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ENVIRONMENTAL ASSESSMENT

KINGSTON FOSSIL PLANT ASH RECOVERY – UTILITY RESTORATIONS AND ENHANCEMENTS

Roane County, Tennessee

PREPARED BY:
TENNESSEE VALLEY AUTHORITY

DECEMBER 2009

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ENVIRONMENTAL ASSESSMENT

KINGSTON ASH RECOVERY - UTILITY RESTORATIONS AND ENHANCEMENTS ROANE COUNTY, TENNESSEE

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Purpose and Need

On December 22, 2008, an ash storage pond dike failed at Kingston Fossil Plant (KIF) in Roane County, Tennessee, releasing about 5.4 million cubic yards of coal ash that covered about 300 acres (see Figures 1 and 2). The ash spill covered portions of the rail line serving KIF, Swan Pond Road, and Swan Pond Circle and cut off utility connections resulting in interruptions of water, electrical, and gas services to the adjacent area. The utility lines were rerouted from other sources to temporarily restore services interrupted by the ash spill. Due to the temporary nature of the utility reroutes, there is a risk that utility services could become unreliable. The Tennessee Valley Authority (TVA) and local, state, and federal agencies continue to work on recovery and restoration of the spill site.

Proposed Action

TVA proposes to replace damaged water lines, an effluent line (sanitary sewer line), and gas lines that were impacted by the KIF ash spill. The proposed actions are intended not only to restore needed utility lines in the vicinity of KIF impacted by the spill, but also to further expand and enhance the utility line network.

TVA proposes to replace approximately 28,700 linear feet of water, effluent, and gas utility lines in support of the City of Kingston and the Harriman Utility Board (HUB) to repair needed utility lines in the vicinity of KIF near Harriman, Tennessee. In addition, TVA proposes to install three new water lines totaling 22,300 linear feet based on agreements between the City of Kingston, HUB, and TVA. The City of Kingston and HUB would continue to operate and maintain the utility lines upon completion of the proposed activities.

The proposed actions include installation/replacement of the following utility lines:

- An 8- and 10-inch water line piping and associated equipment (18,600 linear feet)
- A 20-inch effluent line (4,800 linear feet)
- A 4-inch gas line (5,200 linear feet)
- Three new 6-inch water lines (4,700, 8,300, and 9,300 linear feet, respectively)

The anticipated duration of the utility installation project is approximately 8 weeks. The utility installation activities would be carried out in such a manner that would prevent any discharge that causes a condition wherein visible solids, bottom deposits, or turbidity impairs the waters in the project area or downstream of the project area.

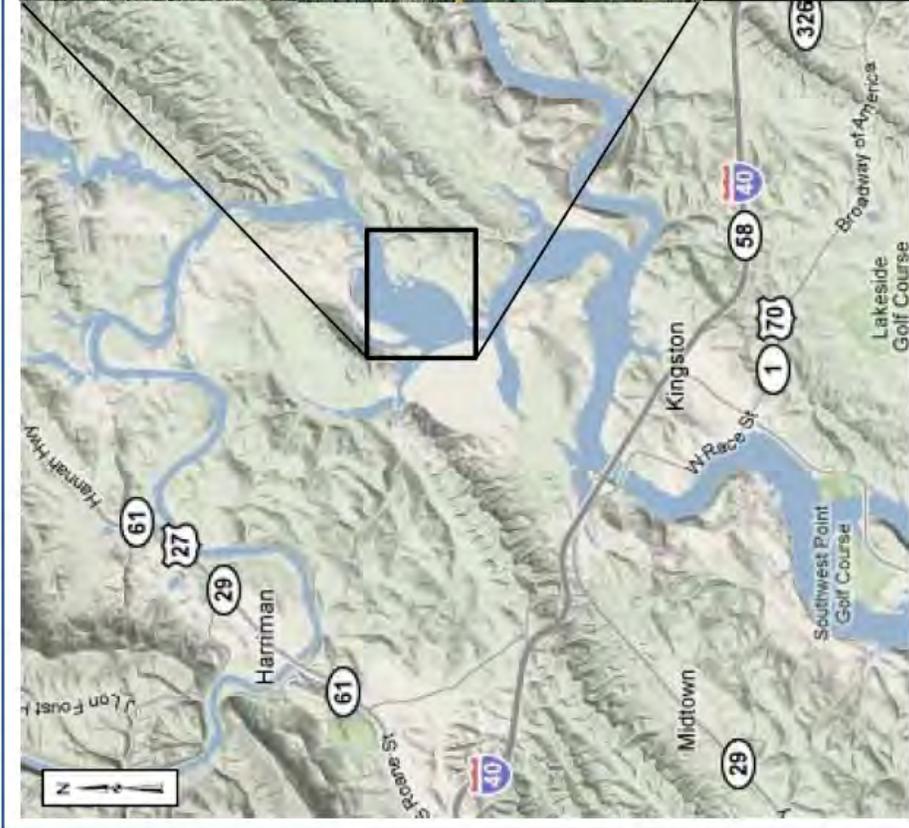


Figure 1. Project Vicinity Map

**KIF Ash Recovery –
Utility Restorations and Enhancement**



KIF Ash Recovery-
Utility Restorations and Enhancement

Figure 2. Kingston Fossil
Plant Area Post Ash Spill



Other Environmental Reviews and Documentation

The following *National Environmental Policy Act* (NEPA) document has been completed and addresses aspects of TVA actions responding to the ash spill event.

