depth of 568 feet that is producing from three aquifers; A-4, A-5 and A-6. Water levels in this well have fallen nearly 31 feet between 1964 and 1989, with nearly 20 feet of the decline occurring since 1980 (Peck, *et al.* 1990).

Water wells in the Quaternary alluvium of Upatoi Creek typically yield 10 to 100 gpm of good quality water. These wells produce best in Holocene (Recent) age alluvium that is hydrologically connected to the creek.

Groundwater depths vary throughout the Installation; two feet near Upatoi Creek to more than 100 feet in surrounding elevations. On average, depths in the main cantonment area vary from 20 to 40 feet; the exception is the area west of the Jump Towers that can be as shallow as 12 feet.

3.1.5 Surface water

The Chattahoochee River dominates the surface water regime at Fort Benning. The Chattahoochee, along with the Flint River to the east, is major components of the Apalachicola River drainage basin of eastern Alabama, western Georgia and the Florida panhandle. The principal tributaries of the Chattahoochee at Fort Benning are Upatoi Creek on the Georgia side and Uchee Creek on the Alabama side. The Upatoi Creek is the source of drinking water for Fort Benning.

Most streams found within the Installation boundaries drain into the Chattahoochee River through Upatoi and Uchee creeks. A very small area in the southeast corner of the Installation drains into the Flint River Basin to the east. These two rivers join to the south and flow into the Gulf of Mexico.

The largest body of water associated with the study area is the Chattahoochee River, a major perennial stream that flows broadly over extensive lowlands in a southerly direction, separating the Georgia and Alabama portions of Fort Benning. Several dams have been built on the Chattahoochee River upstream and downstream of Fort Benning to regulate river flow and produce hydroelectric energy. The northern portion of Lake Walter F. George, a 45,000-acre impoundment on the Chattahoochee River, extends into the southwest portion of the Installation. Numerous oxbows, abandoned meander channels, isolated ponds, and wetland areas are found along the Chattahoochee.

The River Bend area, which is part of the Lake Walter F. George impoundment, constitutes the only lake on the Installation. The Installation has only one pond over 50 acres in surface area: King's Pond. There are numerous smaller ponds including Weems, Schley, Victory, Twilight, Clear Creek, Snelling, Averetts, Hedley's, Kirk's, Sand Hill, Armory, Upper Kings, Harp's, and Russ.

Section 303(d) of the 1972 Clean Water Act requires states to list impaired waters that do not meet state water quality standards. Once listed, a priority ranking will be established and a Total Maximum Daily Load (TMDL) will be developed. A TMDL is a report that specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Currently, there are three draft TMDLs for the Middle Chattahoochee-Lake Harding Watershed: two for PCBs and one for fecal coliform. Draft TMDLs for the Lower Chattahoochee Watershed are as follows: one for chlordane, one for PCBs, and one for dissolved oxygen. There are a number of water bodies in both the Middle and Lower Chattahoochee Watersheds for which TMDLs have not been developed. Parameters of concerns include pollutants from urban runoff, combined sewer overflow, or unknown sources. These pollutants include copper, fecal coliform, lead, PCBs, pesticides, and pollutants that contributed to organic enrichment, low dissolved oxygen, and fish consumption guidance.

TMDLs have been developed for six impaired waters on Fort Benning. These are the Chattahoochee River (Upatoi to Railroad at Omaha), Hitchitee Creek, Pine Knot Creek, Tiger Creek, Little Juniper Creek, and Little Hitchitee Creek. The parameter of concern for all but the Chattahoochee is sedimentation; the parameter of concern for the Chattahoochee is fecal coliform. These draft TMDLs may be reviewed at the EMD office. Two additional Fort Benning waters have been proposed for listing as impaired due to sedimentation; these are Upatoi Creek and Randall Creek. The two WWTPs discharge at two points along the southern bank of Upatoi Creek (Chauvey, August 2002).

3.1.6 Wetlands

A mapping overlay of the wetland areas on Fort Benning has been completed. These overlays are available at the Fort Benning DFEL for review. This map was generated from data gleaned from National Wetland Inventory maps (also available at DFEL for review), USDA Natural Resources Conservation Service county soil surveys, and the Terrain Analysis for Fort Benning. It is general and should be used only for planning purposes. There are no jurisdictional wetlands at the locations of the existing wastewater treatment plants or the existing water treatment plant. A check for wetlands is required prior to activities on the rest of the systems.

3.1.7 Fisheries

Stocked and native fish populations of Fort Benning's waters include blue catfish (*Ictalurus catus*), bass (*Micropterus sp.*), crappie (*Pomoxis sp.*), bluegill (*Lepomis macrochirus*), and an assortment of non-game fish.

3.1.8 Wildlife

Fort Benning is inhabited by a wide variety (approximately 345 species) of wildlife species. Approximately 131 species of non-game birds have been observed at Fort Benning. Hunting and fishing are allowed on the Installation and are regulated by the Conservation Branch personnel, the Georgia Department of Natural Resources, the Alabama Department of Conservation and Natural Resources, and the US Fish and Wildlife Service (USFWS). Primary game species are white-tailed deer (*Odocoileus virginianus*), bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus sp.*), and squirrel (*Sciurus sp.*).

3.1.9 Species of Conservation Concern

The most recent listing provided by the Fort Benning Conservation Branch indicates that 96 "Georgia State, Alabama State and Federal Threatened, Endangered, Candidate, and Special Concern Animal and Plant Species" are known to occur on Fort Benning. This list includes 8 bird species, 9 reptile species, 4 amphibian species, 4 mammal species, 7 fish species, 4 mussel species, and 60 plant species (see Appendix B).

The Red-cockaded woodpecker (RCW) (*Picoides borealis*) is the most prominent Federally endangered species on the Installation. The RCW is known to coexist with humans and their activities. The Installation encompasses prime RCW habitat and contains over 2,000 cavity trees,

including cavity trees within impact/dud areas. Through proper management this species is compatible with most of the Installation's operations and maintenance activities. Fort Benning is currently managing the RCW in accordance with the *1994 Army Guidelines for RCW Management*; the Installation plans to move to the *1996 Army Guidelines for RCW Management*.

On September 22, 1994, the United States Department of the Interior, Fish and Wildlife Service issued a "Jeopardy" Biological Opinion (JBO) for the RCW, pursuant to Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543), for the effects of military training and associated activities at Fort Benning. Fort Benning has prepared an Endangered Species Management Plan (ESMP) for the RCW and each of the other Federally listed species found on Fort Benning. The Integrated Natural Resource Management Plan (INRMP) for Fort Benning was completed in 2001. The INRMP replaces previously separate natural resource management plans and incorporates provisions from the ESMP.

3.1.10 Migratory birds

It is unlawful to harm migratory birds or their habitat in any manner listed in Title 16, subchapter II, paragraph 703 of the Migratory Bird Treaty Act (MBTA) as amended. During their nesting season (this season may vary from species to species) migratory birds require adequate protection in accordance with the MBTA. The vast majority of nongame birds, and many species of game birds such as waterfowl, observed within Fort Benning are considered migratory birds.

3.1.11 Climate

Fort Benning is located approximately 170 miles north of the Gulf of Mexico and 225 miles west of the Atlantic Ocean, with a climate classified as humid continental. The seasons are well defined, with hot, humid summers and mild winters. The annual mean temperature is slightly over 65 degree Fahrenheit.

The coldest month is usually January and the warmest usually July. Winter temperatures are affected by frequent alternation between continental influence (with cold winds sweeping down from Canada over the Great Plains and the Midwest region through Georgia) and maritime influence (with southerly winds bringing tropical Gulf air over the area).

Summer months' temperatures are predominantly affected by maritime influence and seldom vary. Prevailing winds are from the northwest and average 7 miles per hour. The sudden rise of Pine Mountain and associated ridges reaching over 1000 feet in elevation 21 miles north of Fort Benning is a trigger mechanism for convectively unstable maritime tropical air flowing from the south, causing it to release its energy in thunderstorms.

The Chattahoochee River plays a major role in the formation of ground fog. Ground fog will form on the average 40% of the days of each year (this does not include ground formation associated with precipitation or low ceilings). The frequency of ground fog occurrence is at a maximum from late spring to early fall, primarily during the period May through October.

3.1.12 Air Quality

Fort Benning is located in the Columbus-Phenix City Interstate Air Quality Control Region (AQCR). The US Environmental Protection Agency (US EPA) classifies this AQCR as “attainment/unclassifiable” for all national ambient air quality standards for all criteria pollutants, with the exception of lead. The nonattainment classification for lead is due to the presence of GNB, Inc., a lead smelting facility. However, the nonattainment status pertains only to a radius of 2.3 kilometers around GNB, Inc. Fort Benning does not fall within this radius.

According to the 1997 Air Emission Inventory (AEI) Fort Benning is a major source of criteria pollutant emissions. The major source determination is due to the potential emissions of the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), particulate {particles with diameters of 10 micrometers or less (PM-10)}, sulfur dioxide (SO₂), and volatile organic compounds (VOCs). Heating units and stationary internal combustion engines provide the greatest potential for emitting criteria pollutants.

The major source designation triggers the provisions of 40 CFR 52.21, *Prevention of Significant Deterioration (PSD)*. The PSD provisions require Fort Benning to assess new emission units to determine if their operation constitutes a major modification as defined in Georgia Rules for Air Quality Control. If a new unit fits the definition of a major modification then a construction and operating permit is required for the unit. The major source designation also subjects Fort Benning to the Clean Air Act (CAA) Part 70 Operating Permit Regulations, usually referred to as Title V. Title V only addresses stationary sources of air pollution.

The Title V Permit application was submitted to the Georgia EPD in 1996. Fort Benning received an Internal Draft Permit in May 2002; negotiations are ongoing between Fort Benning and the GA EPD regarding permit conditions (Gustafson May 2002).

