



National Park Service  
U.S. Department of the Interior  
Great Smoky Mountains National Park  
North Carolina and Tennessee

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**FINDING OF NO SIGNIFICANT IMPACT**  
**Elkmont Wastewater Treatment Plant Upgrade**

Recommended:

Cassius M. Cash  
Superintendent, Great Smoky Mountains National Park

6/22/18

Date

Approved:

Sarah Craighead  
Acting Regional Director, Southeast Region, National Park Service

6/28/18

Date

## INTRODUCTION

In compliance with the National Environmental Policy Act, the National Park Service (NPS) prepared an environmental assessment (EA) to examine alternative actions and environmental impacts associated with proposed upgrades to the Elkmont Wastewater Treatment Plant (WWTP) at Great Smoky Mountains National Park (GRSM), Sevier County, Tennessee. The purpose of the action is to provide a modern, efficient, and sustainable wastewater treatment system for the Elkmont Developed Area, which includes the Elkmont Campground. The existing WWTP discharges treated effluent to the East Prong Little River (Little River) downstream of the campground as authorized by National Pollutant Discharge Elimination System (NPDES) permit number TN0022349 issued by the Tennessee Department of Environment and Conservation (TDEC). The action is needed because the existing WWTP, which was originally built in 1959 and modified in 1969 and 2008, has exceeded its expected service life.

Alternatives carried forward for analysis in the EA included:

- Alternative A – The No Action Alternative provides a basis for comparing environmental impacts of the action alternatives based on continued operation of the existing WWTP.
- Alternative B – Upgrade WWTP and continue discharging to the Little River.
- Alternative C (Proposed Action and Preferred Alternative) – Upgrade WWTP and install subsurface effluent dispersal system.

The statements and conclusions reached in this finding of no significant impact (FONSI) are based upon documentation and analysis provided in the *Elkmont Wastewater Treatment Plant Draft Environmental Assessment* (May 2018) and associated decision file. The EA was made available for public review from May 10 through 31, 2018. Two pieces of correspondence were received during the comment period, but no substantive comments were received.

## SELECTED ALTERNATIVE AND RATIONALE FOR THE DECISION

Based on the analysis presented in the EA and after considering public comments, the NPS selected Alternative C (Preferred Alternative) – upgrade WWTP and install subsurface effluent dispersal system. Under the selected alternative, the Elkmont WWTP will be upgraded to include new treatment processes and controls, a subsurface (land) effluent drip dispersal system, and a force main to supply the drip dispersal system. The effluent dispersal system will be installed on up to 5 acres of forested land near the WWTP and will allow for elimination of surface water discharges under normal flow conditions. Wastewater will receive pretreatment, secondary biological treatment, and disinfection prior to being discharged to a 40,000 gallon holding tank. Effluent from the holding tank will be disposed of through the drip dispersal system under normal wastewater flow conditions. After multiple days of unusually high wastewater flows, the capacity of the drip dispersal system could be exceeded and discharge to the Little River may be necessary.

Up to 5 acres will also be identified as a reserve drip dispersal area. All or part of the reserve area could be used in the future if soils in the primary drip area can no longer function properly. With good design, installation, operation, and maintenance, drip systems are expected to have a useful life span of at least 20 years and some systems could have unlimited life expectancy when hydraulic and organic loading rates are optimized based on actual site conditions (EPRI and TVA 2006). Specifics regarding whether the reserve area would need to be used in the future and the exact size of the area that might need to be

used are unknown at this time. For analysis purposes, it is assumed that the reserve area would not be used for at least 20 years. Any future use of the reserve area would be subject to further analysis in accordance with NPS policies and the National Environmental Policy Act.

## **Rationale**

Alternative C (Preferred Alternative)-upgrade WWTP and install subsurface effluent dispersal system- was selected because NPS determined that:

- The long-term benefits associated with reducing the volume of treated wastewater discharged to the Little River outweigh the long-term adverse impacts of installing and operating the drip dispersal area. Little River's designation as an Outstanding National Resource Water was an important consideration.
- Some resources would experience long-term, adverse impacts, but the impacts would not be significant.
- The mitigation measures identified in the EA have a high likelihood of successfully avoiding and minimizing impacts on park resources and visitors; ensuring that impacts are not significant.

## **Mitigation Measures**

The selected alternative includes the following mitigation measures.

