Draft Supplemental Environmental Assessment
Bluestone Dam Safety Modification
Stilling Basin Disposal
Hinton, West Virginia

Draft

U.S. Army Corps of Engineers
Huntington District
Huntington, West Virginia
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Supplemental Environmental Assessment
Bluestone Dam Safety Modification Stilling Basin Disposal
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Executive Summary

This Supplemental Environmental Assessment (SEA) has been developed pursuant to the National Environmental Policy Act (NEPA) by the U.S. Army Corps of Engineers (USACE), Huntington District, to identify a more efficient and cost effective alternative, for disposal of material excavated from the Bluestone Dam Stilling Basin during Phase 5 construction, than the landfill alternative assumed in the Dam Safety Modification Study (DSMS) and associated Supplemental Final Environmental Impact Statement (SFEIS). The DSMS and SFEIS is a supplement to the Dam Safety Assurance Report and Environmental Impact Statement completed in 1998 to reduce incremental risk associated with dam failure to a level below USACE tolerable guidelines in order to provide public safety to communities downstream of Bluestone Dam and allow the dam to function as originally intended and authorized. The SEA tiers from the previous SFEIS, which was prepared concurrent with the DSMS for the Bluestone Dam Safety Assurance Project, for which a Record of Decision (ROD) was issued in September 2017.

Approximately 170,000 cubic yards of rock material would be excavated from the stilling basin as part of the TSP identified in the DSMS, SFEIS and ROD. Based on the plan formulation and evaluation process documented in the SEA, Alternative Plan F (Right Abutment, Right Hillside) is cost effective with no significant adverse impacts to the human and natural environment, therefore it is recommended for implementation and is the proposed action alternative (PAA). The PAA is composed of an on-site disposal configuration that utilizes only the right abutment of the Dam and right hillside on the right descending bank downstream of Bluestone Dam. Areas utilized include the right abutment groin and the area to the right of Miller Avenue where the existing stockpile is located. The alternative would not affect the existing recreational areas but would require the removal and replacement of the operations buildings. Due to restriction in the areas where the disposal can be placed, the height of the disposal would be higher to accommodate the full amount of excavated material.

The chosen disposal option would also require Packs Branch, a stream that runs through the site, to be encapsulated in a 72" diameter culvert for approximately 300-500 linear feet. The culvert would allow for safer access to the proposed location of the new operations buildings. The culvert installation would meet the terms and conditions for a nationwide permit 14 for linear transportation projects. An individual Section 401 of the CWA is needed from the West Virginia Department of Environmental Protection (WVDEP) for the total work of Phase 5 including the culvert installation in Packs Branch. Mitigation would be required in the form of payment into a stream in-lieu fee program for the impact. Mitigation costs would range from $131,400 to $219,000 (300 feet to 500 feet) depending on the stream impact length.

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Minimal tree clearing, comprised of approximately 1 acre, would also be required along the eastern hillside and Miller Avenue. Trees, bushes, and grasses and other vegetation would be planted in the disposal area and recreational area to help mitigate for tree removal and changes to the aesthetics of the area.

The SEA has concluded there are no significant impacts to the human and natural environment associated with the implementation of the proposed Bluestone Dam Phase 5 Stilling Basin Disposal alternative.

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SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
BLUESTONE DAM SAFETY MODIFICATION
STILLING BASIN DISPOSAL
HINTON, WEST VIRGINIA

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The brief and concise nature of this document is consistent with the 40 CFR requirements of the National Environmental Policy Act (NEPA) to reduce paperwork and delay by eliminating duplication with existing environmental documentation, incorporating pertinent material by reference, and by emphasizing interagency cooperation. The majority of data collection and analysis in this document was performed by the U.S. Army Corps of Engineers (USACE).

1 INTRODUCTION

1.1 PROJECT HISTORY AND AUTHORIZATIONS

Bluestone Dam was originally authorized as a component of a comprehensive flood control plan for the Ohio River while also providing benefits to the communities along the New and Kanawha rivers. Bluestone Dam is one of three flood risk management dams, along with Sutton and Summersville, built and operated by USACE within the New and Kanawha River watersheds in WV. The dam structure rises 165 feet above the riverbed and spans more than 2,048 feet across the New River, creating the 11-mile long Bluestone Lake upstream of the dam, which is a multipurpose component of the Kanawha River basin system. The dam is designed to slow water as it travels downstream and reduce the chance for out of bank flooding. Excess runoff is stored in Bluestone Lake and the water is slowly released to allow streams and rivers below the dam a chance to recede. The dam helps control an approximate 4,600 square mile drainage area and influences nearly half of the water that flows by Charleston, WV, population of approximately 50,000 people.

Bluestone Dam and Reservoir was authorized by Executive Order (EO) 7183 in 1935 and the Flood Control Acts of 1936 and 1938 for the purposes of flood control, low flow augmentation, and hydroelectric power development. The purposes were later expanded to include recreational activities under the Flood Control Act of 1944 and fish and wildlife enhancement under the Fish and Wildlife Coordination Act (FWCA) of 1958. Recreational opportunities at Bluestone Dam include water related activities such as fishing, boating, water skiing, along with land based recreation like hunting and picnicking. The goals under the FWCA of 1958, to include fish and wildlife conservation, are intended to promote the long-term wellbeing of populations of the plant and animal species native to the project area and the maximum sustained enjoyment of these populations by the public.

More recently, Section 102(ff) of the Water Resource Development Act (WRDA) of 1992, as amended by Section 357 of WRDA 1996, further modified the original project authorization to address the accumulation and disposal of drift and debris at the dam, leading to the addition of the drift and debris removal tower in 2005. Water supply is not an authorized purpose of the Bluestone Dam. However, there is a water supply intake located within the lake that provides water to the greater Princeton, WV area. No other changes to the project purposes are anticipated at this time.

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USACE began construction of Bluestone Dam in 1942 following early design and planning activities in the late 1930s. The work continued until 1944 when the War Production Board suspended project construction for the duration of World War II. Construction later resumed in 1946 and the Bluestone Dam was completed for operation purposes in 1949. Installation of the crest gates was completed in 1952. While the original plans and authority for Bluestone Dam called for hydroelectric power development, extensive electric power development during wartime resulted in a decision to defer hydroelectric power development at the project and use all available storage for flood control. This lowered the original intended elevation of the lake 80 feet from 1,490 feet to 1,410 feet during summer pool (April through November), with additional drawdown to 1,406 feet for winter pool (December through March). This drawdown accommodates more flood storage during the winter and early spring months. Note: All elevations are given in the National Geodetic Vertical Datum of 1929 (NGVD 29).

The National Dam Safety Act (Public Law [PL] 92-367) of August 1978 authorized USACE to review its projects for dam safety. The Dam Safety Assurance Program provides for modification of existing USACE projects which may pose potential safety hazards in view of hydrologic and seismic deficiencies evaluated according to current design criteria. It was determined that the Bluestone Dam was eligible for construction modifications due to dam safety issues.

1.2 STUDY PURPOSE AND SCOPE

USACE, Huntington District prepared a supplemental final environmental impact statement (SFEIS) and record of decision (ROD) that evaluated the potential impacts resulting from additional modifications to Bluestone Dam in order to reduce the incremental risk of a failure. USACE headquarters approved this document in September 2017. Bluestone Dam is located near the City of Hinton in Summers County, WV (Figure 1). The project area for the Proposed Action is located along the New River corridor. A full array of reasonable alternatives to reduce additional risks and to meet tolerable risk guidelines were evaluated in the SFEIS, which was a supplement to the 1998 Final EIS (FEIS) and ROD. The SFEIS was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1508), as reflected in the USACE's Engineering Regulation (ER) 200-2-2, Procedures for Implementing NEPA.

In the 1990s, USACE determined that Bluestone Dam posed unacceptable risk to public safety and warranted major modifications to maintain a tolerable level of risk. Construction is currently underway to address the dam safety issues identified in the 1998 Dam Safety Assurance (DSA) Report (USACE 1998), FEIS, and ROD (USACE 1998). Project construction was approved in 1999, was initiated in 2000 and was expected to be completed in 2005. However, construction of the structural features identified in the approved 1998 FEIS was ultimately divided into manageable phases to comply with contracting requirements and annual funding constraints which led the project to exceed the original 2005 completion date. The final phase of

construction from the 1998 DSA report, Phase 4, is currently underway and is scheduled to be completed in 2019. The construction designated as Phase 5 approved by the September 2017 Dam Safety Modification Study (DSMS) and SFEIS is slated to begin construction in 2019 as part of supplemental funding received in 2018. The supplemental funding fully funds the entirety of Phase 5, allowing for the acceleration of this final phase of construction.

Supplemental NEPA documentation was anticipated to be prepared for multiple project components as they were not fully developed and analyzed as part of the original SFEIS due to time constraints of the development and approval of the DSMS, SFEIS, and ROD. One of these components was the disposal of stilling basin material. Other project components were anticipated to have supplemental NEPA documentation prepared at a future time, these include aquatic mitigation and recreational mitigation for Phase 5 construction impacts.

For the construction of the stilling basin modification to occur, the natural stream bed in the bottom of the basin would need to be excavated and replaced with a concrete bottom and associated structures. Existing rock within the stilling basin consists of interbedded sandstone and shale would be removed using line drilling and an excavator and/or hoe-ramming. Any existing concrete to be demolished or removed from the existing structure would be removed using diamond saw cutting and/or hoe ramming. No blasting would be utilized for demolition of any features of the existing dam or foundation. Excavated material would be stockpiled on site prior to final disposal configuration which meets all Federal and state laws and regulations including NEPA analysis. It was originally estimated that approximately 100,000 - 250,000 cubic yards of material would be removed from the site during and after construction, which includes materials demolished from the existing structure as well as non-permanent material used during construction, such as the cofferdam. Upon further evaluation the total amount of disposal material is approximately 170,000 cubic yards.

Several disposal options were considered in the feasibility phase and have been refined during the preconstruction engineering and design (PED) phase. The assumed disposal method for the TSP called for the disposal of the materials in a commercial landfill. This method minimized the environmental impacts for disposal, but was not the most efficient or cost effective option. The disposal options considered in this SEA ranged from on-site options, commercial landfills within an approximately 40 mile range of the dam, and several potential previously disturbed off-site spoil locations within a five- to ten-mile range of Bluestone Dam.

This SEA is being prepared by the USACE to identify the most efficient and cost effective disposal alternative while minimizing environmental and social impacts for the Bluestone Dam Phase 5 construction. The purpose of the overall project is to reduce incremental risk associated with dam failure. The approved TSP identified excavation from the stilling basin as a project component. The need is to identify a suitable disposal location for excavation material to ensure implementation of the TSP and provide a cost effective alternative for disposal of material excavated from the Bluestone Dam Stilling Basin during Phase 5 construction.

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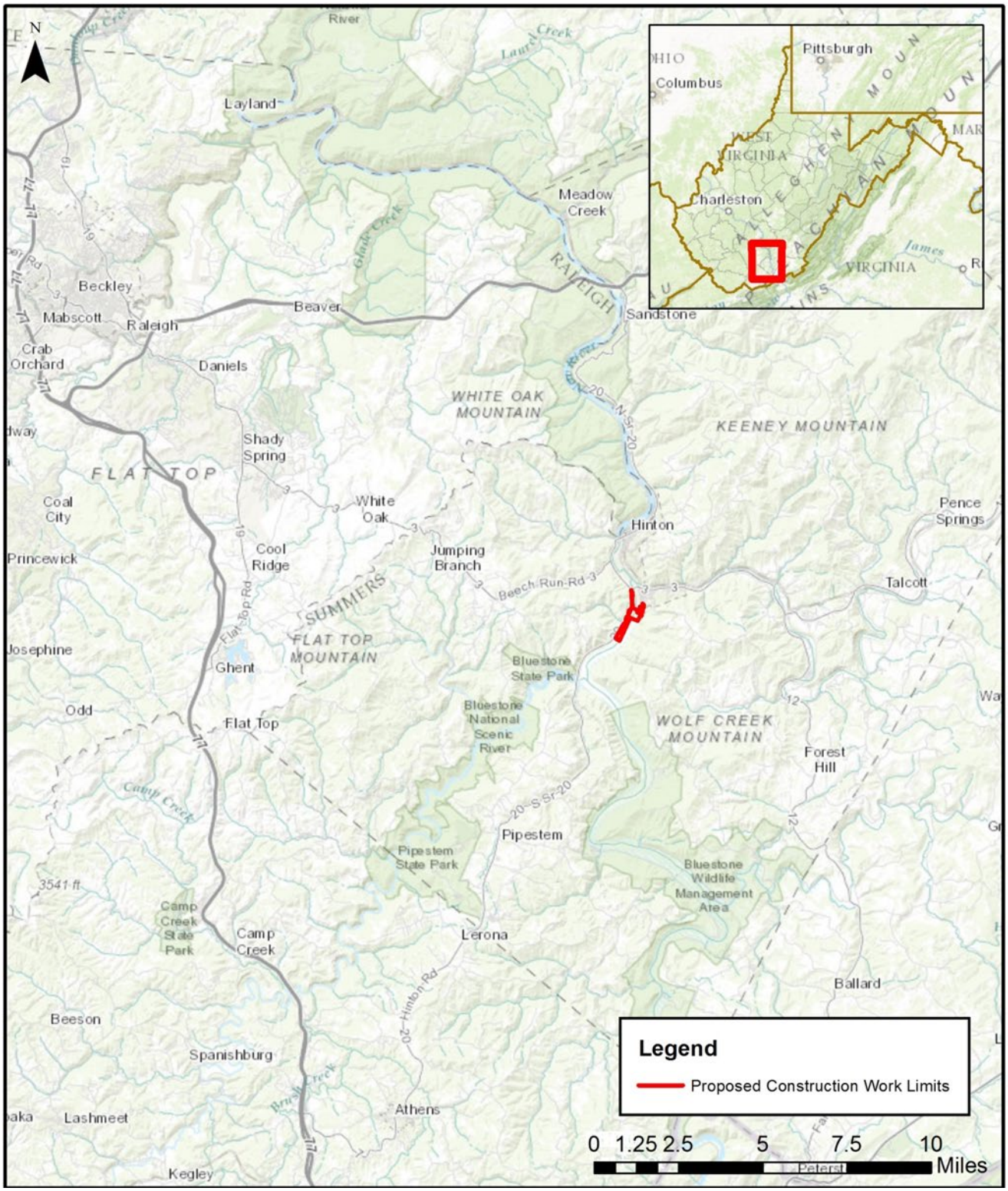

