TN Department of Environment & Conservation

FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Arthur-Shawanee Utility District (Claiborne County), Tennessee
Loan No. DW7 2020-226

September 1, 2020

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The Arthur-Shawanee Utility District has completed the facilities plan entitled "Powell Valley Water Storage Tank" dated November 2019. The facilities plan provides recommendations for improvements to the existing water distribution system serving Arthur-Shawanee Utility District (Claiborne County), Tennessee. This project will consist of the construction of a 400,000-gallon water storage tank (WST) on Flatwoods Road; and the installation of approximately 7,500 linear feet of 10-inch diameter polyvinyl chloride water lines from the intersection of Red Hill Circle Road and Back Valley Road to the new WST. The proposed project will also include the installation of a SCADA system for the WST. The total estimated project cost is $800,000. A Drinking Water State Revolving Fund loan in the amount of $300,000 has been requested for this project. This project will be funded with a $240,000 loan and $60,000 in principal forgiveness that will not have to be repaid by the Arthur-Shawanee Utility District. The remainder of the project cost will be funded by a $500,000 Appalachian Regional Commission Grant.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Ms. Felicia D. Freeman, Environmental Manager
Division of Water Resources, State Revolving Fund Loan Program
William R. Snodgrass TN Tower, 12th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243

or call or e-mail (615) 253-5134 or felicia.d.freeman@tn.gov.

ENVIRONMENTAL ASSESSMENT

Arthur-Shawanee Utility District (Claiborne County), Tennessee
Loan No. DW7 2020-226

September 1, 2020

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The facilities plan provides recommendations for improvements to the existing water distribution system serving Arthur-Shawanee Utility District (ASUD) (Claiborne County), Tennessee. This project will consist of the construction of a 400,000-gallon water storage tank (WST) on Flatwoods Road; and the installation of approximately 7,500 linear feet (LF) of 10-inch diameter polyvinyl chloride (PVC) water lines from the intersection of Red Hill Circle Road and Back Valley Road to the new WST. The proposed project will also include the installation of a SCADA system for the WST. The ASUD Service Area is indicated on Figure1; Figure 2 shows the location of the WST and water line installation; and the location of the installation of the SCADA system is shown on Figure 3 of this Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of the Loan No. DW7 2020-226 scheduled for funding in Fiscal Year 2021. The estimated project costs are summarized in the following tabulation:

PROJECT CLASSIFICATIONS	COSTS ($)
Administrative & Legal	5,000
Planning Fees	5,500
Design & Basic Engineering Fees	65,000
Other Engineering Fees	7,500
Resident Inspection	44,000
Construction	673,000
TOTAL	**800,000**
Drinking Water State Revolving Fund (DWSRF) DW7 2020-226 Loan	240,000
Principal Forgiveness (Will not have to be repaid)	60,000
Appalachian Regional Commission (ARC) Grant	500,000

A DWSRF loan in the amount of $300,000 has been requested for this project. This project will be funded with a $240,000 loan and $60,000 in principal forgiveness that will not have to be repaid by the ASUD. The remainder of the project cost will be funded by a $500,000 ARC Grant.

B. EXISTING ENVIRONMENT

The ASUD's Service Area is located in Claiborne County in the eastern part of Tennessee. Existing environmental features are described below:

SURFACE WATERS

Surface waters in the ASUD's Service Area include the Powell River and its tributaries, Tackett Creek, Little Yellow Creek, Old Town Creek, Gap Creek, Little Creek, Indian Creek, Davis Creek

and its tributaries, Cawood Branch, Russell Branch, Carr Branch, and their tributaries. Designated uses for the Powell River include domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, and navigation. The ASUD's Water Treatment Plant (WTP) obtains raw water from a surface water intake on the Powell River.

GROUNDWATER

The underlying geologic formation in ASUD's Service Area consists of extensively folded and faulted carbonate, sandstone, and shale of the Cambrian and Ordovician age underlying the Valley and Ridge Physiographic Province. The ground water which comes from the Valley and Ridge aquifers is primarily stored in and moves through fractures, bedding planes, and solution openings in the rocks. Some ground water moves through primary pore spaces between the particles that constitute the alluvium along streams and the residuum of weathered material that overlies most of the rocks in the area. Most of the ground water is discharged directly to local springs or streams, but some of it moves along the strike of the rocks, following highly permeable fractures, bedding planes, and solution zones to finally discharge at more distant springs or streams.