1. Schedule construction during the Elkmont Campground closed season (November-March) to the extent possible. If an early campground closure or late campground opening is necessary, inform the public at least 6 months in advance through the reservation website ([www.recreation.gov](http://www.recreation.gov)), news releases, and social media.
2. Conduct tree and vegetation clearing between November 15 and March 31 to avoid impacts to federally listed bats and nesting birds.
3. Implement sediment and erosion control measures consistent with the requirements and recommendations contained in the *Tennessee Erosion and Sediment Control Handbook* (TDEC 2012). File Notice of Intent with TDEC to obtain coverage under the General NPDES Permit for Discharges of Stormwater Associated with Construction Activities (Permit Number TNR100000). Develop site-specific stormwater pollution prevention plan in accordance with Part 3 of the General Permit and submit with the Notice of Intent.
4. In the event that archeological materials are inadvertently discovered, all work in the immediate area of the find shall cease and Park Dispatch (865-436-1230) shall be notified immediately. Work will not proceed until authorized by the Superintendent, in consultation with the Park Archeologist.
5. Prior to starting work, contractors shall be familiar with and follow Federal regulations covering all NPS lands (Code of Federal Regulations, Title 36, Chapter 1) and regulations contained in the GRSM Compendium of Regulations, including those for food storage and sanitation. All contractor personnel will be notified that it is illegal to possess, destroy, injure, deface, remove, dig, or disturb historic structures, archaeological resources, other cultural resources, and natural resources.
6. Pressure or steam wash all construction equipment to ensure it is free of soil, seed, or other materials prior to entering the park to avoid introduction of pests and non-native invasive plants (weeds). Maintain records of cleaning and inspections.

7. All imported construction materials (soils, gravel, sand etc.) shall be specified clean and weed free. Material sources (borrow pit, quarry, supplier) shall be inspected to ensure they are clean and free of non-native invasive plants and seeds. Weed-free status may be ensured by pressure washing, steam washing, fumigation, heat sterilization, or certification from the supplier. Hay and straw may not be used.
8. Survey project area for non-native invasive plants prior to construction and two times per year for 3 years after construction. Apply appropriate treatments to control invasive plants.
9. Incorporate noise reduction measures into the WWTP upgrade design, where practicable, to minimize impacts on visitor experience in the campground and wilderness character in surrounding areas.
10. Conduct vegetation surveys as part of the design process to develop a drip system layout that minimizes vegetation clearing and tree damage.
11. Identify all trees (live or dead) greater than or equal to 16 inches diameter at breast height (DBH) with loose bark, crevices, cavities, or cracks. Avoid removing trees greater than or equal to 16 inches DBH with loose bark, crevices, cavities, or cracks to the extent possible, unless a tree poses a safety hazard.
12. Retained trees should include a mix of sizes, age classes, and species to the extent possible.
13. Conduct special status plant survey during the 2018 growing season to determine presence or probable absence of special status plant species. Develop and implement mitigation measures, as appropriate.
14. Use construction methods and equipment that protect the natural soil profile and retained trees within the drip dispersal area to ensure that soils and vegetation function as intended for effluent dispersal and treatment.
  - a. Avoid compaction by using low-ground pressure equipment, preferably equipment with rubber tracks.
  - b. Park equipment on access road vs. drip area. Avoid equipment operation and parking on critical root zone of retained trees.
15. Remove tree trunks, larger diameter limbs, and tree tops with a grapple bucket, highline and winch, or other low-impact methods. Elevate tree ends above the ground surface to limit plowing or trenching of duff and soil from pulling logs.
16. Disperse wood chips generated during site preparation to a depth not to exceed 2 inches to minimize suppression of herbaceous vegetation regrowth in the drip dispersal area or dispose of wood chips and woody debris at an appropriate facility outside of the park.
17. Avoid impacts to Slick Limb Branch and associated wetlands during force main installation by spanning the stream in the existing roadbed or using trenchless construction methods to install pipe under the stream.
18. Do not clear vegetation, install drip system, or operate equipment on slopes greater than 50 percent or in areas within 50 feet of springs and 25 feet of streams, gullies, ravines, drainways, cutbanks, and sinkholes.
19. Install exclusion fencing in areas identified as cultural resources avoidance areas to help ensure cultural resources are not inadvertently damage by equipment. Fencing will be installed with oversight by the Park Archeologist.
20. Archeological monitoring is required during construction when ground disturbance is occurring near archeological site GRSM 375/40SV124. Monitoring will be conducted by the Park Archeologist or another qualified professional under supervision of the Park Archeologist.

