ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

and

DOMINION ENERGY TRANSMISSION, INC.
SUPPLY HEADER PROJECT

Supplemental Filing
June 9, 2017

APPENDIX C

Updated Visual Impact Assessment

Dominion Energy Services, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060
DominionEnergy.com

Dominion Energy®

June 6, 2017

Mr. Clyde Thompson
Forest Supervisor
U.S. Forest Service, Monongahela National Forest
Forest Supervisor's Office
200 Sycamore Street
Elkins, WV 26241

Mr. Joby Timm
Forest Supervisor
U.S. Forest Service, George Washington and Jefferson National Forest
Forest Supervisor's Office
5162 Valleypointe Parkway
Roanoke, VA 24019

Mr. Mark Woods
Superintendent
National Park Service – Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

Ms. Wendy Janssen
Superintendent
National Park Service – Appalachian National Scenic Trail
PO Box 50
Harpers Ferry, WV 25425

Dear Mr. Thompson, Mr. Timm, Mr. Woods, and Ms. Janssen,

As you are aware, Atlantic Coast Pipeline, LLC (Atlantic) proposes to construct and operate approximately 600 miles of natural gas transmission pipelines and associated aboveground facilities in West Virginia, Virginia, and North Carolina. This Project, referred to as the Atlantic Coast Pipeline (ACP), will deliver up to 1.5 million dekatherms per day of natural gas from supply areas in the Appalachian region to demand areas in Virginia and North Carolina. Atlantic has contracted with Dominion Energy Transmission, Inc., a subsidiary of Dominion Energy, to construct and operate the ACP on behalf of Atlantic.

In support of its Project, Atlantic prepared a Visual Impact Assessment (VIA) which provided an analysis and simulations of potential views from key observation points in the vicinity of the proposed ACP where it crosses U.S. Forest Service (USFS) and National Park Service (NPS) lands. Atlantic previously provided the VIA to your offices for review and comment. Atlantic recently updated the VIA to address comments on the visual analysis provided by the USFS. The updated VIA is appended on the attached DVD.

Dominion Energy Services, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060
DominionEnergy.com

Atlantic would appreciate any comments you or your staffs have on the updated VIA. Please contact Richard Gangle at (804) 273-2814 or Richard.B.Gangle@dominionenergy.com if there are questions regarding this submittal.

Please direct written responses to:

Richard Gangle
Dominion Resources Services, Inc.
5000 Dominion Boulevard
Glen Allen, Virginia 23060

Sincerely,

Robert M. Bisha
Technical Advisor, Atlantic Coast Pipeline

cc: Jennifer Adams – USFS
Mary Krueger – NPS
David Anderson - NPS

Enclosures

Updated Visual Impact Assessment (DVD)

Atlantic Coast Pipeline

Visual Impact Assessment for Pipeline Segments in Monongahela and George Washington National Forests, and National Park Service Lands, including the Appalachian National Scenic Trail and Seneca State Forest

Prepared by:

ERM

May 2017

ATLANTIC COAST PIPELINE

VISUAL IMPACT ASSESSMENT FOR PIPELINE SEGMENTS IN MONONGAHELA AND GEORGE WASHINGTON NATIONAL FORESTS, AND NATIONAL PARK SERVICE LANDS, INCLUDING THE APPALACHIAN NATIONAL SCENIC TRAIL AND SENECA STATE FOREST

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

ACRONYMS

ACP	Atlantic Coast Pipeline
ANST	Appalachian National Scenic Trail
ATC	Appalachian Trail Conservancy
Atlantic	Atlantic Coast Pipeline, LLC
BRP	Blue Ridge Parkway
DEM	Digital Elevation Model
EIS	environmental impact statement
FRV	Fundamental Resource Value
GIS	Geographic Information Systems
GWNF	George Washington National Forest
HDD	Hydraulic Directional Drill
KOP	Key Observation Point
LWCF	Land and Water Conservation Fund
MNF	Monongahela National Forest
MP	milepost
NPS	National Park Service
ROW	Right of Way
SIO	Scenic Integrity Objective
SMS	USFS Scenery Management System
SSF	Seneca State Forest
USDA	U.S. Department of Agriculture
U.S.C.	United States Code
USFS	U.S. Forest Service
USGS	United States Geological Survey
VIA	Visual Impact Analysis

1.0 INTRODUCTION

1.1 OVERVIEW

Atlantic Coast Pipeline, LLC (Atlantic), conducted a visual impact assessment (VIA) to describe conditions and potential visual impacts for the segments of the proposed Atlantic Coast Pipeline (ACP) that would cross the Monongahela National Forest (MNF) in West Virginia and George Washington National Forest (GWNF) in Virginia. This VIA also describes conditions in and potential impacts to views associated with the Appalachian National Scenic Trail (ANST), which is located on both private lands and the GWNF at the ACP crossing location; the Blue Ridge Parkway (BRP), which is administered by the National Park Service (NPS); and Seneca State Forest (SSF) in West Virginia, which receives funding from the NPS-administered Land and Water Conservation Fund (LWCF), and is thus subject to NPS oversight related to potential visual impacts. This VIA was completed by staff from ERM (Atlantic's contractor), as well as staff from Truescape, Ltd, ERM's subcontractor responsible for preparing visual simulations to support the visual assessment. This report presents findings of field studies and desktop analyses.

1.1.1 Seen Area Analysis and VIA Study Area

At the initiation of the VIA project, Atlantic met with the U.S. Forest Service (USFS) to understand the content and analyses that the USFS required for their decision-making process regarding consideration of visual impacts resulting from the proposed action.

A USFS memorandum dated September 14, 2015, states that a "seen area" analysis should be completed, including all land up to 5 miles from the ACP centerline up to 5 miles beyond the National Forest proclamation boundary (USFS, 2015). The seen area analysis is a required first step in evaluating visual impacts for the USFS (see Section 2). This analysis requires the use of topographic data in a Geographic Information System (GIS) to determine areas that would be visible from a given feature (in this case the ACP proposed route). The seen area analysis assumes clear weather and absolutely no intervening vegetation or structures (i.e., a "cleared ground surface" analysis). In this sense, the seen area analysis represents a "worst-case" scenario that requires verification through on-the-ground observations of actual views with existing vegetation and other features not included in the seen area topographic mapping.

Consistent with the USFS memo, the study area for this VIA consists of a 5-mile buffer around the ACP's proposed centerline, as shown in Figure 1-1. Unless otherwise specified, the analyses in this VIA reflect the proposed route filed with FERC on July 18, 2016. The seen area analysis is discussed in more detail in Section 2.1.

1.1.2 Proposed Action

The ACP would cross approximately 5.2 miles of USFS-owned land within the MNF, 15.9 miles of USFS-owned land within the GWNF, and 4.8 miles of land subject to NPS oversight within the SSF. The landscape within the study area is generally characterized by mountainous terrain, largely covered by dense deciduous and evergreen forests. West of the Greenbrier River (within the MNF), the ACP corridor crosses the Appalachian Plateau

physiographic region, an area characterized by relatively flat ridgetops at approximately 4,400 to 4,800 feet above sea level, incised by stream and river valleys with elevations as low as 2,300 feet. East of the Greenbrier River (within the eastern MNF and western GWNF), the corridor is within the Valley and Ridge region. This area is characterized by narrow ridges running northeast-southwest, with maximum elevations between 3,200 and 3,800 feet, interspersed with broad stream and river valleys, often with elevations below 2,000 feet.

East of Staunton (within the GWNF Glenwood-Pedlar Ranger District), the corridor traverses through the Blue Ridge region, which reaches heights of approximately 3,500 feet along the BRP and ANST. River and stream valleys are often cleared and used for agriculture or livestock grazing, and also serve as north-south transportation routes.

The MNF and GWNF would be crossed by the AP-1 Mainline, which would consist of a 42-inch outside diameter pipeline. In non-agricultural areas, the AP-1 Mainline would require a nominal 125-foot wide construction right-of-way and a nominal 50-foot wide permanent right-of-way that would be converted from forest to herbaceous groundcover on USFS lands.

1.1.3 Contingency Analysis

Under the Proposed Action, the ACP corridor would cross underneath the Blue Ridge Mountains (including the BRP and ANST) using a Hydraulic Directional Drill (HDD) method, from approximately milepost (MP) 157.9 to 158.8. The entry and exit points for the HDD would be located on private land within the GWNF proclamation boundary, and the actual crossing would be several hundred feet beneath the BRP and ANST. Atlantic expects the HDD to be successful, however it has also developed a contingency plan for crossing the BRP and ANST. Under the contingency plan, the ACP corridor would cross underneath the BRP and ANST, the surrounding USFS and NPS lands, and a small amount of surrounding private land using a Direct Pipeline Drill directional bore process. Under the contingency plan, the remainder of the ACP corridor on private lands beyond the Direct Pipeline Drill would consist of typical trenched pipeline construction on both sides of the Blue Ridge. Figure 1-2 shows the contingency route.

1.2 U.S. FOREST SERVICE SCENERY MANAGEMENT SYSTEM

The information in this VIA, and particularly the evaluation of visual impacts in Section 4.0, is intended to be consistent with the USFS' Scenery Management System (SMS). The SMS is a "system for the inventory and analysis of the aesthetic values of National Forest lands" (U.S. Department of Agriculture [USDA], 1995), and is described in Agriculture Handbook 701, Landscape Aesthetics - A Handbook for Scenery Management. The SMS establishes a method for measuring the scenic value of lands in National Forests, according to the opinions of various types of viewers and USFS professionals and forest managers. It takes into account a wide variety of existing and desired landscape characteristics, such as (but not limited to) slope; vegetative cover type, pattern, height and distribution; soils; geology; and the "edge effect" where different landscape elements meet. This section describes the major concepts of the SMS relevant to the VIA, and also provides the SMS ratings for the portions of the MNF and GWNF potentially affected by the ACP.

Figure 1-1: VIA Study Area for the ACP

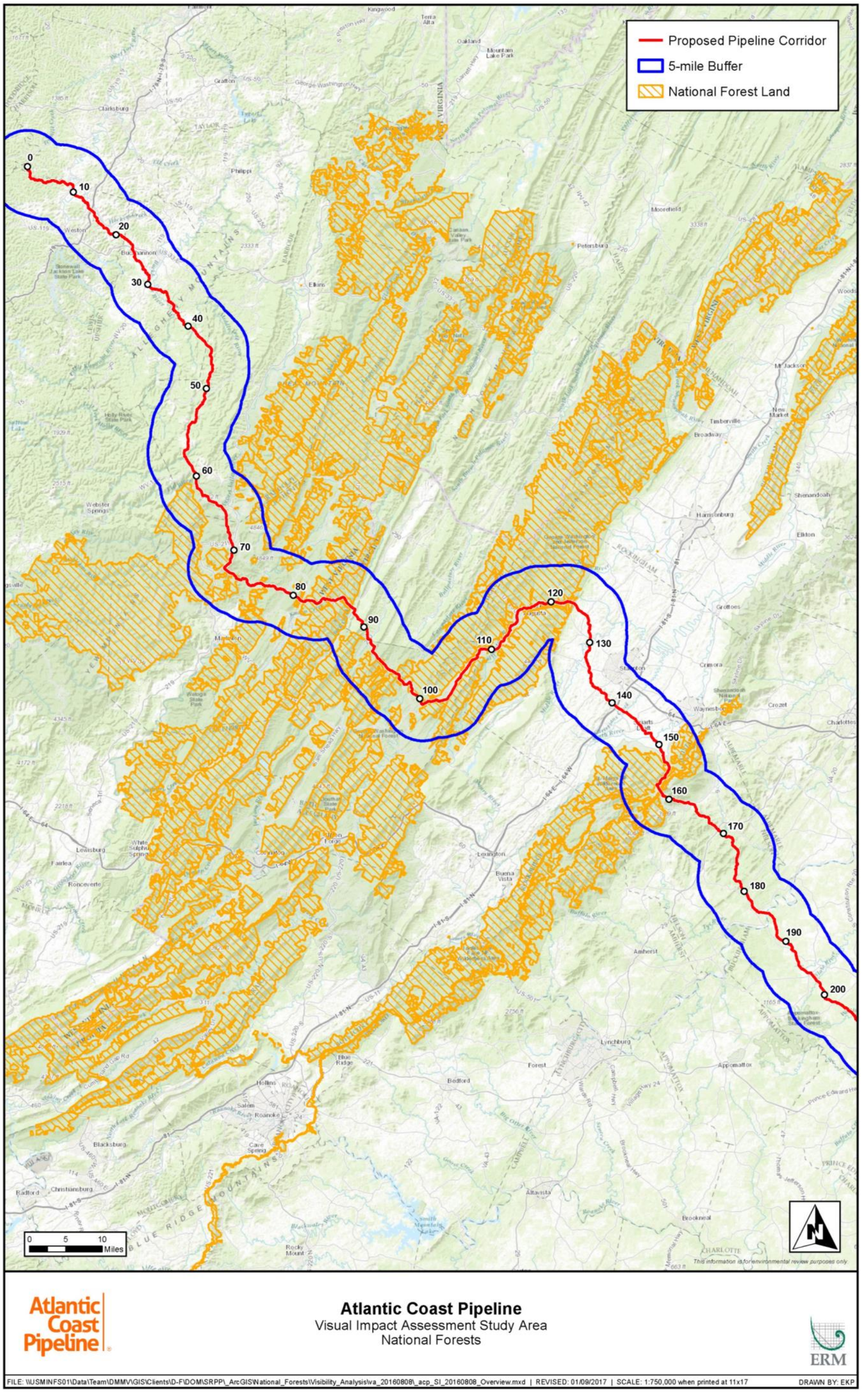
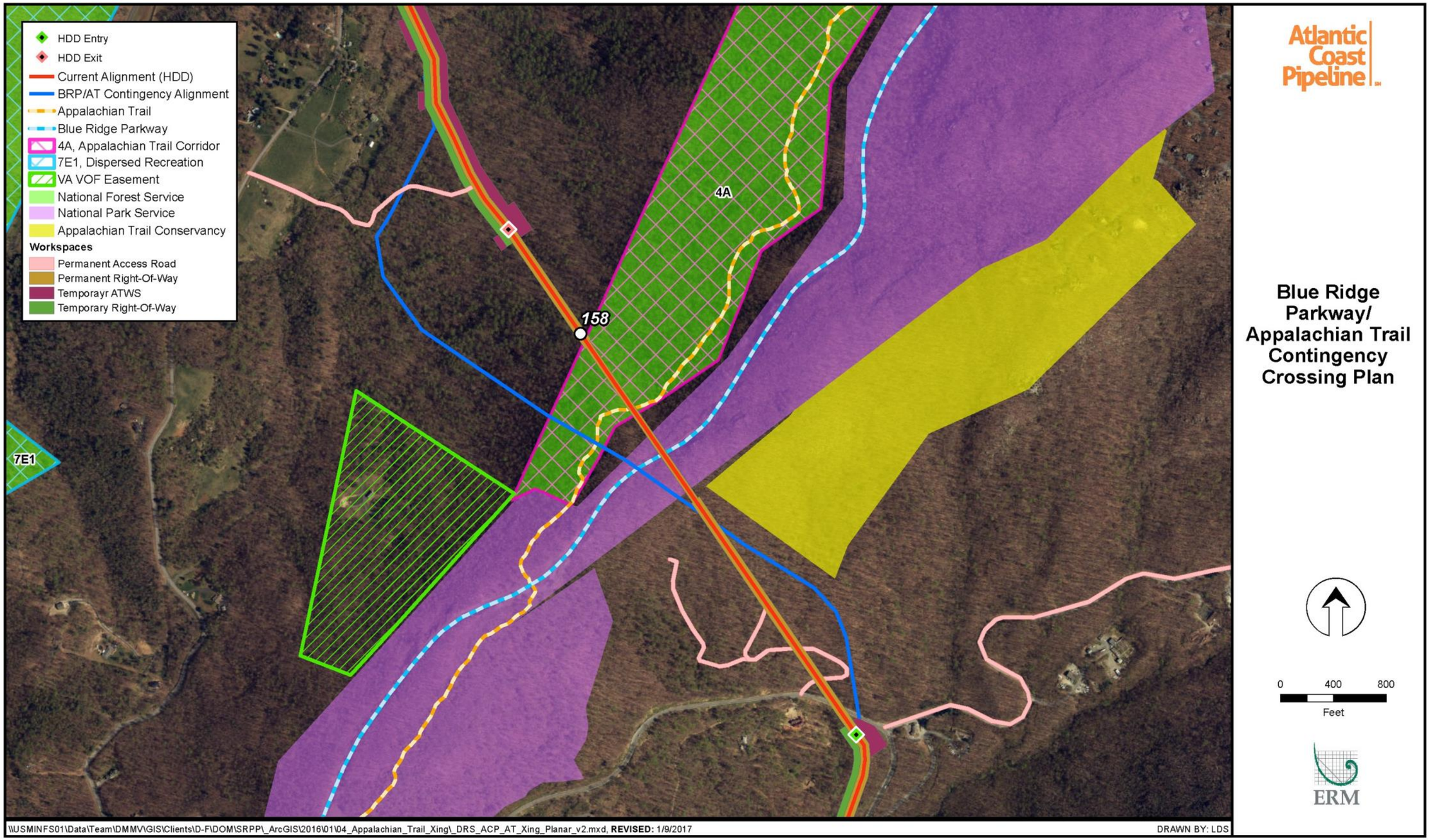