The future of new air emission units on Fort Benning depends on the air quality in the community. Muscogee and Chattahoochee counties are on the threshold of becoming non-attainment areas. If they are so designated, Fort Benning can expect stricter rules regarding new stationary air emission sources. Existing air emissions sources may be “grand fathered” as long as no modifications take place on the units. Fort Benning generally does not conduct prescribed burning during the high ozone months (May-September) as a voluntary measure to enhance air quality.

Section 112(r) of the CAA Amendments of 1990 requires the EPA to publish regulations focusing on the prevention of chemical accidents. Under the CAA requirements, facilities must identify and assess their chemical hazards and carry out certain activities designed to reduce the likelihood and severity of accidental chemical releases. On June 20, 1996, the EPA published the final rule for CAA 112(r), otherwise called the Risk Management Plan Rule (RMP Rule). An estimated 64,000 facilities are subject to the RMP Rule based on the quantity of regulated substances they have onsite. These facilities are required to implement a Risk Management Program and submit a summary of the program (called the risk management plan) to a central location specified by the EPA (US EPA 2002). Fort Benning has a Risk Management Plan (RMP) in place; this plan was found to be in compliance during a GA EPD inspection in 2000 (Gustafson May 2002).

3.2 HUMAN ENVIRONMENT

3.2.1 History

Humans have lived on what is now Fort Benning for thousands of years. The earliest settlers were Paleoindians who arrived between 10,000 and 9,500 years ago after the end of the last Ice Age. About 1,500 years ago, Woodland Period Indians lived along the banks of the Chattahoochee River, Upatoi Creek and their tributaries. In the late 1500's Indian refugees settled the valley and eventually came to be called Creeks by the British. Settlement by Americans of European and African descent began in the late 1790's and by 1840 nearly all the Indians had been removed to Oklahoma (Wood 1981).

In 1918, land was purchased for the establishment of a temporary 50-acre tent encampment, named Camp Benning in honor of General Henry Lewis Benning, a Confederate Army hero from the area. The US War Department selected Camp Benning to serve as the new home for the US Army Infantry School of Arms (later to become the USAIS) upon the closing of that facility at Fort Sill, Oklahoma. The addition of the Small-Arms Firing School from Camp Perry, Ohio, and the Machine Gun School from Camp Hancock, Georgia, consolidated infantry training in a single location. In the fall of 1918, the School's commandant, Colonel Henry Eames, selected a new site nine miles south of Columbus, on a plateau above the Chattahoochee River, for the establishment of Camp Benning. With the construction of new facilities and relocation of the US Army Infantry Board (USAIB) (an agency for material testing) from Fort Leavenworth, Kansas, Camp Benning began to grow.

On January 9, 1922, Congress authorized retention of Camp Benning as a permanent military post, by War Department General Order Number 1. On February 8, 1922, Congress redesignated the Installation Fort Benning. A new plan for the post was prepared in 1924, and focused on construction of permanent facilities.

World War II brought significant changes to Fort Benning and to the philosophy and operation of the USAIS. The birth of the airborne infantry concept resulted in the performance of infantry parachute test jumps over Lawson Airfield. The immediate success of such testing led to the establishment of the Parachute School in 1942, which began troop training at the rate of 4,000 men per month.

With increased demand by the war effort for combat officers, Fort Benning met the challenge with the organization and establishment of the Officer Candidate School (OCS), which operated from 1941 to 1946. When the Korean Conflict escalated, the OCS was re-opened to train junior officers. In 1967, under demands of the Vietnam Conflict, the non-commissioned OCS was established to provide squad and fire team leaders. A major reorganization occurred following W.W.II, in 1949, when all of the units and activities of Fort Benning were consolidated under one command, forming the USAIC. Concurrently, the two positions of Commanding General of the Post and Commandant of the USAIS were combined.

Several new units were established in the 1950s, including the Ranger Training Command and the US Army Infantry Human Research unit, designed to study human response to training procedures

and techniques. Housing facilities, a school, bachelor officer quarters (BOQ), and Martin Army Hospital were built during this decade to improve the quality of life at Fort Benning.

The escalation of the Vietnam Conflict during the 1960s shifted the emphasis of instruction at the USAIS toward combined-arms training. The cessation of US military involvement in Vietnam was followed by the re-direction of American military organization toward an all-volunteer army. At Fort Benning, the Modern Volunteer Army Program was initiated and in 1973, the 197th Infantry Brigade at Kelley Hill became the Army's first all-volunteer unit and the first combined-arms team under the Strategic Army Forces concept. In 1974, the Army announced that Advanced Individual Training for infantry personnel would be conducted at Fort Benning.

3.2.2 Cultural Resources

The primary opportunity for recording historic and prehistoric cultural resources on Fort Benning is through compliance-related, Federally funded projects. Tracts of land are intensively surveyed for cultural resources, including archeological sites and historic structures, prior to any disturbing activities. Archeological sites with components perhaps 10,000 years old through recent 20th century components have been discovered. There is an ongoing program to determine the historical significance of structures as they reach 50 years old. For management purposes, all structures that are 50 years or older and all archaeological sites on Fort Benning are considered eligible for listing on the *National Register of Historic Places* (NRHP) until determined otherwise through formal consultation with the State Historic Preservation Officers (SHPOs) of Alabama or Georgia and other stakeholders. Fort Benning has completed an Integrated Cultural Resource Management Plan (ICRMP), and is developing its historic preservation component to implement the Army Alternative Procedure for 36 CFR 800.

Within the past 15 years, most of the land surveyed for cultural resources on Fort Benning, especially archeological resources, has been related to timber harvests and subsequent replanting. Land has also been surveyed prior to planned mechanized infantry training activities (MITA), as well as timber harvests prompted by southern pine beetle infestations in endangered species habitat, in advance of endangered and threatened species habitat improvement, and in advance of proposed Installation construction as identified in Fort Benning's Master Plan. Known historic cemeteries on Fort Gordon are maintained by the Installation.

Fort Benning is in the process of mapping all known archeological sites and developing a Geographic Information System (GIS) database for these sites. The data developed thus far have been used to prepare environmental overlays showing historic and archaeological sites identified on the Installation.

Ground disturbing activities associated with the water and wastewater systems are confined to the area that is currently dedicated to utility lines; these areas are generally highly disturbed. There may have been unknown cultural resources within these areas that were lost during initial construction of the utility systems. Maintenance personnel are instructed to stop work and contact the Fort Benning EMD if they encounter items that appear to have cultural resource significance.

Fort Benning resources built prior to 1935 were documented by a 1987 Historic Resource Survey and was followed up by the 1997 *Fort Benning Historic Resources Survey Update*, which documented resources built from 1935 through 1952, and some pre-1935 buildings that were not included in the 1987 survey. However, these surveys did not include Fort Benning's 40 year old or older wastewater collection and treatment system or water treatment and distribution system (Fort Benning Form 144-R March 2002).

Known historic properties in the area of potential effects of privatization are: the Main Post Historic District (eligible for the NRHP), Lawson Field Historic District (considered eligible for the NRHP), Parachute Jump Tower Historic District (considered eligible for the NRHP), Army Ground Forces Board #3 Historic District (considered eligible for the NRHP), and the Ammunition Storage Area Historic District (considered eligible for the NRHP). Known historic structures, which are part of the privatization package, are buildings 272 (Pump Station), and 4290 (Building for lift station #3); these are considered eligible for the NRHP, and building 244 (Water Treatment Plant), which is considered a contributing property the Main Post Historic District (Jones, July 2002).

3.2.3 Land Use

The cantonments, family housing, and other developed areas of Fort Benning occupy approximately 9,000 acres or five percent of the Installation. Separate cantonment areas consist of the main cantonment area ("Main Post"), a series of remote built-up sites, remnant sites from a World War II mobilization complex (Harmony Church), and fully developed areas (Sand Hill, Kelley Hill, and Lawson Army Airfield). Other separate sites include the Shopping Mall, Martin Army Hospital, Custer Terrace Family Housing Area, and the Uchee Creek Family Camp Site and Marina, as well as other isolated remote sites.

The remainder of the Installation consists of recreation areas, training areas, parachute drop zones, helicopter landing and pick-up zones, weapons firing ranges, impact zones, exclusion areas, and maneuver land. These areas are generally undeveloped with exception of field training support facilities such as bleachers, stands, latrines, observation towers, etc. The maneuver land totals 128,317 acres or 71 percent of the Installation. Most of this land is typical of the surrounding area, with low rolling, forest-covered hills divided into 198 separate training compartments. These areas are operated, managed and maintained by various training organizations, including the Directorate of Operations and Training, and the DFEL.

3.2.4 Socioeconomics

Note: The information for section 3.2.4 was compiled from data taken from the US Census Bureau's home page at <http://www.census.gov>.

The Columbus, Georgia, Metropolitan Statistical Area (MSA), which consists of Muscogee, Harris, and Chattahoochee Counties, Georgia and Russell County, Alabama, encompasses approximately 4,125 square miles. The majority of the social and economic effects of Fort Benning are felt in the Columbus MSA, but some impacts are experienced in the secondary area of influence, which consists of following counties: Barbour, Lee, Macon and Russell, Alabama; and Marion, Stewart, Talbot, and Webster, Georgia. This secondary study area encompasses

13,369 square miles. Certain pertinent data are presented below for the Columbus MSA, with broader data presented for the entire 11 county area.

In 1980, the Columbus MSA had a population of 254,660. This figure increased to 260,860 by 1990 and to 274,624 by 2000, representing increases of 2.43 percent and 7.83 percent respectively from 1980. The majority of these people reside in Columbus, Georgia (Muscogee County), the second largest city in the state. The major urban center in the Alabama portion of the study area is Phenix City (Russell County), located across the Chattahoochee River from Columbus, Georgia. The secondary study area had a 1980 population of 402,598. The population for this area was 418,382 in 1990 and 464,143 in 2000, indicating increases of 3.92 percent and 15.2 percent respectively from 1980.