Figure 1. Bluestone Dam Project Location

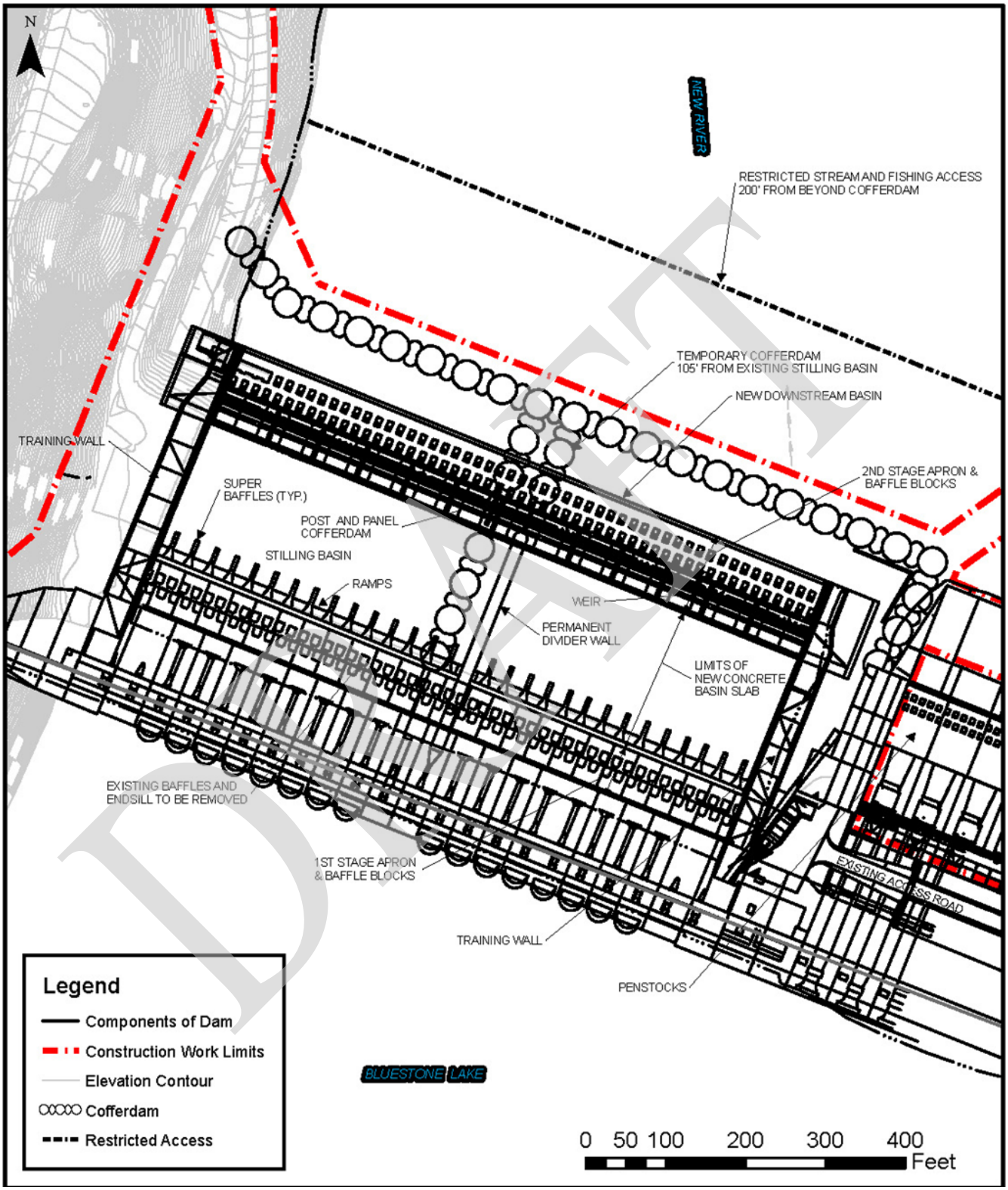

Figure 2. Plan View of Cofferdam in Relation to the Dam

1.3 LOCATION

1.3.1 Study Area

The original 1998 FEIS defined four reconnaissance areas for discussion of impacts (Figure 3). For the purposes of the SFEIS, most resource impacts were limited to Reconnaissance Areas 1 and 2. These combined areas extend from the New River near Bluff City, VA to Gauley Bridge, WV. No impacts on any resources in the areas outside of Reconnaissance Areas 1 and 2 are anticipated and thus were not discussed further in the SFEIS. Reconnaissance Area 1 and 2 are further defined below:

Reconnaissance Area 1 encompasses the area upstream of the Bluestone Dam from just south of Bluff City, VA, and downstream past the dam to Sandstone, WV. It includes many recreational resources including the Bluestone Wildlife Management Area, Bluestone State Park, the Upper New Wild and Scenic River, the southern tip of the New River Gorge National River and the Bluestone National Scenic River. Reconnaissance Area 1 includes the communities of Narrows, Rich Creek, and Glen Lyn, VA, and Hinton, WV.

Reconnaissance Area 2 extends from Sandstone to Gauley Bridge, WV. There are no large communities along the New River within this area. Reconnaissance Area 2 lies within boundaries of the New River Gorge National River. The former Grandview State Park (now part of the New River Gorge National River) and Hawks Nest State Park are also in this area. Meadow Creek, Ansted, and the historic town of Thurmond all lay within Reconnaissance Area 2.

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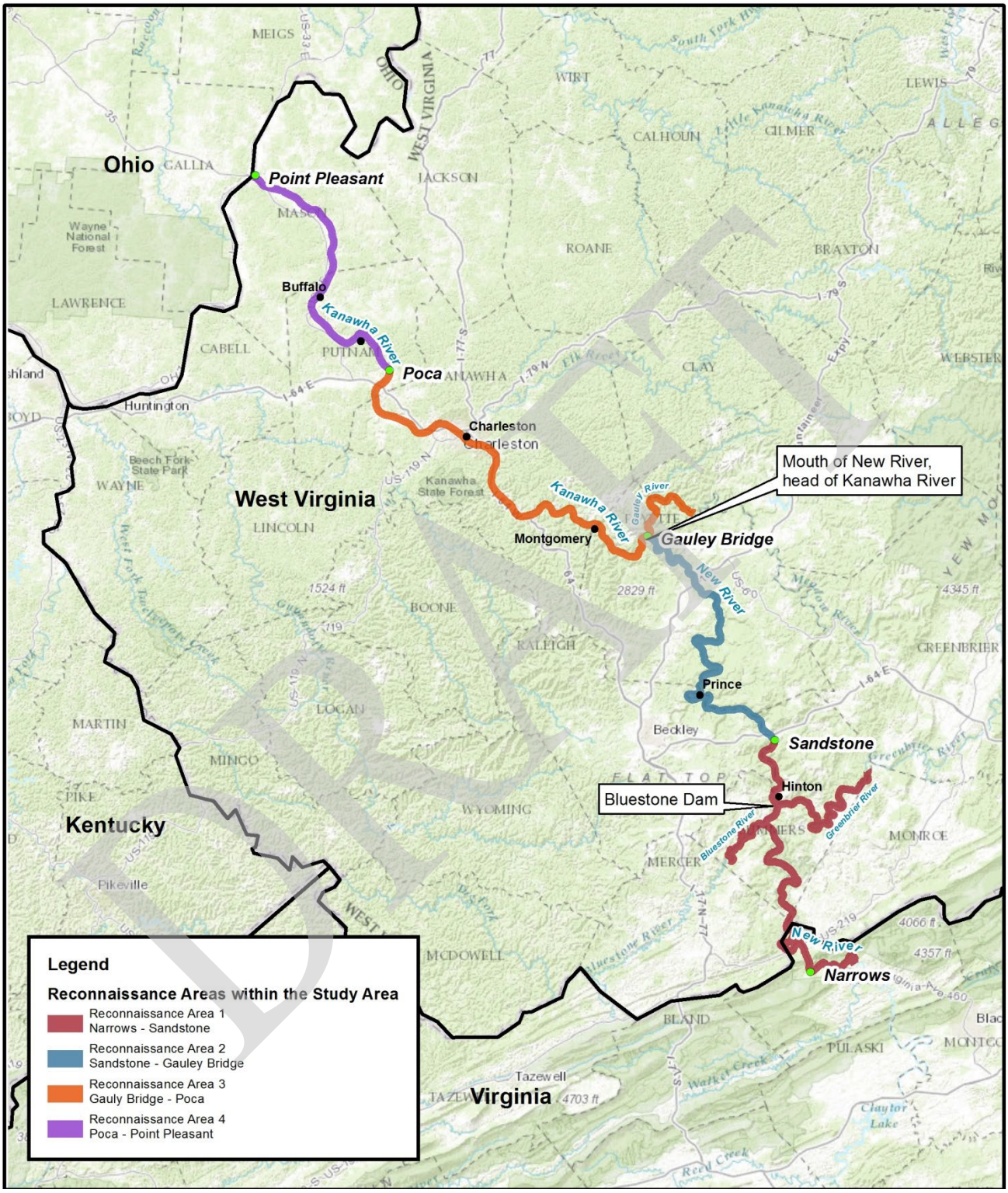

Figure 3. Bluestone Dam SFEIS Study Area

1.3.2 Project Area

Bluestone Dam is located on the New River along WV State Route 20 within a mountainous region of southern WV in Summers County. The New River is a tributary of the Kanawha River. The dam is approximately one and a half miles upstream of the City of Hinton and a mile upstream of the confluence of the New and Greenbrier Rivers (Figure 4). The New River and Gauley River meet at the Town of Gauley Bridge to form the Kanawha River.

The dam and lake derive their name from the Bluestone River, which joins the New River about two miles above the dam. Bluestone Lake is approximately 11 miles in length at summer pool (1,410 feet elevation above mean sea level) and is located upstream of the dam and includes the rivers and streams above the lake. Bluestone Lake lies predominantly in Summers County, WV, with some portions in Monroe and Mercer counties, WV, and Giles County, Virginia (VA). At the lake's maximum flood control pool of 1,520 feet above mean sea level, the lake extends approximately 36 miles upstream from the dam. At summer pool elevation of 1,410 feet above mean sea level, the lake extends 10.7 miles behind the dam and covers 2,040 acres. At winter pool elevation of 1,406 feet, the lake extends 9.5 miles and covers 1,800 acres. The upstream area is part of a large drainage basin encompassing 4,565 square miles. A large portion of the New River near the Bluestone Dam has been designated by Congress as a Wild and Scenic River and 13 miles of the lower Bluestone River have been designated as a National Scenic River.

The area extending from the Bluestone Dam towards the mouth of the Ohio River is considered the downstream area. The New, Greenbrier, Gauley, Elk, and Kanawha rivers are the major rivers located below Bluestone Lake. There are small communities and rural residences located between the towns of Hinton and Gauley Bridge. Below Gauley Bridge, the river valley becomes more urban and commercialized and the valley floor, from the Fayette County-Kanawha County line to Poca in Putnam County, is a heavily populated industrial belt containing numerous plants, as well as extensive residential and commercial development. Several of the medium to large communities in the area include Montgomery, Chesapeake, Belle, Charleston, South Charleston, Institute, St. Albans, and Nitro. The New River Gorge National River preserves a 53- mile river segment of the New River. It was designated in 1978 and extends from the northern edge of Hinton to just below the U.S. Route 19 Bridge, near Fayetteville, WV. Refer to the 1998 FEIS and 2017 SFEIS for detailed descriptions of the upstream and downstream characteristics of the dam.