- *Initial Emergency Response Actions for the Kingston Fossil Plant Ash Dike Failure Environmental Assessment* (TVA 2009)
The potential impacts of emergency site stabilization and restoration activities including weir construction, emergency operations, and restoration of infrastructure in the Kingston-Harriman area were evaluated in this environmental assessment (EA).

Permits and Consultations

A Tennessee General National Pollutant Discharge Elimination System Permit for Discharges of Storm Water Associated with Construction Activities and a Storm Water Pollution Prevention Plan would be required. Additionally, a General Permit for Utility Line Crossing would be required from the State of Tennessee. TVA's construction contractors would prepare the required erosion and sediment control plans and coordinate them with the appropriate state and local authorities. An Aquatic Resource Alteration Permit under *The Tennessee Water Quality Control Act of 1977*, T.C.A. §69-3-108, would also be required.

Appropriate recognized Native American tribes were consulted concerning the proposed undertaking. TVA received no comments from any of these tribes. TVA received concurrence from the Tennessee State Historic Preservation Officer (SHPO) in a letter dated December 07, 2009 (Attachment A) that there would be no effect to National Register of Historic Places-listed or -eligible properties affected by this undertaking.

Alternatives and Comparison

Two alternatives, No Action and Action, are addressed in this EA. Under the No Action Alternative, TVA would not undertake the proposed action, the replacement utilities would not be installed, and the new water lines would not be built. The Action Alternative entails the installation of the proposed water lines, effluent line, and gas line by TVA that were impacted by the December 22, 2008, ash spill at KIF.

Alternative A – No Action Alternative

Under the No Action Alternative, TVA would not replace the damaged utility lines serving the area in the vicinity of KIF. Under this alternative, the temporary utility line connections would continue to serve area residents. Due to the temporary nature of the utility reroutes, there is a risk that utility services could become unreliable. Furthermore, if TVA were to adopt the No Action Alternative, the land in the project area would remain in its current status and condition.

Alternative B – Action Alternative

Under the Action Alternative TVA would restore and enhance utility lines in the vicinity of KIF that were impacted by the ash slide in December 2008. TVA would replace the damaged City of Kingston's gravity water line by installing 8-inch and 10-inch water line ductile iron pipe (DIP). The utility lines that are no longer in service would remain in place. In addition, an HUB new water line project consisting of three segments of 6-inch polyvinyl chloride (PVC)

pipe would be installed. Furthermore, TVA would install/replace 20-inch effluent line and approximately 5,200 linear feet of 4-inch gas line for HUB.

In addition, to minimize construction impacts by controlling erosion and water pollution, disturbed areas would be seeded and erosion-control features such as silt fences and drainage channels with check dams would be installed, maintained, and subsequently removed using best management practices (BMPs). The construction activities would be completed in a manner that would prevent any discharge that impairs waters in the project area or downstream of the project area.