In 2000, the largest single ethnical group in the area is Caucasian, accounting for 51.7 percent of the population. African Americans accounted for 44.7 percent of the population, and represent the predominant ethnic group in three counties (Macon, Alabama; and Stewart and Talbot, Georgia) in the study area. Hispanic Americans accounted for 2.96 percent of the population and Asian Americans represented 0.65 of the population in the study area. A majority of the population resides in urban areas because of the large population residing in the Columbus MSA; seven of the eleven secondary study area counties have a majority of their population living in rural settings.

The Columbus MSA supplies most of the employment opportunities in the study area. More than 14,000 workers commute to Columbus, and approximately 7,000 commute to Fort Benning daily. The MSA serves as a regional trade, service, retail, wholesale, medical and cultural center, serving not only the city, but also the surrounding rural area. From 1970 to 1991, total employment in the secondary study area increased 23.42 percent, rising from 169,772 employees in 1970 to 209,535 in 1991. This increase has been particularly strong since 1980. Employment increases have been particularly strong in the retail trade; finance, insurance and real estate; and services industries. The major sources of employment are the Federal and local governments, service industries, manufacturing, and retail trade. The unemployment rate of the study area has fluctuated from a low of 4.2 percent in 1970, to 7.9 percent in 1980, 6.7 percent in 1990, and 7.3 percent in 2000.

In 2000, Fort Benning employed approximately 7,152 civilian personnel. This figure represents a 16.4 percent decrease from the 1990 work force of 8,330 personnel. Fort Benning civilian employees provide a vast array of professional, technical, administrative, craftsmen, skilled labor jobs in support of the various missions. Currently, 58 percent of Fort Benning employees are paid from appropriations (General Schedule and Wage Grade); the remaining 42 percent are either contracted or paid from non-appropriated funds. A significant number of construction workers are also employed daily by construction contractors. In 2000, approximately 101 million dollars were spent on various construction contracts on Fort Benning. In 2000, the impact of Fort Benning employment (to include military pay) on the MSA economy was estimated at approximately 1.7 billion dollars (Fort Benning Command Data Summary 2001).

Bureau of Economic Analysis (BEA) employment projections for the 11 county area indicate very little growth is expected from 1990 to 2035 (only 12.33 percent over that 45-year period). The major increases in employment are expected to occur in the services; finance, insurance and real estate; and retail trade industries. Some growth may also be experienced in the transportation and public utilities industry as well as the construction industry. Overall, manufacturing employment is expected to decline, mainly because of changes in the textile industry, although increases in employment in the durable good sector, specifically in the primary metals industry, are expected.

3.2.5 Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority populations and Low-Income populations was issued on February 11, 1994. The EO requires Federal agencies to consider disproportionately high and adverse environmental effects on minority and low-income populations. A presidential memorandum that accompanied the EO specified that minority and low-income populations be given access to information and opportunities to provide input to decision-making on Federal actions.

There are fragments of the population within the Columbus MSA which could be classified as “minority” or “low income” populations and which would be entitled protection under EO 12898. However, none of these potential “minority” or “low income” populations would be found in the immediate vicinity of the proposed action or any of the alternatives. Fort Benning does not house any population that could be classified as “minority” or “low-income”.

3.2.6 Utilities

Water Supply/Treatment

Upatoi Creek has a mean annual flow of 451 cubic feet per second (cfs) and is the major supplier of water for Fort Benning. The water from the Upatoi Creek is treated at the water treatment plant and is distributed throughout Main Post, Kelley Hill, Sand Hill, Harmony Church and the housing areas via a network of lines ranging in size from 3 to 20 inches in diameter. Water supply for all other areas of the Installation is provided by wells or is transported by water buffaloes (600-gallon tanks on transport trailers). See section 2.2.1 for more information.

Georgia requires Fort Benning to operate under a Drought Contingency Plan. This plan reduces water usage during periods of drought. This plan can be reviewed at the EMD office.

Wastewater Collection and Treatment

There are two WWTPs that serve the Installation with a combined capacity of 16 mgd. Currently, approximately 50,000 gallons per month of anaerobically digested sewage sludge is land applied at several application sites on the Installation (Wilkins, August 2002). The wastewater collection system consists of approximately 126 miles of 6- to 24-inch vitrified clay, cast iron, and concrete lines. Lift stations are required to move wastewater flows across the rolling terrain of Fort Benning. See section 2.2.2 for more information.

Energy Systems

Fort Benning's electrical distribution system was privatized on 1 June 1999; the Flint Electric Membership Corporation (FEMC) is the new owner of the system. Electrical power is supplied by Georgia Power Company via two 115 kilovolt (KV) feeders into its substation on Marne Road. Voltage is transformed, metered, and fed to the adjacent FEMC-owned substation. Transmission lines leave this substation to supply power to the cantonments, family housing, and other developed areas of the Installation. Electricity is also provided to training facilities located outside the cantonment areas in the range and training area of the Installation. There is no electric power generation system for the entire Installation, but emergency power generators are in place at critical locations, such as the airfield, control tower, hospital, communications center, stockade, water treatment plant, transmitter sites, radio beacon sites, and steam plants.

Fort Benning's natural gas distribution system was privatized on 1 February 2002; the United Cities Gas Company (UNGC) is the new owner of the system. Mission and loads at the Installation determine the volume of natural gas supplied by UNGC. Natural gas supplies the majority of non-mobile fuel requirements at the Installation. Fuel oil is used as a backup fuel in cases where boilers are greater than five million British thermal units (BTUs), as well as the programmed primary fuel for newly constructed boilers.

3.2.7 Hazardous and Toxic Materials/Waste

Fort Benning's Hazardous, Toxic, and Solid Materials/Waste Management program has three major functions: (1) storage, handling and disposal; (2) waste minimization; and (3) remediation. A detailed discussion of these programs is presented in the Installation Hazardous Waste Remedial Actions Program (HAZWRAP) and the Hazardous Waste Management Plan (HWMP). These documents are available for review at the Fort Benning DFEL Environmental Management Division, Building 6, Room 310, (706) 545-7570.

In July 1998, a PCB management plan was prepared for Fort Benning and is available for review at the Environmental Management Division. This plan provides details regarding the implementation of the applicable Federal and state laws and regulations. The Fort Benning electrical distribution system included PCB and PCB-contaminated transformers when privatized in June 1999. There is no known PCB containing equipment associated with the water and wastewater systems.

It has been determined through Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) that there are Solid Waste Management Units (SWMUs) on the Installation. A SWMU is defined by the Hazardous and Solid Waste Amendments (HSWA) of 1985 as "any unit at a facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid and/or hazardous wastes." SWMUs identified on the Installation include gas stations, closed vehicle wash racks, grease racks, sanitary landfills, paint shops, areas of pesticide contamination, petroleum, oil, and lubricant (POL) contaminated areas, and other industrial areas. The most widespread contaminants of concern include gasoline (BTEX), paint, and Trichloroethylene (TCE). Using Defense Restoration Account as well as Operation and Maintenance Army funds, Fort Benning has a very proactive program to identify, investigate, characterize and remediate these SWMUs.

The following SWMUs are located in the area associated with the water and wastewater systems:

Wastewater Treatment Plant No. 1 (FTBN-041): The plant consists of a comminutor, aerated grit chamber, four primary clarifiers, two parallel trickling filters with recycle, secondary clarifiers, a chlorine contact chamber, and sludge drying beds. The wastewater plant is active and operates under a National Pollutant Discharge Elimination System (NPDES) Permit No. GA0000973. It has been determined that this site is a RCRA no further action site.

Wastewater Treatment Plant No. 2 (FTBN-042): Plant No. 2 is primarily a smaller version of the Plant No. 1. It also has a trickling filter for secondary treatment, but has one less digester. This wastewater treatment plant is active and operates under NPDES Permit No. GA0000973. It has been determined that this site is a RCRA no further action site.

Water Treatment Plant Sludge Beds (FTBN-044): There are 11 sand drying beds for dewatering sludge from the sludge holding lagoon. Each drying bed is 91 feet long and 60 feet wide. There have been no releases at this site. It has been determined that this site is a RCRA no further action site.

Note: Currently, several sludge application sites are in use on Fort Benning. These sites are monitored monthly in order to evaluate compliance with Fort Benning's NPDES permit number GA0000973 (Wilkins, August 2002). The solicitation allows for the new owner to use several of the sludge application sites on Fort Benning, provided only sludge from Fort Benning (on-post treatment plants) is applied and is coordinated with the EMD, and that the sludge sites are operated and maintained in compliance with the NPDES permit. These sites are located on land that will not be transferred as part of the privatization package.

There are also SWMUs that encroach on the area that is currently dedicated to utility lines and maintenance on the water and wastewater systems. Consequently, maintenance of service lines must be undertaken with caution in these areas in the event contaminated groundwater or soil is encountered. Coordination with Fort Benning and the Georgia Department of Natural Resources (GADNR) is required before any ground disturbance is undertaken in a SWMU.

Normal operation of the water and wastewater system at Fort Benning requires the use of certain hazardous materials. The following materials are stored and used in bulk at the WTP in aboveground storage tanks (ASTs): Sodium Chlorite and Aluminum Sulfate. These chemicals are stored in 5,000 gallon ASTs (Parsons, 14 August 2002; USACE, August 2002a).

The following materials are used for wastewater treatment on Fort Benning: Chlorine gas in one-ton cylinders (1-2 cylinders stored at each WWTP), Sodium Hypochlorite (50 lb drums) stored at wells, and organic degreaser, which is used at lift stations (Hudson, August 2002; USACE, August 2002b).

3.2.8 Solid Waste

Landfills

Fort Benning generates uncompacted solid waste at an estimated rate of 1,200-1,500 tons per month. The Installation does not have a permitted sanitary landfill in operation; the last one was closed in January 1997. Currently, all of Fort Benning's sanitary waste is transported to a state permitted facility located off-post.