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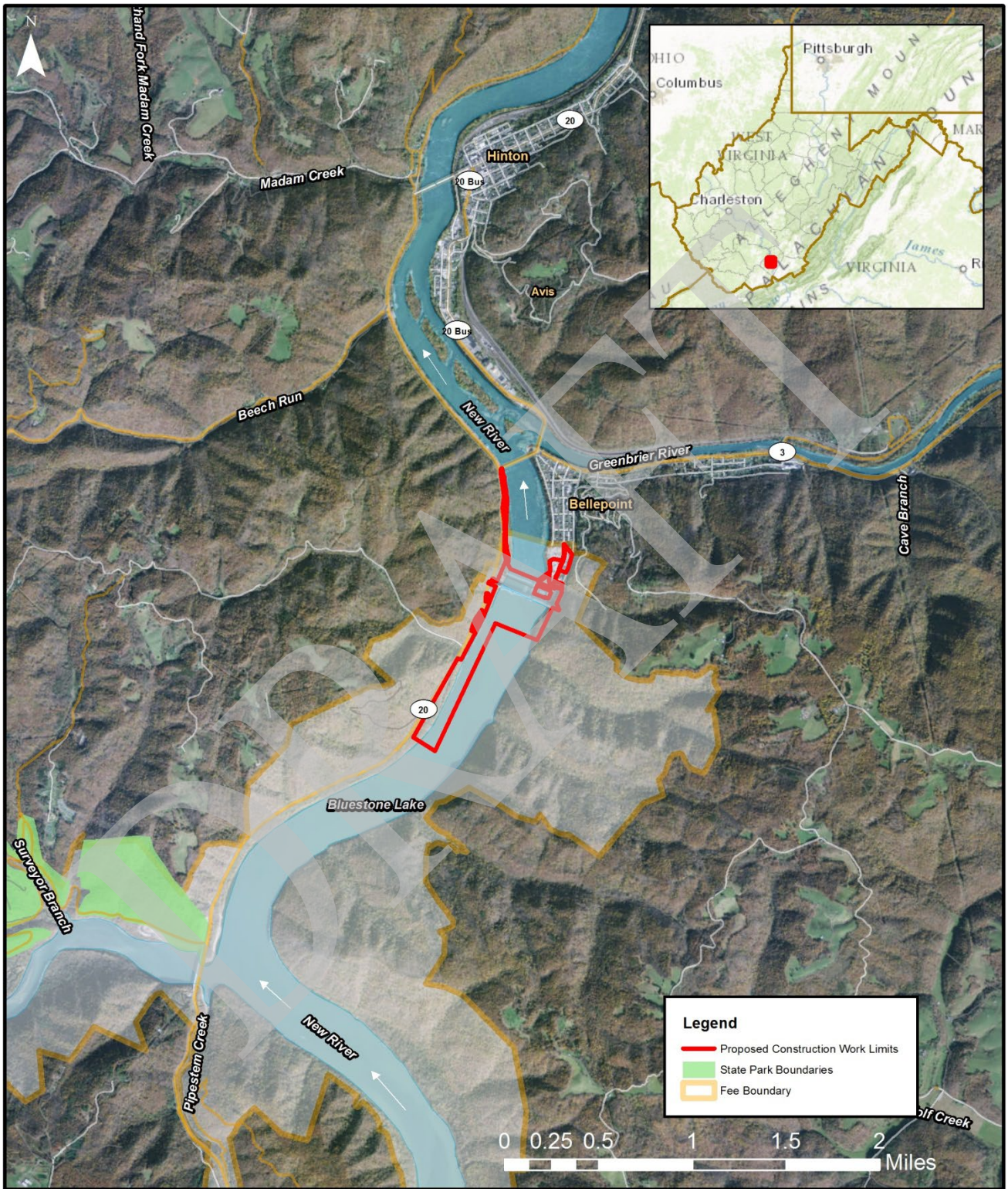

Figure 4. Vicinity Map, Bluestone Dam

1.4 RELEVANT PRIOR STUDIES AND REPORTS

1.4.1 Original EIS and ROD

During the planning of the Bluestone Dam in the 1930s, a hypothetical flood was created by shifting the center of the July 1916 hurricane storm to the New River drainage basin. This hypothetical flood was created based on the best available information at the time. This hypothetical flood served as the basis for the original design of Bluestone Dam which had an estimated peak inflow of 430,000 cubic feet per second (cfs). The hypothetical storm, also known as the Probable Maximum Flood (PMF), is a flood of such magnitude that there is virtually no risk that it will be exceeded and it is the present-day standard for design of high-hazard dams. Since the original construction of Bluestone Dam, the PMF has been revised based on information from the National Weather Service and the most recent methodologies and technology for developing hypothetical storms such as the PMF. The revised PMF has an estimated peak inflow of 1,086,000 cfs, which is more than double the peak of the original design inflow of the dam. A DSA study indicated the Bluestone Dam had a significant hydrological deficiency in that the dam could not safely pass extreme floods without being overtopped. In order to address this hydrologic deficiency, a combined DSA Evaluation Report and FEIS were prepared in 1998 that identified and analyzed the dam safety modifications needed to prevent overtopping. A ROD was signed September 28, 1999.

1.4.2 Dam Safety Assurance Project

The plan approved under the original 1998 decision document was originally formulated to modify Bluestone Dam to safely pass flows of the updated PMF. Primary features of the approved plan included: installation of high-strength, multi-strand anchors; construction of mass concrete blocks against the downstream face of the dam in the penstock area; modification/extension of the six hydroelectric power penstocks to supplement discharge capacity; scour protection downstream of the penstocks; installation of a parapet wall on top of the dam raising the height of the dam to 1,543 feet; a new gravity wall on the east abutment and floodgate closure on the west abutment (across WV State Route 20) adjacent to the new parapet wall; and installation of removable closures at each end of the spillway. A separate authorization resulted in construction of the drift and debris tower which became operable in 2005.

1.4.3 Current Dam Safety Modification Study

When completed, the current modifications under construction that were authorized under the 1998 DSA project will strengthen the dam's stability and allow for increased discharge capacity through the use of hydroelectric power penstocks, thereby substantially reducing flooding and dam failure risk. However, physical modeling and expert analysis conducted during project

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construction has indicated that the incremental dam safety risks that remain are above the agency's tolerable risk threshold. The 'incremental risk' is the risk which already exists based upon the likelihood and consequences generally to the downstream populations with the presence of the dam. This can be attributed to breach (or dam failure) due to overtopping, defect within the dam or components of the dam which could malfunction. Non-breach risk is due to 'normal' dam operation of the dam or overtopping of the dam not considering the breach scenarios. Therefore, incremental risk is the difference in risk in its current state (with dam safety issues and deficiencies) and risks if the dam functions as intended without dam failure (aka non-breach risk). Additional detail on USACE tolerable risk guidelines can be found in ER 1110-2-1156, Chapter 5.

Multiple risk assessments have been completed over the years since the 1998 study to characterize the dam safety risk associated with Bluestone Dam. The most recent risk assessments were completed and approved in 2016 indicate the presence of an additional potential failure mode not addressed by the 1998 DSA study. This failure mode is associated with spillway monolith instability. The stilling basin is unlined (natural bedrock) and water discharge during the PMF or a significant flood event could cause scour or erosion of the unlined stilling basin and underneath the dam. If scouring or erosion at the downstream toe of the dam occurs, this could cause multiple monoliths to become unstable and slide, ultimately leading to dam breach. This failure could occur during extreme events when water would be released over the spillway, or due to water overtopping the dam and would likely result in loss of life and additional impacts to the human environment due to increased flooding within highly populated downstream communities.

A dam safety modification study (DSMS) was conducted as a result of the 2016 risk assessment. As part of the DSMS a supplemental final environmental impact statement (SFEIS) was developed as an update to the original EIS approved in 1999. As part of the SFEIS (Attachment C) a tiered NEPA documentation approach was taken on parts of the project development that would be refined in the preconstruction, engineering, and design (PED) phase. This supplemental Environmental Assessment (SEA) for the disposal alternative is part of the tiered NEPA requirements that were outlined in the SFEIS. The DSMS and SFEIS were approved in September 2017 and are incorporated herein by reference.

2 PLAN FORMULATION

2.1 PROBLEMS AND OPPORTUNITIES

Within the scope of the project was approximately 100,000-250,000 cubic yards (loose) of rock spoil that would be excavated from the spillway during construction and would require a location for permanent disposal of the material. To address project feasibility, the DSMS and SFEIS assumed landfill disposal would be utilized which is the most expensive option and would assume less risk and minimize environmental impacts. It was anticipated, during the preconstruction engineering and design (PED) phase alternative disposal options would be

formulated, in order to identify a more efficient and effective disposal alternative. The alternatives identified and explored will be further discussed in Section 2.4.

2.2 OBJECTIVES, CONSIDERATIONS, AND CONSTRAINTS

2.2.1 Planning Objectives

During the planning process it was estimated this project would seek to identify alternatives to dispose of approximately 100,000-250,000 cubic yards of rock spoil was stated in the SFEIS that will be excavated from the spillway during construction of the Phase 5 Stilling Basin modifications. Further design refinement during PED has determined the approximated disposal material will be 170,000 cubic yards.

2.2.2 Planning Considerations, & Constraints

The study that was conducted for disposal sites evaluated various considerations including: distance from the dam, hauling constraints, accessibility of the site, capacity to hold disposal material, impact to Phase 5 schedule, constructability, natural resources impacts, and community impacts. There are no specific planning constraints for this disposal activity, however all actions would comply with existing environmental laws and regulations.

2.3 MOST PROBABLE FUTURE WITHOUT PROJECT CONDITIONS

The most probable future without project conditions, which would also be considered the no action alternative (NAA), would be disposal of all the material at an approved landfill. The construction of Phase 5 on Bluestone will occur no matter which disposal alternative is chosen and as the base assumption, the landfill alternative would become the NAA. Further detail of this alternative can be found in Section 2.4.1.

2.4 FORMULATION AND COMPARISON OF ALTERNATIVES

Approximately six off-site disposal locations and approximately seven on-site configurations were evaluated as part of the initial formulation and evaluation of alternatives. During the initial screening of these alternatives in March 2017, the primary criteria used for evaluation were disposal material capacity of the site along with the environmental impacts of disposing on the proposed site. Through this initial evaluation, six off-site locations were carried forward as well as three on-site configurations. Three of the off-site locations, which were active rock quarry sites, were eliminated after further investigation and coordination with quarry representatives, presenting concerns with state quarry permits if material was placed in the quarry. The representatives also did not show interest in acquiring the material. These two factors led to the screening of all three quarry alternatives. Ultimately, three off-site alternatives and three on-site configurations were evaluated as part of this document.

2.4.1 Alternative Plan Descriptions

A total of six disposal alternatives are included in the final array of alternatives. This includes three off-site locations, one of which is the no action alternative and base assumption of hauling all the disposal to a landfill. The other three alternatives are various configurations of on-site disposal. All six alternatives were evaluated under the following criteria: cost, real estate

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requirement, disposal capacity, need for the construction of a replacement operations buildings, impact to concrete batch plant area, impact to the existing baseball field, impact to the right descending bank fishing access, and impact to schedule.

Off-site Disposal Locations

- Alternative Plan A – No Action Alternative (NAA) – Landfill (Commercially Available Solid Waste Facility)
- Alternative Plan B – Private Property Disposal Area
- Alternative Plan C – Private Property Disposal Area

On-site Disposal Configurations

- Alternative Plan D – All Areas within Bellepoint Park
- Alternative Plan E – All Areas except Baseball Field and Ops Building within Bellepoint Park
- Alternative Plan F – Right Abutment, Right Hillside within Bellepoint Park

Off-site Disposal Locations

Alternative Plan A – No Action Alternative (NAA) – Landfill (Commercially Available Solid Waste Facility)

The "No Action" alternative was considered in the base assumption for disposal of the excavated material from the stilling basin as it was the most costly but least risk option. Three potential landfills were identified during the scoping process that could be utilized for the spoil disposal:

1. Mercer Landfill located in Princeton WV.
   Distance from Project: 32 Miles, 47 min one-way.
   This landfill is what was assumed in the DSMS as the base estimate.

2. H.A.M. Landfill located in Peterstown WV.
   Distance from Project: 28 Miles, 41 minutes one-way.

3. Raleigh Landfill located in Beckley, WV.
   Distance from Project: 34 Miles, 49 minutes one-way.

Due to all three landfills being within the same approximate distance from Bluestone Dam, the three are assumed to be a single "landfill" alternative. As part of this alternative, all of the disposal material that is removed from the stilling basin will be disposed at a landfill. This option would include all the expenses associated with hauling the material off site and all disposal fees at the landfill utilized.

The disposal material excavated from the basin would be transported to the disposal area by truck. By truck, the disposal from the right side stilling basin would be driven across the

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cofferdam/causeway to the right side and through the community. Depending on the location of the landfill chosen, trucks would have to drive through both communities of Bellepoint and Hinton. A bridge across the stilling basin or conveyor system could also be utilized to transfer the material to the left side and trucked to the site from the left and the community Bellepoint would not be affected however Hinton may be. This would potentially cause double handling as there is not enough area on the left side to stockpile material and it would need to be stored on the right. The material from the left side could be trucked without being driven through the community of Bellepoint but Hinton may be affected. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to help mitigate for truck traffic.

Alternative Plan B

The Alternative Plan B property is a private property located approximately 6.5 miles from Bluestone Dam and is managed as a campground area. Access is primarily via public roads, with a small stretch of about one mile that may need to be improved to allow equipment to safely and easily access the site. To utilize this site the valley in between the campsite ridges would be filled in and leveled. Clearing of the valley of trees would be needed before fill could be placed. The valley also contains a stream and wetland areas that would may require a culvert or designed drainage for the fill. All disposal material would be able to be placed at this site.

The disposal material excavated from the basin would be transported to the disposal area by truck. The disposal from the right side stilling basin would be hauled across the cofferdam/causeway to the right side and through the community of Bellepoint and beyond. A bridge across the stilling basin or conveyor system could also be utilized to transfer the material to the left side and trucked to the site from the left and the community of Bellepoint would not be affected. This would potentially cause double handling as there is not enough area on the left side to stockpile material and it would need to be stored on the right. The material from the left side could be trucked without being driven through the community to the disposal site. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to help mitigate for truck traffic.