Construction of Proposed Utility Line Routes

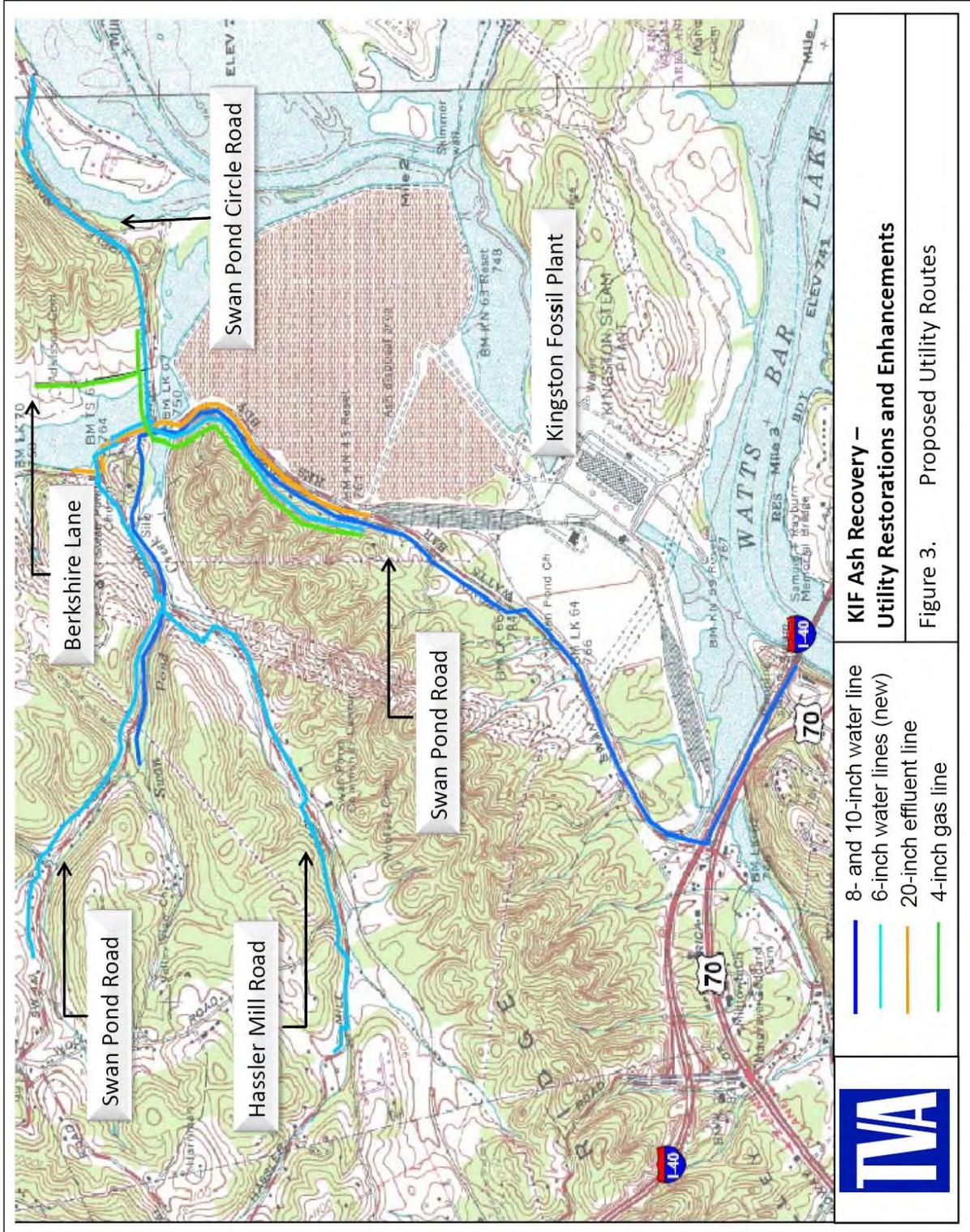
The water line construction activities would include open trench excavation that would occur from within the stream or from the stream side. Excavation and fill activities would be separated from flowing waters. Stream flow would be diverted and/or routed around the construction activities, as necessary, using temporary coffer dams (or equivalent). Construction details are provided in Attachment B. Cut/fill material would be free of pollutants, contaminants, toxic materials, or trash and would be placed in a prudent manner to achieve a stable fill over the concrete-encased water lines. Due to the small diameter of the proposed water lines, no excess material is anticipated.