Recycling

Recycling reduces disposal cost, conserves natural resources, and minimizes environmental problems associated with land disposal. Fort Benning's policy on recycling is governed by the April 3, 1996 Policy Memorandum #96-13, entitled "Qualified Recycling Program". Under this policy, recyclable materials generated by contractors must be turned in to the Defense Reutilization Marketing Office (DRMO) at Fort Benning for processing.

3.2.9 Pesticides and Herbicides

In accordance with Army Regulation 200-5, only pesticides and herbicides approved for use are allowed and must be applied by a certified applicator. The amount and type of pesticides and herbicides applied on Fort Benning must be approved by and reported to the EMD Pest Management Manager; this data is then included in a report for the total amount of chemicals used annually on the Installation. Anyone who applies these chemicals on a DOD Installation must be properly certified in accordance with DOD policies. Pesticides and herbicides approved for use are listed in the Fort Benning Pest Management Plan.

3.2.10 Asbestos Management

All Fort Benning facilities scheduled for maintenance work, remodeling, or demolition are routinely inspected for asbestos containing materials (ACM). Where required for human safety or by law, ACM is removed through outside contracts with licensed, specialized firms. Removed ACM is properly transported off post and disposed in licensed facilities. Some of the pipes in the water distribution system contain asbestos; the exact amount of asbestos pipe is unknown (Fincher May 2002).

Of the 47 buildings and structures proposed for transfer with the water and wastewater systems, 19 were surveyed for ACM: 16 were found to have no ACM, 2 had no ACM insulation (other materials weren't tested), and 1 was found to have ACM in the pipe insulation (Clark, 24 May 2002). The positive ACM survey result occurred in building 2855. This is WWTP #1 on Marne Road (USACE, August 2002b).

Buildings and structures built prior to 1981 are presumed to contain ACM if no survey results are available (US Department of the Army, 17 January 2002). Of the buildings and structures not surveyed for ACM, 19 are presumed to contain ACM based on the date of construction (USACE, August 2002a, b).

3.2.11 Lead Based Paint Management

LBP surveys have not been performed for the 47 buildings and structures that are proposed for transfer with the water and wastewater utility systems (Clark, 24 May 2002). Buildings and structures with painted surfaces, which were built prior to 1978, are presumed to contain LBP (US Department of the Army, 17 January 2002). Due to the date of construction, it is presumed that 37 of the buildings and structures contain LBP (USACE, August 2002a, b).

3.2.12 Unexploded Ordnance

The range of ammunition used on Fort Benning for training purposes is very broad; it virtually encompasses every weapon system from small caliber individual weapons to air delivered 500-pound bombs. Live fire training is conducted in designated ranges and training areas, with projectiles directed towards designated impact areas. The main impact areas are compartments A-20 and K-15 with 1,859 and 1,872 acres respectively. Smaller isolated impact areas are found in the periphery of the main impact areas and within the Malone Range Complex.

Impact areas are the intended repository sites for the majority of Fort Benning's unexploded ordnance (UXO). These areas are clearly marked "off limits" and their road/trail accesses are blocked. UXO is rarely found outside of the designated impact areas; the chance of encountering UXO increases proximate to an impact area. Fort Benning military, civilian personnel, and the community are routinely advised and reminded not to handle any suspected UXO, and to report their location to the Explosive Ordnance Demolition Detachment or to the Director of Public Safety via 911 call. UXO warning articles are periodically published in the Fort Benning Bulletin, as well as in the publications: "The Bayonet" and "The Benning Leader".

3.2.13 Radon

Radon is an invisible, odorless, radioactive gas produced by the decay of uranium in rock and soil. Radon decays into radioactive particles, which may cause damage to lung tissues and increase the risk of lung cancer when inhaled. A radon gas survey, which included 650 Fort Benning priority buildings, has been conducted. This survey resulted in an observed measurement of 0.04 pCi/L, which is an acceptable reading in the Sandhills physiographic region of Georgia. Only one site was recommended for re-survey. However, because of logistical impracticality this site was not resurveyed.

Radon information provided by Region IV, EPA and statistics maintained by the State of Georgia DNR suggest that there are no regional concerns and that there is little potential for radon occurrence (above "concern" level threshold of 0.4 pCi/l) in the project areas.

3.2.14 Radioactive Substances

Radioactive substances are present in a variety of equipment used by military units and other organizations stationed and operating on the Fort Benning military Installation (e.g., night vision equipment and radiology equipment). The Infantry Branch Safety Office (IBSO), Directorate of Public Safety, maintains a complete equipment inventory. Information pertaining to the nature and location of this equipment is sensitive in nature and can only be obtained through proper clearance procedure, on a need to know basis. There are no known radioactive substances stored or associated with the utility systems' infrastructure for transfer.

3.2.15 Protection of Children

Executive Order (EO) 13045, Protection of Children from Environmental Health Risks and Safety Risks, was issued on April 21, 1997. A growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns may make them more susceptible to accidents because they are less able to protect themselves.

This EO requires that the Army and other Federal agencies make it a priority to identify and assess environmental risks that can disproportionately affect children. This EO defines environmental health and safety risks as risks to health or to safety that are attributable to products or substances that children are likely to come in contact with or ingest (such as the air they breathe, the food they eat, the water they drink or use for recreation, the soil on which they live and play, and the products which they use or to which they are exposed). Children are not likely to be present at the facilities of either system; therefore, children are not likely to come into contact with any environmental risks from these facilities, which would disproportionately affect them.

3.2.16 Pollution Prevention (P2) and Sustainable Design and Development (SDD)

The purpose of the Pollution Prevention program is to apply source reduction, recycling, or waste minimization in order to reduce releases, wastes, pollution, and costs from the Federal Government's current business practices, industrial processes, base operations, or other routine and recurring sources of wastes, pollution, or releases to the environment.

Executive Order (EO) 12873 "Federal Acquisition, Recycling and Waste Prevention" mandates policies for acquisition and usage of recycled/environmentally preferable products and services by the Federal Government. EO 12902 "Energy Efficiency and Water Conservation at Federal Facilities" and EO 13123 "Greening the Government Through Efficient Energy Management" mandate the reduction of greenhouse gas emissions and energy consumption, expand the use of renewable energy, reduce the use of petroleum, and reduce water consumption and associated energy in Federal facilities.

All Federal agencies have been directed by Executive Orders to develop and adopt the principles of Sustainable Design and Development (SDD). SDD is the design, construction, operation, and reuse/removal of the built environment (infrastructure and buildings) in an environmentally and energy efficient manner. This includes efficient use of natural resources, better performing, more desirable, and more affordable infrastructure and buildings. Synonymous with Sustainable Design is “Green Building” (Department of the Army, May 2001).

The Army has directed the US Army Corps of Engineers (USACE) to adopt SDD practices in the design and construction of Army facilities starting fiscal year (FY) 2002. All military construction (MILCON) projects will be required to meet current policies on sustainability. Guidance on appropriate SDD practices was published by USACE in May 2001 and is available in the *ETL 1110-3-491* brochure or at following web site: <http://www.cecer.army.mil/SustDesign> (Environmental Management Division 2002).

4.0 ENVIRONMENTAL CONSEQUENCES

Any activity that is undertaken on the utility systems and/or in the area surrounding the systems that has the potential to impact the environment would require the coordination with Fort Benning and the submission of a REC. The new owner would be required to submit the REC prior to any activity (routine repairs, maintenance, upgrades, construction, etc.) to the EMD for review and approval; this process can be expedited for emergency situations.

The analysis in this section for Alternative III will assume that the proposed routes (as shown in Appendix A) will be used. If the new owner uses routes other than the proposed routes evaluated in this EA, additional NEPA analysis will be required.

During preliminary analysis it was determined that none of the 3 alternatives would have an effect (i.e. no effect) on the following: environmental justice, hazardous and toxic materials and waste, pesticides and herbicides, unexploded ordnance, radon, radioactive substances, protection of children, P2, and SDD. Therefore, these areas/issues will not be examined further.

4.1 NATURAL ENVIRONMENT

4.1.1 Soils

Currently, soils may be disturbed in the event of a utility repair, upgrade or new construction. If privatized, soil disturbance will be confined to the ROWs established by the easements granted to the new owner. Soil disturbing activities are/would be subject to applicable erosion/sedimentation control laws and regulations.

Alternative I: No Action / Status Quo

The No Action alternative would not involve any construction or major soil disturbance. Temporary and minor adverse effects on soils may occur due to repair and maintenance

activities. Fort Benning would continue to use best management practices to minimize those impacts.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would not involve any construction or major soil disturbance. Temporary and minor adverse effects on soils may occur due to repair and maintenance activities; these activities would be restricted to the ROWs established by the easements. Any repairs or upgrade work would require prior approval by the Installation and coordination with the Environmental Management Division (EMD) at Fort Benning.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would result in more adverse effects on soils than Alternative I or II but would be minor, localized soil disturbance as a result of construction activities required to bring potable water onto Fort Benning and take raw sewage off the Installation for treatment at non-Federal facilities. A new water main and new sewer line would be required to link up off-post facilities with Fort Benning's existing water and wastewater systems' infrastructure. Some new pump/lift stations or modification of existing stations might also be required. Soil disturbance would be restricted to the ROWs for the new water main and sewer lines and those areas where pump/lift station modification of construction is required. The new owner would be responsible for mitigation, such as the preparation of an erosion and sedimentation control plan, and obtaining any permits from state and local authorities prior to construction.

4.1.2 Vegetation

Currently, utility lines and structures are kept free of intrusive (roots) vegetation by various means (mowing, application of herbicides and pesticides, etc.).