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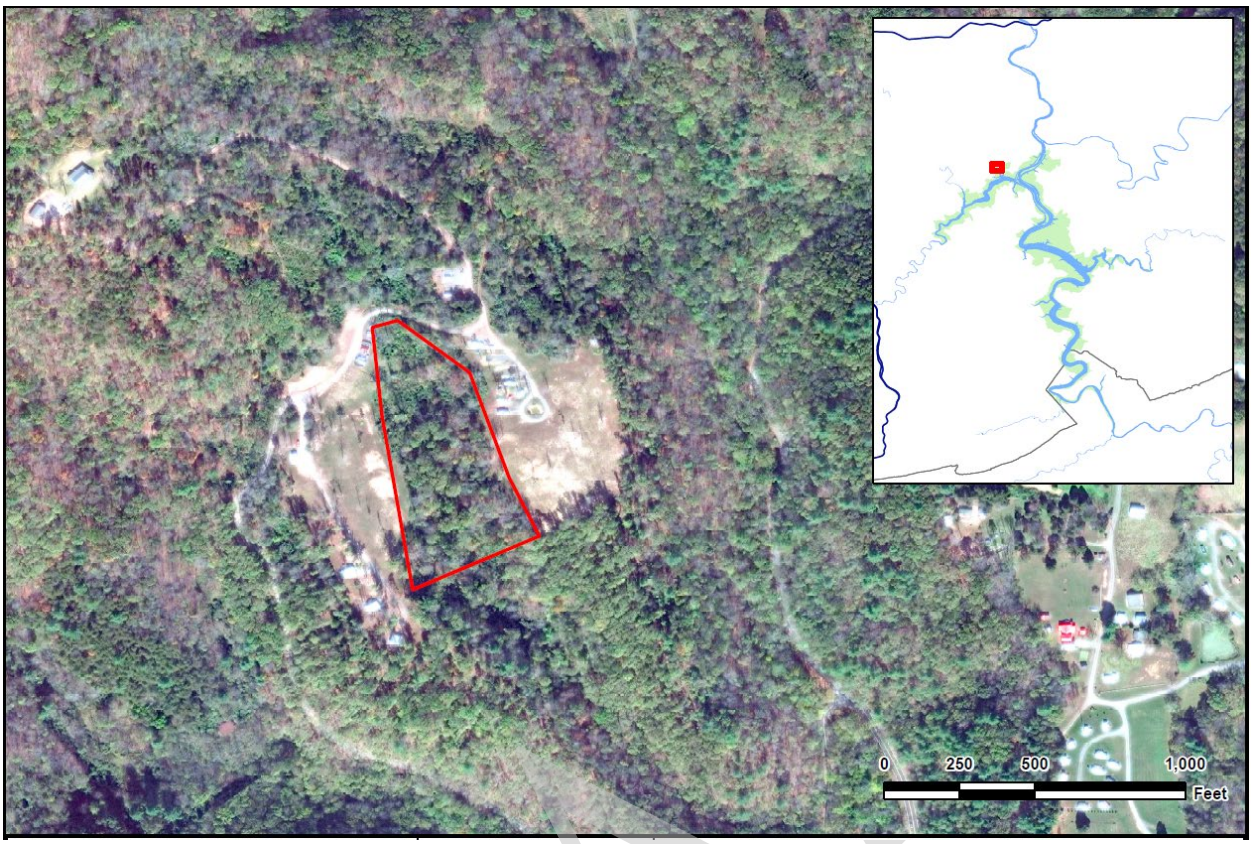

Figure 5. Alternative Plan B - One-Way Haul Distance: 6.5 miles, 15 minutes

Alternative Plan C

The Alternative Plan C property is a private property approximately seven miles from Bluestone Dam and was used as a disposal area (assumed to be fill) from the Lilly Bridge Replacement project. Access to this area would be primarily via public roads. The disposal material would be hauled by truck into the area and dumped primarily within the cleared hilltop area. Some subsidence exists around the edges of the existing fill along with small wetland areas. Only 50,000 cubic yards of material would be able to be placed on this property. The remainder of the disposal material would be sent to an approved landfill.

The disposal material excavated from the basin would be transported to the disposal area by truck. By truck, the disposal from the right side stilling basin would be driven across the cofferdam/causeway to the right side and through the community. A bridge across the stilling basin or conveyor system could also be utilized to transfer the material to the left side and trucked to the site from the left and the community would not be affected. This would potentially cause double handling as there is not enough area on the left side to stockpile material and it would need to be stored on the right. The material from the left side could be trucked without being driven through the community to the disposal site. This option also has a landfill component and thus would have similar issue to that of the hauling from Alternative A for part of the material disposal. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to help mitigate for truck traffic.

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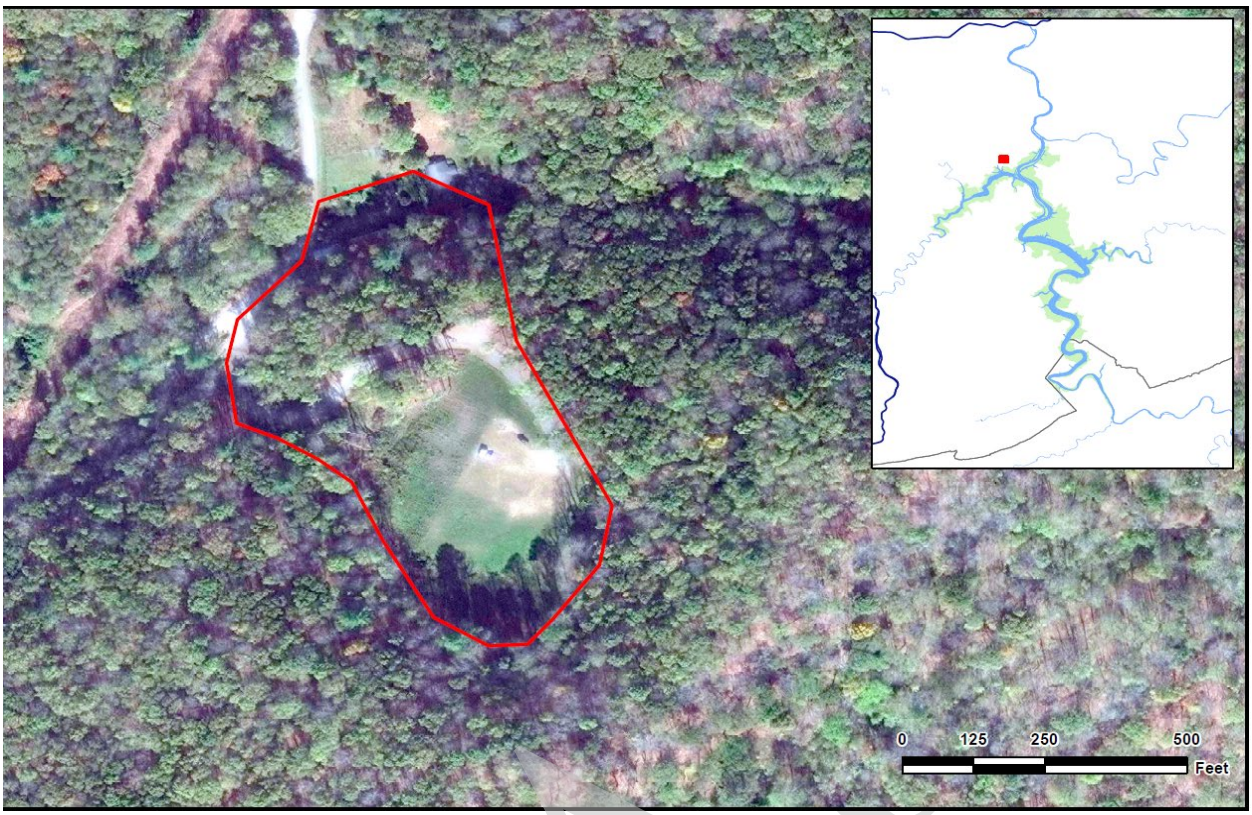

Figure 6. Alternative Plan C - One-Way Haul Distance: 7 miles, 15 minutes

On-site Disposal Alternatives

Alternative Plan D – All Areas

Alternative Plan D is composed of an on-site disposal configuration which would utilize all areas on the right descending bank downstream of Bluestone Dam. This area would include the previous concrete batch plant area, Bellepoint Park which includes the baseball field, playground, and other recreational areas, the right abutment groin and the area to the right Miller Avenue where the existing operations buildings and stockpile sit. Fill material would be spread across the site in such a manner to allow for proper drainage and graded area for recreational use. The fill elevations would range from 1,385 to 1,410. The operations buildings would need to be torn down and replaced as part of this alternative. All recreational features would also need to be removed and rebuilt.

As part of this alternative, all recreation in the Bellepoint Park would have to be removed. Bellepoint Park is heavily used by the community as it is one of the few flat, recreational areas available. A large attraction at the park is little league baseball in the spring. Utilizing this alternative would mean the loss of little league seasons that would impact the community as alternative baseball facilities are not close or readily available. This option would have the greatest impact on the recreational opportunities of the community.

The disposal material excavated from the basin would be transported to the disposal area potentially by truck and conveyor system. By truck, the disposal from the right side stilling

basin would be driven across the cofferdam/causeway directly to the disposal area thus cutting out any need for travel on Miller Avenue through the community of Bellepoint and reducing truck impacts. The material from the left side of the stilling basin would need to be trucked through the community or potentially a bridge over the stilling basin could be built to directly truck the material to the disposal site, by-passing the community altogether. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to mitigate for truck traffic. A conveyor system may also be utilized to convey the material from the stilling basin to the disposal site. Using the conveyor system would eliminate truck traffic through the community for disposal material transport from both the left and right side of the stilling basin.

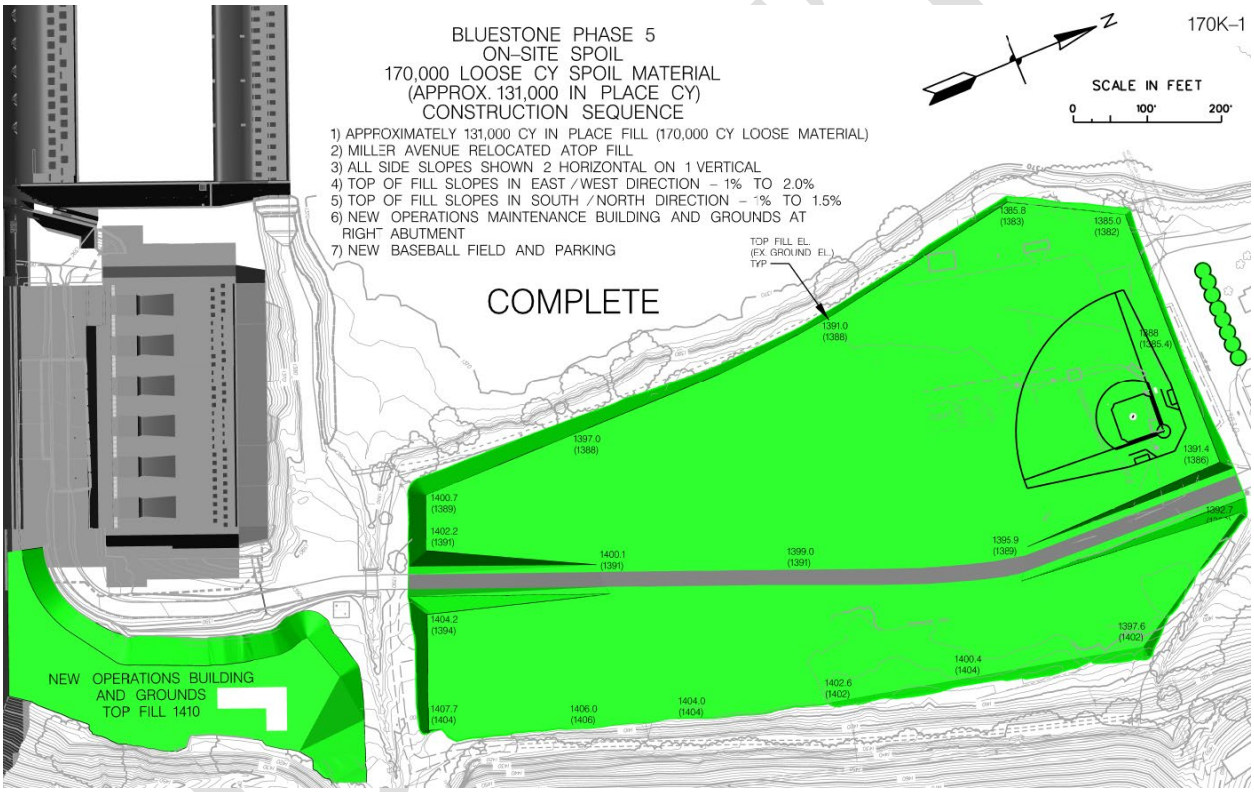

Figure 7. Alternative Plan D

Alternative Plan E – All Areas except Baseball Field and Ops Building

Alternative Plan E is composed of an on-site disposal configuration that utilizes all areas on the right side except for the baseball field and operations buildings. Areas utilized include the area of the previous batch plant, the right abutment groin, and the area to the right of Miller Ave where the existing stockpile sits. The alternative would not affect the existing recreational areas which would allow for little league season to go un-interrupted and would keep the existing recreation available to the community as it is one of the few opportunities for this type of

recreation. The existing operations buildings would not have to be replaced in this alternative saving money and preventing possible sequencing issues with building other facilities. However, due to the height of the disposal and limited areas the disposal can be placed the existing operations buildings would be isolated between three high disposal areas that could cause access issues in times of high flows.