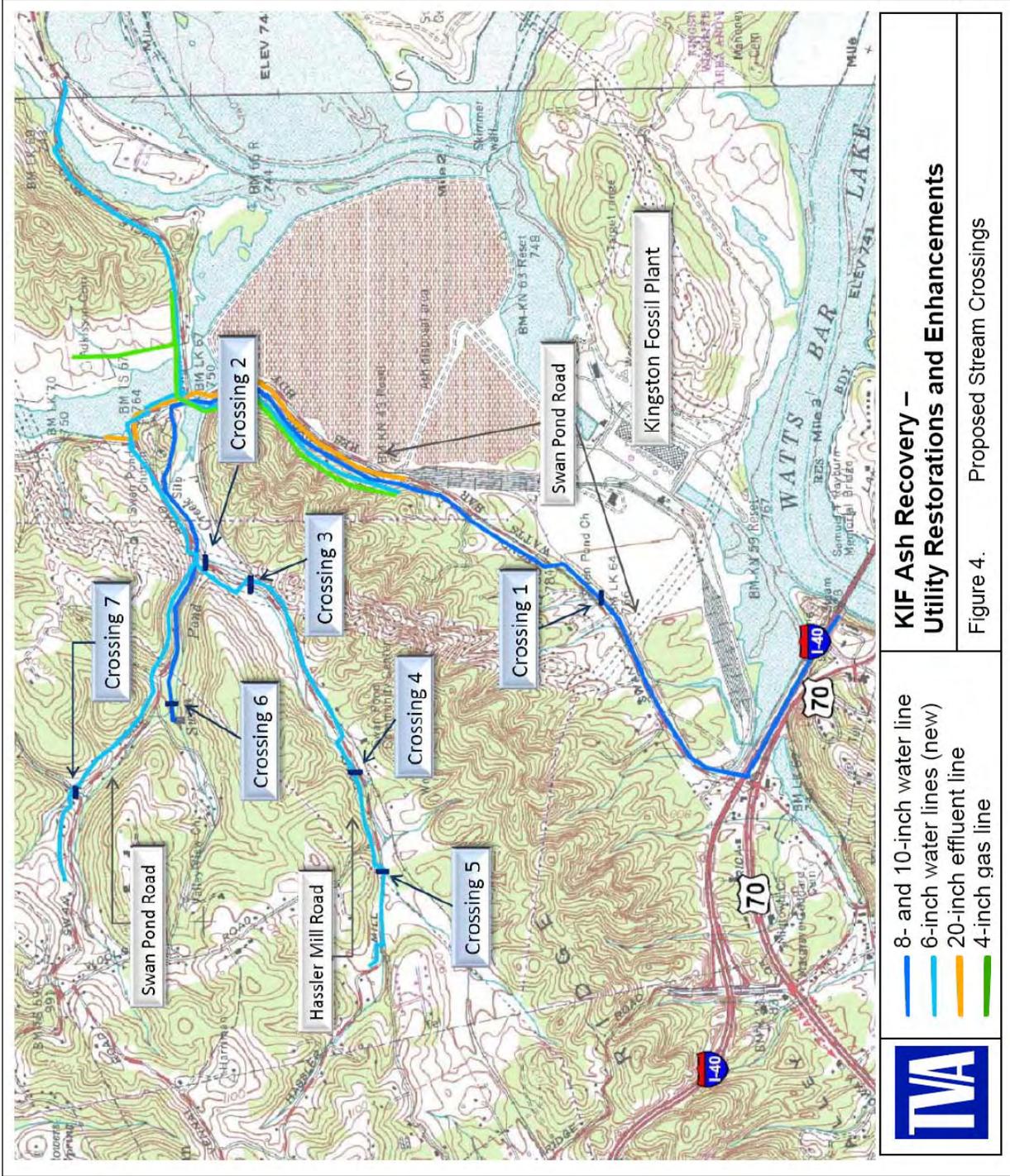
Standard erosion prevention and sediment control measures as described in *Best Management Practices and Selected Project Specifications* (Attachment C) would be implemented during the utility restoration and enhancement project. BMPs may include but are not limited to temporary diversions, silt fences, check dams, riprap, and prompt revegetation of disturbed areas. BMPs would be implemented in accordance with any existing permit requirements. The contractor would be required to apply the appropriate BMPs during the construction, while the engineer would provide observation during construction and would inform TVA as to the progress of construction and suitability of the identified mitigation measures.

Following clearing and construction activities, vegetative cover on the routings would be restored to a condition close to what it was prior to construction. Wooded areas would be restored using native grasses and other low-growing noninvasive species. Erosion controls would remain in place until the plant communities become fully established.

Utility Line Routes

The proposed utility line routes were selected based on topography (less distance and elevation change), a smaller amount of necessary easements, and reduced environmental impacts over other alternatives considered. Most of the work would occur along Swan Pond Road, Swan Pond Circle Road, Hassler Mill Road, and Berkshire Lane utility rights-of-way, including areas disturbed by ash removal activities, previous road construction, and ongoing roadside maintenance (Figure 3). Seven stream crossings are proposed for the utility line restoration/installation project. Figure 4 illustrates the locations of the stream crossings in relation to the utility routes. Photographs of the seven stream crossings are presented in Attachment D.





City of Kingston Water Line (8- to 10-inch water line)

The proposed new gravity line routing would generally follow the damaged water line location. Beginning at the existing booster station near State Route 70 to Interstate 40, the new route deviates from the original by up to 20 feet. The remainder would be within 5 to 10 feet of the original route. Other than minor deviations in the proposed route from the original water line routing, the elevation of the restored water line was the key factor in the design because this water line relies on gravity to move the water. Two stream crossings are proposed for the replacement of the 8- and 10-inch water line piping (18,600 linear feet) and associated equipment.

HUB Water Lines (new 6-inch water lines)

Five stream crossings are proposed for three newly proposed HUB 6-inch water lines (4,700, 8,300, and 9,300 linear feet, respectively) located near Hassler Mill Road and Swan Pond Circle Road. The selected routes were chosen because they would result in fewer stream crossings than the other new routings considered. Furthermore, the streams on the selected water line routings are smaller and would likely result in minimal disturbance.

HUB Effluent Line (20-inch line)

Beginning at Swan Pond Road and the adjacent railroad crossing, the new effluent line (4,800 linear feet) deviates from the original by 20 feet west, then draws closer within 5 feet of the original line, and eventually deviates up to 80 feet prior to reconnecting to the existing effluent line.

HUB Gas Line (4-inch line)

The new gas line (5,200 linear feet) begins near the Swan Pond Road/railroad crossing connection to the existing line and would be within 5 feet of the original location, including that portion along Swan Pond Circle Road. The gas line along Berkshire Lane is 300 feet east of the original location beginning at the intersection with Swan Pond Circle Road, up to 350 feet east, then tapers to within 5 feet and stays within 5 feet to the end of Berkshire Lane.

Other Alternatives Considered But Eliminated

During the development of this proposal, other line routings were considered to supply the area with the needed utilities. The alternative line routings and locations that were not selected would have their own associated environmental impacts, but did not meet project needs as well as the selected routes described below. These other alternatives and the reasons they were eliminated from further study are described below.