Alternative I: No Action / Status Quo

The No Action Alternative would result in no effect to existing vegetation. The area that is currently dedicated to utility lines and maintenance (what will become the ROW) is kept free of dense vegetation using mowing and herbicides.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no effect to existing vegetation. All ROW maintenance (mowing, application of herbicide, etc.) by the new owner will require Fort Benning approval; this would be accomplished by the new owner's submission of a REC. The new owner would be responsible for maintaining the ROWs for both systems using mowing and herbicide application. Only herbicides approved by the Installation would be allowed. Any requirement to cut or otherwise remove vegetation outside of the existing ROWs would require prior approval by the Installation and coordination with the Fort Benning EMD.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would result in minor, adverse effects on vegetation, and although a greater impact than Alternative I or II; this would be due to clearing activities for the new water main and sewer lines required to bring potable water on the Installation and take raw sewage off the Installation for treatment. There may be a loss of additional vegetation if new pump/lift stations are required. Most vegetation loss would occur in the cantonment area where water and wastewater system infrastructure are located. The new owner would be required to coordinate any proposal to remove vegetation with the Fort Benning EMD prior to conducting the work, as indicated for Alternative II above.

4.1.3 Groundwater

Alternative I: No Action / Status Quo

The No Action alternative would not involve any construction or major soil disturbance. Temporary and minor adverse effects on ground water may occur due to repair and maintenance activities.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would not involve any construction or major soil disturbance. Temporary and minor adverse effects on ground water may occur due to repair and maintenance activities.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III may result in temporary and minor adverse effects on groundwater on the installation. Groundwater may be encountered during construction activities associated with Installation of the new water mains, sewer lines, and associated structures. Additionally, temporary and minor adverse effects on ground water may occur due to routine repair and maintenance activities.

4.1.4 Surface Water

Alternative I: No Action / Status Quo

The No Action Alternative may have temporary and minor adverse effects on the surface waters, due to bypasses of untreated wastewater into the Chattahoochee River and its tributaries, which occur due to antiquated and/or malfunctioning equipment.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have minor, positive effects on surface water due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

There would be temporary and minor adverse effects on surface waters during construction of stream crossings for the new water main and sewage line, which would bring potable water onto Fort Benning and take raw sewage off the Installation for treatment (see Appendix A). Stream or river crossings would require the new owner to coordinate with the US Army Corps of Engineers (USACE) and mitigate as necessary. The new owner would be responsible for obtaining the necessary permits and preparing an erosion and sedimentation and erosion control plan to prevent adverse effects on any affected water bodies. The new owner would be responsible for other mitigation, such as the preparation of an erosion and sedimentation control plan and the use of BMPs.

In contrast to the adverse impacts from stream crossings, there would be minor, positive effects to surface water due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater.

4.1.5 Wetlands

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on jurisdictional wetlands on Fort Benning.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no effect on jurisdictional wetlands of the United States. Wetlands disturbing activities would be limited to the ROWs for both the water and wastewater systems. The new owner may be required to obtain a Section 404 permit from the USACE and state agencies if future upgrades or expansion work would affect jurisdictional wetlands.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of alternative III would have minor, adverse effects on jurisdictional wetlands. It is estimated, based on concept-plan information available at the time of writing this EA and using ARC VIEW mapping techniques, that the Alternative III proposed wastewater line tie-in would impact 1.23 acres of wetlands; the proposed water line tie-in would impact 0.54 acres of wetlands (Neiman May 2002). See Appendix A for wetland maps.

The new owner would be responsible for delineating any jurisdictional wetlands in the construction areas and obtaining any required wetland permits from the USACE and state agencies. Depending on the extent of wetland impacts, the new owner would also be responsible for mitigation, such as restoration per the 404 permit and/or USACE coordination.

4.1.6 Fisheries

Alternative I: No Action / Status Quo

The No Action Alternative may have temporary and minor adverse effects on fisheries, due to bypasses of untreated wastewater into the Chattahoochee River and its tributaries, which occur due to antiquated and/or malfunctioning equipment.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have minor, positive effects on fisheries due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III would have temporary and minor adverse effects on fisheries and fish habitat during the construction of stream crossings for the new water main and sewage line that would bring potable water onto Fort Benning and take raw sewage off the Installation for treatment. The new owner would be responsible for mitigation, such as the preparation of an erosion and sedimentation control plan and the use of BMPs.

In contrast to the adverse impacts from the construction of stream crossings, there would be minor, positive effects on fisheries and fish habitat due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater.

4.1.7 Wildlife

Currently, utility lines and structures are kept free of vegetation by various means (mowing, application of herbicides and pesticides, etc.). If privatized, the removal of vegetation will be confined to the ROWs established by the easement granted to the new owner.

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on wildlife species or habitat.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no effect on wildlife species or habitat. Maintenance activities would be limited to the ROWs for the water and wastewater systems.

Should the new owner need to disturb or remove habitat, prior approval of the Fort Benning EMD would be required.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would result in minor, adverse effects on wildlife species and habitat due to required construction activities for the new water main and sewer line as well as where new pump/lift stations were required. Most of this work, however, would be in the main cantonment area and would not occur in prime wildlife habitat. Wildlife habitat is abundant around the proposed path of the new lines outside of the main cantonment area (Chauvey, May 2002). Maintenance activities would be limited to the ROWs for the water and wastewater systems. Should the new owner need to disturb or remove habitat, prior approval of the Fort Benning EMD would be required.

4.1.8 Species of Conservation Concern

Alternative I: No Action / Status Quo

The No Action alternative may have temporary and minor adverse effects on protected aquatic species, due to bypasses of untreated wastewater into the Chattahoochee River and its tributaries, due to antiquated and/or malfunctioning equipment. None of the Federally protected species on Fort Benning are aquatic.

The majority of activities that could affect protected species are predominantly limited to maintenance work directly on service lines (on land) and in the immediate area. There would be no effect on protected species and habitat from these routine maintenance activities.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have minor, positive effects on protected aquatic species due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater.

Habitat disturbing activities would be limited to maintenance and upgrade activities within the ROWs for the water and wastewater systems. Any construction activities within and/or outside of established ROWs would require prior approval by the Installation and coordination with the Fort Benning EMD.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III may have two effects on protected aquatic species: a minor, adverse effect due to construction of new pipelines or pump/lift facilities and a minor, positive effect due to upgrades of the wastewater system that would prevent bypasses of untreated wastewater. There are no known Red-cockaded woodpeckers (RCWs) or any other threatened or endangered species known to occur along the proposed routes for the off-post tie ins under this

alternative (Swiderek, 26 August 2002); therefore, the proposed routes would have no adverse effect on protected terrestrial species. The new owner would be required to coordinate construction plans for these new facilities with Fort Benning. If protected species habitat cannot be avoided, the new owner would be responsible for coordination through Fort Benning with the USFWS and state agencies to identify and implement appropriate mitigation measures.

Habitat disturbing activities would be limited to maintenance and upgrade activities within the ROWs for the water and wastewater systems. Any construction activities within and/or outside of established ROWs would require prior approval by the Installation and coordination with the Fort Benning EMD.

4.1.9 Migratory Birds

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on migratory birds.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have no effect on migratory birds.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III may have minor, adverse effects on migratory birds, due to vegetation loss caused by construction of the new water and wastewater lines.

4.1.10 Air Quality

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on air quality.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have no effect on air quality.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III would have a temporary and minor adverse effect of air quality due to fugitive dust emissions during demolition and construction activities. The new owner would be responsible for mitigation, such as the use of Best Management Practices and tarp covers on the trucks transporting debris from sites.

4.2 HUMAN ENVIRONMENT

4.2.1 Cultural Resources

4.2.1.1 Historic Properties

Alternative I: No Action / Status Quo

Under this alternative, there is a potential for an adverse effect to historic properties, which are part of the systems' infrastructure, if adequate resources are not provided to properly maintain the utility systems, or if maintenance and repair is not performed in compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. However Fort Benning would coordinate with the SHPO to conduct all work on historic properties appropriately.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no adverse effect on historic properties. Although this alternative would result in the transfer of ownership of known historic properties from the Federal government to a non-Federal owner, the new owner would be required to comply with all applicable Federal, state, and local laws and regulations in regard to historic preservation.

Any activity of the new owner, which could affect historic properties on Fort Benning, would be coordinated with the EMD via the submission of a REC. In the case of historic properties, such as historic districts, Fort Benning would be responsible for coordination with the State Historic Preservation Office (SHPO), Federally recognized Native American Tribes, and others to identify and implement appropriate mitigation. In the case of historic structures where ownership has been transferred, the new owner would be responsible for the above-mentioned coordination with agencies, the EMD, and other appropriate parties.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III is not anticipated to have an adverse effect on historic properties.. The new owner would be required to comply with all applicable Federal, state, and local laws and regulations in regard to historic properties.

Any activity of the new owner, which could affect historic properties on Fort Benning, would be coordinated with the EMD via the submission of a REC. In the case of historic properties, such as historic districts, Fort Benning would be responsible for coordination with the SHPO, Federally recognized Native American Tribes, and others to identify and implement appropriate mitigation. In the case of historic structures where ownership has been transferred, the new owner would be responsible for the above-mentioned coordination with agencies, the EMD, and other appropriate parties.

4.2.1.2 Archaeological Sites

Alternative I: No Action / Status Quo

Implementation of Alternative I would have no effect on known archaeological sites on Fort Benning.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no effect on known archaeological sites on Fort Benning. Any activity of the new owner, which could affect archaeological sites on Fort Benning, will be coordinated with the EMD via the submission of a REC. Fort Benning will be responsible for coordination with the SHPO, Federally recognized Native American Tribes, and others to identify and implement appropriate mitigation.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would have no effect on known archaeological sites on Fort Benning. Under Alternative III, The new owner would be required to conduct appropriate cultural resource investigations in areas where pipeline construction or pump/lift station construction is required. The new construction, and any other activity of the new owner, which could affect archaeological sites on Fort Benning, would be coordinated with the EMD via the submission of a REC. Fort Benning would be responsible for coordination with the SHPO, Federally recognized Native American Tribes, and others to identify and implement appropriate mitigation.