## **FINDING OF NO SIGNIFICANT IMPACT**

Council on Environmental Quality regulations at 40 CFR section 1508.27 identify ten criteria for determining whether the selected alternative will have a significant effect on the human environment. The NPS reviewed each of these criteria given the environmental impact described in the EA and determined that there will be no significant direct, indirect, or cumulative impact under any of the criteria.

As described in the EA, the selected alternative has the potential for adverse or beneficial impacts on surface water, aquatic life, floodplains, vegetation, wildlife, wilderness, and archeology. No significant adverse impacts were identified.

### **Surface Water and Aquatic Life**

The upgraded WWTP will have long-term, beneficial impacts on surface water and aquatic life because less effluent will be discharged to the river, and the new WWTP will be more reliable and less susceptible to operational complications compared to the No Action Alternative. The risk of water quality and aquatic life impacts from an unintended discharge of untreated pollutants due to mechanical failure or human error will be lower under the selected alternative based on the frequency and volume of discharges to surface water. Potential impacts from soil erosion and sediment runoff during construction will be minimized through the use of sediment and erosion control measures consistent with the requirements and recommendations contained in the *Tennessee Erosion and Sediment Control Handbook* (TDEC 2012). Overall, the selected alternative is expected to have a beneficial impact on surface water and aquatic life based on the reduced effluent volume discharged to Little River.

### **Floodplains**

The existing Elkmont WWTP is within the 100-year floodplain (Zone A) of the Little River, as identified on the Federal Emergency Management Agency Flood Insurance Rate Map Panel 47155C0340E (effective May 18, 2009). The drip dispersal system proposed under the selected alternative will be outside the 100-year floodplain. National Park Service Procedural Manual 77-2: *Floodplain Management* requires parks to protect floodplain values, minimize flood risks, and develop a Statement of Findings for proposed activities within floodplains. Construction of new WWTP components will result in a small increase in impervious surface within the floodplain (less than 0.25 acres based on preliminary design information). Adverse impacts on floodplain functions and values will be negligible based on the minimal changes that will take place under the selected alternative. The Floodplains Statement of Findings is provided in Appendix A of this FONSI.

## Vegetation

Installation, operation, and maintenance of the drip dispersal system under the selected alternative will permanently convert up to 5 acres of natural forest vegetation to a maintained landscape. About 25 to 50 percent of the overstory trees and all of the shrub layer vegetation within the 5-acre drip dispersal area will be removed to allow for installation of the drip system. If the reserve area needs to be used in the future, an additional 5 acres or up to a total of 10 acres could be impacted. The affected area was disturbed prior to establishment of the park, but has substantially recovered through natural processes over the past 85 years. The vegetation communities and natural processes that currently exist within the proposed drip dispersal area are common throughout much of the park. Although these vegetation communities are not rare or imperiled, they are considered important resources in the context of a National Park, which is designated as a World Heritage Site and is the core unit of an International Biosphere Reserve. These forests are also important in the local context of the Elkmont Developed Area, most of which was heavily altered prior to establishment of the park. The 384-acre Elkmont Developed Area currently consists of about 54 percent natural forest communities and about 46 percent human influenced, maintained, and developed landscapes. The selected alternative will result in a 2 percent decrease in natural forest cover in the Elkmont Developed Area. This decrease could be as high as 4 percent, if the entire reserve area needs to be used in the future.

The selected alternative will have long-term adverse impacts on vegetation, but NPS has determined that the impacts will not be significant because:

- The effected vegetation communities are within the Elkmont Developed Area, are common throughout much of the park, and are not imperiled or otherwise considered rare.
- The drip dispersal area will continue to support a variety of native plants.
- Mitigation measures will be implemented to monitor and control non-native invasive plants.

## Wildlife

As discussed above for vegetation, the selected alternative will permanently convert up to 5 acres of natural forest vegetation to a maintained landscape (up to 10 acres if the reserve area needs to be used in the future), which will also result in long-term changes in wildlife habitat. Less mobile or burrowing wildlife species could also be directly affected during site preparation and construction.