A number of preliminary routings were considered for all of the utility line routes. All of the line routes considered involved several stream crossing locations. The selected routes were chosen because they cross fewer streams than other routes considered and would have minimal impacts to sensitive resources.

During the design stage, installation of a new water booster station at the spring source was considered in lieu of the gravity water line alternative associated with the City of Kingston's 8-inch and 10-inch DIP water line. This alternative would reduce the line size of the pipe, but was not selected because it would add operation and maintenance costs to the system. One stream crossing with a potentially smaller disturbance than the selected

alternative would occur if this alternative were selected; however, the smaller stream impact would not justify the long-term costs of selecting such a water system.

Preferred Alternative

TVA's preferred alternative is the Action Alternative. Under the Action Alternative, TVA would restore and enhance utility lines in the vicinity of KIF that were impacted by the ash slide in December 2008.

Affected Environment and Evaluation of Impacts

The existing environmental conditions and those environmental resources that could be affected by the proposed actions are described in this section. The affected environment descriptions below are based on field surveys conducted in 2009, on published and unpublished reports, and on personal communications with resource experts.

Site Description

Approximately 12 acres of land would potentially be disturbed during the proposed utility line installation/replacement activities. Most of the proposed project area is roadway rights-of-way along Swan Pond Road, Hassler Mill Road, and Swan Pond Circle Road (Figure 2). Portions of the proposed new and damaged water line routes would cross Swan Pond Creek and unnamed tributaries to Watts Bar Reservoir.

Drainage areas at the project site include the local topography within a mostly rural area, as the source of water appears to be primarily from storm water runoff subsequent to sizable rainfall events. The streams have evidence of sedimentation from previous disturbances and vary in terms of depth at minimum flow.

Impacts Evaluated

Evaluation of the affected area has allowed TVA to conclude that certain resources would not be affected by the proposed actions. Potential effects related to navigation and floodplains, wetlands, natural areas, recreation, wild and scenic rivers, prime farmland, land use, visual resources, air quality, noise, socioeconomics, and environmental justice have been considered but, because of the nature of the action, did not require detailed evaluation.

Resources that could be affected by the proposed utility restoration activities have been given further consideration in this environmental review and include the following: water quality and aquatic ecology, terrestrial ecology, threatened and endangered species, historic and cultural resources, and transportation.

Water Quality and Aquatic Ecology

Affected Environment

Potential adverse impacts to surface water and groundwater quality are normally related to those resulting from construction activities and the maintenance of the new facilities. Potential construction-related impacts in waterways include increased turbidity and sedimentation. Proper standard erosion control measures as described in Attachment C would be followed to minimize the potential for adverse impacts on aquatic organisms and habitats.

Seven stream crossings are proposed for the utility line project (Figure 3). Two stream crossings are proposed for the replacement of the City of Kingston's 8- and 10-inch water line piping and associated equipment (18,600 linear feet). The source of these streams' flow appears to be primarily surface storm water runoff from rainfall events. Five stream crossings are proposed for three new HUB 6-inch water line routings (4,700, 8,300, and 9,300 linear feet, respectively) located near Hassler Mill Road and Swan Pond Circle Road. The source of flow for these small streams appears to be primarily surface storm water runoff from rainfall events. However, a portion of flow in these small streams may also be from groundwater sources in the surrounding area.

The streams are typically gently sloping at the proposed crossings. The vegetation associated with the streams includes maintained lawns and low-growing herbaceous and woody vegetation. Slopes are generally less than 1 percent in the proposed crossing areas. During dry-weather conditions, each crossing has little or no water within the stream. Variations in flow were observed during rainfall events. During wet-weather conditions, each of the stream crossings exhibited flow with depths ranging from 1 to 2 feet. The average stream crossing widths would vary from 5 to 10 feet. Photographs of the stream crossings are presented in Attachment D.

Environmental Consequences

The streams in the project area have been previously disturbed by the existing water line crossings, roadway construction, and right-of-way maintenance. BMPs that apply to stream crossing and construction, as described in Attachment C, would be used to minimize any impacts to streams. Specific measures to protect water quality include the use of silt fences and sedimentation traps, seeding and mulching of exposed soils, and temporary installation of drainage channels with check dams. Any stream disturbances would be temporary. Implementation of the Action Alternative would not create a noticeable impact on water quality or aquatic life.

Terrestrial Ecology

Affected Environment

Many plant and animal communities in the project area were greatly altered by the KIF ash spill. The areas along the roadsides are mostly herbaceous vegetation with a mixture of common, weedy native and nonnative grasses and herbs. Habitats in the vicinity of the proposed project area are used by a variety of shorebirds, waterfowl, gulls, herons, and other wildlife typically found in rivers, riparian corridors, and upland forested habitats. Wildlife in the area is comprised of species that are locally abundant and typically found in modified habitats. TVA monitors a variety of wildlife species at various sites around the KIF ash spill site. The proposed utility routes do not cross any of these sites.