4.2.2 Land Use

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on land use.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have no effect on land use.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III would have a minor, adverse effect on land use, due to the construction of new water and wastewater lines and the necessary clearing for access to them (ROWs).

4.2.3 Socioeconomics

Currently, the Department of the Army owns, maintains, and operates the water and wastewater systems at Fort Benning. Twenty-six (26) Federal employees operate and maintain these systems.

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on current socioeconomic conditions of the study area.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would result in temporary and minor adverse effects on socioeconomics in the study area. Twenty-six Federal positions would be eliminated if Alternative II were implemented. It is not known how many employees the new owner would use to execute the same function. Based on previous experience with other Federal privatization and commercialization efforts, it is anticipated that most, if not all, of the 26 Federal employees would be offered jobs by the new owner.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would result in temporary and minor adverse effects on socioeconomics in the study area. Twenty-six Federal positions would be eliminated if Alternative III were implemented. It is not known how many employees the new owner would use to execute the same function. Based on previous experience with other Federal privatization and commercialization efforts, it is anticipated that most if not all of the 26 Federal employees would be offered jobs by the new owner. Displacement of any remaining Federal workers would be mitigated through the reduction-in-force (RIF) process.

Implementation of Alternative III would also result in temporary and minor positive effects on the local economy resulting from construction of the new wastewater/potable water lines to serve Fort Benning if resources from the local community are utilized.

4.2.4 Utilities

Alternative I: No Action / Status Quo

The No Action alternative would have an adverse effect on both the water and wastewater systems at Fort Benning. Currently, budget restraints have prohibited Fort Benning from properly maintaining either system. Much of the equipment and infrastructure is in poor condition. Fort Benning is not expected to obtain the required funding to properly maintain these systems in the immediate future. Consequently, implementation of Alternative I would probably mean that Fort Benning would not have the funds necessary to properly maintain and upgrade the water and wastewater systems. Equipment and infrastructure associated with these utility

systems would continue to deteriorate. This alternative would have no effect on the electrical and natural gas distribution systems that have been privatized.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have a long term, positive effect on both the water and wastewater systems. The new owner would be required, by contract, to repair the systems to correct any faults and associated code violations. This would be accomplished using revenue generated from operating the systems. The end result would be water and wastewater systems that would provide dependable service and meet all the requirements of applicable laws and regulations. This alternative would have no effect on the electrical and natural gas distribution systems that have been privatized.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would have a long-term, positive effect on the water and wastewater systems. The new owner would be required, by contract, to repair the systems to correct any faults and associated code violations. This would be accomplished using revenue generated from operating the systems. The end result would be water and wastewater systems that would provide dependable service and meet the requirements of all applicable laws and regulations. This alternative would have no effect on the electrical and natural gas distribution systems that have been privatized.

4.2.5 Solid Waste

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on solid waste management on Fort Benning.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Implementation of Alternative II would have no effect on solid waste management on Fort Benning.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Implementation of Alternative III would have no effect on solid waste management on Fort Benning. If the new owner decides to demolish any part of the on-post facilities, he will coordinate with Fort Benning and be responsible for the proper disposal of the debris at an off-post location, with the exception of concrete rubble, which may be processed through Installation crushing equipment and reused for Installation erosion control projects and/or road construction.

4.2.6 Asbestos Management

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on ACM management.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have no effect on ACM management. The new owner would be responsible for the proper handling and off-post disposal of any ACM in the water and/or wastewater utility systems' structures and buildings that are transferred.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Alternative III would have no effect on ACM management. The new owner would be responsible for the proper handling and off-post disposal of any ACM in the water and/or wastewater utility systems' structures and buildings that are transferred. Any known ACM would be properly removed and disposed of at an off-post location prior to demolition activities.

4.2.7 Lead-based Paint Management

Alternative I: No Action / Status Quo

The No Action alternative would have no effect on lead-based paint management.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Alternative II would have no effect on LBP management. The new owner would be responsible for the proper handling of any LBP in the water and/or wastewater utility systems' structures and buildings that are transferred as part of the privatization package.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Under Alternative III, there would be no effect on LBP management. If scheduled for demolition, the new owner would be responsible for the identification, abatement, and proper disposal, at an off-post location, of any LBP in the water and/or wastewater utility systems' structures and buildings that are transferred as part of the privatization package.

See Table 1 for a summary of potential environmental consequences and recommended mitigation.

Table 1 - Summary of Potential Environmental Consequences

RESOURCE	IMPACT			RECOMMENDED MITIGATION
	Alternative I	Alternative II	Alternative III	
NATURAL ENVIRONMENT				
Soils	Temporary and minor adverse effects	Temporary and minor adverse effects	Minor adverse effects	All Alternatives - Best Management Practices (BMP), Preparation of erosion and sediment control plan
Vegetation	No effect	No effect	Minor adverse effects	N/A
Groundwater	Temporary and minor adverse effects	Temporary and minor adverse effects	Temporary and minor adverse effects	N/A
Surface water	Temporary and minor adverse effects	Minor, positive effects	Temporary and minor adverse effects; minor positive effects	Alternative III - Best Management Practices (BMP), Preparation of erosion and sediment control plan. Coordination with USACE if necessary.
Wetlands	No effect	No effect	Minor adverse effects	Alternative III - Mitigation per 404 Permit or USACE coordination.
Fisheries	Temporary and minor adverse effects	Minor, positive effects	Temporary and minor adverse effects; minor positive effects	Alternative III - Best Management Practices (BMP), Preparation of erosion and sediment control plan.
Wildlife	No effect	No effect	Minor adverse effects	N/A
Species of conservation concern	Temporary and minor adverse effects	Minor, positive effects	Both minor positive and adverse effects	Alternative III - Mitigation per USFWS and state consultation
Migratory birds	No effect	No effect	Minor adverse effects	N/A
Air quality	No effect	No effect	Temporary and minor adverse effects	Alternative III - Best Management Practices, Tarp covers on trucks transporting debris from site.

RESOURCE	IMPACT			RECOMMENDED MITIGATION
	Alternative I	Alternative II	Alternative III	
HUMAN ENVIRONMENT				
Historic Properties	Potential adverse effect	No adverse effect	No adverse effect	Alternatives II and III - EMD review via REC submitted by new owner. Coordination with the SHPO and all other stakeholders
Archaeological Sites	No effect	No effect	No effect	Alternatives II and II - EMD review via REC submitted by new owner. Coordination with the SHPO and all other stakeholders
Land Use	No effect	No effect	Minor, adverse effect	N/A
Socioeconomics	No effect	Temporary and minor adverse effects	Both temporary and minor positive and adverse effects	N/A
Utilities	Adverse effects	Long term positive effects	Long term positive effects	N/A
Solid Waste	No effect	No effect	No effect	N/A
Asbestos Management	No effect	No effect	No effect	N/A
LBP Management	No effect	No effect	No effect	N/A

5.0 CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) defines cumulative impacts as the “impact on the environment which results from the incremental impact of the action(s) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (CEQ, 1978). The actions proposed under the alternatives in this EA, in addition to proposed projects in the Columbus-Phenix City area, have the possibility to result in either negative or positive impacts in a cumulative manner. These projects all occur within a well-defined and specific geographical (spatial) region of influence (ROI), which is defined in the following subsection; in addition, the projects are also limited on a temporal basis, as well, since they all have the potential to be implemented within a 20-year period, as indicated by the planning documents obtained for the individual cities, and therefore may increase the potential for cumulative effects. Each media (such as air, water, wildlife, etc.) may have a more specifically defined ROI that may potentially be affected by the proposed projects and is individually addressed in the following subsections.

5.1 REGION OF INFLUENCE

The overall ROI for the purposes of this EA consists of the cities of Fort Benning and Columbus, GA, and Phenix City, AL. Individual ROIs have also been established for each media potentially affected by the project; these ROIs may be larger or smaller in size than the overall ROI and, if so, are defined and analyzed in subsequent sections

5.2 REASONABLY FORESEEABLE FUTURE ACTIONS ON FORT BENNING

There are several construction projects planned for implementation on Fort Benning proper during the time frame in which the proposed action would occur. Some of the projects have been previously identified in the Installation's 2018 master plan and have been preliminarily assessed for environmental impacts via the REC process; however, each project is still pending final approval and subsequent compliance with NEPA. A copy of the 2018 plan and all applicable approved and/or pending RECs are available for review in the Real Property/Master Planning (RPMP) office of the DFEL. The projects listed below are those determined to have the greatest potential to impact the ROI.

- Barracks Replacement, Kelley Hill, Phase III (FY02-) – Work would consist of the demolition of existing buildings (9043, 9046, 9047, 9053, 9054, 9055, 9057, 9058, and 9074), the construction of new facilities, and landscaping around the new facilities in the Kelley Hill area of Fort Benning.
- FY03 Barracks Project (FY03) – Work would consist of constructing barracks with a maximum capacity of 492 room spaces (372 spaces located on Main Post at Edwards Street and Dixie Road and 120 spaces located adjacent to MACH), one company operations facility at MACH, and one battalion headquarters building for the 1/507th Parachute Regiment west of 2700 Block barracks. The project would also include the demolition of six existing buildings.
- Air Deployment Complex (FY04) – Work would consist of constructing an Air Deployment Complex providing passenger processing and arrival/departure airfield control group functions consisting of: a passenger processing facility (75,650 square feet, 1,500 soldier capacity), covered pallet building area, 100 ton in-ground vehicle scale, a vehicle wash rack, a load staging area for nine C-5 aircraft, a fuel/defuel station, secure storage area, a material handling equipment storage, operations area, bus drop-off area, and a 15K pallet scale. This complex will provide adequate facilities to process deploying unit personnel in an efficient manner. Provisions for briefing/classroom areas as well as for staging of chucks, preparing vehicles for deploying operations (Joint Inspection, Center of Balances), corrective washing of vehicles, and inspect and repalletize non-ammunition pallets before deployment to foreign theaters is included. Facility/complex will be constructed adjacent to Black Ramp due to passengers boarding and materiel loaded onto aircraft staged at Black Ramp. The project would also include the demolition of building 2413, 257, 492, 1633, 1634 and 1635.
- FY05-07 Barracks and Tactical Equipment Shop Projects (FY05-07) – Work would consist of the construction of additional barracks and tactical equipment shops across

from existing ranges (beyond those Easley and McAndrews ranges) along Dixie Road. These projects are currently in the design phase only.