SOILS

Soils occurring predominantly in the ASUD's Service Area include the Armuchee, Bolton, Claiborne, Clarksville, Etowah, Fullerton, Lehew, Muskingum, and Talbott Series.

The Armuchee Series consist of well drained soils on hilly to steep uplands. These soils are formed from clayey residuum weathered from acid shale. The surface layer is yellowish-brown silt loam underlain by brownish-red silty clay mixed with shale.

The Bolton Series consist of well drained soils on rolling to steep uplands. These soils are formed from loamy residuum weathered from dolomite. The surface layer is dark reddish-brown silt loam underlain by dark-red silty clay loam.

The Claiborne Series consist of well drained soils on rolling to steep uplands. These soils are formed from loamy colluvium over clayey residuum weathered from limestone. The surface layer is light-brown silt loam underlain by yellowish-brown silty clay loam.

The Clarksville Series consist of excessively drained soils on rolling to steep uplands. These soils are formed from gravelly colluvium over gravelly residuum weathered from cherty limestone. The surface layer is light-gray silt loam underlain by brownish-yellow silty clay loam or fine sandy clay.

The Etowah Series consist of well drained soils on gently sloping to sloping terrace lands. These soils are formed from colluvium derived from limestone, sandstone, and shale. The surface layer is grayish-brown or light-brown silt loam underlain by brownish-red silty clay.

The Fullerton Series consist of well drained soils on rolling to steep uplands. These soils are formed from clayey residuum or creep deposits over clayey residuum weathered from cherty limestone. The surface layer is gray or brownish-gray silt loam underlain by yellowish-red or light-red silty clay loam.

The Lehew Series consist of well drained soils on hilly to steep uplands. These soils are formed from channery residuum weathered from sandstone and shale. The surface layer is brown or purplish-brown fine sandy loam mixed with shale and sandstone fragments.

The Muskingum Series consist of well drained soils on hilly to steep uplands. These soils are formed from loamy residuum weathered from sandstone and shale. The surface layer is grayish-yellow or yellow fine sandy loam underlain by brownish-yellow fine sandy loam or sandy clay loam.

The Talbott Series consist of well drained soils on undulating to steep uplands. These soils are formed from clayey residuum weathered from limestone. The surface layer is grayish-brown silt loam underlain by yellowish-red silty clay.

TOPOGRAPHY

The ASUD's Service Area is located in the Valley and Ridge Physiographic Province. Valley and Ridge Physiographic Province is characterized by a series of northeast-southwest trending synclines and anticlines composed of Early Paleozoic sedimentary rocks. Limestones and shales are more susceptible to erosion and make up much of the valleys, whereas more resistant sandstones and conglomerates form the ridges. This folded stratum is the result of the compression associated with the assembly of the supercontinent Pangea and the various mountain building events that produced the Appalachian Mountains. The topography of the Valley and Ridge consists of long linear ridges and parallel lowland valleys that trend in a northeast to southwest direction. The ridges usually have high elevations of 1100 to 1500 feet above mean sea level (MSL) while the adjacent valley floors vary from 700 feet to 1000 feet above MSL. The ridges and valleys generally have high elevations in the north part of the region and are slightly less elevated to the south.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the ASUD's Service Area.

C. EXISTING WATER FACILITIES

The ASUD owns and operates a 1.6 million gallons per day (MGD) WTP located in Harrogate. The ASUD WTP uses media type filtration and draws raw water from the Powell River. The WTP was originally constructed in the mid 1960's with two filters, one settling basin, and two adjacent storage tanks with a total capacity of one million gallons, and was later expanded in the late 1970's by adding two additional settling basins and two filters. ASUD's WTP currently has an average daily demand of approximately 1.1 MGD and provides water to the residents of the City of Harrogate, as well as the communities of Forge Ridge, Arthur, Powell Valley, and Speedwell in northern half of Claiborne County.

The ASUD's distribution system consists of approximately 127 miles of 2-inch through 10-inch diameter ductile iron, polyvinyl chloride, and asbestos-cement water lines; eight pump stations; and four water storage tanks with a total storage capacity of approximately 1.6 million gallons.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

Claiborne County has experienced steady population growth over the last several decades, particularly in the northern part of the County around Harrogate. With this growth comes the need for a safe and dependable drinking water source. ASUD has attempted to meet these needs with continued extension of their potable water treatment and distribution system. However, the need for additional storage facilities has also become apparent because the remote portions of the service

area began to experience hydraulic deficiencies and numerous service interruptions when maintenance and repairs are required. The Powell Valley/Speedwell Area of the ASUD's Service Area currently serves around 600 customers, including 2 public schools and is experiencing these issues. If the 10-inch water transmission main breaks, it requires a complete service interruption to the entire pressure zone. Depending on the severity of the repair, this can require dismissal of school due to lack of water supply. Therefore, ASUD must make some improvements to the existing water transmission and distribution system. The construction of a new WST and the installation of the proposed water lines would provide the customers in the Powell Valley/Speedwell Area with a safe and reliable supply of drinking water.