Figure 1-2: Contingency Route



1.2.1 Distance Zones

Distance zones are the generalized groupings used to describe how viewers see the landscape. The SMS identifies four distance zones:

- immediate foreground (0 to 300 feet);
- foreground (300 feet to 0.5 mile);
- middleground (0.5 mile to 4 miles); and
- background (4 miles to the horizon).

Immediate foreground and foreground views tend to highlight details ranging from individual leaves to individual trees. At this distance, details are important and individual forms are dominant. The middleground "is usually the predominant distance zone at which National Forest landscapes are seen, except for regions of…tall, dense vegetation." At middleground distances, people distinguish individual tree forms, large boulders, and small openings in the canopy. Form, color, and texture remain dominant and pattern is important. In the background, "texture has disappeared and color has flattened, but large patterns of vegetation or rock are still distinguishable and landform, ridgelines, and horizontal lines are the dominant visual characteristics (USDA, 1995)."

1.2.2 Scenic Classes

Scenic classes recognize the idea that all National Forests have "value" as scenery. The classes, which range from 1 (most valuable scenery) to 7 (least valuable scenery) are a measurement that can be used to consistently evaluate the scenic value and relative scenic importance of a particular area. They are used in forest planning to compare values of scenery with other types of resources. The higher the scenic value (i.e., the lower the class number), the more important it is to maintain.

1.2.3 Concern Levels

Concern Levels are a measure of the degree of public importance placed on landscapes viewed from travelways and use areas. Concern levels are divided into three categories: 1, 2, and 3, with 1 being the highest level of concern for valued landscape scenery and 3 being the lowest. Protocols for assigning concern levels to travelways and use areas are provided in the SMS Handbook (USDA, 1995).

1.2.4 Scenic Attractiveness

Scenic Attractiveness is the primary indicator of the intrinsic scenic beauty of a landscape and of the positive responses it evokes in people. It helps determine landscapes that are important for scenic beauty based on commonly held perceptions of the beauty of landform, vegetation pattern, composition, surface water characteristics, land use patterns, and cultural features. The combination of these valued landscape elements are used in determining the measure of Scenic Attractiveness. Scenic Attractiveness classifications in the SMS inventory include Class A – Distinctive, Class B – Typical, and Class C – Indistinctive (USDA, 1995).

1.2.5 Scenic Integrity Objectives

Whereas distance zones, scenic classes, concern levels, and scenic attractiveness express existing conditions within a forest, Scenic Integrity Objectives (SIO) express the desired future aesthetic condition of a forest. "Scenic integrity is a continuum ranging over five levels of integrity from very high to very low" (USDA, 1995). SIO descriptions, as defined below, generally express a comparison to existing or preferred conditions (USDA, 1995):

- Very High: "landscapes where the valued landscape character 'is' intact with only minute if any deviations."

- High: "landscapes where the valued landscape character 'appears' intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident."

- Moderate: "landscapes where the valued landscape character 'appears slightly altered.' Noticeable deviations must remain visually subordinate to the landscape character being viewed."

- Low: "landscapes where the valued landscape character 'appears moderately altered' Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed."

- Very Low: "landscapes where the valued landscape character 'appears heavily altered' Deviations may strongly dominate the valued landscape character."

Based on discussions with USFS personnel, Atlantic understands that SIO designations do not exist for the MNF. At a March 4, 2016 meeting with Atlantic, the USFS agreed that Scenic Class (which is available for the MNF) would be an acceptable proxy for SIO. Atlantic understands that these two sets of designations are not the same. Scenic Classes are *descriptive*, while SIOs are *prescriptive*. For example, "heavily altered landscapes can be reclaimed [i.e., a higher SIO can be achieved] through future management activities and natural regeneration of vegetation" (USDA, 1995). Given the absence of SIO designations, scenic classes are the best available way to understand the ACP's potential visual impacts on the MNF. Figure 1-3 shows the SIO designations for the portions of the GWNF within the VIA study area. Figure 1-4 shows the Scenic Classes for the portions of the MNF within the VIA study area.

Figure 1-3: Scenic Integrity Objectives, GWNF

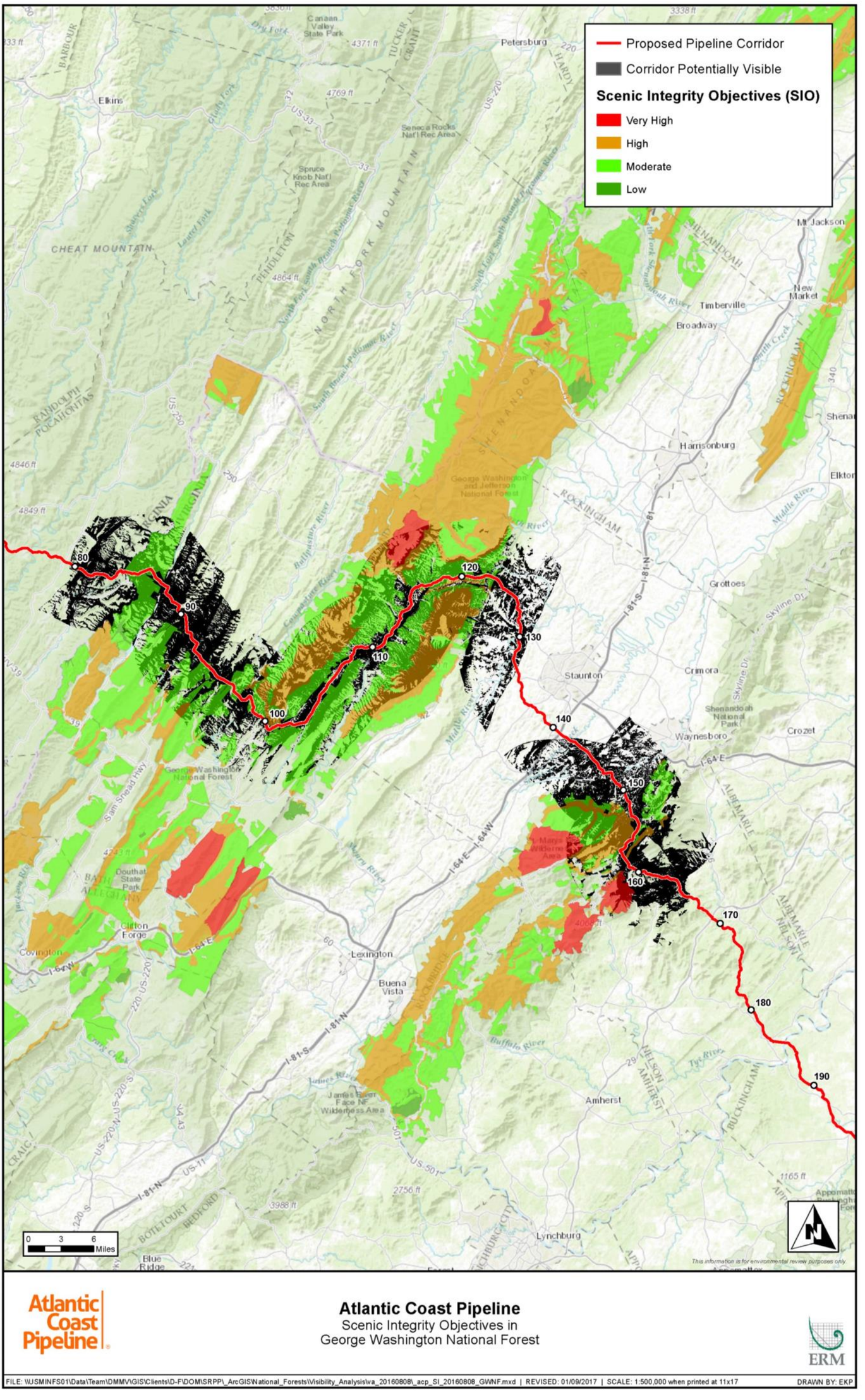
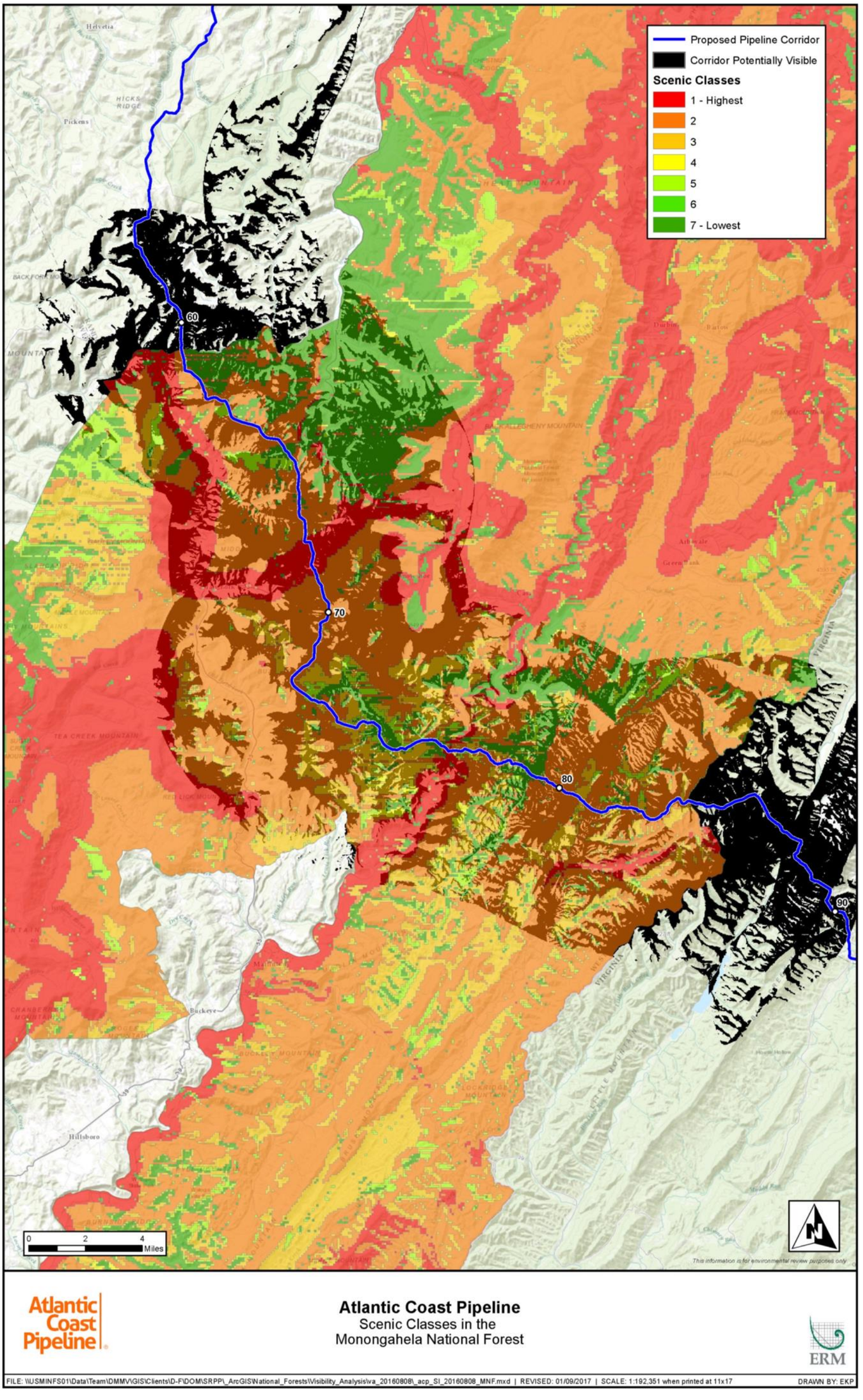


Figure 1-4: Scenic Classes, MNF



1.3 NATIONAL PARK SERVICE VISUAL IMPACT FRAMEWORK

The information in this VIA, and particularly the evaluation of visual impacts in Section 4.0, are intended to be generally consistent with NPS management designations and visual impact assessment techniques. The NPS does not have an agency-wide equivalent of the USFS SMS. Instead, the NPS manages visual resources and evaluates the visual impacts of proposed activities on a unit-by-unit basis. To the extent they are available, this VIA also addresses unit-specific visual resource management and assessment frameworks for the BRP and ANST.