Surveys conducted by GRSM Resource Management and Science Division staff in early June 2018 confirmed the occurrence of adult synchronous fireflies (*Photinus carolinus*) within and adjacent to the drip dispersal study area. The highest densities were observed outside the study area along Slick Limb Branch and north of the gravel road. Areas with relatively moist soils along Slick Limb Branch, Little River, and other drainages appear to provide the best habitat. Habitat is less suitable in drier, up slope areas such as the southern portion of the drip dispersal study area. It is estimated that less than 2 acres of occupied synchronous firefly habitat would be affected by the selected alternative. Synchronous firefly larvae would be directly impacted during site preparation and construction. Over the short-term, a local decrease in abundance would be expected as a result of mortality during construction. Drip system installation and maintenance would also result in long-term alteration of synchronous firefly habitat. The response of fireflies to the changes in habitat is uncertain. It is assumed that habitat would be degraded to some degree over the long-term based on departure from natural conditions, but it is unlikely that the habitat would be completely lost.

The selected alternative will have short- and long-term adverse impacts on wildlife, but NPS has determined that the impacts will not be significant because:

- The project will have no direct impact on federally listed species or critical habitat designated under the Endangered Species Act.
- Site preparation and construction will take place from November through March, which will avoid direct impacts on nesting birds and roosting bats.
- Over the short-term, a local decrease in abundance of some less mobile or burrowing species will be expected as a result of mortality during construction, but no long-term, population-level impacts are expected.
- Habitat changes are not expected to result in changes in the types of species using the Elkmont Developed Area. Habitats affected by the selected alternative are common throughout much of the park.

The NPS has completed informal consultation with the U.S. Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act. The U.S. Fish and Wildlife Service concurred with NPS' determination that the selected alternative may affect, but is not likely to adversely affect the federally endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*Myotis septentrionalis*).

### **Wilderness**

The proposed WWTP upgrades and drip dispersal system proposed under the selected alternative will be outside of recommended wilderness. The southern portions of the drip dispersal area will be adjacent to recommended wilderness. Vegetation patterns within the maintained drip area will be noticeably different than the surrounding natural landscape. The viewshed of the drip area from wilderness will be small based on terrain and forest cover, but the presence of a managed landscape will have indirect, long-term adverse impacts on the natural, undeveloped, and untrammeled qualities of wilderness character. In addition, noise associated with construction, operations, and maintenance will have indirect, short- and long-term adverse impacts on solitude, as well as the natural and untrammeled qualities of wilderness character. These impacts are not considered significant because they will originate outside of wilderness and will be limited to a relatively small area along the developed area-wilderness interface.

### **Archeological Resources**

The NPS has completed an archeological survey of the project area. Archeological avoidance areas and other mitigation measures have been developed to ensure archeological resources are not impacted. The NPS has completed consultation with the Tennessee State Historic Preservation Office and federally recognized Indian Tribes in accordance with Section 106 of the National Historic Preservation Act. Based on implementation of the mitigation measures and completion of the Section 106 consultation process, NPS has determined that the selected alternative will have no adverse effect on historic properties listed or eligible for listing on the National Register of Historic Places and will have no significant impact on archeological resources. The Tennessee State Historic Preservation Office concurred with this determination.

## CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement. The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of the National Environmental Policy Act.

Based on the foregoing, it has been determined that an environmental impact statement is not required for this project and, thus, will not be prepared.

## References

- Electric Power Research Institute and Tennessee Valley Authority (EPRI and TVA). 2004. *Wastewater Subsurface Drip Distribution: Peer Reviewed Guidelines for Design, Operation, and Maintenance*. EPRI, Palo Alto, CA and TVA, Chattanooga, TN. 1007406. EPRI and TVA 2006
- Tennessee Department of Environment and Conservation (TDEC). 2012. *Tennessee Erosion and Sediment Control Handbook, 4th Edition*. Tennessee Department of Environment and Conservation, Nashville, TN.



**APPENDIX A - FLOODPLAINS STATEMENT OF FINDINGS  
ELKMONT WASTEWATER TREATMENT PLANT UPGRADE  
NATIONAL PARK SERVICE, GREAT SMOKY MOUNTAINS NATIONAL**

Recommended:  
Cassius M. Cash

  
Superintendent

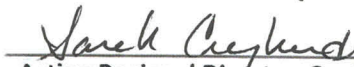
5/24/18  
Date

Certification of Technical Adequacy and  
Servicewide Consistency:  
Ed Harvey, PG