However, due the restriction in the areas where the disposal can be placed, the height of the disposal would be higher than in Alternative D in order to accommodate the full amount excavated material. Alternative Plan E could reach disposal heights reaching up to 38 feet above existing grade adjacent to the existing baseball field as compared to Alternative Plan D which height tops out at 20 feet against the dam. The height of the material would greatly impact the viewshed from Bellepoint Park and potentially limit the use of the disposal areas as additional recreational areas. This loss of recreational area permanently would adversely impact the community's recreational opportunities as Bellepoint Park is one of the few areas of its kind in the surrounding area.

The disposal material excavated from the basin would be transported to the disposal area potentially by truck and conveyor system. By truck, the disposal from the right side stilling basin would be driven across the cofferdam/causeway directly to the disposal area thus cutting out any need from travel on Miller Avenue through the community of Bellepoint and reducing truck impacts. The material from the left side of the stilling basin would need to be trucked through the community or potentially a bridge over the stilling basin could be built to directly truck the material to the disposal site, by-passing the community altogether. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to mitigate for truck traffic. A conveyor system may also be utilized to convey the material from the stilling basin to the disposal site. Using the conveyor system would eliminate truck traffic through the community for disposal material transport from both the left and right side of the stilling basin.

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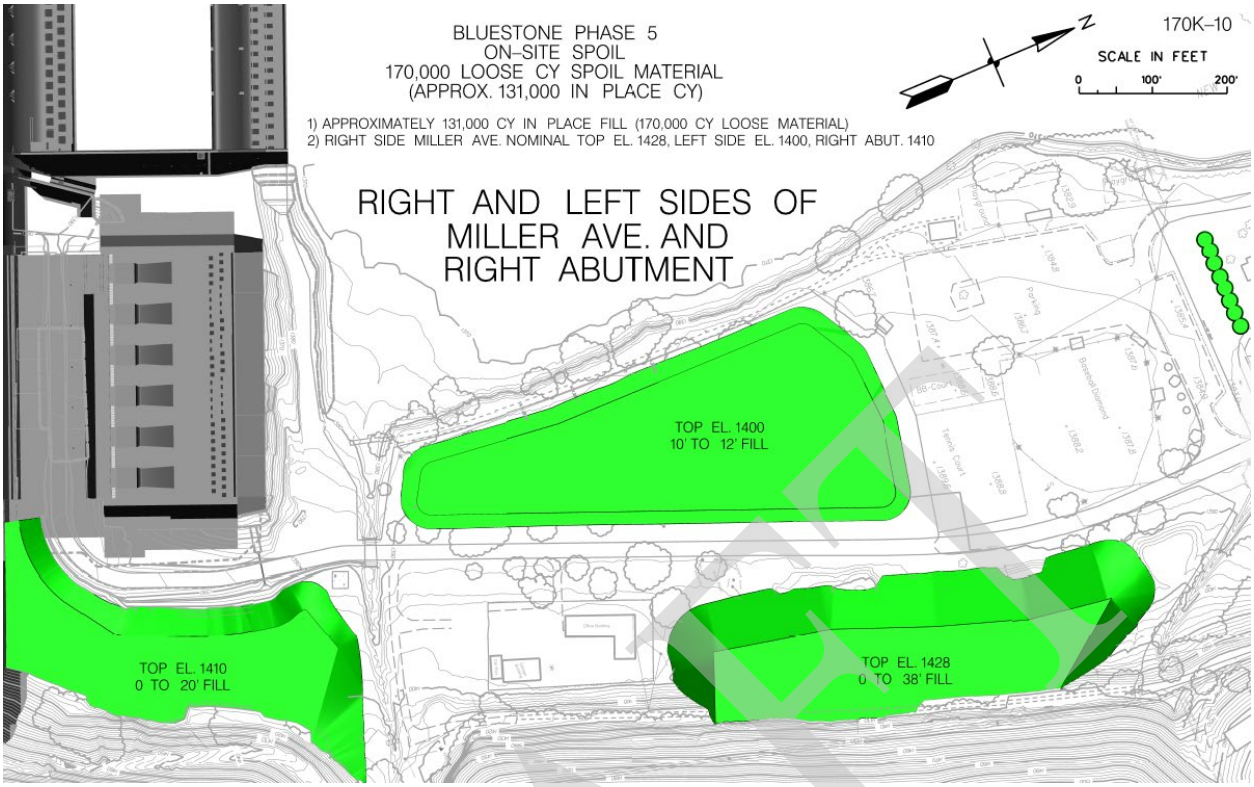

Figure 8. Alternative Plan E

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Alternative Plan F – Right Abutment, Right Hillside

Alternative Plan F is composed of an on-site disposal configuration that utilizes only the right abutment of the Dam and eastern hillside on the right descending bank downstream of Bluestone Dam. Areas utilized include the right abutment groin and the area to the east of Miller Ave where the existing stockpile sits. The alternative would not affect the currently existing recreational areas as all disposal would be placed within the current construction area. Under this option Bellepoint Park would not need to be closed due to disposal. However, this alternative would require the replacement of the operations buildings in a different location as the disposal would be placed in the current location of the existing operations buildings. The Operations buildings would be place at the elevation of 1415 which would be a benefit to USACE as it would no longer be within the tailwater of the New River at high flows.

This alternative would also require for Packs Branch, a stream that runs through the site, to be encapsulated in a 72" diameter culvert for approximately 300-500 linear feet. The culvert would allow for safer access to the proposed location of the new operations buildings and allow for more usable area on top of the disposal fill. The disposal area would be turned into green space that would be able to be utilized for recreational purposes unlike Alternative E that had areas that

would be at too high of an elevation to be used effectively. Minimal tree clearing would also be required along the eastern hillside and Miller Avenue; approximately one acre. Miller Avenue would need to be realigned to meet the new slopes and elevations of the disposal but the road would be in the same relative location just at higher elevation. Due the restriction in the areas where the disposal can be placed, the height of the disposal would range from 1403 to 1415 in order to accommodate the full amount excavated material.

The disposal material excavated from the basin would be transported to the disposal area potentially by truck and conveyor system. By truck, the disposal from the right side stilling basin would be driven across the cofferdam/causeway directly to the disposal area thus cutting out any need from travel on Miller Avenue through the community of Bellepoint and reducing truck impacts. The material from the left side of the stilling basin would need to be trucked through the community or potentially a bridge over the stilling basin could be built to directly truck the material to the disposal site, by-passing the community altogether. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to mitigate for truck traffic. A conveyor system may also be utilized to convey the material from the stilling basin to the disposal site. Using the conveyor system would eliminate truck traffic through the community for disposal material transport from both the left and right side of the stilling basin.

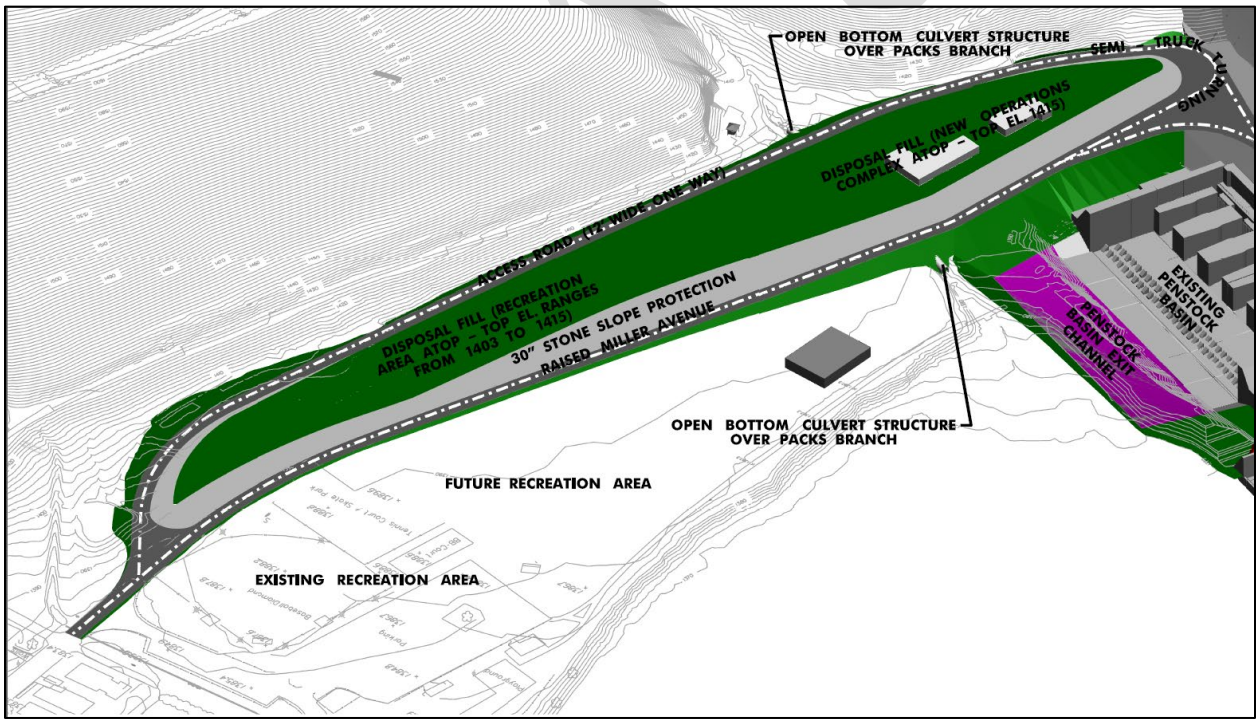

Figure 9. Alternative Plan F

2.4.2 Comparison of Alternative Plans

Table 1. Comparison of Alternative Plans

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Criteria	Alternative Plan A (Landfill) NAA	Alternative Plan B (Private Property)	Alternative Plan C (Private Property And Landfill)	Alternative Plan D (All Areas)	Alternative Plan E (All Areas except Ball Field and Ops Building)	Alternative Plan F (Right Abutment, Right Hillside) PAA
Cost ($Million)	18.7-19.7	3.9-5.2	11.9-13.1	4.0-5.1	2.2-3.3	4.0-5.1
Constructability	YES -All disposal material would be able to go to a landfill -Some schedule issues may occur due to hauling distance and monthly limits at landfill	YES -Schedule issues may occur due to hauling distance -Real Estate would need to be acquired and could cause great risks to project schedule -Extensive prep work, including road upgrades and clearing, would be necessary for disposal	YES -Schedule issues may occur due to hauling distance -Real Estate would need to be acquired and could cause great risks to project schedule -Road upgrades may be necessary	YES -New Ops Building would need to be constructed -Recreational areas, including the baseball field and fishing access, would be impacted -Batch plant area would be impacted	YES -Batch plant area would be impacted -Ops Building would be isolated and risk damage of property	YES -New Ops Building would need to be constructed -View/Aesthetic of Bellepoint Park would have minimal impacts
Environmental	-Minimal impacts -Higher truck hauling traffic would impact the community more than onsite alternatives	-Higher truck hauling numbers would impact the community more than onsite alternatives -Tree cutting necessary for site prep -Streams and wetlands would be impacted	-Higher truck hauling numbers would impact the community more than onsite alternatives -Wetlands may be impacted	- Extensive recreational impacts would occur as the entire Bellepoint Park would need to be removed for placement of the disposal material -Potentially one to three years of park use could be lost including impacts to the Little League	-View/Aesthetic of Bellepoint Park would be greatly impacted due to the height of the material and multiple, separate disposal areas. -Multiple, separate disposal areas could lead to impacts to the Operations Buildings due to isolation from the site.	-View/Aesthetic in Bellepoint Park would have minimal impacts due to the placement of the disposal material against the hillside. -The area would be turned into a usable green space for recreation.
Effectiveness	YES -Full disposal capacity	YES -Full disposal capacity	YES -Full disposal capacity	YES -Full disposal capacity	YES -Full disposal capacity	YES -Full disposal capacity
Efficiency	Least Cost Effective Alternative	NO	NO	NO	Most Cost Effective Alternative	NO
Acceptability	YES	YES	YES	YES	YES	YES
Completeness	YES	YES	YES	YES	YES	YES

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Alternative Plans A, B, C, D, E, and F were compared and evaluated relative to cost, constructability, environmental acceptability, effectiveness, efficiency, acceptability, and completeness. Alternative Plans B, C, D, and E (in red) have been excluded from further consideration. Table 1 was prepared to show the comparison of Alternative Plans. An expanded explanation of why these plans have been screened is located in Section 2.4.4. Alternative Plan A (NAA) (in yellow) and Alternative Plan F (PAA) (in green) have been moved on to the final array of plans for this project.

2.4.3 Risk and Uncertainty

The major sources of risk and uncertainty for the disposal alternatives consists of hauling abilities, disposal capacities, real estate acquisition, schedule threat, recreational impacts, operations buildings impacts, and concrete batch plant impacts.

All off-site alternatives would have a risk to the project schedule and cost as a result of hauling the disposal material away from the site. Traffic accidents, weather, and other factors could cause a back-up of the material hauling. Real estate acquisition of the Alternative Plan B and Alternative Plan C sites could also pose a risk to the schedule and cost of the overall project. The Alternative Plan C property it is unclear at the actual capacity of the property, but it has been estimated to only hold half of the total disposal material leading to the rest of the material being assumed to go to a landfill. With the two disposal types in one alternative adds to the risk of the disposal getting off site in a timely fashion.

The on-site alternatives contain potential risks of impacts to recreational areas, operations buildings, and concrete batch plant area. All of these factors can affect the overall project schedule outcome. By sequencing the disposal efforts in an effective way, the overall risk to the project can be reduced.