1.3.1 Blue Ridge Parkway

The segment of the BRP crossed by the ACP is within the "Scenic Character" management zone, as defined in the 2013 General Management Plan and environmental impact statement (EIS) for the BRP. The Scenic Character zone identifies "areas of the parkway that would emphasize protection and sightseeing opportunities of the scenic landscapes and natural and cultural settings of the central and southern Appalachian highlands" (NPS, 2013). The general intent of the Scenic Character zone is to maintain "the visual variety of the parkway road's forested and pastoral/rural landscape settings consistent with early parkway design" (NPS, 2013).

While the Scenic Character management zone emphasizes high-quality visual experiences for BRP visitors, it does not require that views be absent of the evidence of human activity. As such, the intent of the Scenic Character management zone is generally comparable to that of Medium or High SIO designations in the GWNF.

As described in the BRP General Management Plan, NPS uses a Scenery Conservation System for the BRP, to

> provide direction for inventory, analysis, and protection planning for desired conditions. This system is designed to maintain or improve the scenic landscape character and level of scenic quality of landscape areas viewed from parkway overlooks, vistas, and agricultural openings (NPS, 2013).

The basis for the NPS Scenery Conservation System is *The Blue Ridge Parkway Scenery Conservation System Guidebook,* a publication that is not readily available to the public, and that Atlantic has requested, but has not received from the NPS. Based on the information in the General Management Plan and EIS for the BRP, Atlantic understands that the Scenery Conservation System includes components that are similar to the USFS SMS, including a detailed inventory of existing scenic views, determinations of the sensitivity of those views to change, and identification of desired visual conditions (NPS, 2013). In addition,

> scenery conservation works with the idea of a "Borrowed Landscape." Maintaining scenery viewed from overlooks and along the parkway road involves working with 29 county governments, private landowners, developers, and other agencies. Because the scenery is borrowed from adjacent lands that are not administered by the National Park Service, the parkway's scenery system is not a direct control "management" system (NPS, 2013).

The ACP right-of-way would cross only a relatively small amount of the NPS-administered land within the BRP viewshed. Most of the land crossed by the ACP right-of-way and visible from the BRP is therefore a Borrowed Landscape.

1.3.2 Appalachian National Scenic Trail

The National Trails System Act (16 United States Code [U.S.C.] 1241-1251) identifies the ANST as a National Scenic Trail. The National Scenic Trail designation identifies trails that "provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass" (16 U.S.C. 1242). The National Trails System Act does not specifically regulate visual resources (either within or external to the trail right-of-way), but does require that, "to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established" (16 U.S.C. 1246c).

The NPS planning and management framework for ANST includes the ANST Resource Management Plan (NPS, 2008) and ANST Foundation Document (NPS, 2014). The Foundation Document provides "basic guidance for planning and management decisions," and identifies planning and data issues, needs, and studies to be developed (NPS, 2014).

Visual resources are the subject of one of the Foundation Document's Significance Statements: "The Trail's varied topography, ecosystem diversity, and numerous view points offer a visual showcase including wild, natural, wooded, pastoral, and historic environments" (NPS, 2014). Visual resources are also considered a Fundamental Resource and Value (FRV) — components that are intrinsic parts of the ANST's identity and purpose. Specifically, the Foundation Document identifies FRVs for visual resources within and external to the trail right-of-way:

"Scenery along the Treadway. The Trail offers opportunities to view stunning scenery in proximity to the most populated areas of the United States. Within the boundaries of the protected trail corridor, visitors may see native wildlife and flowers, rustic cultural features, seasonal variations, and dynamic weather patterns" in diverse environments (NPS, 2014).

"Views Beyond the Corridor. Traversing the height of land, Trail visitors are afforded sweeping views of vast landscapes extending beyond the Trail corridor and are exposed to the splendid range of landforms and history along the Appalachian Mountains" (NPS, 2014).

While visual resources are unquestionably important for the ANST, no NPS-authored visual resource management guidelines or requirements are readily available. Indeed, the Foundation Document states that "a strategy is needed for protecting land that lies within important viewsheds and focus areas along the Trail, such as view points from mountaintops, balds, and prominent rock outcroppings (NPS, 2014).

Absent such a strategy, this VIA uses the principles of the USFS SMS and the BRP's General Management Plan to evaluate visual impacts to the ANST. The visual resources management objectives for the ANST are assumed to be the same as the SIO for the nearest portion of the GWNF, or for the nearest segment portion of the BRP.

1.3.3 Seneca State Forest

There are no readily available NPS-authored visual resource management guidelines or requirements for LWCF-recipient lands such as SSF. Although the SSF is not owned by the USFS, the MNF has mapped Scenic Classes within the SSF. Accordingly, this VIA uses the principles of the USFS SMS to evaluate visual impacts in the SSF. These evaluations reflect the MNF-provided Scenic Classes.

2.0 METHODS

Visual impacts are defined as the change in aesthetic value resulting from the introduction of modifications to the landscape. Atlantic initiated consultation with the USFS to identify and evaluate these impacts for the VIA. Impact assessment involved four primary steps, each of which is described below:

- Identify potentially visible areas based on terrain only by preparing "seen area" analysis, and identify Key Observation Points (KOP) in seen areas;
- Conduct field surveys to determine the extent to which existing natural and human-made features allow views from each KOP to the ACP project;
- Prepare simulations or other form of visual analysis to determine whether post-ACP visual conditions will meet SIOs; and
- Prepare SIA report, summarizing visual conditions and impacts.

2.1 SEEN AREA ANALYSIS AND IDENTIFICATION OF USFS KEY OBSERVATION POINTS

As described in Section 1.1.1., Atlantic prepared a seen area analysis as the initial step in evaluating visual impacts. The seen area analysis is based on the ACP preferred route (as mapped by Atlantic) and topography from 10-meter Digital Elevation Model (DEM) data provided by the United States Geological Survey (USGS). The analysis was performed using the Viewshed Analysis tool in ArcGIS, the industry standard for GIS mapping and analysis. The Viewshed Analysis tool creates a single polygon representing the portion of the earth's surface that is potentially visible from at least one point along the ACP corridor, based on topography.

In addition to requesting the seen area analysis, the USFS provided lists of potential KOPs (along with latitude/longitude coordinates) to be evaluated in this study. Figures 2-1 through 2-3 show the seen area for the GWNF and MNF, as well as the originally-suggested KOPs. USFS selected these KOPs to represent locations where the ACP crosses or could potentially be seen from roads, trails and floatable rivers, and other recreational or publicly used areas within national forest lands (USFS, 2015). The GWNF and MNF did not request a "times seen" analysis (i.e., identification of KOPs that offered views of multiple segments of the corridor). Instead, Atlantic understood that the KOPs selected by GWNF and MNF represented views that were prominent and provided views of substantial segments (or multiple segments) of the corridor.

Table 2-1 includes the list of suggested KOPs, as well as a determination, based on field work (see Section 2.3), of whether existing vegetation or other conditions permitted actual views of the ACP from those KOPs. Atlantic assigned unique ID numbers to each of these points for ease of identification.[1]

[1] The seen area analysis and KOP identification process were performed twice: once in October 2015, and again in March 2016. The second analysis was necessitated by a major ACP reroute in early 2016. That reroute resulted in the

As requested by the USFS in its September 2015 communication, Atlantic met with the USFS on October 1, 2015 at Dominion Virginia Power's Staunton, VA offices to review the seen area analysis and list of KOPs, particularly the potential (or lack of potential) for actual views of the ACP, in light of existing vegetation at each KOP. As a result of this review, several KOPs were removed from further evaluation due to the absence of actual views of the proposed pipeline corridor. The discussion at the October 1, 2015 meeting also touched on concerns about potential views of the pipeline right-of-way from the ANST within the Three Ridges Wilderness area, including Bee Mountain. As a result of the October 1 meeting, Atlantic added four KOPs (numbers 38 through 41 in Table 2-1) to supplement the list of KOPs provided by the USFS.

After announcement of the revised ACP route in February 2016, Atlantic re-initiated the KOP selection process with the USFS, provided a revised list of potential KOPs to the USFS, and discussed that list (and the visual impact assessment process in general) at a March 4, 2016 meeting with the USFS at the North River Ranger District in Harrisonburg, Virginia. The USFS provided a list of additional recommended KOPs via email on March 11, 2016. That additional list of KOPs comprises numbers 42 through 65 in Table 2-1.

As a result of consultation with the USFS, Atlantic further revised the ACP route in July 2016. The current proposed route runs north of Fort Lewis. As a result, KOPs 61 through 64 no longer provide a potential view of the ACP corridor. The current route would cross the Shenandoah Mountain Trail at approximately MP 98.7. While field surveys did not include this location, and no KOP was identified to address this crossing, Section 3.2.6 describes this location, and 4.1.3 discusses visual impacts at this location.

2.2 NPS KEY OBSERVATION POINTS

In August 2016, the NPS met with Atlantic and indicated the need for additional analysis of visual impacts to the ANST, as well as in the SSF. In a comment letter submitted on October 7, 2016 to the FERC docket for the ACP project, the Appalachian Trail Conservancy (ATC) provided a list of recommended KOPs specific to the ANST. NPS confirmed that these KOPs should be evaluated as part of this VIA, and on October 18, 2016 also provided a map of KOPs to be evaluated in the SSF.

In total, NPS recommended evaluation of 17 KOPs (9 for the ANST and 8 for the SSF) where the ACP crosses or could potentially be visible from publicly accessible trails, roads and floatable rivers. Figures 2-4 and 2-5 show the NPS KOPs, while Table 2-2 lists the NPS KOPs, along with a determination, based on field work (see Section 2.3), of whether existing vegetation or other conditions permitted actual views of the ACP corridor. NPS also recommended that the previously identified KOP at the Three Ridges Overlook (USFS KOP 39) be revised to reflect the removal of trees that occurred at the overlook after the original images for KOP 39 were captured.

limination of several KOPs from analysis, and the addition of others. As a result, there are gaps in the KOP numbering sequence, which are described in Note 1 of Table 2-1.

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Figure 2-1: Seen Area Analysis and KOPs, GWNF (East)

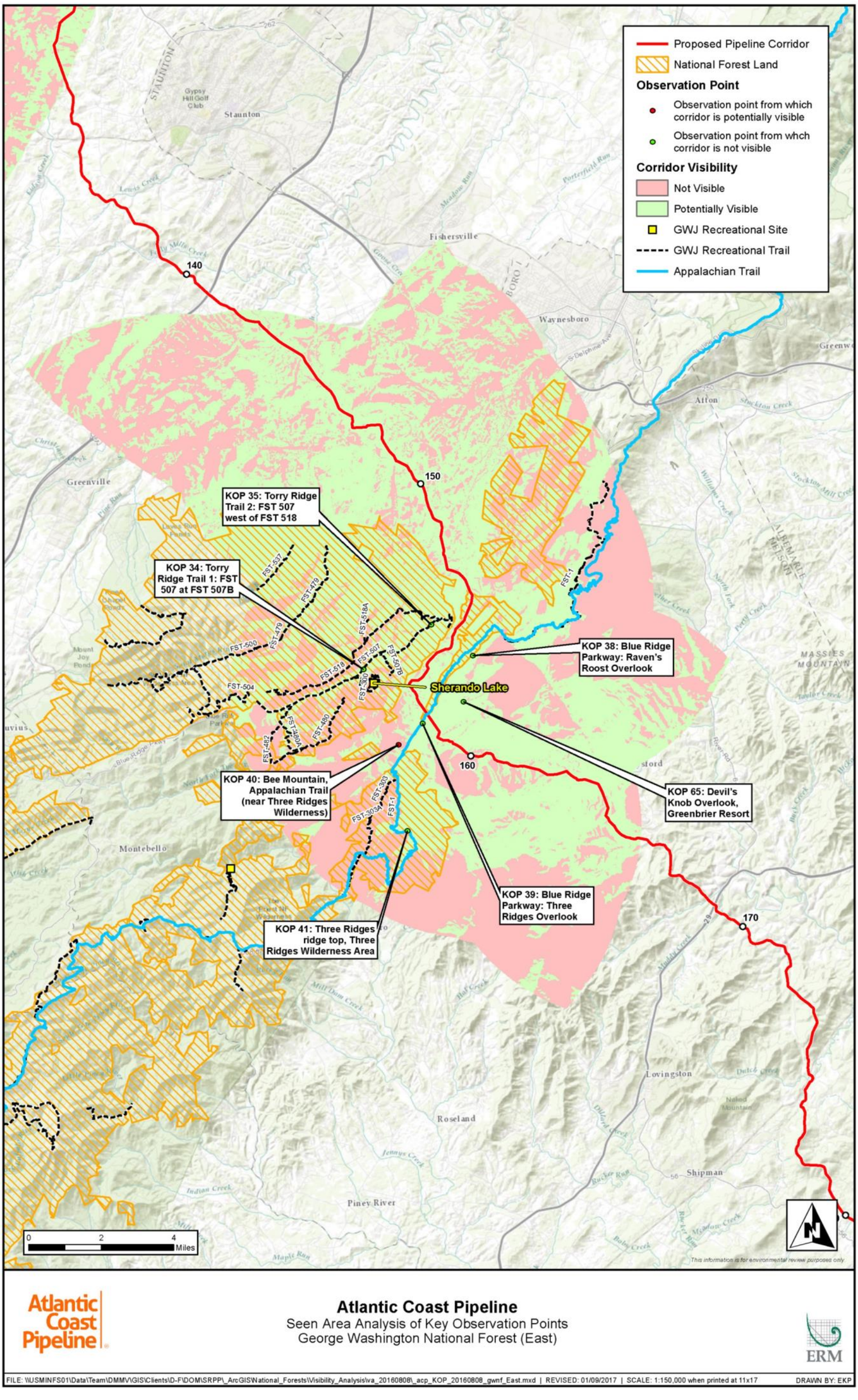


Figure 2-2: Seen Area Analysis and KOPs, GWNF (West)