  
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5/24/2018  
Date

Approved:  
Sarah Craighead

  
Acting Regional Director, Southeast Region

6/28/2018  
Date

#### **INTRODUCTION**

The National Park Service (NPS) is proposing to upgrade the Elkmont Wastewater Treatment Plant (WWTP) to provide a modern, efficient, and sustainable wastewater treatment system for the Elkmont Developed Area within Great Smoky Mountains National Park. The Preferred Alternative (Alternative C) analyzed in the environmental assessment (EA) prepared for the project would involve upgrading the existing WWTP and installing a land-based, subsurface effluent drip dispersal system. The existing 35,000 gallon per day WWTP is within the 100-year floodplain (Zone A) of the Little River, as identified on the Federal Emergency Management Agency Flood Insurance Rate Map Panel 47155C0340E (effective May 18, 2009). The proposed drip dispersal system is located outside the 100-year floodplain. This Floodplain Statement of Findings was prepared in accordance with *Executive Order 11988 – Floodplain Management* and *NPS Director's Order 77-2 – Floodplain Management*.

#### **JUSTIFICATION FOR USE OF THE FLOODPLAIN**

The existing Elkmont WWTP was constructed in its current location in 1959. Under the Preferred Alternative, the WWTP would be upgraded to include new treatment processes and controls. Portions of the existing plant would be rehabilitated and new systems would be constructed or installed, as appropriate, within the existing WWTP site. Relocation of the WWTP to an alternative site outside the floodplain is not feasible because:

- Areas outside the floodplain are constrained by steep terrain that is not suitable for WWTP construction.
- Selection of an alternative site would not take advantage of existing WWTP components that can be rehabilitated and reused.

- Selection of a new site would likely require extensive changes to existing wastewater collection system within the Elkmont Campground.

Other alternatives for eliminating the need for the WWTP, such as hauling or piping wastewater to a WWTP outside the park, are not feasible for the reasons discussed in Section 2.5 of the Elkmont WWTP Upgrade Draft EA.

#### **DESCRIPTION OF SITE-SPECIFIC FLOOD RISK**

Elkmont WWTP is mapped within Zone A on the most recent Flood Insurance Rate Map. Zone A is defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year (100-year floodplain), but is generally determined using approximate methodologies. No base flood elevations or flood depths are shown because detailed hydraulic analyses have not been performed.

Site-specific stream flow data are not available for the Elkmont WWTP site, but a U.S. Geological Survey stream gauge station (03497300) is about 14 miles downstream on Little River above Townsend, Tennessee. The National Weather Service flood stage for this station is 8 feet. Flood stage is an established gage height for a given location above which a rise in water surface level begins to create a hazard to lives, property, or commerce. It does not correspond to the 100-year flood elevation.

Annual peak gauge height at station 03497300 exceeded 8 feet 21 out of 54 years for the period 1964 through 2017. All but two of these annual peak flow events occurred from December through May, with the most (7) occurring in March. The highest annual peak gauge height was recorded in March 1994 at 15.75 feet. Streamflow patterns are expected to be similar at Elkmont, but specific data are not available. The Little River is subject to rapidly rising water levels in response to intense rainfall events in the watershed. For example, gauge height at station 03497300 increased over 6 feet in 8 hours during a January 2013 storm. In May 2003 the river peaked at 12 feet in about 26 hours.

The Little River at the WWTP site is contained within an incised stream channel that is not subject to frequent or drastic migration. The WWTP is approximately 10 feet above the streambed. No specific records of flooding or flood damage exist for the Elkmont WWTP and current park staff members have no recollection of flood waters inundating the WWTP. The Elkmont Campground, which is immediately upstream of the WWTP, has occasionally been evacuated as a precaution during heavy rain events. The campground sustained flood damage during the March 1994 flood.

#### **POTENTIAL RISKS TO HUMAN HEALTH AND SAFETY**

The Elkmont WWTP is typically staffed by one person 7 days a week during normal business hours when the campground is open (March – November). Floods of potential consequence at Elkmont are expected to occur with some warning. In general, a prolonged period of intense rain for about 12 to 24 hours could create extreme flood conditions. The NPS and other agencies have a comprehensive monitoring system in place to provide an early warning system for major flooding, which provides sufficient time for evacuation. When necessary, the NPS has and will continue to close areas within the park to mitigate

risks to human life due to flooding. Early warning, evacuation, and closure of the area would mitigate risks to humans at the Elkmont WWTP.