- Main Post Chapel (FY05) – Work would consist of constructing a standard-design Army chapel (600-seat capacity) and a religious education facility annex addition attached to the adjacent Main Post Chapel Annex, Building 101. Supporting facilities include: utility connections; electric service; exterior lighting; fire protection and alarm systems; covered front and rear entrance drop-off and pickup areas; paving; sidewalks; curbs and gutters; new parking and refurbishment of existing parking spaces; storm drainage; retaining walls; information systems; and site improvements.
- Infantry Squad Battle Course (FY05) – Work would consist of the conversion of an existing Fort Benning range, Galloway Range, into an Infantry Squad Battle Course and would include the removal/replacement and upgrading of existing targetry, the construction of associated support facilities, the demolition of currently existing temporary buildings on site, and associated utility placement.
- Ammunition Supply Point (ASP) Expansion (FY05) – Work would consist of the construction of two aboveground general storage facilities, 11 earth-mounded ammunition storage igloos with associated loading platforms, two small quantity ammunition huts, and ammunition surveillance building, and forklift storage/recharge facilities at the existing ASP on Fort Benning. Work would also include the demolition of 19 structures currently existing within the ASP compound.
- Urban Assault Course Complex (FY05) – Work would consist of creating an Urban Assault Course consisting of five stations, construction of an access road network to connect stations and adjacent parking areas, two heated and air-conditioned operations & storage buildings, and two field service latrines with field lines; electrical utilities, including single phase/220 voltage overhead primary/pole line, substation/transformer, targetry power and data cabling, area lighting, and communications; mechanical utilities, including water lines, water bibs, chlorinating systems, and two pump houses & booster pumps; and fencing at entrance road.
- Direct Support/General Support (DS/GS) Consolidated Maintenance Facility (FY07) – Work would consist of constructing an approximately 112,000 square foot equipment maintenance complex for DFEL. Facility to be located in the southwest quadrant of US280/27 and First Division Road.
- Company Team Defense Area (FY 03 – end undetermined) - Work would consist of rehabilitating an existing narrow track armored vehicle maneuver lane along Underwood Road and establish a 5,000-meter by 8,000-meter armored vehicle force on force and defense/offense exercise area in Delta training compartments for the 3rd Brigade/3rd Infantry.
- Cantonment Fencing (FY03-4) - Construct an enhanced physical security perimeter barrier around three of the Installation's four cantonment areas to include: 49.6 miles of

seven (7) foot high nine (9) gauge chain link fence with three (3) strands of barbed wire at the top and an all weather interior perimeter road for fence inspection. Supporting facilities include a 20-foot clear zone between the perimeter fence and exterior structures and a 50-foot clear zone between the perimeter barrier and structures interior to the fence. Drainage for perimeter road and erosion control required.

- US Highway 27/280 Fencing (FY03-4) - Construct an enhanced physical security perimeter barrier around one of the Installation's four cantonment areas and along US Highway 27/280 right-of-way to include: 14.6 miles of seven (7) foot high nine (9) gauge chain link fence with three (3) strands of barbed wire at the top and an all weather interior perimeter road for fence inspection. Supporting facilities include a 20-foot clear zone between the perimeter fence and exterior structures and a 50-foot clear zone between the perimeter barrier and structures interior to the fence. Drainage for perimeter road and erosion control required.
- North/South Maneuver Corridors (FY undetermined) – Work will consist of the development of two corridors in the north and three corridors in the south for the maneuvering of tracked vehicles and training utilization by the 3rd Brigade/3rd Infantry of Fort Benning. The areas proposed for this development are the Oscar compartments in the north and the Echo and Juliet compartments in the south.
- Combined Club Facility (FY undetermined; pending funding approval) – Work would consist of the demolition of the existing Follow Me Golf Course Clubhouse, construction of a new clubhouse to contain the combined functions of the Golf Course Club and Officer's Club, and the redevelopment of the existing Follow Me Golf Course.
- New Post Exchange (AAFES) (FY undetermined – pending final decision by AAFES) – Work would consist of constructing a new AAFES on the land across the street from the existing AAFES on Custer Road, Main Post, Fort Benning. The old AAFES would be abandoned and reutilized in another format; it is not scheduled for demolition at this time. Work would additionally consist of landscaping and parking lot construction.
- National Infantry Museum (FY undetermined – project in planning phase only) – Work would consist of constructing a new infantry museum on the land lying between South Lumpkin and Fort Benning roads on the Installation's border with the City of Columbus. The existing museum, located on Baltzell Avenue, Main Post, Fort Benning, would be reutilized in another manner, but would not be demolished.

Other actions on Fort Benning, such as road and tank trail maintenance, range and building maintenance, building renovations, unit motor pool maintenance, troop training, and routine airfield activities, would continue in an ongoing manner on an annual basis. These projects/actions are assessed for potential environmental impacts on a case-by-case basis via the REC process.

5.3 REASONABLY FORESEEABLE FUTURE ACTIONS IN THE COLUMBUS-PHENIX CITY COMMUNITY

Interviews with Richard Bishop, Deputy City Manager for the City of Columbus, and Greg Glass, City Planner for the City of Phenix City, helped to document the pending construction and transportation system improvement projects proposed for the Columbus-Phenix City area during the same time frame as the proposed action analyzed in this EA. The projects listed below are those determined to have the greatest potential to impact the ROI. Other projects were identified through these interviews and the review of relevant city planning documentation; however, they were analyzed and determined to not have the potential to contribute to cumulative impacts in the ROI. The projects identified, but not included for study in this document, may be viewed in the Columbus-Phenix City Transportation Improvement Plan, which is available for review at the DFEL. Reviews of the planning documents for these cities and for the Georgia Department of Transportation (DOT) resulted in a comprehensive projected vision for the area, which is defined in further detail below.

- Development of “Muscogee Technology Park” (FY pending) – This action consists of plans by the City of Columbus to develop a 2,470-acre parcel, located adjacent to the Fort Benning northernmost boundary line, which was recently conveyed to the City by Fort Benning in exchange for a 2,536-acre parcel located at the southernmost end of the installation. Development will be primarily industrial, mixed with recreational land use. No access to or from Fort Benning is scheduled at this project area. Activities on the “South Tract,” now under the management of Fort Benning, will consist of reforestation and habitat improvement efforts.
- Oxbow Meadows and Marina, Lumpkin Road, Columbus, GA (FY pending), – Work would consist of the further development of the Oxbow Meadows Environmental Learning Center by creating additional outdoor classrooms, a series of walking trails, a series of hiking trails, and pavilion, and the construction (to include dredge and fill) of a 350-slip capacity marina.
- Phenix City Riverwalk Phase II, Phenix City, AL (FY pending) – Work would consist of the construction of a hiking/biking trail between the 13th and 14th Street bridges in Phenix City.
- Alternative Transportation System, Phase II, North Riverwalk, Columbus, GA (FY pending) – Work would consist of continuing to construct the hiking/biking trail (Riverwalk) northward along the Chattahoochee River from 12th Street to 14th Street.
- Improvements to Interchange at I-185/US 280, Columbus, GA (currently ongoing) – Work consists of reconstructing the interchange at I-185 and US 280.
- Safety Improvements to US 280, Columbus, GA (currently ongoing) – Work would consist of removing and replacing guard rails and possibly installing medians, for safety purposes, along 10.5 miles of US 280, which runs along the border of Fort Benning.
- Widening/Improvements to Buena Vista Road, Columbus, GA (FY pending) – Work would consist of widening and reconstructing 1.15 miles of an existing two (2) and four (4) lane road to a four (4) through-lane system with turn lanes and medians, as required.

- Widening/Improvements to St. Mary's Road, Columbus, GA (FY pending) – Work would consist of widening 0.71 miles of a two (2) lane road to a three (3) and four (4) lane system with intersection improvements as needed.
- Eastern Connector (FY pending) – Work would consist of constructing a roadway beginning at Buena Vista Road and the Schatulga Road intersection and ending at S.R. 22/US 80 (Macon Road). Beginning at Buena Vista Road, the roadway would consist of four 12-foot wide lanes with a 14-foot flush median, 4-foot bike lanes, and 18-foot wide shoulders with curbs, gutters, and a 5-foot sidewalk. This typical section would be maintained to just south of Forrest Road, where it would transition to four 12-foot wide lanes with a 44-foot raised median.

Several other road maintenance/transportation improvements projects are proposed for Columbus and Phenix City; however, these projects were deemed to be minor in both scale and impact and are therefore not discussed in detail in this document. These proposed transportation improvements might be reviewed in the 2001-2003 copy of the Columbus-Phenix City Transportation Improvement Plan, which is available for review at the DFEL.

The Tri-State Water Compact, a disagreement between Georgia, Alabama, and Florida concerning withdrawals of water for public usage from the Chattahoochee-Flint-Apalachicola river systems, also has the potential to affect the ROI. The Chattahoochee river originates in the Blue Ridge Mountains of the Appalachian Highlands of northeast Georgia, where it flows southwesterly for 120 miles before turning south and flowing about 200 miles along the Georgia and Alabama borders, and a small part of the Florida border. The Flint River (8,460 square miles) includes Blackshear Dam and Lake, and Flint River Dam and Lake Worth. This river originates near the south of Atlanta in the Piedmont Province and flows southerly to the upper Coastal Plain, where it joins the Chattahoochee River in Lake Seminole to form the Apalachicola River. The Apalachicola River (2,370 square miles) includes the USACE-operated Jim Woodruff Lock and Dam and Lake Seminole along its length. The river lies completely within the Coastal Plain over the 108 miles of its length, and flows south across northwest Florida from the Georgia border to Apalachicola Bay in Florida.