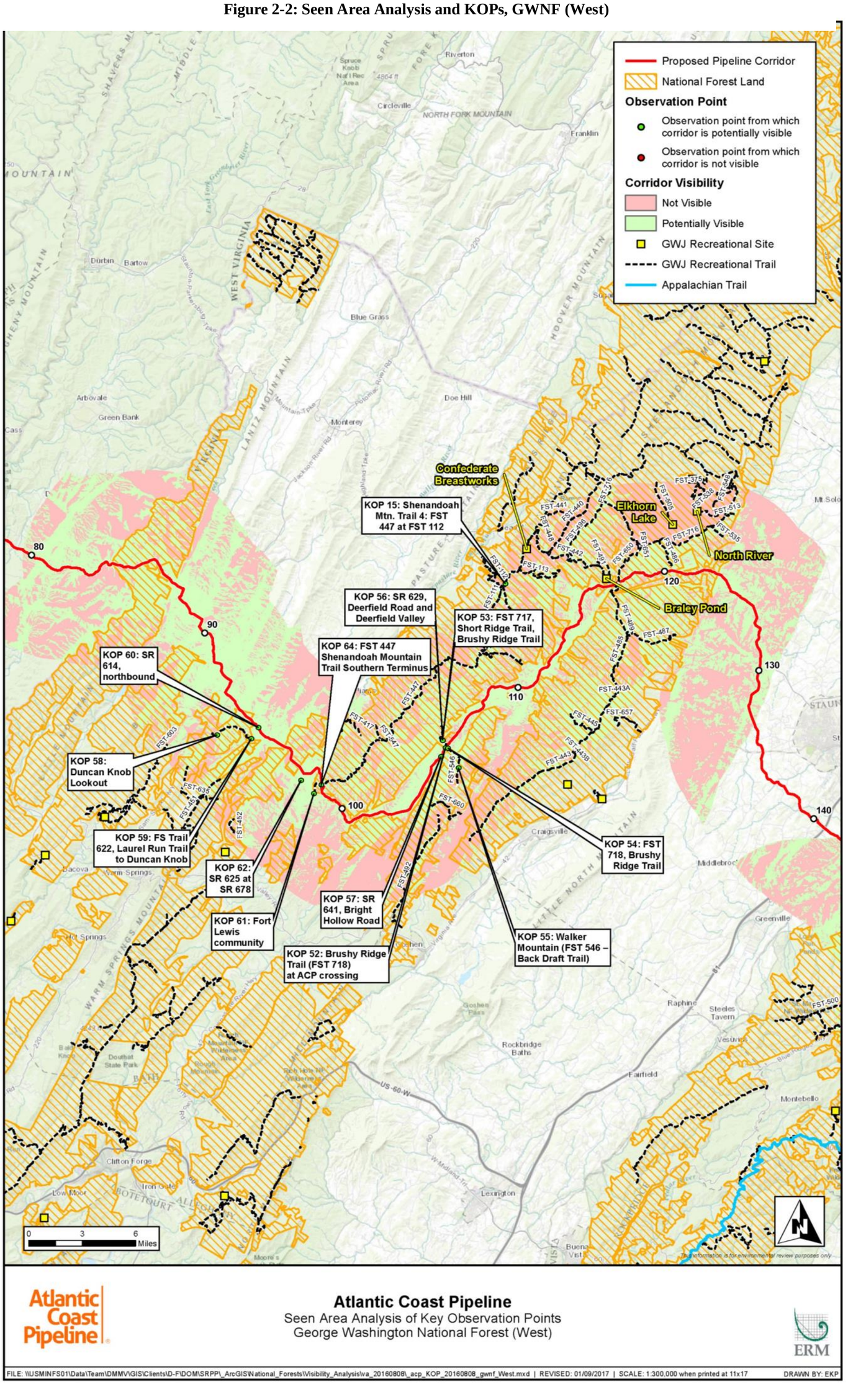
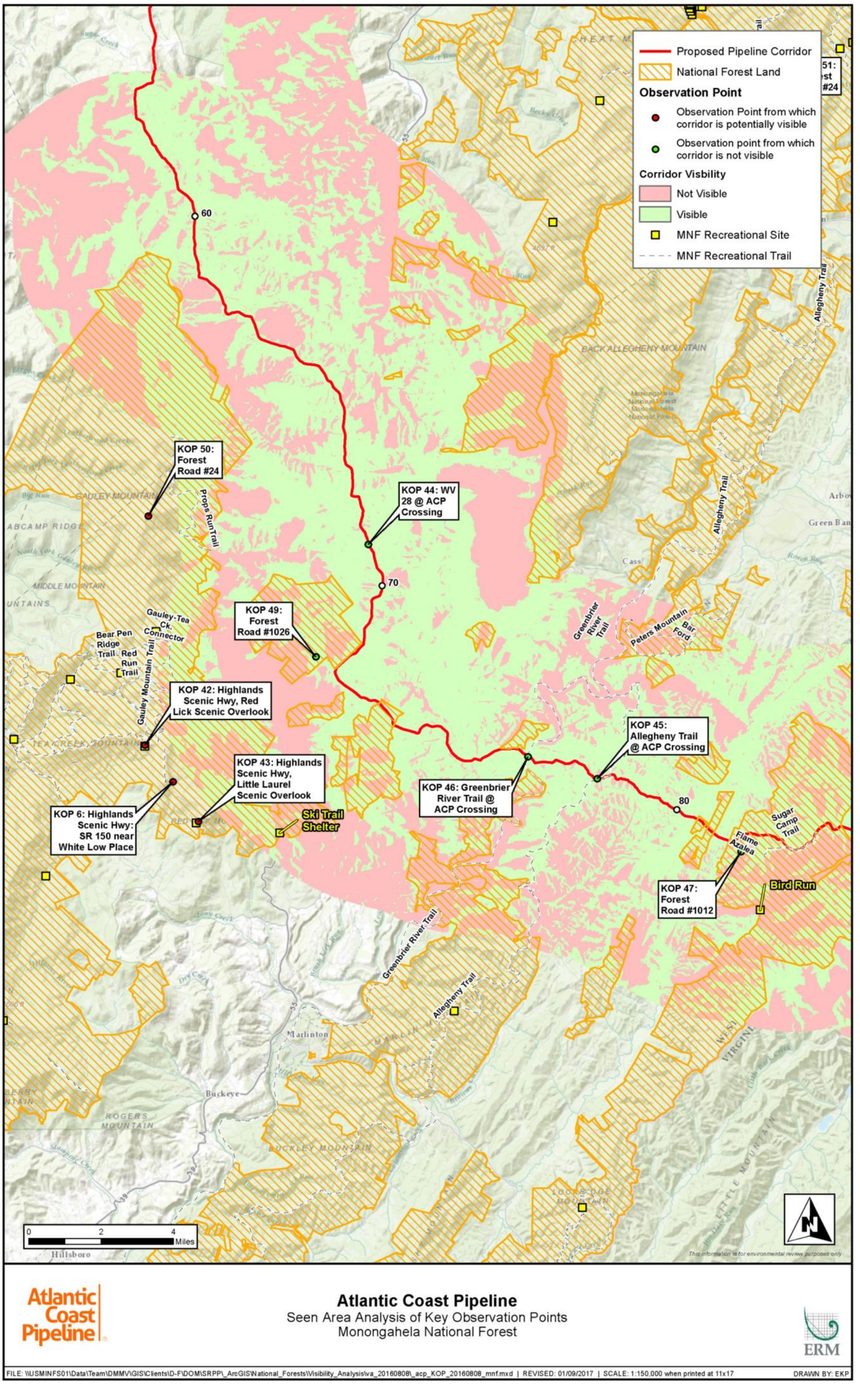


Figure 2-3: Seen Area Analysis and KOPs, MNF



Atlantic Coast Pipeline
Seen Area Analysis of Key Observation Points
Monongahela National Forest

FILE: \\JSMINFS01\Data\Team\DMMV\GIS\Clients\D-F\DOM\SRPP_ArcGIS\National_Forests\Visibility_Analysis\va_20160808_acp_KOP_20160808_mnf.mxd | REVISED: 01/09/2017 | SCALE: 1:150,000 when printed at 11x17 DRAWN BY: EKP

TABLE 2-1

Atlantic Coast Pipeline Key Observation Points

ID[1]	Location/Description	Latitude (decimal degrees)	Longitude (decimal degrees)	In Seen Area?	Observations and recommendations
Monongahela National Forest					
6	Highlands Scenic Hwy: SR 150 near White Low Place	38.325861	-80.149833	Yes	No further analysis: Intervening topography and vegetation make views of corridor unlikely.
42	Highlands Scenic Hwy, Red Lick Scenic Overlook	38.340653	-80.164013	Yes	No further analysis: Intervening topography and vegetation make views of corridor unlikely.
43	Highlands Scenic Hwy, Little Laurel Scenic Overlook	38.309747	-80.137148	Yes	No further analysis: Intervening topography and vegetation make views of corridor unlikely.
44	WV 28 @ ACP Crossing	38.420182	-80.049290	Yes	No further analysis: KOP is not on USFS-owned land.
45	Allegheny Trail @ ACP Crossing	38.325259	-79.934017	Yes	No further analysis: KOP is not on or visible from USFS-owned land.
46	Greenbrier River Trail @ ACP Crossing [2]	38.334449	-79.969086	Yes	No further analysis: Greenbrier River crossing location would not be on or visible from USFS-owned land
47	Forest Road #1012	38.295338	-79.861307	Yes	No further analysis: KOP is entirely forested, at similar elevation, and looking perpendicular to the corridor.
49	Forest Road #1026 [3]	38.375442	-80.076633	Yes	No further analysis: No clear view of corridor from this location. Open pasture at top of mountain, but views toward corridor are screened by trees.
50	Forest Road #24	38.432544	-80.161221	Yes	No further analysis: FR 24 runs along Gauley Mountain, which is heavily forested. While sporadic views through trees could exist, the corridor is nearly 6 miles away, with intervening topography and vegetation.
51	Forest Road #24	38.590442	-79.823805	Yes	
George Washington National Forest					
15	Shenandoah Mtn. Trail 4: Forest Service Trail (FST) 447 at FST 112	38.283878	-79.406025	Yes	New analysis recommended to reflect current ACP alignment.
34	Torry Ridge Trail 1: Torry Ridge Trail (FST 507) at FST 507B[4]	37.929205	-79.008426	Yes	New analysis recommended to reflect current ACP alignment and/or contingency route.
35	Torry Ridge Trail 2: Torry Ridge Trail (FST 507) west of FST 518[5]	37.946467	-78.973737	Yes	NA: Analysis already completed.
38	Blue Ridge Parkway:[6] Ravens Roost Overlook	37.933781	-78.953122	Yes	NA: Analysis already completed.
39	Blue Ridge Parkway:[6] Three Ridges Overlook	37.907171	-78.979086	Yes	NA: Analysis already completed.
40	Bee Mountain, ANST (near Three Ridges Wilderness)	37.898960	-78.991512	Yes	Further analysis recommended.
41	Three Ridges ridge top, Three Ridges Wilderness Area	37.864571	-78.987966	Yes	No further analysis: corridor is at top of ridge, well above viewer, and through dense forest. View is unlikely.
52	Brushy Ridge Trail (FST 718) at ACP crossing	38.151542	-79.470442	Yes	No further analysis: corridor is at top of ridge, well above viewer, and through dense forest. View is unlikely.
53	FST 717, Short Ridge Trail, Brushy Ridge Trail	38.157792	-79.473510	Yes	No further analysis: Trail and overall mountainside are heavily forested. No obvious outcroppings or clearings where a clear view is likely.
54	FST 718, Brushy Ridge Trail	38.151175	-79.468091	Yes	No further analysis: Corridor is not on USFS land for most of Deerfield Valley, and parallels VA 629, making views unlikely.
55	Walker Mountain (FST 546 – Back Draft Trail)	38.135072	-79.457438	Yes	No further analysis: Trail and overall mountainside are heavily forested. No obvious outcroppings or clearings where a clear view is likely.
56	SR 629, Deerfield Road and Deerfield Valley	38.157551	-79.473170	Yes	No further analysis: view from publicly accessible area at base of fire tower is screened by vegetation.
57	SR 641, Bright Hollow Road	38.144371	-79.475055	Yes	No further analysis: Trail and overall mountainside are heavily forested. No obvious outcroppings or clearings where a clear view is likely.
58	Duncan Knob Lookout	38.164775	-79.704961	Yes	No further analysis: ACP crossing of VA 614 is not on USFS land, nearby USFS land is moderate to low SIO.
59	FS Trail 622, Laurel Run Trail to Duncan Knob (trailhead shown in coordinates)	38.161151	-79.670111	Yes	No further analysis: Trail and overall mountainside are heavily forested. No obvious outcroppings or clearings where a clear view is likely.
60	SR 614, northbound	38.170135	-79.662638	Yes	No further analysis. Topography of this location makes views of corridor unlikely; corridor here would also be under pasture, not forest.
61	Fort Lewis community	38.115896	-79.606576	Yes	No further analysis: KOPs 60, 61, and 62 do not provide potential views of the ACP.
62	SR 625 at SR 678	38.126913	-79.619436	Yes	
63	Cowpasture River Crossing (general location in the vicinity of KOPs 61 and 62)	NA	NA	Yes	
64	Shenandoah Mountain Trail (FST 447) Southern Terminus	38.122953	-79.598759	Yes	ACP route has changed since this KOP was identified; no simulation is available, but conditions and impacts are discussed qualitatively.
65	Devil's Knob Overlook, Wintergreen Resort[3]	37.915545	-78.958294	Yes	Further analysis recommended to reflect contingency route.

Notes

1 The ACP alignment was changed after the initial set of KOPs was identified, numbered from KOP 1 to KOP 41. Of that initial set, KOPs 1-5, 7-14, and 16-33 had potential views of the previous alignment, but no longer have a potential view of the current alignment. The remaining initial KOPs had no potential view of the previous or current alignment. As a result, these ID numbers no longer appear in this table.

2 Subsequent to USFS identification of this KOP, the Greenbrier River crossing location was shifted approximately 1,200 feet north.