Existing and projected facility conditions are shown in the following chart:

EXISTING AND PROJECTED FACILITY CONDITIONS

POPULATION	EXISTING (2020)	PROJECTED (2040)*
City of Harrogate	4,337	4,196
Percent Served	97%	97%
Service Area Excluding City of Harrogate	2,500	2,419
Percent Served	60%	75%
Total Planning Area	6,837	6,615
Percent Served	83%	89%

WATER NEEDS (MGD)	EXISTING (2020)	PROJECTED (2040)
Residential	0.909	0.991
Commercial/Industrial	0.048	0.052
Loss	0.143	0.157
TOTAL	1.100	1.200

*According to the Tennessee State Data Center, Claiborne County will experience a slight decline in population beginning in 2022.

E. ALTERNATIVES ANALYSIS

Several alternatives were evaluated in the November 2019 Facilities Plan. Discussions of the evaluation of these alternatives and the recommended plan are following:

NO-ACTION

The "No-action" approach is not a viable alternative. Customers in the Powell Valley/Speedwell Service Area experience interruptions within their water service during maintenance or repairs. Action must be taken to provide a safe and reliable supply of drinking water to its customers. Therefore, this alternative is rejected.

CONSTRUCT AN ADDITIONAL TREATMENT FACILITY

This alternative consists of constructing a new 0.6 MGD WTP to include a raw water intake structure and pump station, raw waterline from source to the WTP, screen, filter, clarifier, chlorination, de-chlorination, clearwell, and high service pumps. The WTP would be constructed within the Powell Valley/Speedwell Service Area with a raw water intake on the Powell River. This alternative would provide a more reliable source of public drinking water for approximately 600 customers in the area, with another possible 100 future customers, but it is economically unfeasible. The WTP would also require significant operation and maintenance costs and a minimum of two full-time licensed WTP operators. Therefore, this is not the most cost-effective alternative and is rejected.

PROVIDE SERVICE FROM LAFOLLETTE UTILITIES

This alternative would consist of installing a water connection to the neighboring utility provider, Lafollette Utilities (LU), by installing approximately 7,920 LF of 8-inch diameter waterlines, a meter vault, a booster pumping station, SCADA equipment, storage facilities, and various valves. A state highway crossing would be required during the installation of the waterlines and an intermunicipal agreement between ASUD and LU. This alternative is not the most cost-effective and is rejected.

WATERLINE EXTENSION AND NEW WATER STORAGE TANK

This alternative consists of constructing a 400,000-gallon WST on Flatwoods Road; and the installation of approximately 7,500 LF of 10-inch diameter PVC water lines from the intersection of Red Hill Circle Road and Back Valley Road to the new WST. The proposed project will also include the installation of a SCADA system for the WST. The localized water storage facility would provide ASUD the flexibility of performing needed maintenance and repairs without the need to completely interrupt water service to this portion of the water distribution system. This is the most cost-effective alternative and is selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be the provision of a safe and dependable supply of drinking water to customers.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on May 21, 2020, 5:00 p.m., local time. The selected plan for water distribution system improvements and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

At the projected time of the initiation of the loan repayment, user rates for the typical residential user (5,000 gallons per month) will be $53.48. The existing user charges are projected to be sufficient to repay the DWSRF loan. Therefore, no incremental increase in user charges will be required.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control
4. Tennessee Department of Transportation
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management
9. TDEC, Division of Water Resources
10. Tennessee Wildlife Resources Agency
11. United States Army Corps of Engineers
12. United States Fish and Wildlife Service
13. Arthur-Shawanee Utility District
14. Claiborne County
15. Vaughn & Melton Consulting Engineers, Inc.

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special conditions:

1. The ASUD shall obtain a Construction Stormwater Permit (CGP) from the TDEC, DWR, prior to the start of construction. Please contact Mr. Thomas Moss in the Division of Water Resources, at 615-532-0170, for further information. A copy of the CGP permit must be submitted to the SRF's Environmental Coordinator, David Graham, if applicable.