#### **POTENTIAL RISKS TO PROPERTY**

The NPS categorizes buildings and facilities into the following three categories to evaluate floodplain risks (per NPS Director's Order 77-2 and Procedural Manual 77-2):

- Class I Actions include the location or construction of administrative, residential, warehouse, and maintenance buildings and non-excepted (overnight) parking lots, if they lie within the 100-year floodplain.
- Class II Actions create “an added disastrous dimension to the flood event.” Class II actions include the location or construction of schools, clinics, emergency services, fuel storage facilities, large sewage treatment plants, and structures such as museums that store irreplaceable records and artifacts, if they lie within the 500-year floodplain.
- Class III Actions include Class I or Class II Actions that are located in high hazard areas such as those subject to flash flooding.

The Elkmont WWTP is not considered a “large sewage treatment plant” based on its design flow of 35,000 gallons per day. Therefore, the proposed upgrades to the WWTP under the Preferred Alternative constitute a Class I Action. The proposed effluent drip dispersal system is considered an excepted action and does not require evaluation in this Statement of Findings because it is outside the floodplain. There are no Class II or Class III actions proposed under any of the alternatives. Specific new capital investments within the floodplain under the Preferred Alternative would include a secondary treatment unit, effluent holding basin, disinfection system, granular activated carbon filter, sludge handling equipment, and various pumps, piping, and systems controls. All of the new investment within the floodplain would be within the existing WWTP site and integrated with retained components of the existing plant.

#### **POTENTIAL RISKS TO FLOODPLAIN VALUES**

Floodplains provide an array of natural and physical resource values within Great Smoky Mountains National Park. These values include natural flood control, erosion control, groundwater recharge, habitat for vegetation and wildlife, and recreational opportunities. Construction of the WWTP upgrades under the Preferred Alternative would take place within or adjacent to the previously disturbed existing WWTP site, which consists of approximately 1.6 acres of infrastructure, buildings, and gravel parking areas. The estimated area of disturbance for the project would be less than 1.6 acres. Minimal or no vegetation clearing would be required.

Construction of new WWTP components such as the effluent holding basin and granular activated carbon filter would result in a small increase in impervious surface within the floodplain. Creation of new impervious surfaces would be minimized to the extent possible during the design process. Opportunities for removal of existing impervious surfaces that are no longer needed would also be

considered during design. Existing vehicle parking areas would remain gravel. The net increase in impervious surface is expected to be less than 0.25 acres based on preliminary design information.

The preferred alternative would result in minimal changes to the floodplain compared to existing conditions. Risks to floodplain functions and values would be negligible.

#### **FLOODPLAIN RISK MITIGATION**

The following floodplain risk mitigation measures would be implemented under the Preferred Alternative:

- Potential risks to human health and safety would continue to be mitigated through existing NPS early warning, evacuation, and area procedures.
- Potential risks to property would be mitigated by incorporating applicable flood-related design guidelines contained in the TDEC *Design Criteria for Sewage Works* (TDEC 2016). New facilities would also be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).
- Potential risks to floodplain values would be mitigated during the design process by siting new WWTP components with the existing WWTP site, minimizing new impervious surfaces to the extent possible, and implementing the mitigation measures outlined in Section 2.6 of the Elkmont WWTP Draft EA.

#### **SUMMARY**

Implementation of the Preferred Alternative in the Elkmont WWTP Upgrade Draft EA would take place in compliance with regulations and policies to prevent impacts to floodplain values and loss of human life or property. The park and contractors would adhere to mitigation measures during and after construction activities. Individual permits with other agencies would be obtained prior to construction activities. The NPS concludes that there would be no unacceptable risks to human health and safety, unacceptable impacts to property, or substantial long-term adverse impacts to floodplain values. Therefore, the NPS finds the Preferred Alternative to be acceptable under Executive Order 11988 and NPS Directors Order 77-2 for the protection of floodplains.

**APPENDIX B**  
**NON-IMPAIRMENT DETERMINATION FOR THE ELKMONT WASTEWATER TREATMENT PLANT UPGRADE**

**THE PROHIBITION ON IMPAIRMENT OF PARK RESOURCES AND VALUES**

NPS *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the NPS the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the NPS. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

**WHAT IS IMPAIRMENT?**

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Section 1.4.5 of *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic

features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;

- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the NPS was in some way responsible for the action.

#### **HOW IS AN IMPAIRMENT DETERMINATION MADE?**

Section 1.4.7 of *Management Policies 2006*, states, "[I]n making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment." This means that the decision maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969; consultations required under Section 106 of the National Historic Preservation Act; relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

*Management Policies 2006*, further define "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities in relation to the decision."