3 Modified location to approximately 3,000 feet east (crow-fly) of location provided by USFS.

4 Modified location to 3,555 feet southwest (crow-fly) of location provided by USFS.

5 Modified location to 2,165 feet northeast (crow-fly) from location provided by USFS.

6 KOP added by Atlantic to original list provided by USFS.

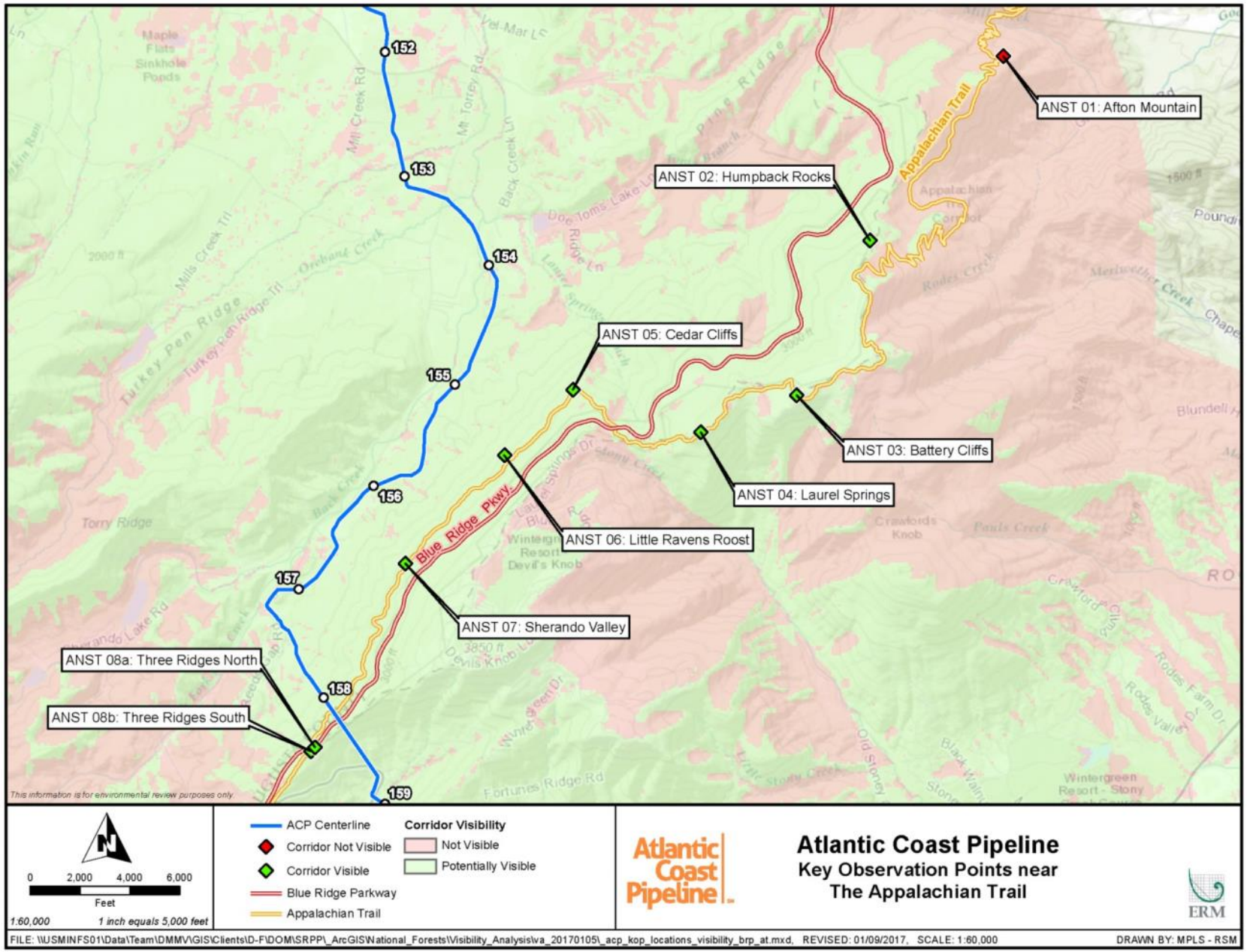


Figure 2-4: Seen Area Analysis and KOPs for the Appalachian National Scenic Trail

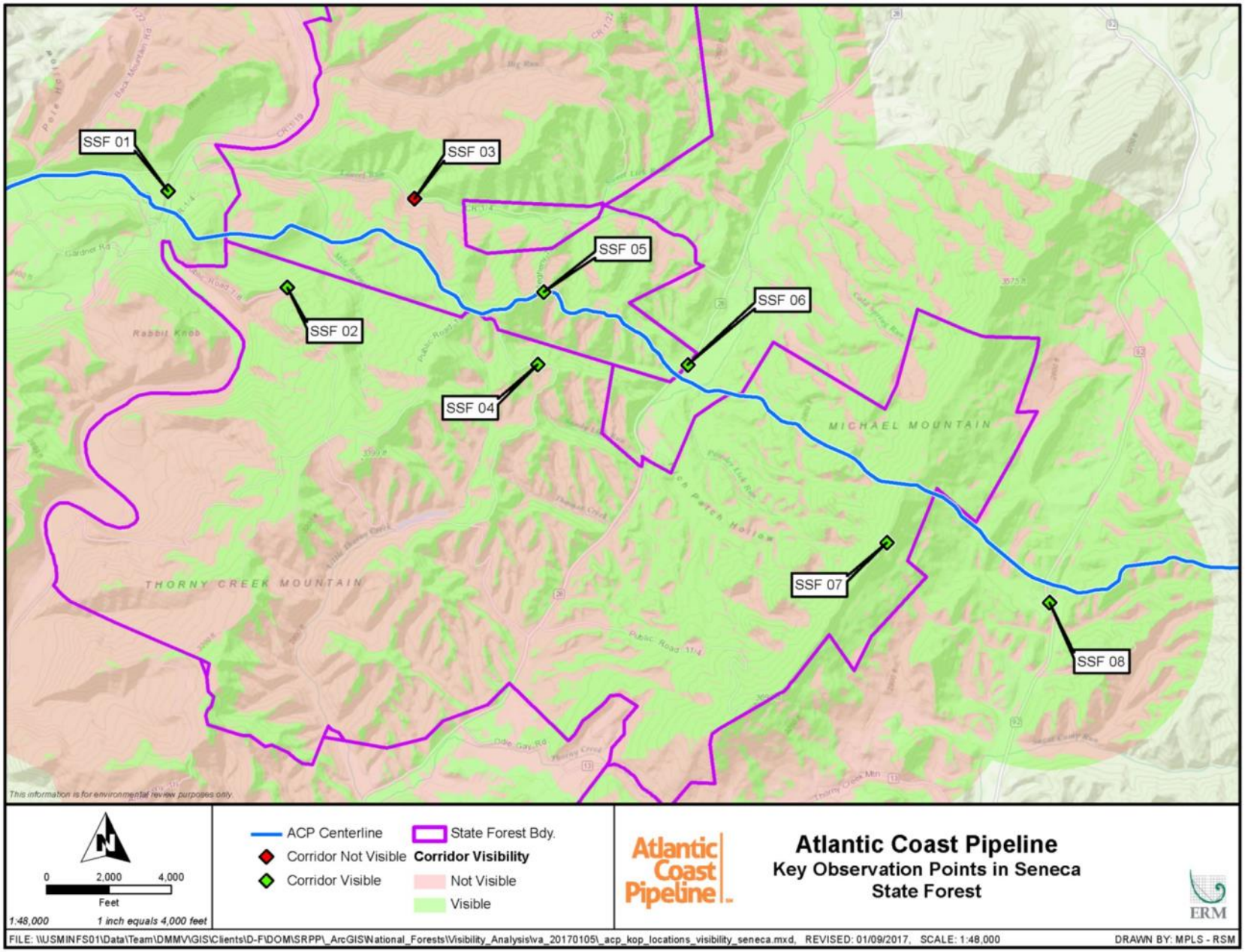


Figure 2-5: Seen Area Analysis and KOPs for Seneca State Forest

KOPs SSF 01 and 08 are near the SSF, but are on private land outside of the SSF, and do not offer meaningful views of the SSF itself. These viewpoints are included in this VIA, although Atlantic notes the lack of NPS, USFS, or state visual resource management purview in these locations.

The KOP ANST 08b at the Three Ridges Overlook was adjusted slightly from the location provided by the ATC. The original KOP 08b ("Three Ridges South") was located on the ANST approximately 200 feet south of the overlook parking lot within the forest, surrounded by mature trees, with no view of the ACP corridor or the overlook parking area. The location for KOP 08b was adjusted to a point on the ANST where it crosses the south end of the Three Ridges Overlook parking area. KOP ANST 08a was not moved and is located at the north end of the overlook parking lot, approximately 200 feet north of the ANST and 50 feet north of USFS KOP 39.

TABLE 2-2

Atlantic Coast Pipeline Key Observation Points

ID	Location/Description	Latitude (decimal degrees)	Longitude (decimal degrees)	In Seen Area?	Observations and recommendations
Appalachian National Scenic Trail					
ANST 01	Afton Mountain	37.981281	-78.881777	No	No further analysis: Intervening topography and vegetation make views of corridor unlikely.
ANST 02	Humpback Rocks	37.961297	-78.900669	Yes	Further analysis recommended.
ANST 03	Battery Cliffs	37.944532	-78.911484	Yes	Further analysis recommended.
ANST 04	Laurel Springs	37.940646	-78.924887	Yes	Further analysis recommended.
ANST 05	Cedar Cliffs	37.945684	-78.942436	Yes	Further analysis recommended.
ANST 06	Little Ravens Roost	37.938559	-78.952123	Yes	Further analysis recommended.
ANST 07	Sherando Valley	37.927035	-78.966247	Yes	Further analysis recommended.
ANST 08a	Three Ridges Overlook, North	37.907362	-78.978863	Yes	Further analysis recommended.
ANST 08b	Three Ridges Overlook, South	37.906998	-78.979555	Yes	Further analysis recommended.
Seneca State Forest					
SSF 01	Greenbrier River Crossing	38.336228	-79.968812	Yes	Further analysis recommended.
SSF 02	Public Road 1/8	38.327362	-79.955411	Yes	Further analysis recommended.
SSF 03	Laurel Run Road	38.335097	-79.941281	No	No further analysis: Intervening topography and vegetation make views of corridor unlikely.
SSF 04	Loop Road	38.320637	-79.927463	Yes	Further analysis recommended.
SSF 05	Allegheny Trail	38.327042	-79.926916	Yes	Further analysis recommended.
SSF 06	WV Route 28	38.320746	-79.910436	Yes	Further analysis recommended.
SSF 07	Michael Mountain	38.304387	-79.888666	Yes	Further analysis recommended.
SSF 08	WV Route 92	38.298723	-79.870065	Yes	Further analysis recommended.

2.3 FIELD SURVEYS

Atlantic conducted field surveys in October and November of 2015 and March, October, and November of 2016. The primary purpose of these field surveys was to gain a better understanding of actual conditions (terrain, vegetation, accessibility, etc.) at and near the KOPs provided by the USFS and NPS. Field surveys included driving along many of the state and USFS roads near the KOPs and throughout the pipeline corridor, to obtain a broad understanding of how the ACP corridor might (or might not) be visible within the region as a whole. Where

feasible, conditions at each KOP were documented with photography (separate from the baseline photographs used for the visual simulations described in Chapter 3).

The field surveys served as input into whether actual views of the ACP corridor existed (considering vegetation and site-specific conditions), as well as the type of analysis that could best characterize the ACP's potential visual impacts to USFS and NPS lands, as viewed from these locations. The surveys also helped to identify the exact location from which baseline photography should be captured for the visual simulations (Chapter 3). The intent of this micro site selection was to identify the best view of the corridor at or near each KOP. The only meaningful deviations from the originally-identified KOPs (as a result of field surveys) were for KOPs 34, 35, and 49, as described in the footnotes for Table 2-1, and to KOP ANST 08b, as described above in Section 2.2.

2.3.1 2015 Field Surveys

Field work in 2015 for the initial ACP route and primarily to assess KOPs identified on USFS lands) consisted of direct visits to KOPs in late October 2015 (with the majority of leaves still on deciduous trees) and early November 2015 during leaf-off conditions. During the October survey, Atlantic was able to visit most USFS-designated KOPs within the "seen area" (except for KOPs 34 and 35 in Table 2-1). The October survey also included observation of the general terrain, scenery, and visibility along the public and Forest Roads listed in Table 2-1. In general, the potential for views along those roads was similar to the potential for views at the nearest KOP. During the early November field survey, KOPs 38-41 were visited, and alternative locations (locations with clearer views of the ACP corridor) were identified for KOPs 34 and 35, as noted in Table 2-1.

Atlantic personnel discussed the results of these field surveys with the USFS at a meeting held in Roanoke, VA on November 19, 2015. At that meeting, Atlantic and USFS agreed on the KOPs that required further visual analysis, including photo simulations, as well as the KOPs that did not require further analysis, based on field survey photography, topographic maps, and publicly available satellite maps and photos.

2.3.2 2016 Field Surveys

The adoption in February 2016 of a major route alternative for the ACP resulted in approximately 95 miles of new pipeline corridor that had not been discussed during previous consultation with the USFS. As described above, Atlantic and USFS identified additional KOPs for this route alteration. The new KOPs were visited in mid-March 2016. Following NPS consultation in 2016, ERM and Truescape personnel visited the NPS KOPs (see Section 2.2) in October and November 2016. The purpose and outcomes of the 2016 field surveys were similar in scope to those of the October and November 2015 surveys.

2.4 VISUAL ANALYSIS TYPES

Table 2-3 summarizes the recommended types of analysis for each of the KOPs for which actual views of the ACP corridor potentially exist. Sections 2.4.1 and 2.4.1 describe these

techniques. KOPs not included in Table 2-3 did not offer potential views of the ACP corridor, primarily due to the presence of vegetation between the viewer and the corridor.[2]

2.4.1 Indicative Simulation

In an indicative simulation, Truescape overlays aerial photography onto a digital terrain model, and then adds simple graphics (in this case, a red line) to indicate the approximate location of the ACP corridor. This technique is intentionally generalized and does not simulate the location and height of vegetation or other aboveground structures such as transmission lines. It is primarily intended to determine whether the ACP right-of-way could be seen from the KOP, and whether a more detailed simulation would be warranted.

TABLE 2-3

Visual Analyses Conducted for KOPs Selected for Further Study

ID	Location	Type of Analysis
Monongahela National Forest		
	No KOPs on or within view USFS land, with views of the ACP corridor.	NA
George Washington National Forest		
15	Shenandoah Mtn. Trail 4: Forest Service Trail 447 near Tims Knob	Indicative Simulation
34	Torry Ridge Trail 1 (revised location, per Table 2-1)	Full simulation (Proposed Action) Full simulation (Contingency Plan)
35	Torry Ridge Trail 2 (revised location, per Table 2-1)	Full simulation
38	Blue Ridge Parkway: Ravens Roost Overlook	Full simulation
39	Blue Ridge Parkway: Three Ridges Overlook	Full simulation[1]
40	ANST: Bee Mountain, near Three Ridges Wilderness	Full simulation (Proposed Action) Full simulation (Contingency Plan)
65	Wintergreen Resort, Devil's Knob Overlook	Full simulation (Contingency Plan)
Appalachian National Scenic Trail		
ANST 02	Humpback Rocks	Full simulation
ANST 03	Battery Cliffs	Full simulation
ANST 04	Laurel Springs	Full simulation
ANST 05	Cedar Cliffs	Full simulation
ANST 06	Little Ravens Roost	Full simulation
ANST 07	Sherando Valley	Full simulation
ANST 08a	Three Ridges Overlook, North	Full simulation
ANST 08b	Three Ridges Overlook, South	Full simulation
Seneca State Forest		
SSF 01	Greenbrier River Crossing	Full simulation
SSF 02	Public Road 1/8	Full simulation
SSF 04	Loop Road	Full simulation
SSF 05	Allegheny Trail	Full simulation
SSF 06	WV Route 28	Full simulation
SSF 07	Michael Mountain	Full simulation
SSF 08	WV Route 92	Full simulation

Notes

[1] Photo simulation from this KOP was revised in December 2016, reflecting NPS comments regarding the removal of trees from the viewshed—a management action that occurred after the original simulation was prepared for KOP 39.

[2] While KOP 45 (Allegheny Trail) and KOP 46 provided a view of the pipeline corridor, those views were not on and/or near USFS-owned land, and were thus excluded from this analysis.