2.4.4 Excluded Plans

Five of the initial plans, Alternative Plans B, C, D, and E, have been eliminated from further consideration.

Alternative Plan A (NAA) has been eliminated as an alternative due to cost but will be retained as the NAA. However, if the preferred alternative becomes a non-viable option, Alternative A would be utilized due to a condensed construction schedule and the reduced risk of the option.

Alternative Plan B has been eliminated due to real estate requirements, possible hauling issues, extensive site prep work, and having the most environmental impacts of the listed alternatives.

Alternative Plan C has been eliminated due to cost, real estate requirements, and possible hauling issues.

Alternative Plan D has been eliminated due to recreational impacts to Bellepoint Park. Because of the steep and mountainous topography, there are limit potential for recreational areas

surrounding the project area. This alternative could cause multiple years of recreational loss to the community and it was not carried forward for further consideration.

Alternative Plan E has been eliminated due safety and aesthetics. Under this alternative three separate disposal areas would be located within the project area. These areas would leave the operations buildings isolated and could cause additional issues for project staff during high water events. The disposal areas would also cause aesthetic issues for the area that would be utilized at the end of the project as recreational areas.

2.5 Proposed Action and Alternatives

2.5.1 Proposed Action Alternative (PAA) Description

Alternative Plan F – Right Abutment, Right Hillside

Alternative Plan F is composed of an on-site disposal configuration that utilizes only the right abutment of the Dam and eastern hillside on the right descending bank downstream of Bluestone Dam. Areas utilized include the right abutment groin and the area to the east of Miller Ave where the existing stockpile sits. The alternative would not affect the currently existing recreational areas as all disposal would be placed within the current construction area. Under this option Bellepoint Park would not need to be closed due to disposal. However, this alternative would require the replacement of the operations buildings in a different location as the disposal would be placed in the current location of the existing operations buildings. The Operations buildings would be place at the elevation of 1415 which would be a benefit to USACE as it would no longer be within the tailwater of the New River at high flows.

This alternative would also require for Packs Branch, a stream that runs through the site, to be encapsulated in a 72" diameter culvert for approximately 300-500 linear feet. The culvert would allow for safer access to the proposed location of the new operations buildings and allow for more usable area on top of the disposal fill. The disposal area would be turned into green space that would be able to be utilized for recreational purposes unlike Alternative E that had areas would be at too high of an elevation to be used effectively. Minimal trees clearing would also be required along the eastern hillside and Miller Avenue; approximately one acre. Miller Avenue would need to be realigned to meet the new slopes and elevations of the disposal but the road would be in the same relative location just at higher elevation. Due the restriction in the areas where the disposal can be placed, the height of the disposal would range from 1403 to 1415 in order to accommodate the full amount excavated material.

The disposal material excavated from the basin would be transported to the disposal area potentially by truck and conveyor system. By truck, the disposal from the right side stilling basin would be driven across the cofferdam/causeway directly to the disposal area thus cutting out any need from travel on Miller Avenue through the community of Bellepoint and reducing truck impacts. The material from the left side of the stilling basin would need to be trucked through the community or potentially a bridge over the stilling basin could be built to directly

truck the material to the disposal site, by-passing the community altogether. However, the hauling restriction of the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday would still be upheld to mitigate for truck traffic. A conveyor system may also be utilized to convey the material from the stilling basin to the disposal site. Using the conveyor system would eliminate truck traffic through the community for disposal material transport from both the left and right side of the stilling basin.

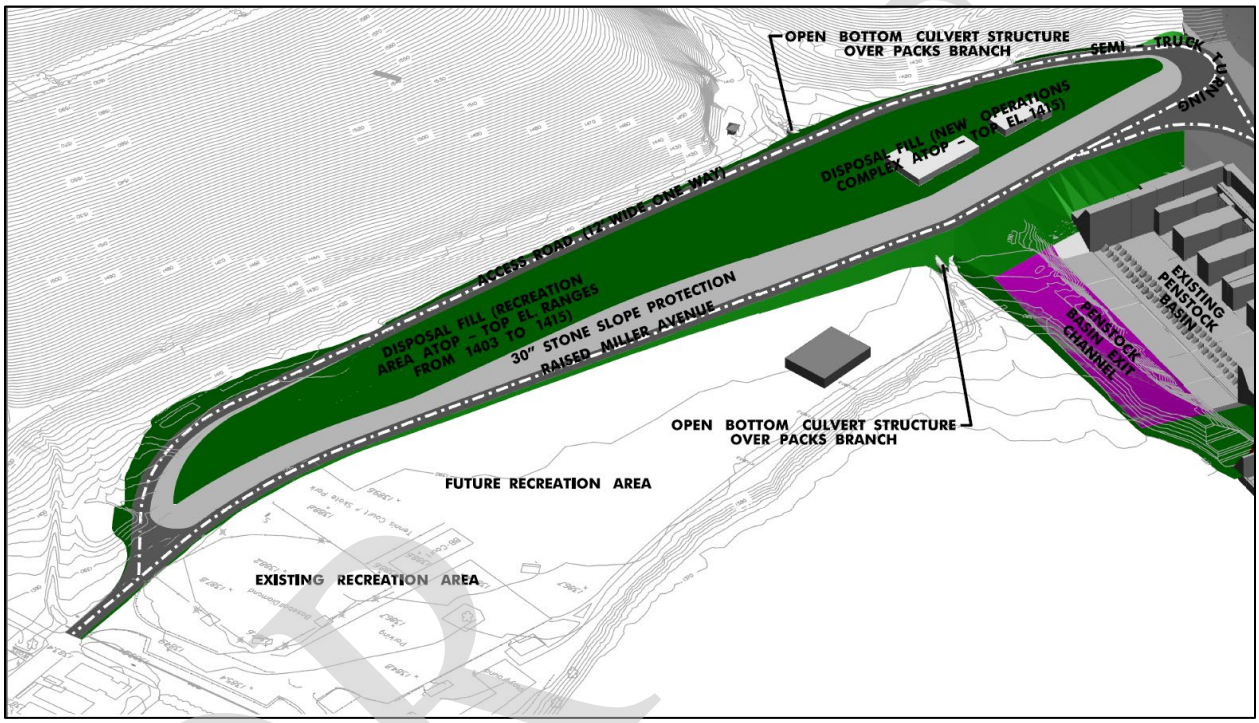

Figure 10. PPA (Alternative Plan F)

3 ENVIRONMENTAL SETTING AND CONSEQUENCES

Potential impacts from the alternatives considered in this SEA would be primarily to the terrestrial resources along the right descending bank downstream of Bluestone Dam. Because this assessment tiers from the SFEIS approved September 2017, only those resources identified that may potentially be affected by the PAA, disposal activity, are addressed in this document. The following discussion focuses only on consideration of those resources determined to have potential for impacts associated with the alternatives, thus complying with the concise document requirement of 40 CFR 1508.9 (a).

3.1 TERRESTRIAL HABITAT

The PAA would be completed primarily within previously disturbed areas within the current construction lay down area; therefore, potential impacts to vegetation would be minimal. Approximately one acre of trees and vegetation would need to be removed as part of the PAA to open up the area around the current maintenance building and along the southeastern most portion of the disposal site for the placement of the disposal material. On the right descending bank on the downstream side of the dam, very limited riparian vegetation exists within the construction work limits consisting of river birch, American sycamore, eastern red cedar (Juniperus virginiana), and tree of heaven (USFWS 2013). Coordination with USFWS has been on-going for the Bluestone Dam project and coordination will be completed for the vegetation clearing prior to the approval of a FONSI.

In order to minimize impacts to botanical resources, clearing vegetation would only occur in areas which have been previously impacted and/or of lower quality. To mitigate for unavoidable impacts to botanical resources, river banks and slopes that are directly disturbed by construction activities will be reseeded with native species where practicable (SFEIS 2017). Only minor impacts during construction are anticipated to occur to botanical/vegetative resources. Therefore, no significant long-term impacts to terrestrial habitat are anticipated as part of the PAA.

As the selection of the NAA would entail no changes to the project area, there are no impacts to terrestrial habitat anticipated as part of the NAA.

3.2 FLOODPLAINS

Executive Order 11988 requires Federal agencies to consider the potential effects of their proposed actions to floodplains. In order to determine the PAA's potential floodplain impact, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) (Attachment A) were reviewed and there are no portions of the proposed construction work limits located within the floodplain (https://www.fema.gov/floodplain-management/flood-zones). Therefore, no impacts to the floodway will occur as part of the PAA. No fill would be placed within the floodplain as part of the NAA within the landfill.

Therefore, no significant impacts to floodplains are anticipated to occur from the PAA or NAA.

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3.3 AQUATIC HABITAT/WATER QUALITY

The proposed project area is located within the New River Watershed. An in-depth description of the watershed and any impairments can be found in Section 4.6 of the SFEIS. Implementation of the PAA would not result in any new discharge of pollutants with the use of proper Best Management Practices (BMPs).

Within the PPA on the east descending bank, wetland and stream habitat is limited to a perennial stream, known as Packs Branch, which flows through the site in an east to west direction and into the eastern bank of the New River near the base of the dam (Figure 11). The stream is approximately three to five feet wide with flowing water at the time of the site survey (May 2018). As the stream traverses through the site, the channel meanders down a steep slope then becomes channelized from the base of the slope to the New River. This stream would be considered a jurisdictional "Waters of the U.S."

In the channelized portion of the stream approximately 300 to 500 linear foot (LF) would be encapsulated using a 72" culvert to allow for easier access to the new maintenance buildings. The size would allow USACE operations the ability to clean out the culvert and to administer repair when needed.

The work to be conducted within Packs Branch would fall under Section 404 Clean Water Act (CWA) as fill or dredge material would be placed below the ordinary high water mark (OHWM). This project would meet the terms and conditions of a nationwide permit (NWP) 14 for linear transportation projects, as the installation of the culvert would be for "activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects." The installation of the culvert will not result in a loss of waters and the NWP does not have a length limit for the action. No further Section 404 analysis is needed.

An individual Section 401 of the CWA is needed from the West Virginia Department of Environmental Protection (WVDEP) for the total work of Phase 5 including the culvert installation in Packs Branch. An individual 401 "is required for an activity impacting greater than 200 linear feet on one or more stream identified" such as the Packs Branch work as it would be 300 feet-500 feet. Coordination with WVDEP has been conducted and a West Virginia Stream and Wetland Valuation Metric (SWVM) (Attachment A) form has been completed and mitigation for the culvert installation has been determined. Due to the channelized nature of the stream it has been assessed as a low quality stream using the SWVM that would require payment to a stream in-lieu fee program for mitigation of the impact. Mitigation costs would range from $131,400 to $219,000 (300 feet to 500 feet) depending on the stream impact length. Mitigation for the impact would have to be paid prior to the impact taking place.

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As the selection of the NAA would entail no changes to the project area, there are no impacts to aquatic habitat or water quality anticipated as part of the NAA.

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Figure 11. Potential Waters Mapped on the Right Descending Bank Disposal Area Outline

3.4 WETLAND RESOURCES

A National Wetland Inventory Map (NWI) was reviewed for the project area and indicated that there are no wetlands on or adjacent to the project area. A site reconnaissance was conducted to determine validity of the NWI maps (See Attachment A). The site reconnaissance also indicated no wetlands are located within the project area. Therefore, no impacts to wetland are anticipated as part of the PAA and NAA.

3.5 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

The proposed spoil site is outlined on Figure 3 in Appendix A of the HTRW report (Attachment B) and takes in all of the property required for permanent disposal of all excavated material from the current stilling basin. The area includes the right descending bank downstream of the dam from the emergency spillway to the baseball field (Appendix I HTRW Report, Photos BLN01 to BLN03), and the left descending bank downstream of the dam adjacent to State Route 20 (Appendix I HTRW Report, Photos BLN05 to BLN07).

3.5.1 Phase I Investigation Results

On 16 March 2018, a site visit was made to assess the proposed spoil site for Phase 5 construction. Site mapping is included in Appendix A of the HTRW report and site photos are included in Appendix I of the HTRW Report. The following observations were noted during the site visit:

The Phase 4 Contractor, Coastal Drilling, operates on both the left and right bank of the New River downstream of the dam. The Contractor Work Limits (CWL) includes the left bank adjacent to the stilling basin and the emergency spillway of the dam. During the site visit, a petroleum containment area was observed on the right descending bank (Appendix I HTRW Report, Photo BLN04), and on the left descending bank (Appendix I HTRW Report, Photo BLN08). No spills or stained areas were observed outside of the containment areas. A sump was noted on the left descending bank (Appendix I HTRW Report, Photo BLN09) used for mixing and containing bentonite slurry. During the site visit, no environmental concerns were observed in this area.

Interviews were conducted to determine history and any evidence of contamination within the proposed project area. The Park Manager for Bluestone Dam from 1990 to 2017 was interviewed. During his interview he stated that there was one 250 gallon diesel AST inside the dam present for the emergency generator and no diesel spill in his time there had occurred. When questioned about the UST removal in 1992, the Park Manager stated that he was working there when the three USTs were removed next to the maintenance building. At the time of removal, no evidence of contamination was apparent in the tank pit and confirmation samples taken at the time came back clean. Furthermore, a Maintenance Mechanic was interview to provide an update to the Park Manager's interview. The Maintenance Mechanic stated that the

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250 gallon diesel AST inside the dam was replaced with a double-walled 1000 gallon diesel AST; no spills from this AST has occurred since installation. Additionally, a Construction Inspector, was also interviewed to determine if any of the past or current construction contractors caused any concerns. The inspector could not recall any incidents from past or current contractors that would environmentally impact the proposed spoil site. Lastly, the Director of Summers County Emergency 911, was interviewed to determine if any emergency dispatchments were made to the proposed spoil site. No emergencies pertaining to environmental incidents were recalled.