Environmental Consequences

Under the No Action Alternative the areas within the proposed project area would remain in their current condition. Thus, adoption of the No Action Alternative would not affect plant life or wildlife because no project-related work would occur. Changes to local plant communities resulting from natural ecological processes and human-related disturbance would continue to occur, but the changes would not result from the proposed project.

Adoption of the Action Alternative would not affect the terrestrial life of the region. Most of the work would occur along roadways and utility rights-of-way, including areas disturbed by ash removal activities, previous road construction, and ongoing roadside maintenance.

Project-related work would temporarily affect the already disturbed herbaceous plant communities, but these communities would likely recover to their preproject condition in less than one year. Any impacts to terrestrial ecology and terrestrial wildlife are expected to be minor. The proposed actions are mainly restricted to the margins of roadway rights-of-way and are not expected to impact wildlife habitat. Although the proposed routes are close to TVA wildlife monitoring sites, the proposed action would not result in any adverse impacts to these sites.

Threatened and Endangered Species and Species of Conservation Concern

Species listed at the federal level as threatened or endangered are protected under the *Endangered Species Act*, which is administered by the U.S. Fish and Wildlife Service (USFWS). Section 7 of this act requires federal agencies to consult with USFWS in situations where a federal action may adversely affect federally listed species or their habitats.

Affected Environment

Although several federally listed plant and animal species are known from Roane County (see Table 1), only one animal species, the piping plover, is known to occur in the area affected by the ash spill. The piping plover has been reported from KIF ash ponds on five occasions between 1978 and 2002. It has not been found on systematic shorebird surveys at KIF conducted since 2004. Gray bats are known from Roane County and likely forage along the Clinch and Emory rivers. The closest cave known to be occupied by gray bats is 16 miles from the project site. The piping plover and the gray bat do not occur within the proposed utility project routes.

Several other plants and aquatic and terrestrial animals listed as endangered, threatened, or of special concern by the State of Tennessee have been reported from within a few miles of the proposed project area. A desktop review using the TVA Natural Heritage database, aerial photos of the region, site-specific photos, topographic maps, and knowledge of rare plants in the vicinity indicates that no federally listed or state-listed plants or aquatic animals occur in the proposed project area, and none are likely to occur in the project area. Most project-related work would occur in areas that were heavily disturbed by the ash slide and subsequent ash removal activities as well as previous disturbances such as roadway construction and right-of-way maintenance. Other areas within the project area are early successional plant communities with either low-growing or mowed vegetation. In addition, site photographs of stream crossings (Attachment D) depict early successional plant communities that are not expected to support rare plants known from the vicinity of the project area.

Table 1. Federally Listed Species Known From Roane County, Tennessee, and State-listed Plant Species Known From Within 5 Miles of the Proposed Project Area

Common Name	Scientific Name	Federal Status ¹	State Status (Rank) ²
Plants			
Earleaf Foxglove	<i>Agalinis auriculata</i>	-	END (S2)
American Hart's-Tongue Fern	<i>Asplenium scolopendrium</i> var. <i>americanum</i>	THR	END (S1)
Spreading False-Foxglove ³	<i>Aureolaria patula</i>	-	SPCO (S3)
Appalachian Bugbane	<i>Cimicifuga rubifolia</i>	-	THR (S3)
Cumberland Rosemary	<i>Conradina verticillata</i>	THR	THR (S3)
Tall Larkspur	<i>Delphinium exaltatum</i>	-	END (S2)
Northern Bush-Honeysuckle	<i>Diervilla lonicera</i>	-	THR (S2)
Mountain Bush-Honeysuckle	<i>Diervilla sessilifolia</i> var. <i>rivularis</i>	-	THR (S2)
Branching Whitlow-Wort	<i>Draba ramosissima</i>	-	SPCO (S2)
McDowell Sunflower	<i>Helianthus occidentalis</i>	-	SPCO (S2)
Goldenseal	<i>Hydrastis canadensis</i>	-	S-CE (S3)
Fetter-Bush ³	<i>Leucothoe racemosa</i>	-	THR (S2)
Slender Blazing-Star	<i>Liatris cylindracea</i>	-	THR (S2)
Canada Lily	<i>Lilium canadense</i>	-	THR (S3)
Mountain Honeysuckle	<i>Lonicera dioica</i>	-	SPCO (S2)
Large-Flowered Barbara's-Buttons	<i>Marshallia grandiflora</i>	-	END (S2)
American Ginseng	<i>Panax quinquefolius</i>	-	S-CE (S3S4)
Monkey-Face Orchid	<i>Platanthera integrilabia</i>	C	END (S2S3)
Heller's Catfoot	<i>Pseudognaphalium helleri</i>	-	SPCO (S2)
Pursh's Wild-Petunia	<i>Ruellia purshiana</i>	-	SPCO (S1S2)
Prairie Goldenrod	<i>Solidago ptarmicoides</i>	-	END (S1S2)
Virginia Spiraea	<i>Spiraea virginiana</i>	THR	END (S2)
Barrens Silky Aster	<i>Symphyotrichum pratense</i>	-	END (S1)
Northern White Cedar	<i>Thuja occidentalis</i>	-	SPCO (S3)
Mussels			
Pink Mucket	<i>Lampsilis abrupta</i>	END	END (S2)
Pyramid Pigtoe	<i>Pleurobema rubrum</i>	-	TRKD (S2S3)
Fish			
Blue Sucker	<i>Cycleptus elongatus</i>	-	THR (S1)
Spotfin Chub	<i>Cyprinella monacha</i>	THR	THR (S1)
Tennessee Dace	<i>Phoxinus tennesseensis</i>	-	NMGT (S3)
Tangerine Darter	<i>Percina aurantiaca</i>	-	NMGT (S3)
Bird			
Piping Plover	<i>Charadrius melodus</i>	END	END (S2)
Mammal			
Gray Bat	<i>Myotis grisescens</i>	END	END (S2)