2.4.2 Full Visual Simulations

As part of this project, Truescape developed a series of TrueView™[3] photo simulations. TrueView is a high resolution photo simulation that accurately represents to scale the "human field of view" that would be seen if standing at the actual KOP. Specifically, TrueView simulates a 124 degree horizontal field of view and a 55 degree vertical field of view.

KOP locations were either survey or terrain-aligned, depending on the remoteness and the availability of survey crews. For surveyed KOP locations, Truescape noted the camera's exact position, along with the position of reference points within the camera's field of view, as provided by a registered surveyor. Reference points include existing features such as fences or vegetation, or temporary markers placed in the scene. Each of these surveyed points are imported into the true-scale 3D model of the scene and matched to the simulation photography.

Viewpoints that were aligned using terrain data used the camera's mounted GPS unit to record the camera's position. The camera's position, height, focal length was imported and matched to imported digital terrain data. Truescape used the best available digital terrain data, and reprinted the source of those data on the title block of each respective simulation as follows: "Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS. Heights are above mean sea level. Projection/Zone/Datum: UTM ZONE 17, NAD83."

GIS data identifying the location of cleared areas, including permanent and temporary ROWs, additional temporary workspaces, and access paths/roads were imported and are used to determine the location and extent of vegetation to be removed in the simulations.

The photographic base of each TrueView simulation consists of a series of nine overlapping photographs (from a 16 megapixel digital camera) that are digitally color-adjusted and "stitched" together to create a single, seamless image. Truescape then develops a 3D model of the terrain in the photograph, using detailed topographic mapping (including Lidar, where available). The terrain model is matched to the photograph using known surveyed locations within the field of view.

Baseline photography is taken during the best conditions possible, considering the limitations of project and site access schedule and weather. Advanced planning for baseline photography includes reviewing weather forecasts for each site and logistics of travel, coordination with survey crews, as well as the order of multiple sites to be photographed. While preferred, "Ideal" conditions (sunny, clear skies, with sunlight directly illuminating the proposed ACP corridor) are rare. Instead, baseline photography reflects conditions that commonly experienced by viewers in each location. For example, this may include cloudy days.

Other factors that can affect the appearance of baseline imagery (and thus of the final Trueview simulations) include:

[3] A registered trademark of Truescape, Ltd.

- Viewpoint direction: photography from viewpoints generally facing south is less likely to have direct or indirect sunlight illumination, due to sun position;

- Time of day and year: photography taken in fall and winter months will show a lower sun angle;

- Safety: Many viewpoint locations are remote, reachable only on foot and requiring hours of hiking to access. As a result, there is a limited ability to wait for ideal or preferred weather conditions while still allowing for a safe return trip.

Project components and right-of-way locations, based on information provided by Atlantic, are included in the terrain model, which is incorporated into the base photography. All camera positions are included on the simulation's title block for reference. All heights were recorded as above mean sea level and the Projection/Zone/Datum used was UTM ZONE 17, NAD83. Project information includes not only the location of aboveground facilities (if any), but also their color and texture. The result is an image that accurately displays the location of proposed ACP facilities and rights-of-way as they would appear to a viewer at each KOP.

Variations in color shown in the simulations in Section 3 are due to direct sunlight, global illumination, and shadowing effects of the shape of the land and its respective post construction vegetation which is part of the 3D-model.

3.0 RESULTS OF VISUAL ANALYSES

This section presents the results of the field surveys and visual analyses described in Section 2.0. Appendix A contains the photographs taken during the field surveys. Unless otherwise specified, the discussions in this section and the remainder of this VIA refer to conditions along the ACP's permanent right-of-way that would be present several years after completion of construction of the affected pipeline segment. The approximate ACP mileposts visible from each KOP were determined based on a review of baseline photography and Seen Area mapping (see Section 2.1).

3.1 USFS INDICATIVE SIMULATION

Atlantic conducted an indicative simulation for one KOP, as listed in Table 2-2, using the methodology described in Section 2.4.1.

3.1.1 KOP 15: Shenandoah Mountain Trail 4

Figure 3-1 shows the raw baseline photography (prior to the digital "stitching" described in Section 2.4.2) and the indicative simulation image at KOP 15. The red line in this simulation shows the location of the corridor from the perspective of a view at this KOP. Based on these images, the ACP corridor would not actually be visible due to intervening vegetation. This KOP was not evaluated further.

3.2 USFS FULL VISUAL SIMULATIONS FOR THE GWNF AND BRP (PROPOSED ACTION)

Atlantic conducted full visual simulations of six KOPs, as listed in Table 2-2, using the TrueView methodology described in Section 2.4.2. The subsections below present the simulations, showing the ACP corridor as it would be seen from each of these KOPs. This includes imagery of existing conditions, as well as separate simulations of views one growing season following construction, and approximately 5 years and 15 to 20 years following construction.

High-resolution, large-format versions of these simulations are provided in Appendix B, along with instructions for proper viewing.

3.2.1 KOP 34: Torry Ridge Trail 1

Figures 3-2, 3-3, and 3-4 depict the full simulation image at KOP 34. From this KOP, the ACP corridor at approximately MP 157 would be visible as a narrow vegetated (but not forested) band on the far side of the Back Creek valley, in the shaded area of the photograph, approximately 1.2 miles to the southeast. Figures 3-2, 3-3, and 3-4 also show the ACP corridor up to approximately MP 157.7 as it starts to climb toward the BRP/ANST corridor, approximately 2.0 miles to the southeast. The width of the corridor would become narrower, and the contrast with surrounding areas less prominent, as trees and other vegetation reclaim the temporary right-of-way over time. The visible portion of the right-of-way ends where Atlantic's

proposed HDD would be located. Both of these views are in the middleground, as defined by the USFS.

The dark lighting conditions of the baseline and simulation images reflect actual atmospheric conditions present when baseline photography was captured. As described in Section 2.4.2, these atmospheric conditions, along with conditions reflected in all other imagery in this document, were entirely consistent with weather and lighting that viewers might reasonably experience from this location on any given day.

3.2.2 KOP 35: Torry Ridge Trail 2

Figures 3-5, 3-6, and 3-7 show the full simulation images for KOP 35. From this KOP, the ACP corridor at approximately MP 155.5 would be visible as a narrow vegetated (but not forested) band on the far side of the Back Creek valley, approximately 0.7 mile to the southeast. This is in the middleground, as defined by the USFS. As shown in the simulation images, the view of the ACP corridor would be through mixed coniferous and deciduous vegetation. The corridor may thus be less visible during leaf-on conditions in spring, summer, and fall. The width of the corridor would become narrower, and the contrast with surrounding areas less prominent, as trees and other vegetation reclaim the temporary right-of-way over time.

3.2.3 KOP 38: Blue Ridge Parkway at Ravens Roost

Figures 3-8, 3-9, and 3-10 show the full simulation images for KOP 38. From this KOP, the ACP corridor would be clearly visible as a narrow band of vegetated open land wrapping around Torry Ridge (the mountain feature in the approximate center of the image), approximately from MPs 152 to 156 (from right to left). The corridor is approximately 0.75 mile from Ravens Roost Overlook parking area (KOP 38) at its closest point (left of the bottom-center of the image, corresponding approximately to MP 156), with MP 152 approximately 2.5 miles away (right-center of the images, in shadow). These distances are in the middleground, as defined by the USFS. The appearance of the corridor would be similar to the cleared areas along Back Creek and Mount Torry Road, closer to the base of Torry Ridge. The width of the corridor would become narrower, and the contrast with surrounding areas less prominent, as trees and other vegetation reclaim the temporary right-of-way over time.

The vegetation that borders the ACP corridor right of way (ROW) closest to the KOP is higher than the vegetation on the other side of the ROW, due to the slope (i.e., away from the viewer). The screening effect of this higher vegetation is reflected in the simulation images. The simulated vegetation clearing has existing quantifiable features that help to validate the width of the proposed cleared ROW. For example, the existing clearing at the bottom of Torry Ridge is approximately 800 feet from the proposed edge of the ROW and a width of approximately 270’ at its widest point. The full depth of the existing clearing is screened from view due to the vegetation, similar to how the proposed ROW clearing will be screened by vegetation closest to the viewer.

3.2.4 KOP 39: Blue Ridge Parkway at Three Ridges Overlook

Figures 3-11, 3-12, 3-13, and 3-14 show the full simulation images for KOP 39. From this KOP, viewers would have an axial view (facing southeast) of the ACP corridor at approximately MP 159 as it climbs over Piney Mountain, just south of Atlantic's proposed HDD entry point. This segment of the corridor would be approximately 0.75 to 1.0 mile from the viewer, in the middleground, as defined by the USFS. As shown in the simulation images, the bottom (closer) portion of the corridor is partially obscured by trees during leaf-off conditions. During leaf-on conditions, this portion of the corridor would likely not be visible at all, although the upper portion of the corridor would remain visible as a vegetated (but not forested) strip. The width of the corridor would become narrower, and the contrast with surrounding areas less prominent, as trees and other vegetation reclaim the temporary right-of-way over time.

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Figure 3-1: Baseline photography and Indicative Simulation, KOP 15

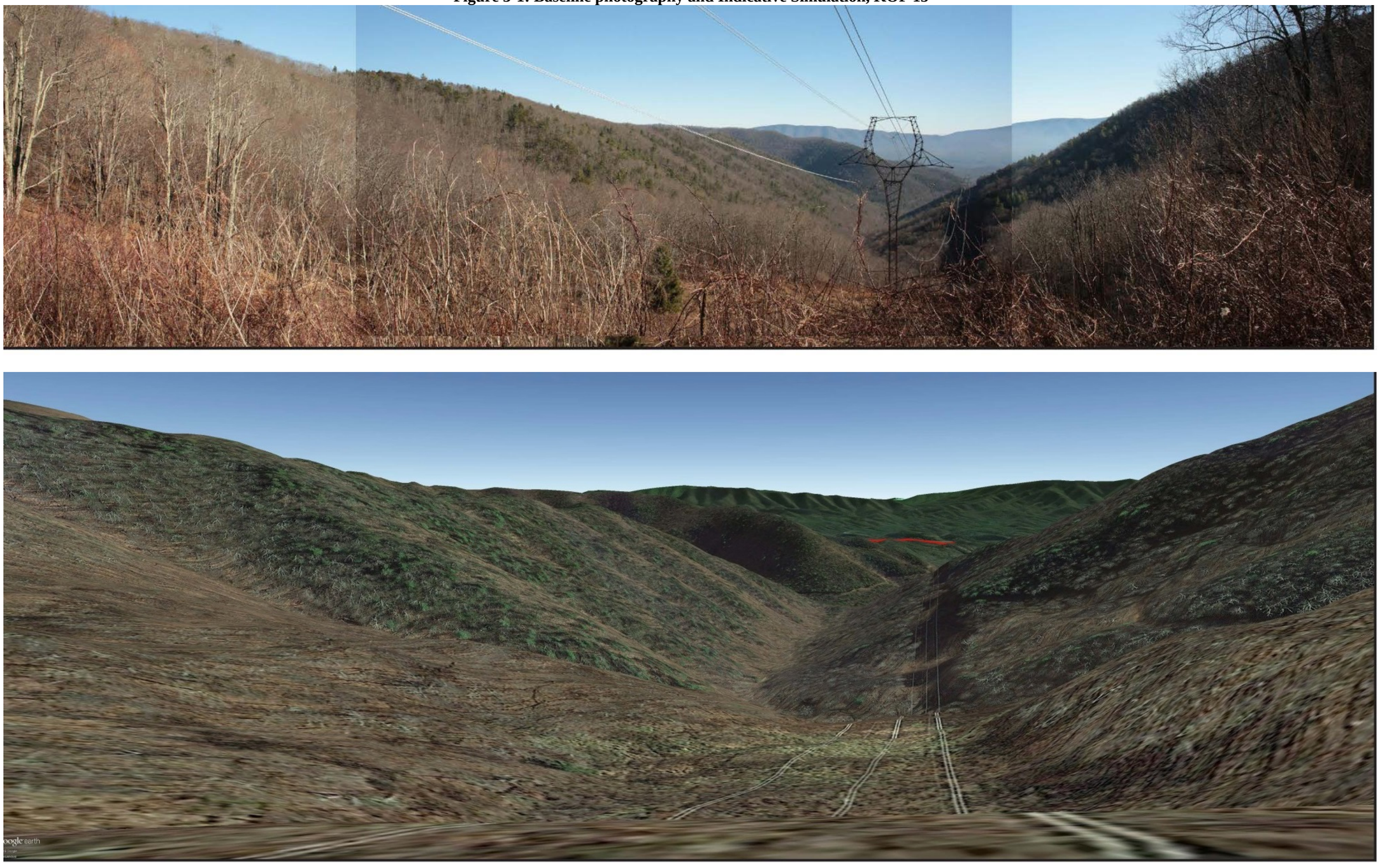

Figure 3-2: Full Simulation, KOP 34, Regrowth Following Construction

KOP34 - Torry Ridge Trail 1, Looking Southeast - **Existing View**

KOP34 - Torry Ridge Trail 1, Looking Southeast - **Following Construction**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 197 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP34

Torry Ridge Trail 1
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2214670.3
Northing Position (UTM - Zone 17):	13778971.8
Elevation of Photopoint Position (NAVD88):	2644.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	6-Nov-15 at 04:04 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

Photo Simulation Created Using TrueView™ Technology (Patent No.: US 8384,906 B2)

Provided by

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DATE	SHEET
21 April 2016	3

Figure 3-3: Full Simulation, KOP 34, Regrowth 5 Years after Construction

KOP34 - Torry Ridge Trail **1**, Looking Southeast - **Existing View**

KOP34 - Torry Ridge Trail **1**, Looking Southeast - **Proposed View 75' Permanent ROW (5 Year Tree Growth)**

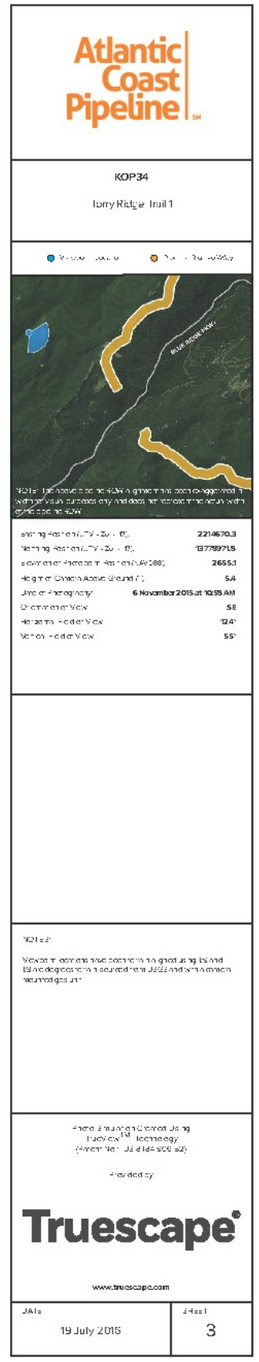

Figure 3-4: Full Simulation, KOP 34, Regrowth 15-20 Years after Construction

KOP34 - Torry Ridge Trail **1**, Looking Southeast - **Existing View**

KOP34 - Torry Ridge Trail **1**, Looking Southeast - **Proposed View 75' Permanent ROW (15/20 Year Tree Growth)**