Mapping was obtained from Environmental Data Resources (EDR), Inc. report for the proposed spoil site and a review of reasonably available standard historical sources was performed as part of this investigation. The purpose of this historical record search is to determine the past uses of the project area. Aerial photographs, and USGS 7.5-minute historical topographic maps showing the project area were available and reviewed. Copies of these maps are included in Appendix B of the HTRW Report. The aerial photos and topographic maps did not indicate any past or present activities that would cause HTRW concerns within the project area.

Review of the records of regulatory agencies listing recognized environmental conditions were obtained for the project area from EDR. The target property was found in the following databases:

- RCRA-CESQG – Resource Conservation and Recovery Act Conditionally Exempt Small Quantity Generator
- FINDS - Facility Index System
- ECHO – EPA Enforcement and Compliance History Online
- NY MANIFEST
- WV UST

The first three databases indicate that the Bluestone Dam is listed under these programs; there are no present violations, or non-compliance under these programs. Bluestone Dam is listed under the NY Manifest program for disposing of lead contaminated paint removed from the structure to a NY hazardous waste landfill in 1996. The WV UST indicates that at one time, Bluestone Dam had three underground storage tanks at its facilities. These tanks were removed and the site closed out in 1992. No mapped sites were found within the search radius around the target property that would be an environmental concern. Due to poor or inadequate address information, two sites could not be plotted by EDR. Unplottable sites were reported in the WV National Pollutant Discharge Elimination System (NPDES), FINDS, and ECHO databases. Both are listed as BLUESTONE DAM – DAM SAFETY ASSURANCE. The WV NPDES is a water discharge permit required by the Phase 3 Contractor during construction. The FINDS and ECHO are listings for the Contractors during the Dam Safety Assurance construction.

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3.5.2 Recommendation for Bluestone Dam Downstream Right

Based on the investigative findings and the planned activities for this property, there are no environmental concerns that would impact activities in the proposed spoil site. It is recommended that current Phase 4 construction activity be monitored for any incidents that might environmentally impact future construction activities on the USACE project. If the design plans undergo further changes to include any additional areas for Phase 5 construction or mitigation, then those properties will have to be evaluated for any HTRW concerns. Currently, the PAA would not result in any HTRW impacts.

The NAA would not result in ground disturbing activities on site instead the material would be taken to an approved landfill. Thus areas on site with any potential HTRW contamination would not be disturbed. Therefore, there are no HTRW impacts associated with the NAA.

3.6 CULTURAL RESOURCES

No known cultural resources are located within the PAA disposal area. The PAA would be completed primarily within previously disturbed areas within the current construction lay down area; therefore, potential impacts to cultural resources would be minimal to none.

The preferred plan for disposal will occur on property that is more than 20% sloped, which does not require an archeological survey under the West Virginia Division of Culture and History (WVSHPO) Archeological Guidelines. Additionally, areas with less than 20% slope were artificially created during the construction of Bluestone Dam, heavily disturbing the area. The disposal area would be able to be engineered as a green space, maintaining the viewshed of the historic Bluestone Dam. In accordance with 36 CFR Part 800.5(d)(1), the Huntington District has determined historic properties eligible for or listed in the National Register of Historic Places (NRHP) will not be adversely affected by the undertaking, however coordination with WVSHPO is on-going and will be completed prior to the issuance of a FONSI. The Huntington District will fulfill its obligations under Section 106 National Historic Preservation Act (NHPA) prior to FONSI issuance.

Should any cultural resources or human remains be inadvertently discovered during the undertaking, work must stop and the District Archeologist shall be contacted immediately. If human remains are uncovered, the West Virginia State Police, the Summers County Sherriff, the Summers County Coroner, and the WVSHPO shall also be contacted immediately.

As the selection of the NAA would entail no changes to the project area, there are no impacts to cultural resources are anticipated as part of the NAA.

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3.7 THREATENED AND ENDANGERED SPECIES

The SFEIS provides a detailed description of the Federal and state listed threatened and endangered plant and wildlife species known to exist within the project area and their preferred habitat. Table 2 provides a list of these species and their listing status.

Table 2. Federal and State-Listed Threatened and Endangered Plant and Wildlife Species

Running buffalo clover	*Trifolium stoloniferum*		
Virginia spiraea	*Spiraea virginiana*	Threatened	Threatened (WV, VA)
Peters mountain mallow			
Bentley's coralroot	*Corallorhiza bentleyi*	n/a	Endangered (VA)
Long-stalked holly			
Indiana bat			
Virginia big-eared bat			
			Threatened (VA)

The western portion of the right descending bank site does not contain suitable habitat for the Federally listed bat species. However, the slope forest along the eastern side of the right descending bank site and the left bank site could provide suitable foraging habitat for the listed bat species and could possibly provide summer roosting habitat. However, there were no caves or mine openings observed within either site which could serve as hibernacula for these species.

Neither site provides suitable habitat for the peregrine falcon nor listed plant species. None of the individuals of the listed plant species were observed within these disposal sites.

Any tree clearing for this project would be restricted to avoid taking bat tree roosts, bird nests, eggs, and young (between November 15 and March 31, which is outside the nesting season for most native bird species and roosting season for bats). River banks and slopes that are directly disturbed by construction activities will be reseeded with native species, replacing lost habitat for terrestrial species where practicable. Given the ongoing disturbances associated with the current construction on the dam, and the fact that the Bluestone Dam does not currently fall within any federally listed bat habitat buffers (USFWS personal communication), it is unlikely that any rare riparian bird species such as black-capped chickadees or Acadian flycatchers nest or bat species

roost within the riparian vegetation that would be cleared for construction of the PAA. Peregrine falcons do not nest in trees, and bald eagles do not typically nest in the types of trees found within the habitat to be cleared for construction. Nonetheless, seasonal restrictions would be followed for tree clearing, which would reduce the risk of impacts to bird nesting by all birds, including Birds of Conservation Concern, and roosting bats. Due to the knowledge of the lack of threatened and endangered species in the area of the disposal; USACE has made the determination that there will be no effects to threatened and endangered species expected from this vegetation removal. No further coordination is needed for the Threatened and Endangered Species Act.

The NAA would not result in additional ground disturbing activities. Therefore, there would be no effect to Threatened and Endangered Species associated with the NAA.

3.8 AIR QUALITY

The right and left bank sites are located within Summers County, which is in attainment for all National Ambient Air Quality Standards (NAAQS) (USEPA 2018). The right bank site is adjacent to numerous residences within the community of Bellepoint along Riverside Drive, Miller Avenue, and Cedar Avenue and Bellepoint Park. No residences are located adjacent to the left bank site.

Disposal of earth and rock material would take place intermittently throughout the six to ten-year dam modification construction period. Transportation and disposal of earth and rock material could have long-term, non-permanent impacts to air quality similar to ongoing construction at the dam, including emissions from transportation vehicles and fugitive dust from rock crushing and material placement.

Adjacent to the right descending bank disposal site are several homes and recreational areas which could potentially be affected by air emissions from disposal activities. However, this site has been used for construction related activities for several years and certain potential air impacts to adjacent residences would be mitigated using on site measures and BMPs such as using water to minimize dust.

There are approximately 50 homes, a convenience store with gas station, other small businesses, and a Methodist Church along the transportation route between the dam and the left bank site which could potentially be affected by air emissions from the transportation of material to the disposal site.

Potential air quality emissions for construction activities were calculated and compared to General Conformity Rule de minimis thresholds (100 tons per year) (USEPA 2016) in the SFEIS. These calculations included emissions from vehicles used to transport disposal material from the construction site. The 2016 analysis and the assumptions used are provided in

Attachment A. Given that the assumptions used in the 2016 analysis are consistent with the disposal plan alternatives described in this report, emissions levels described in the SFEIS would not be exceeded using the left and right descending bank sites and would not exceed de minimis levels with the PAA. Therefore, there are no significant adverse impacts to air quality as a result of the PAA.

The NAA would result in increased truck traffic and exhaust emissions than that of the PAA due to increased truck travel to and from a landfill. No counties within the areas of travel for the potential landfills are categorized as being in non-attainment status and would not exceed de minimis levels. No impacts to air quality are anticipated to occur as part of the NAA.

3.9 NOISE

As described in the SFEIS, the ambient noise at Bluestone Dam within the right and left descending bank sites varies continuously and is composed of sounds from distant sources that are relatively steady, such as the flow of water through the dam, and of other sources, such as traffic sounds along WV Route 20 and ongoing construction at Bluestone Dam, that vary significantly in duration and magnitude. The CSX railroad line is located just north of Bellepoint and loud noises associated with horn blowing, diesel engines etc., while intermittent, also contribute to the ambient noise environment in the area. While there are no sensitive noise receptors in the area of the left descending bank site, several homes and a park which could potentially be affected by noise impacts from disposal activities are adjacent to the right bank descending site and transportation routes.

The SFEIS provided a-weighted (dBA) sound levels of typical construction equipment and their associated modeled attenuation at various distances, based on data from the Federal Highway Administration (FHWA 2007). Dump truck and grader use associated with the transportation, dumping, and leveling of disposal material would be expected to emit approximately 76 to 85 dBA at a distance of 50 feet of the equipment and approximately 50 to 59 dBA at a distance of 1,000 feet of the equipment. Noise receptors such as the houses and recreation areas adjacent to the right bank site would be expected to experience these noise levels during the activities described in the 2016 SFEIS, including disposal of earth and rock material at the left and right descending bank sites.

Residences located 100 feet away from any roads used for hauling would have noise impacts of up to 70 dBA and residences located 200 feet away would have noise impacts up to 65 dBA. While the noise levels are not sufficient to cause damage to hearing or pose a health risk, these noise levels could temporarily and adversely affect the quality of life for Bellepoint residents. These impacts would contribute to the long-term, non-permanent, moderate adverse impacts on the ambient noise environment caused by the overall Bluestone Dam Safety Modification

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project. Potential impacts to the community would continue to be mitigated through the use of hauling restrictions from the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday.

The NAA would result in increased truck traffic than that of the PAA due to increased truck travel to and from a landfill. With the increased traffic comes increased noise to the community. These impacts would contribute to the long-term, non-permanent, moderate adverse impacts on the ambient noise environment caused by the overall Bluestone Dam Safety Modification project.

3.10 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

Section 5.14 Socioeconomic Resources in the SFEIS goes into great detail about the population of Summers County, WV and the surrounding areas. Executive Order (E.O.) 12898 requires Federal actions to address environmental justice in minority populations and low-income populations. According to the U.S. Census Bureau, the 2015 population estimate for Summers County was 13,239 and contains 7% minority populations. The 2015 census indicates Summers County is 93.0% white and has a median household income of $35,040 compared with the median household income of $41,576 for the State of West Virginia. Individuals residing in the county below the poverty level is 25.8% compared to 17.9% statewide.

EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children" and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. The potential for impacts on the health and safety of children is greater where projects are located near residential areas.

The PAA would not have disproportionate effect any segment of the population and would generally reduce impact to the general populations through reduction of truck traffic through the local community areas. Additionally, no homes or buildings would be adversely impacted by the PAA. Therefore, the PAA meets the directive of EO 12898 by avoiding any disproportionately high adverse human health or environmental effects on minority or low income populations. In addition, the project is in compliance with EO 13045 "Protection of Children from Environmental Health Risks and Safety Risks," as there are no health or safety concerns affecting children.

Under the NAA, increased truck traffic would occur within the local communities including Bellepoint. This increased traffic could cause traffic to backup and detours could be used. However, these would affect everyone in the area equally. Therefore there would be no disproportionate impacts to minority or low income populations under the NAA. Potential

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impacts to children would continue to be mitigated through the use of hauling restrictions from the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday.

3.11 RECREATIONAL RESOURCES

The PAA would be placed in an area that prior to the start of construction was used for operations activities and open field area. During previous phases of the Bluestone Dam Safety construction the area has been disturbed and used as a stockpile area for the project. Currently, the area is being used as a construction and stockpile area and is not usable by the public for recreation.

The PAA would be completed within previously disturbed areas within the current construction lay down area that have never been used for recreational uses in the past; therefore, there would be no impacts to recreation within Bellepoint Park and the surrounding area. However, in the future there will be a portion of the disposal area that could be used for additional recreational space adding to the overall usable recreational space within the park. The additional space would become a benefit to the PAA that would not occur under the NAA.

The NAA would not result in additional ground disturbing activities. Therefore, there would be no adverse effects to the on-site recreation associated with the NAA, however there would also be no positive benefits to recreation under the NAA as there would be under the PAA.

3.12 VISUAL/AESTHETIC RESOURCES

The project area is rural, primarily consisting of residential properties, park area, and small commercial properties including the disposal site. The dam site and surrounding area has been under construction since 2000, having a long term impact on the visual and aesthetics resources. The PAA would be placed in an area that has been previously disturbed by construction activities including a stockpile area. Currently, the area is being used as a construction and stockpile area and has not had any major site restoration as the area has been consistently used as construction area.