¹Status codes: C = Candidate; END = Endangered; NMGT = In need of management; SPCO = Special concern; S-CE = Special concern-commercially exploited; THR = Threatened; TRKD = Tracked by the state

²Rank codes: S1 = Extremely rare and critically imperiled in the state; S2 = Very rare and imperiled within the state; S3 = Rare or uncommon; S4 = Apparently secure; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2)

Environmental Consequences

Threatened and Endangered Terrestrial Plants and Animals

Adoption of the No Action Alternative would not impact federally listed or state-listed plant or animal species or their habitats because no project-related work would take place.

Adoption of the Action Alternative would have no effect on federally listed plant and animal species because no federally listed species or their habitat occurs in the proposed project area. Habitat for state-listed plant species does occur in the project area, but the likelihood that state-listed species are present is low because the project area has been highly disturbed by roadway construction, right-of-way maintenance, and much of the project area was directly impacted by the ash spill. Areas not impacted by the ash spill are subject to frequent disturbance due to their proximity to roadways and private residences. Although there are no state-listed plant species known from the project area, if present, the additional disturbance from utility installation activities may temporarily impact state-listed species. However, the work would not likely preclude species tolerant of disturbance from recolonizing areas after work is completed. Any potential impact to state-listed species would be expected to be minor.

Threatened and Endangered Aquatic Animals

Adoption of the No Action Alternative would not impact federally listed or state-listed aquatic animal species or their habitats because no project-related work would take place.

Adoption of the Action Alternative would have no effect on federally listed or state-listed aquatic species because no species occur at or near the proposed utility construction areas. The habitats at the stream crossings have been previously disturbed and do not have appropriate requirements for any federally listed or state-listed species known from Roane County.

Historic and Cultural Resources

Historic and cultural resources, including archaeological resources, are protected under the following federal laws: the *Archaeological Resources Protection Act*, the *Native American Graves Protection and Repatriation Act*, and the *National Historic Preservation Act* (NHPA). Section 106 of NHPA requires federal agencies to consult with the respective SHPO when proposed federal actions could affect these resources.

Affected Environment

East Tennessee has been an area of human occupation for the last 12,000 years. This includes five broad cultural periods: Paleo-Indian (11,000-8000 B.C.), Archaic (8000-1600 B.C.), Woodland (1600 B.C.-A.D. 1000), Mississippian (A.D. 1000-1700), and Historic (A.D. 1700- to present). Prehistoric land use and settlement patterns vary during each period, but short- and long-term habitation sites are generally located on floodplains and alluvial terraces along rivers and tributaries. Specialized campsites tend to be located on older alluvial terraces and in the uplands. In East Tennessee, during the 17th and 18th centuries, Europeans and Native Americans began interacting through the fur trading industry. European-American settlement increased in the early 19th century as the Cherokee were forced to give up their land. Roane County was established in 1801. During the Civil War, the commercial potential of local mineral deposits was recognized in the county. Around the late 19th century, the county benefited from many diversified industries that came to the area (Hall and Parker 1998).

The archaeological area of potential effect (APE) was determined as the 51,000-linear-foot by 20-foot-wide utility corridor. The APE for architectural resources includes a 0.5-mile area surrounding the proposed project area as well as any areas where the project would alter existing topography or vegetation in view of a historic resource. A preliminary records search was conducted prior to the survey conducted in November 2009, and no previously recorded archaeological or architectural resources were identified within the APE. The archaeological survey identified no previously unrecorded archaeological resources and no previously unrecorded architectural resources within the APE.

Environmental Consequences

No previously recorded or unrecorded archaeological or architectural resources were identified within the APE during surveys conducted in November 2009. Based on field survey results, TVA has determined that the proposed undertaking would not affect any historic properties that are eligible or currently listed in the National Register of Historic Places, and has received concurrence from the Tennessee SHPO in a letter dated December 07, 2009.