Atlantic Coast Pipeline

KOP34

Torry Ridge Trail 1

	2214670.3
	1377897.5
	2655.1
	5.4
	6 November 2015 at 10:58 AM
	SE
	124°
	55°

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Date	Sheet
19 July 2016	4

Figure 3-5: Full Simulation, KOP 35, Regrowth Following Construction

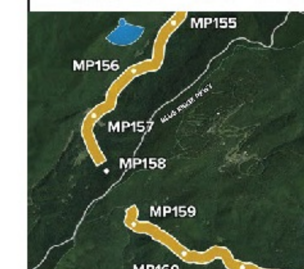
KOP35 - Torry Ridge Trail 2, Looking Southeast - **Existing View**

KOP35 - Torry Ridge Trail 2, Looking Southeast - **Following Construction**

Atlantic Coast Pipeline

Viewpoint 03

Torry Ridge Trail 2



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[illegible]	13785472.0
[illegible]	2456.0
[illegible]	5.4
[illegible]	6 November 2015 at 01:35 PM
[illegible]	SE
[illegible]	124°
[illegible]	55°

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25 February 2016	9

Figure 3-6: Full Simulation, KOP 35, Regrowth 5 Years after Construction

KOP35 - Torry Ridge Trail 2, Looking Southeast - **Existing View**

KOP35 - Torry Ridge Trail 2, Looking Southeast - **Proposed View 75' Permanent ROW (5 Year Tree Growth)**

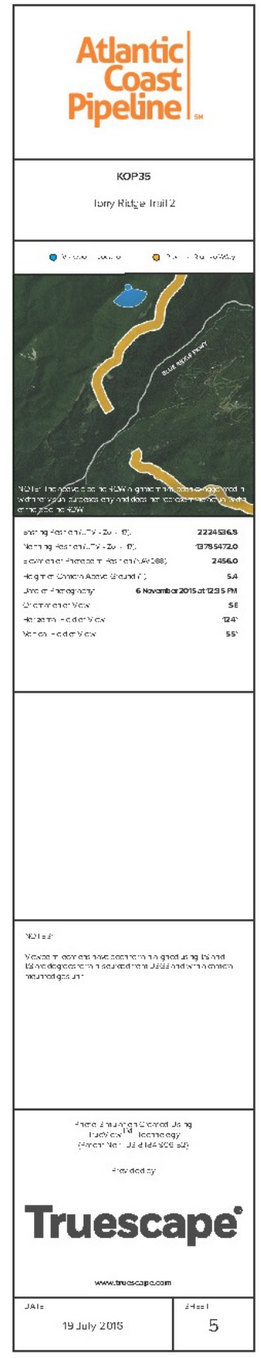

Figure 3-7: Full Simulation, KOP 35, Regrowth 15-20 Years after Construction

KOP35 - Torry Ridge Trail 2, Looking Southeast - **Existing View**

KOP35 - Torry Ridge Trail 2, Looking Southeast - **Proposed View 75' Permanent ROW (15/20 Year Tree Growth)**

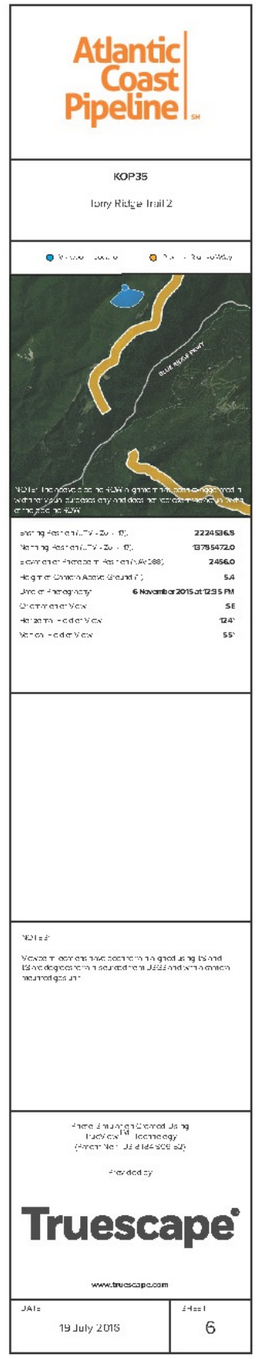

Figure 3-8: Full Simulation, KOP 38, Regrowth Following Construction

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Existing View**

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Following Construction**

Atlantic Coast Pipeline

Viewpoint 05

Raven's Roost, Blue Ridge Parkway Overlook

2230659.4
13780972.7
3188.8
5.4
6 November 2015 at 03:55 PM
NW
124°
55°

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25 February 2016

11

Figure 3-9: Full Simulation, KOP 38, Regrowth 5 Years after Construction

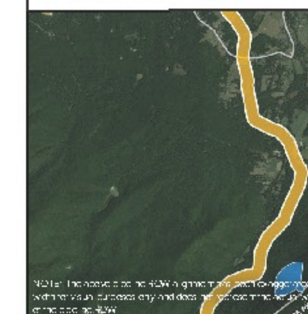
KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Existing View**

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Proposed View 75' Permanent ROW (5 Year Tree Growth)**

Atlantic Coast Pipeline

KOP38

Raven's Roost,
Blue Ridge Parkway Overlook



	2230659.4
	13780972.7
	3155.5
	5.4
	6 November 2015 at 02:55 PM
	NW
	124°
	55°

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Figure 3-10: Full Simulation, KOP 38, Regrowth 15-20 Years after Construction

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Existing View**

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Proposed View 75' Permanent ROW (15/20 Year Tree Growth)**

Figure 3-11: Full Simulation, KOP 39, Regrowth Following Construction

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Existing View**

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

KOP 39 (REVISED)

Three Ridges Overlook (REVISED)

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2223337.4
Northing Position (UTM - Zone 17)	13771124.8
Elevation of Photopoint Position (AMSL)	2715.2
Height of Camera Above Ground (ft)	5.4
Date of Photography	21 November 2016 at 02:41 PM
Orientation of View	SE
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

Photo Simulation Created Using TrueView™ Technology (Patent No.: US 8,188,4,906 B2)

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05 January 2017	27

Figure 3-12: Full Simulation, KOP 39, Regrowth 5 Years after Construction

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Existing View**

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

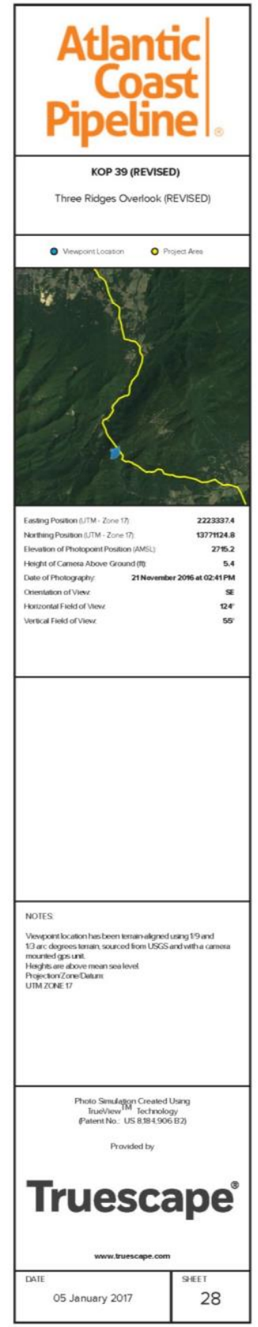

Figure 3-13: Full Simulation, KOP 39, Regrowth 15-20 Years after Construction

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Existing View**

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

KOP 39 (REVISED)

Three Ridges Overlook (REVISED)

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2223337.4
Northing Position (UTM - Zone 17):	1377124.8
Elevation of Photopoint Position (AMSL):	2715.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 02:41 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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Figure 3-14: Full Simulation, KOP 39, Regrowth 15-20 Years after Construction with Vegetative Restoration

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Existing View**

KOP 39 (REVISED) - Three Ridges Overlook (REVISED), Looking Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth with indicative restoration)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

KOP 39 (REVISED)

Three Ridges Overlook (REVISED)

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2223337.4
Northing Position (UTM - Zone 17)	13771124.8
Elevation of Photopoint Position (AMSL)	2715.2
Height of Camera Above Ground (ft)	5.4
Date of Photography:	21 November 2016 at 02:41 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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DATE	SHEET
05 January 2017	30

The simulations in Figures 3-11, 3-12, and 3-13 show the likely conditions after construction, with no visual mitigation incorporated. Figure 3-14 shows the right-of-way at this location, approximately 15-20 years after construction, with the incorporation of shallow-rooted perennial shrubs within the right-of-way, planted as visual mitigation to break up the linear nature of the gap in forest. With the incorporation of this mitigation, the corridor would remain visible, but would have less contrast with surrounding forested areas.

3.2.5 KOP 40: ANST (Bee Mountain)

Figures 3-15, 3-16, and 3-17 show the full simulation images for KOP 40. Figure 3-18 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, the segment of the ACP corridor within the "seen area" (see Section 2.1) is approximately at MP 160 along Piney Mountain, approximately 2.25 miles from the KOP (within the middleground, as defined by the USFS). The yellow line in Figure 3-18 shows the location of the right-of-way if it could be seen through the existing dense vegetation on Piney Mountain.

The ACP corridor as seen from this location runs west-northwest from Fortunes Point to Beech Grove Road. KOP 40 is located approximately two miles southwest of Fortunes Point. As a result, the corridor primarily runs perpendicular to the view from KOP 40, except for a short north-south segment, just south of the proposed HDD exit.[4] As shown in the simulation images, Project-related changes in color, line, texture, and other characteristics considered in the SMS would be imperceptible from this KOP, even in leaf-off conditions (e.g. in November, when the baseline imagery was captured), due to intervening vegetation.

3.2.6 KOP 64: Shenandoah Mountain Trail Southern Terminus

As discussed in Section 2.1, the route of the ACP changed since KOP 64 was identified and since the completion of the field surveys described in Section 2.3. The ACP corridor would cross the Shenandoah Mountain Trail at approximately MP 98.7. From this location, the right-of-way would extend approximately 200 feet in either direction before turning, effectively ending the view corridor. At the trail's intersection with the right-of-way, the ACP corridor would be a dominant visual feature, although views of the ACP corridor from the trail would only be present within a few hundred feet of the crossing, due to the presence of screening vegetation.

The determination regarding density of vegetation was based on Atlantic's review of aerial photography of the area around KOP 64. Based on this finding, and after consultation with GWNF, no baseline or simulation images of this location were made.

[4] The photography for this viewpoint was captured at 2:04pm, with the sun at an altitude of 29.04 degrees and azimuth of 214.51 degrees. , At this location, the sun did not directly illuminate the slope with the proposed ACP corridor.

3.3 USFS CONTINGENCY PLAN SIMULATIONS

To evaluate the potential visual impacts of the contingency plan for the HDD crossing of the BRP and ANST, Atlantic conducted indicative and full simulations from KOPs on the eastern and western side of the crossing area. The results of those simulations are discussed below.

3.3.1 KOP 34: Torry Ridge Trail 1

KOP 34 presents potential views of the BRP HDD contingency corridor from the west. Figure 3-19 shows the full simulation image of the BRP HDD contingency corridor at KOP 34, 15 to 20 years after construction. Figure 3-20 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity due to the relatively dark atmospheric conditions during baseline photography and presence of shade at the KOP. From this KOP, the ACP contingency corridor from approximately MP 157 to MP 158 would be visible as a narrow vegetated (but not forested) band on the far side of the Back Creek valley, approximately 1.2 to 2.0 miles to the southeast. The width of the corridor would become narrower, and the contrast with surrounding areas less prominent, as trees and other vegetation reclaim the temporary right-of-way over time. Both of these views are in the middleground, as defined by the USFS.

3.3.2 KOP 40: ANST (Bee Mountain)

Figure 3-21 shows the simulated views of the BRP HDD contingency corridor from KOP 40, 15 to 20 years after construction, while Figure 3-22 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, actual views of the BRP HDD contingency corridor would be minimal to nonexistent, due to a combination of factors, including the distance from the KOP; the presence of dense vegetation, even in leaf-off conditions; and the orientation of the ACP corridor perpendicular to the viewer. The latter factor prohibits any axial views of the corridor (where a gap in trees would be most noticeable), and enables intervening vegetation to screen views.

3.3.3 KOP 65: Devils Knob Overlook

Figure 3-23 shows the full simulation image of the ACP contingency corridor at KOP 65, 15 to 20 years after construction, with the permanent right-of-way outlined in yellow, for viewer clarity. (The fencing shown here has since been replaced.) From this KOP, the corridor, approximately 1.0 mile away, would be blocked by vegetation at the edge of the Devils Knob Overlook. Individual viewers could potentially obtain a view of the contingency corridor by standing at the extreme edge of the overlook (i.e., at the edge of the vegetation, where the slope begins to drop off); however, the typical viewer, standing in the designated overlook area, would not be able to see the contingency corridor (if used) as it would exit the potential directional bore crossing of the BRP on the east side of the Blue Ridge Mountains.