A Draft Environmental Impact Statement (DEIS) was published in 1998 and is available for review at <http://www.sam.usace.army.mil/pd/actacfeis/acf-draft.htm>. A federal commissioner would review the proposals for water withdrawals and usages and all alternatives that have been developed via the study by the USACE and reach the decision to concur or nonconcur with each states' proposed water allocation. No decisions have been made as of this date; however, this action does possess the potential to affect the water resources available from and to the Chattahoochee River and its associated creeks and streams in the ROI and is therefore a point of discussion in this EA.

5.4 CUMULATIVE IMPACTS ANALYSIS

The cumulative effects predicted for each alternative and affected media are described below. During preliminary analysis, it was determined that the projects proposed in the ROI (Fort Benning and the Columbus-Phenix City area) would result in no significant cumulative impacts to vegetation, migratory birds, protected species/wildlife, socioeconomics, Environmental

Justice, land use, P2 and SDD, utilities, hazardous and toxic materials/wastes, radiation, UXO, public health and safety. This determination was the result of a preliminary analysis of each proposed action and their individual and cumulative potential to impact the natural and human environment, in either a direct or indirect manner. No significant effects were determined to exist; therefore, these media will not be discussed in any further detail.

Alternative I: No Action/Status Quo

Soils

The no action alternative, when combined with the actions predicted for the remainder of the ROI (other areas of Fort Benning proper and the adjacent Columbus-Phenix City area), does not have the potential to contribute to adverse soil disturbance and erosion. Implementation of Alternative I would not result in incremental increases to adverse effects on soils, when considered incrementally with the past, present, and reasonably foreseeable actions (other actions) in the ROI.

Water Quality

Implementation of Alternative I could result in minor soil disturbance due to routine maintenance, and therefore, sedimentation of adjacent streams and/or storm water drainages. Actions predicted for the remainder of the ROI also have the potential to contribute to soil disturbance and erosion and, therefore, contribute to significant amounts of runoff into adjacent surface water bodies. However, mitigation technology, such as erosion control measures and other best management practices could be utilized to reduce soil loss and the subsequent contamination, runoff, and/or sedimentation of groundwater and surface water bodies. For these reasons, it has been determined that this alternative should result in no incremental increase to adverse effects on water, when considered incrementally with the other actions in the ROI.

Cultural Resources

The no action alternative could potentially result in an adverse effect to historic properties due to the lack of required maintenance, and a no effect on archaeological sites. Although other activities planned for the remainder of the ROI, have the potential to result in soil disturbance and the inadvertent disturbance of cultural resource sites, in addition to the potential alteration of facilities either eligible for listing or listed with the National Register of Historic Places, it has been determined that this alternative could not result in a minor incremental increase to adverse effects on cultural resources, when considered incrementally with the other actions in the ROI.

Air Quality

Implementation of Alternative I would have no effect on air quality. When combined with actions predicted for the remainder of the ROI, which do have the potential to contribute to air quality degradation, it has been determined that this alternative would result in no incremental increase to adverse effects on air, when considered incrementally with the other actions in the ROI.

Alternative II: Transfer the existing water and wastewater systems on Fort Benning to a non-Federal utility provider that would utilize on-post treatment plants

Soils

Implementation of Alternative II, when combined with the actions predicted for the remainder of the ROI, does have the potential to contribute to adverse soil disturbance and erosion; however, mitigation technology, such as erosion control measures, silt fencing, and other best management practices, would be utilized to reduce soil loss and the subsequent runoff and sedimentation into surface water bodies. It has been determined that this action would result in no incremental increases to adverse effects on soils, when considered incrementally with the other actions in the ROI.

Water Quality

Implementation of Alternative II could result in minor soil disturbance and, therefore, sedimentation of adjacent streams and/or storm water drainages. Actions predicted for the remainder of the ROI also have the potential to contribute to soil disturbance and erosion and, therefore, contribute to significant amounts of runoff into adjacent surface water bodies. However, mitigation technology, such as erosion control measures and other best management practices could be utilized to reduce soil loss and the subsequent contamination, runoff, and/or sedimentation of groundwater and surface water bodies. For these reasons, it has been determined that this alternative should result in no incremental increase to adverse effects on water, when considered incrementally with the other actions in the ROI.

Cultural Resources

Implementation of Alternative II should have no adverse effect on historic properties and no effect on archaeological sites on the installation. Prior to any renovation and/or demolition activities concerning water or wastewater buildings and/or structures on Fort Benning, a determination of effect must be made by the cultural resources program management area of the EMD concerning the status either as a historic property or as a contributing property to an existing historic district on Fort Benning. This review and subsequent determination is initiated via the REC process; all determinations are then forwarded to the SHPO for concurrence or nonconcurrence. Follow-up actions and mitigation would be in accordance with agreements reached during this process.

Activities planned for the remainder of the ROI have the potential to result in soil disturbance and the inadvertent disturbance of cultural resource sites, in addition to the potential alteration of facilities either eligible for listing or listed with the NRHP. It has been determined that this alternative would not result in a minor incremental increase to adverse effects on cultural resources, when considered incrementally with the other actions in the ROI.

Air Quality

Alternative II does not involve the construction of system infrastructure and/or demolition of existing water and wastewater structures. Implementation of this alternative would not result in adverse effects on air quality. Actions predicted for the remainder of the ROI, do have the potential to contribute to air quality degradation; however, mitigation measures, such as best management practices, would reduce the risk of contaminants from these activities from becoming airborne and also reduce the dust and particulate matter amounts released into the air as a result of the soil disturbance. For these reasons, it has been determined that this alternative would in no incremental increase to adverse effects on air, when considered incrementally with the other actions in the ROI.

Alternative III: Transfer the water and wastewater systems to a non-Federal utility provider that would utilize off-post treatment plants

Soils

Implementation of Alternative III, when combined with the actions predicted for the remainder of the ROI, does have the potential to contribute to adverse soil disturbance and erosion; however, mitigation technology, such as erosion control measures, silt fencing, and other best management practices, would be utilized to reduce soil loss and the subsequent runoff and sedimentation into surface water bodies. It has been determined that this action would result in no incremental increases to adverse effects on soils, when considered incrementally with the other actions in the ROI.

Water Quality

Implementation of Alternative III could result in minor soil disturbance and, therefore, sedimentation of adjacent streams and/or storm water drainages. Actions predicted for the remainder of the ROI also have the potential to contribute to soil disturbance and erosion and, therefore, contribute to significant amounts of runoff into adjacent surface water bodies, especially during the construction of the new marina at Oxbow Meadows and its associated dredge and fill operations. However, mitigation technology, such as erosion control measures and other best management practices could be utilized to reduce soil loss and the subsequent contamination, runoff, and/or sedimentation of groundwater and surface water bodies. For these reasons, it has been determined that this alternative should result in no incremental increase to adverse effects on water, when considered incrementally with the other actions in the ROI.

Cultural Resources

Implementation of Alternative III may have an adverse effect on historic properties. Prior to any renovation and/or demolition activities concerning water or wastewater buildings and/or structures on Fort Benning, a determination of effect must be made by the cultural resources program management area of the EMD concerning the status either as a historic property or as a contributing property to an existing historic district on Fort Benning. This review and

subsequent determination is initiated via the REC process; all determinations are then forwarded to the SHPO for concurrence or nonconcurrence. Follow-up actions and mitigation would be in accordance with agreements reached during this process.

Activities planned for the remainder of the ROI also have the potential to result in soil disturbance and the inadvertent disturbance of cultural resource sites, in addition to the potential alteration of facilities either eligible for listing or listed with the NRHP. For these reasons, it has been determined that this alternative could result in a minor incremental increase to adverse effects on cultural resources, when considered incrementally with the other actions in the ROI.

Air Quality

The construction of system infrastructure and/or demolition of existing water and wastewater structures would result in temporary and minor adverse effects on air quality, primarily during the actual construction and/or demolition phase and resulting from fugitive dust emissions (particulate matter). Actions predicted for the remainder of the ROI, do have the potential to contribute to air quality degradation; however, mitigation measures, such as best management practices, would reduce the risk of contaminants from these activities from becoming airborne and also reduce the dust and particulate matter amounts released into the air as a result of the soil disturbance. For these reasons, it has been determined that this alternative (III) would result in no incremental increase to adverse effects on air, when considered incrementally with the other actions in the ROI.

6.0 CONCLUSION

6.1 CONCLUSION

Any adverse effects from the implementation of alternative I would be temporary and minor, with the exception of a potential adverse effect on historic properties and an adverse effect on the utilities, themselves due to lack of funding to make upgrades. No positive effects are expected; however, only minor impacts to the environment are expected.

Any adverse effects from the implementation of alternative II would be temporary and minor. However, under this alternative, there are minor, positive effects expected on surface water, fisheries, and species of conservation concern. A long-term positive effect is expected to the utilities themselves, and only minor impacts to other areas with mitigation measures.

Adverse effects from the implementation of alternative III would be temporary or minor. Alternative III is expected to have minor positive effects on surface water, fisheries, species of conservation concern, and socioeconomics. A long-term positive effect is expected to the utilities. Although this alternative has higher potential impacts due to construction of new lines, those impacts would not be significant with implementation of mitigation.

Any adverse effects from alternatives II or III would be mitigated. Mitigation would consist of appropriate (Best Management Practices) measures during construction, restoration of resources, and proper coordination with the EMD and Federal or state agencies as appropriate.

None of the three alternatives under consideration would have major adverse effects on the natural or human environments. Adverse effects may be either avoided or mitigated through existing practices, consultation, and/or permitting guidance. Both alternatives II and III will allow Fort Benning to meet the requirements of DRID #49 while providing the means to properly maintain and upgrade the water and wastewater systems.

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