#### **NON-IMPAIRMENT DETERMINATION FOR THE SELECTED ALTERNATIVE**

This determination on impairment has been prepared for the selected alternative (Alternative C) described starting on page 2-3 of the *Elkmont Wastewater Treatment Plant Draft Environmental Assessment*, May 2018. A non-impairment determination is made for all resource impact topics analyzed for the preferred alternative.

#### **Non-Impairment Findings for Surface Water and Aquatic Life**

Clean streams and their associated aquatic life are fundamental to GRSM's purpose because they contribute to ecological health and are critical to maintaining high quality visitor experiences (NPS 2016). The upgraded WWTP will have long-term, beneficial impacts on surface water and aquatic life because less effluent will be discharged to the river, and the new WWTP will be more reliable and less

susceptible to operational complications compared to the No Action Alternative. Because the project will result in a beneficial effect to surface water and aquatic life, no impairment of surface water or aquatic life will occur under the selected alternative.

### **Non-Impairment Findings for Floodplains**

The existing Elkmont WWTP is within the 100-year floodplain. Based on the analysis in the Floodplains Statement of Findings (Appendix A), impacts on floodplain functions and values would be negligible because minimal changes would occur in the floodplain. Because changes to the floodplain have been minimized and no long-term adverse effects are anticipated, no impairment of floodplains will occur under the selected alternative.

### **Non-Impairment Findings for Vegetation**

When the Great Smoky Mountains became a National Park in 1934, up to 80 percent of the landscape had been clearcut. Creation of the park allowed forest cover to rebound dramatically through natural processes. The scenic beauty and biodiversity experienced throughout much of the park by today's visitors is attributable, in large part, to these recovering forests. Healthy forests are fundamental to GRSM's purpose.

Installation, operation, and maintenance of the drip dispersal system under the selected alternative would permanently convert up to 5 acres of natural forest vegetation to a maintained landscape. If the reserve area needs to be used in the future, an additional 5 acres or up to a total of 10 acres could be impacted. Because the vegetation communities that will be affected are not rare and can be found in abundance in other areas of the park and mitigation measures will control invasive plants, no impairment of vegetation will occur under the selected alternative.

### **Non-Impairment Findings for Wildlife**

The wildlife and habitat that currently exist within the proposed drip dispersal area contribute to the park's outstanding biodiversity, which is recognized as a fundamental resource and value of GRSM (NPS 2016). Opportunities to view wildlife are an important part of the visitor experience at GRSM.

Because no long-term, population-level impacts are expected to any species, no federally listed species or critical habitat will be affected, and any habitat changes are not expected to result in population-level impacts or changes in the types of species using the Elkmont Developed Area, the selected alternative will not result in the impairment of wildlife.

### **Non-Impairment Findings for Archeological Resources**

Throughout time, people have maintained strong cultural ties to the Great Smoky Mountains. The Cherokee and other American Indian Tribes maintain close ties to the land. Their history in the landscape is also shown in well-preserved archeological sites (NPS 2016). Prehistoric and historic archeological sites are fundamental to GRSM's significance.

The NPS has completed an archeological survey of the project area. Archeological avoidance areas and other mitigation measures have been developed to ensure archeological resources are not impacted. The NPS has completed consultation with the Tennessee State Historic Preservation Office and federally recognized Indian Tribes in accordance with Section 106 of the National Historic Preservation Act. Based

on implementation of the mitigation measures and completion of the Section 106 consultation process, NPS has determined that the selected alternative will have no adverse effect on historic properties listed or eligible for listing on the National Register of Historic Places. No impairment of archeological resources will occur under the selected alternative based on avoidance and other mitigation measures.

## **CONCLUSION**

The NPS has determined that implementation of the selected alternative will not constitute an impairment of the resources or values of GRSM. This conclusion is based on consideration of the park's purpose and significance; a thorough analysis of the environmental impacts described in the EA; comments provided the public and other agencies; and the professional judgment of the decision maker guided by the direction of *NPS Management Policies 2006*.

## **REFERENCES**

- National Park Service (NPS). 1982. *General Management Plan, Great Smoky Mountains National Park, North Carolina and Tennessee*. U.S. Department of Interior, National Park Service, Gatlinburg, TN.
- NPS. 2016. *Foundation Document, Great Smoky Mountains National Park, North Carolina and Tennessee*. U.S. Department of Interior, National Park Service, Gatlinburg, TN.