Transportation

Affected Environment

The proposed utility routes are primarily located along Swan Pond Road, Swan Pond Circle Road, Berkshire Lane, and Hassler Mill Road. Swan Pond Road is a rural, two-lane roadway with minimal shoulders. Reduction to one lane of traffic would be necessary for an estimated 3.5-mile roadway section during the utility installation activities. Three stream crossings are located on Swan Pond Road (see Figure 3). Swan Pond Road would temporarily be closed to through traffic during the stream crossing utility work, and travel would be restricted to local traffic. Of the roadways impacted by the proposed utility installation work, average annual daily counts (Tennessee Department of Transportation 2008) are only available for Swan Pond Road and Hassler Mill Road (see Table 2). Stream Crossing 1, located on the southern end of Swan Pond Road (see Figure 4), has the potential to affect the greatest number of vehicles because larger quantities of traffic use this section of road.

Table 2. Roadway Traffic Information

Roadway	Length of Project Area	Stream Crossings ¹	Two Lane Closure	2008 Annual Daily Counts	2010 Annual Daily Counts ²
Swan Pond Road	3.5 miles	1,7	Yes	3,263 vehicles	3,736 vehicles
Swan Pond Circle Road	1.2 miles	None	No	Not Available	Not Available
Hassler Mill Road	1.5 miles	2, 3, 4, 5	Yes	369 vehicles	422 vehicles
Berkshire Lane	0.3 mile	None	No	Not Available	Not Available

¹Cross reference to Figure 4. Proposed Stream Crossings. ²2010 Annual Daily Counts are estimated.

Swan Pond Circle Road is also a rural, two-lane roadway with minimal shoulders. Reduction of roadway use to one lane would be required over an approximately 1.2-mile portion of Swan Pond Circle Road during gas line installation and the addition of approximately 2.4 miles of new water line along Swan Pond Circle Road. No stream crossings are located on Swan Pond Circle Road, thus closure of both lanes is not anticipated.

Hassler Mill Road is a rural, two-lane roadway with no shoulders. Reduction of roadway use to one lane would be necessary for an approximately 1.5-mile portion of Hassler Mill Road during proposed water line installation. Four stream crossings are located on Hassler Mill Road (see Figure 4). Therefore, there would be occasions when closure of both lanes would be necessary, and travel would be restricted to local traffic.

Berkshire Lane is a short, rural, two-lane cul-de-sac with no shoulders. Reduction of use to one lane would be required over the 0.3-mile length of this road during the installation of the 4-inch gas line. No stream crossings are located on Berkshire Lane, so closure of both lanes is not anticipated.

Environmental Consequences

Under the No Action Alternative, no impacts to the traffic density would occur. Adoption of the Action Alternative would result in some disruption to local traffic patterns. The utility work would require the temporary reduction of portions of each roadway to one lane. In addition, temporary roadway closure of both lanes of Swan Pond Road and Hassler Mill Road would be necessary for short periods of time during water line installation activities in the vicinity of the stream crossings. The anticipated duration of the utility installation project is approximately 8 weeks. As a standard practice, in order to ensure traffic impacts in this area are considered, a traffic control plan including the preparation for minimizing impacts to local traffic would be submitted by the successful bidder before work commences. Due to the availability of other traffic route alternatives, the temporary duration of the project, and planned implementation of an appropriate traffic control plan, the impacts to traffic are expected to be minor.

Cumulative Impacts

Although the proposed utility installation activities would have a somewhat greater impact than adopting the No Action Alternative, implementation of the Action Alternative would result in a minor impact on the environment upon completion of utility construction and operations. Therefore, TVA has determined that cumulative impacts of the proposed action would be minor, given the adherence to standard control measures to minimize impacts to water quality and traffic.

Mitigation Measures

No specific nonroutine environmental commitments or mitigation measures were identified to reduce potential environmental effects. Standard mitigation and control measures as described in Attachment C would be implemented during the installation of the proposed water lines. The contractor would be required to apply the appropriate BMPs during the construction, while the engineer would provide observation during construction and would inform TVA as to the progress of construction and suitability of the identified mitigation measures.

The utility lines would be installed using typical construction methods for such installations. The BMPs provided in Attachment C would be implemented during construction, along with the construction detail provided in Attachment C. Cut/fill material will be free of pollutants, contaminants, toxic materials, or trash and shall be placed in a prudent manner to achieve a stable fill over the concrete-encased water lines. Due to the small diameter of the proposed water lines, no excess material is anticipated.

Additionally, as a standard practice, in order to ensure that traffic impacts in the proposed project area are considered, a traffic control plan including preparations for minimizing impacts to local traffic will be developed before work commences.

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Agencies and Others Consulted

18 Federally Recognized Tribes
Tennessee State Historic Preservation Officer
Tennessee Department of Environment and Conservation

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Attachments

- A. Correspondences
- B. Branch or Ditch Crossing Detail
- C. Best Management Practices and Selected Project Specifications
- D. Proposed Stream Crossing Photograph