Permanent disturbances of the local aesthetics would be anticipated during construction disposal as the disposal will be placed on the Bluestone Dam site. On the right descending bank the disposal will be placed permanently along the hillside and will take part of the former operations area. However, the top of the disposal will be soiled and seeded and the site will left for a recreation area, in the future features such as viewing areas, picnic shelter(s), and parking could be added. On the left descending bank the whole area will be raised to match the training wall raise of an additional 10 feet in order for a view of the dam to remain from this side. The left side would also be soiled and seeded in order to bring the aesthetic back to the area. On the left side recreational features as described in Section 5.11 Recreational Resources of the SFEIS will also be replaced. Disturbance of local aesthetics has already occurred with the project

construction that began in 2000. The proposed disposal is an extension of the previous Bluestone Dam construction efforts and the areas will be enhanced once completed therefore, the PAA would not significantly adversely impact local aesthetics but have positive effects on the overall project area.

Under the NAA, all disposal would be taken to a landfill and would not affect the aesthetic either negatively or positively in the area. Therefore, under the NAA no impacts to local aesthetics would occur.

3.13 TRANSPORTATION AND TRAFFIC

In order to reach the left descending bank site, disposal material would most likely be hauled from the dam along approximately 1.25 miles on Miller Avenue in Bellepoint, 0.4 miles on WV Route 3, and 0.4 miles on WV Route 20 (Figure 12). Miller Avenue is a local, paved, two-lane road, and both WV Route 3 and WV Route 20 are paved, two lane, minor arterial roads. While no traffic counts are readily available for Miller Avenue, Table 3 provides available traffic counts for the portions of WV Route 3 and WV Route 20 that would be utilized for transportation between the left and right banks.

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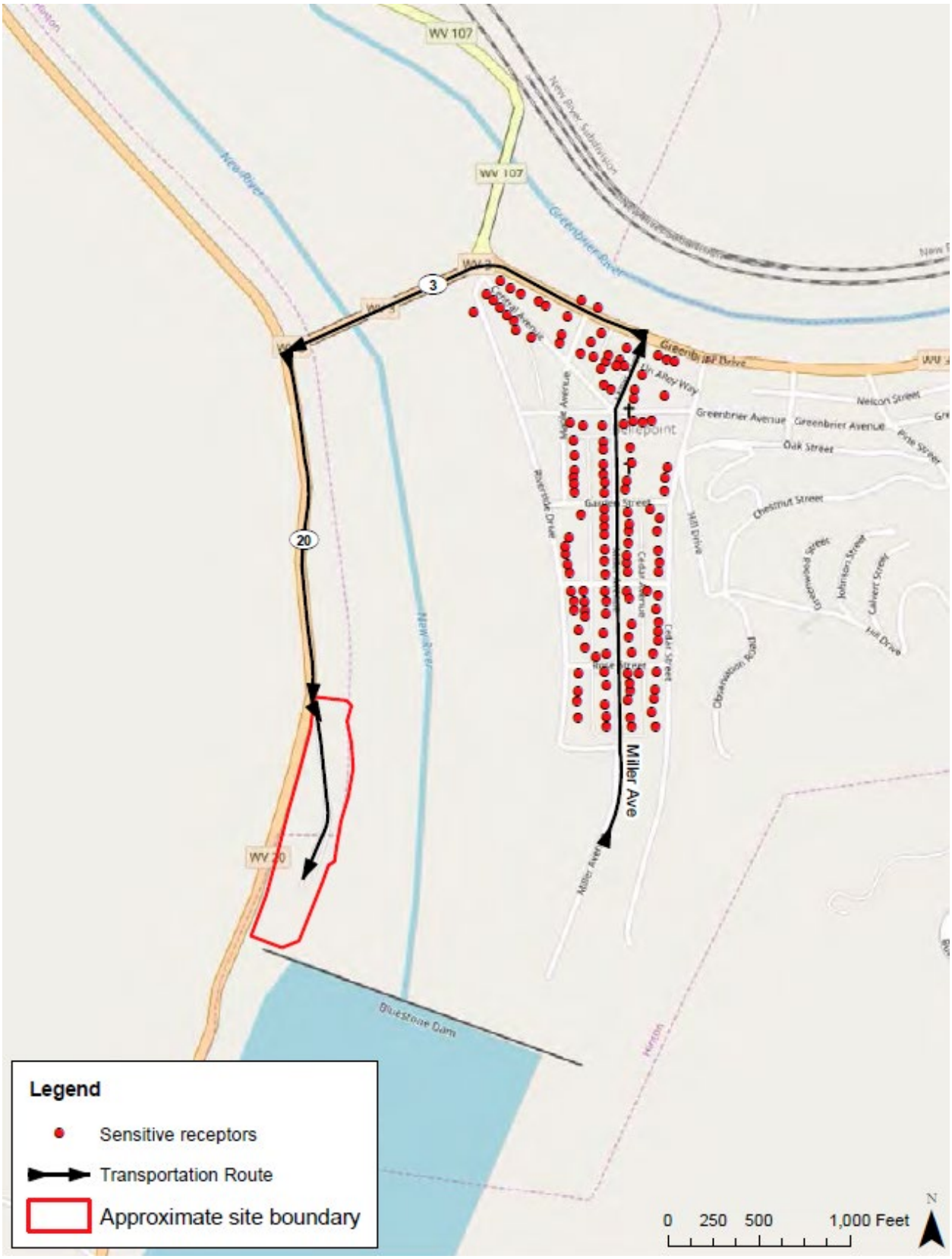

Figure 12. Left Bank Site Transportation Route and Noise Receptors

Table 3. Average Annual Daily Traffic Counts on WV Route 3 and WV Route 20 in Vicinity of Disposal Sites

Road	Location	Average Annual Daily Traffic	Year(s) of Traffic Count(s)
WV Route 3	East of WV Route 20, east of New River	6847	2011
WV Route 3	East of WV Route 20, crossing New River	4665	2011
WV Route 20	0.1 mile south of junction with WV Route 3	2065-3067	1997-2015

Source: WVDOT 2018.

A possibility of no state highways or local roads, with the exception of the portion of Miller Avenue traversing Bellepoint Park on the right bank, would be utilized if an alternative method of material transportation, such as a conveyor system, was chosen.

As no local roads or highways would be utilized, there should be no impacts associated with transporting disposal materials to the right descending bank site. Hauling of disposal material to the left bank site would intermittently increase traffic on the portions of Miller Avenue, WV Route 3, and WV Route 20 used for transportation of material. Assuming 20 cubic yards of disposal material could be carried in each dump truck load, 8,500 truck trips would be required to disposal of 170,000 cubic yards of material. These trips would be intermittent over a period of six to ten years.

Proper signage and traffic controls would be utilized to limit the impact of haul truck entrance and exit on other vehicles utilizing WV Route 20. Appropriate fugitive dust minimization measures, such as use of water to control dust, would be utilized to limit potential impacts to visibility on adjacent roadways including Miller Avenue and WV Route 20. Transportation impacts would be further mitigated by limiting the truck traffic through Bellepoint residential areas from the hours of 9:00 a.m. to 2:00 p.m., Monday through Friday.

This increase in construction related traffic of the PAA would contribute to the overall long-term, non-permanent, moderate impact on transportation caused by the overall Bluestone Dam Safety Modification project.

Under the NAA hauling of disposal material to the landfill would increase traffic on the portions of Miller Avenue, WV Route 3, and WV Route 20 along with interstate highways used for transportation of material. Assuming 20 cubic yards of disposal material could be carried in each dump truck load, 8,500 truck trips would be required to disposal of 170,000 cubic yards of material. These trips would be intermittent over a period of six to ten years. This increase in

construction related traffic of the NAA would contribute to the overall long-term, non-permanent, moderate impact on transportation caused by the overall Bluestone Dam Safety Modification project.

3.14 HEALTH AND SAFETY

The PAA was selected to reduce health and safety risks to the community by keeping the disposal material on site and reducing the amount of truck traffic leaving the site and going to a landfill. Reducing the truck traffic would reduce the probability of a member of the community from being harmed by a potential truck accident. The PAA would provide an increase in health and safety over that of the NAA which would involve a higher number of trucks a day, hauling tons of rock and debris to a landfill. The NAA would have a potential for an adverse effect to the surrounding community.

3.15 CUMULATIVE EFFECTS

USACE must consider the cumulative effects of the proposed project on the environment as stipulated by NEPA. Cumulative effects are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions". Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7 Council on Environmental Quality [CEQ] Regulations).

The cumulative effects analysis is based on the potential effects of the proposed project when added to similar impacts from other projects in the region. An inherent part of the cumulative effects analysis is the uncertainty surrounding actions that have not yet been fully developed. The CEQ regulations provide for the inclusion of uncertainties in the analysis and states that "when an agency is evaluating reasonably foreseeable significant adverse effects on the human environment...and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking" (40 CFR 1502.22).

Past, present, and reasonably foreseeable projects outside of the immediate dam area have produced, or would likely produce, noise disturbances of various degrees. The additional traffic and construction equipment associated with the construction of the Tentatively Selected Plan (TSP), including the disposal PAA, and other projects in the area would increase the noise in the study area, leading to an overall temporary reduction in quality of life for area residents. While the TSP would add to the overall cumulative impact of noise on wildlife as well, the total cumulative impact of noise on wildlife throughout Reconnaissance Area 1 is minimal given the limited construction and development within this area. Large swaths of undisturbed terrestrial habitat occur throughout Reconnaissance Area 1 to which more mobile species can easily move

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during disturbances near the dam; therefore, the cumulative impact of noise on wildlife within the larger Reconnaissance Area 1 due to the TSP would be negligible despite it being long-term, though non-permanent.

Terrestrial habitat has been and would likely be impacted by construction of projects such as those listed in Table 6-1 of the SFEIS, as well as logging in the vicinity of Reconnaissance Area 1. The clearing of vegetation under the TSP and PAA would add to this impact, though the additive impact would be negligible given the limited acreage of vegetation removal under the TSP as compared with other projects in the area. Similarly, the cumulative impact to terrestrial wildlife due to loss of terrestrial and riparian vegetation under the TSP would be negligible given the abundance of similar, high-quality habitat elsewhere in the area.

The PAA has the same overall cumulative effects as the TSP. However, due to the PAA specifically approximately an additional one acre of trees will need to be removed in order for the PAA to be developed adding to the overall tree removal of the TSP. Once the disposal has been placed in this area; trees, bushes, and grasses, including native grasses, will be planted as part of the park landscape and disposal area mitigation. The PAA will also change the look of the landscape within Bellepoint Park. The area would be able to be made into usable recreational, green space and thus mitigate for the change in composition of the park. The PAA should also reduce the amount of truck traffic with in the community of Bellepoint as compared to the TSP landfill option. This shall further reduce the disturbance to the community along with the truck hauling restrictions within Bellepoint.

4 STATUS OF ENVIRONMENTAL COMPLIANCE

The PAA will be in full compliance with all local, state, and Federal statutes as well as Executive Orders prior to issuance of a FONSI. Compliance is documented below in Table 4.

Statute/Executive Order	Full	Partial	N/A
National Environmental Policy Act (considered partial until the FONSI is signed)*		X	
Fish and Wildlife Coordination Act*		X	
Endangered Species Act*	X		
Clean Water Act*		X	
Wild and Scenic Rivers Act	X		
Clean Air Act	X		
National Historic Preservation Act	X		
Archeological Resources Protection Act			N/A
Comprehensive, Environmental Response, Compensation and Liability Act	X		
Resource Conservation and Recovery Act	X		

Table 4 - Environmental Compliance Status			
Toxic Substances Control Act	X		
Quiet Communities Act	X		
Farmland Protection Act	X		
Executive Order 11988 Floodplain Management	X		
Executive Order 11990 Protection of Wetlands	X		
Executive Order 12898 Environmental Justice in Minority Populations and Low-Income Populations	X		
Executive Order 13045 Protection of Children	X		

5 REQUIRED COORDINATION

5.1 AGENCIES CONTACTED

Direct coordination with the WVDNR, WVDEP, USFWS, and SHPO will be completed prior to approval of the SEA and FONSI. Agency correspondence will be included in Attachment E.

5.2 PUBLIC REVIEW AND COMMENTS

The SEA and FONSI will be made available for public review and comment for a period of 30 days, as required under NEPA. A Notice of Availability will be published in the local newspaper, Hinton Daily News, advising the public of this document's availability for review and comment. A copy of the SEA will also be placed in the Summers County Public Library and will be made available on-line at http://www.lrh.Corps.army.mil/Missions/PublicReview.aspx. The mailing list for the SEA will be located in Attachment E.

6 CONCLUSION

The proposed disposal of the material excavated from the Bluestone Dam Stilling Basin would reduce the impact to the surrounding area from potential truck traffic and would be a reduction of the cost of the NAA. The chosen disposal option would also require Packs Branch, a stream that runs through the site, to be encapsulated in a 72" diameter culvert for approximately 300-500 linear feet. The culvert would allow for safer access to the proposed location of the new operations buildings. The culvert installation would meet the terms and conditions for a nationwide permit 14 for linear transportation projects. An individual Section 401 of the CWA is needed from the West Virginia Department of Environmental Protection (WVDEP) for the total work of Phase 5 including the culvert installation in Packs Branch. Mitigation would be required in the form of payment into a stream in-lieu fee program for the impact. Mitigation costs would range from $131,400 to $219,000 (300 feet to 500 feet) depending on the stream impact length.

No other significant adverse impacts, outside of encapsulating Packs Branch, have been identified as a result of implementation of the PAA. The majority of construction would take place on previously disturbed land. Effects associated with disposal would be minor in nature. BMPs would be implemented during construction to minimize impacts to residents and the

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environment. Therefore, the PAA would not be expected to have significant impacts on the human environment.

7 REFERENCES

List of references can be found in Section 10.0 of the SFEIS.

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