Figure 3-15: Full Simulation, KOP 40, Regrowth Following Construction

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Existing View**

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Following Construction**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 197 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP40

Bee Mountain, Appalachian Trail with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2219906.9
Northing Position (UTM - Zone 17):	1376077.3
Elevation of Photopoint Position (NAVD88):	3068.4
Height of Camera Above Ground (ft):	5.4
Date of Photography:	5-Nov-15 at 2:04 p.m.
Orientation of View:	NE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17,NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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Figure 3-16: Full Simulation, KOP 40, Regrowth 5 Years after Construction

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Existing View**

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Proposed View 75' Permanent ROW (5 Year Tree Growth)**

Atlantic Coast Pipeline

KOP40

Bee Mountain,
Appalachian Trail

	22799069
	13760771.3
	3011.0
	5.4
	5 November 2015 at 09:59 AM
	NE
	124°
	55°

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Date	Sheet
19 July 2016	12

Figure 3-17: Full Simulation, KOP 40, Regrowth 15-20 Years after Construction

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Existing View**

KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Proposed View 75' Permanent ROW (15/20 Year Tree Growth)**

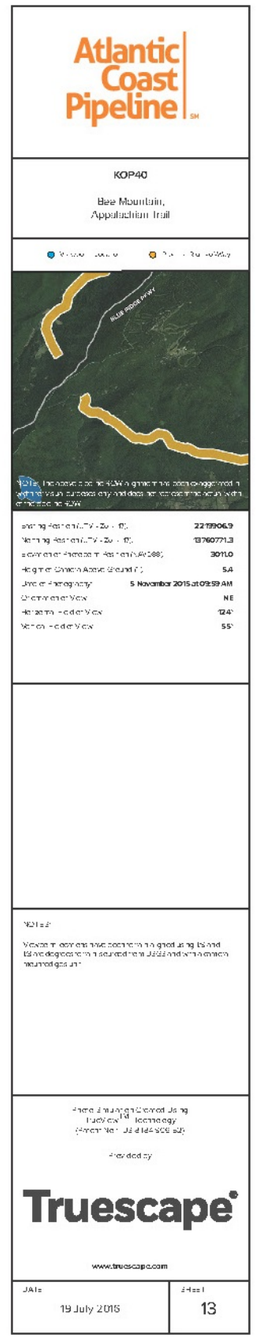


Figure 3-18: Full Simulation, KOP 40, Regrowth 15-20 Years after Construction, Permanent ROW Outlined

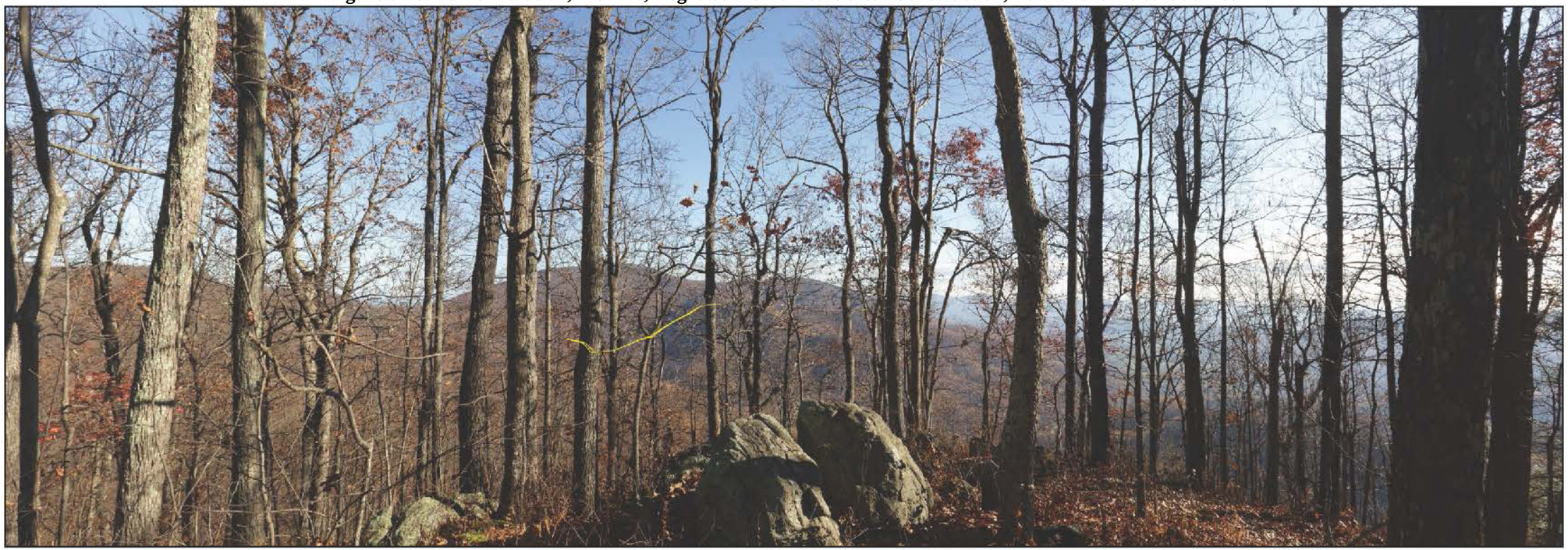
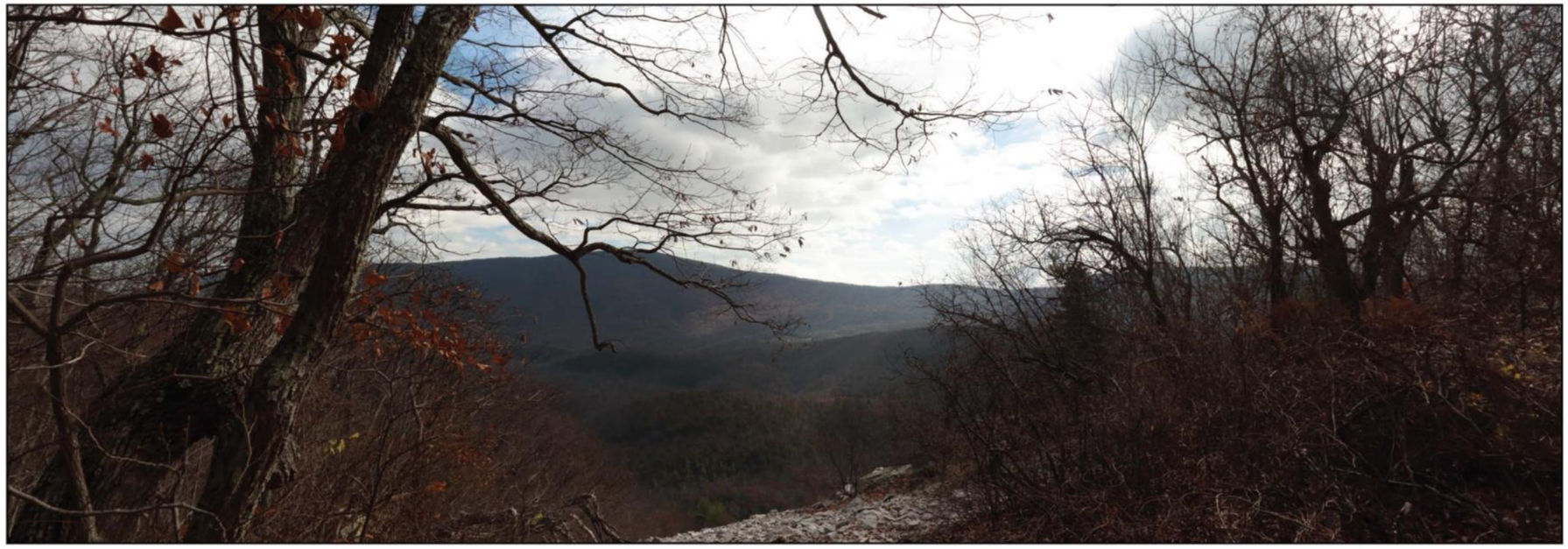


Figure 3-19: Full Simulation, KOP 34, Contingency Plan

Viewpoint KOP34 - Torry Ridge Trail 1, Looking Southeast - **Existing View**



Viewpoint KOP34 - Torry Ridge Trail 1, Looking Southeast - **Proposed View**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP34

Torry Ridge Trail 1
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2214670.3
Northing Position (UTM - Zone 17):	13778971.8
Elevation of Photopoint Position (NAVD88):	2644.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	6-Nov-15 at 04:04 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3-arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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Figure 3-20: Full Simulation, KOP 34, Contingency Plan, Permanent ROW Outlined

Viewpoint KOP34 - Torry Ridge Trail 1, Looking Southeast - **Existing View**

Viewpoint KOP34 - Torry Ridge Trail 1, Looking Southeast - **Proposed View (Right Of Way Overlayed)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 197 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP34

Torry Ridge Trail 1
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2214670.3
Northing Position (UTM - Zone 17):	13778971.8
Elevation of Photopoint Position (NAVD88):	2644.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	6-Nov-15 at 04:04 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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21 April 2016	4

Figure 3-21: Full Simulation, KOP 40, Contingency Plan

Viewpoint KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Existing View**

Viewpoint KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Proposed View**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 157 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP40

Bee Mountain, Appalachian Trail
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2219906.9
Northing Position (UTM - Zone 17):	13760771.3
Elevation of Photopoint Position (NAVD88):	3068.4
Height of Camera Above Ground (ft):	5.4
Date of Photography:	5-Nov-15 at 2:04 p.m.
Orientation of View:	NE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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Figure 3-22: Full Simulation, KOP 40, Contingency Plan, Permanent ROW Outlined

Viewpoint KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Existing View**

Viewpoint KOP40 - Bee Mountain, Appalachian Trail, Looking Northeast - **Proposed View (Right Of Way Overlayed)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 157 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP40

Bee Mountain, Appalachian Trail
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2219906.9
Northing Position (UTM - Zone 17):	13760771.3
Elevation of Photopoint Position (NAVD88):	3068.4
Height of Camera Above Ground (ft):	5.4
Date of Photography:	5-Nov-15 at 2:04 p.m.
Orientation of View:	NE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3-arc degrees terrain, sourced from USGS and with a camera mounted gps unit.

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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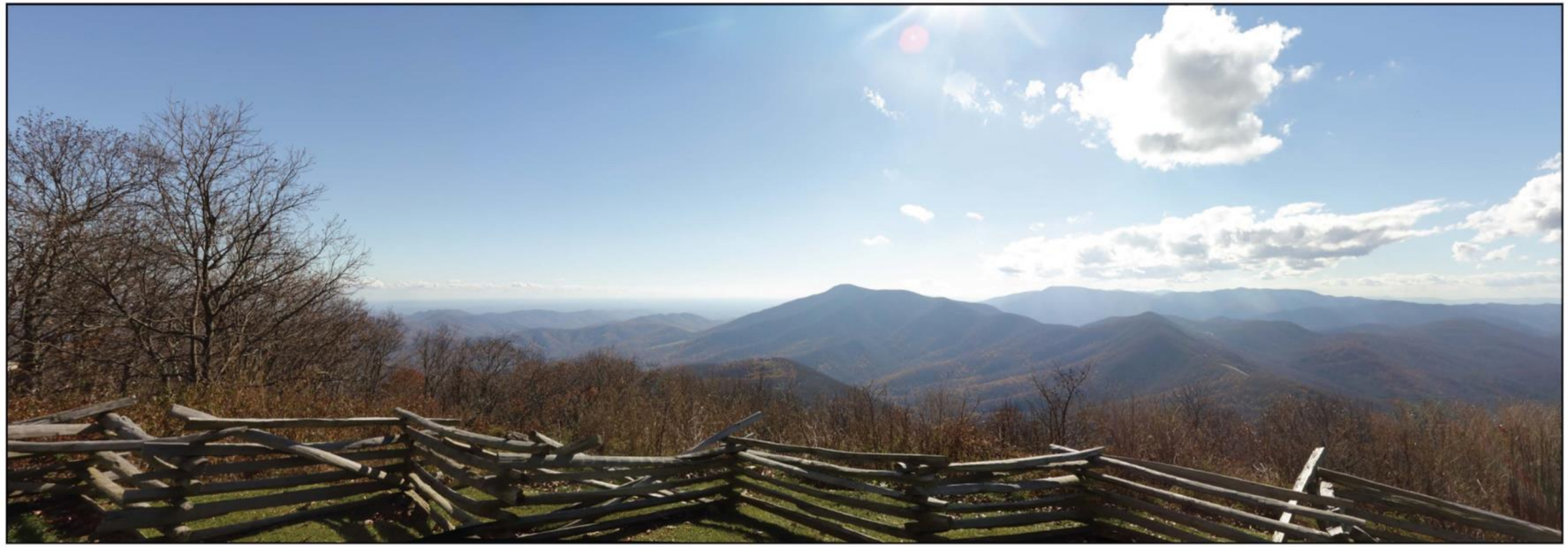
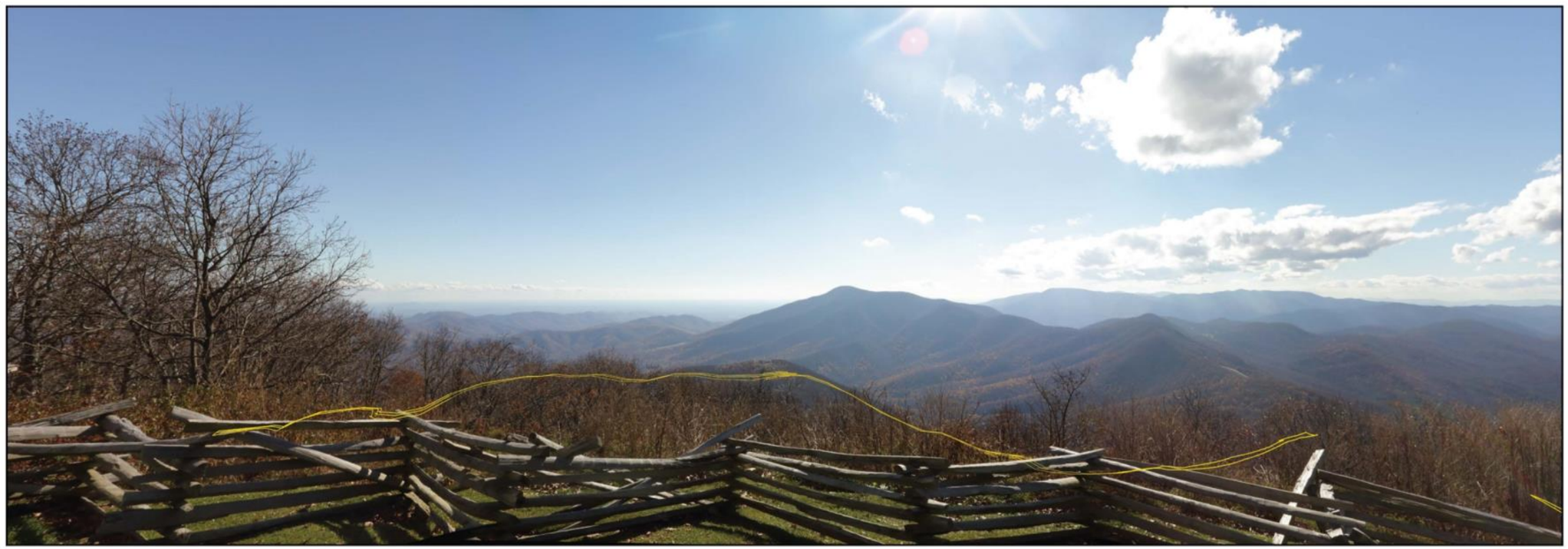
Figure 3-23: Full Simulation, KOP 65, Contingency Plan, Permanent ROW Outlined



Viewpoint KOP65 - Devil's Knob, Looking South - **Existing View**



Viewpoint KOP65 - Devil's Knob, Looking South - **Proposed View (Right Of Way Overlayed)**

For onscreen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 197 inches (50 cm)

Atlantic Coast Pipeline

ERM - ACP Pipeline ROW Additional Forestry

Viewpoint KOP65

Devil's Knob
with Contingency Right of Way (ROW) shown

Viewpoint Location Project Area

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the actual width of the pipeline ROW.

Easting Position (UTM - Zone 17):	222925.1
Northing Position (UTM - Zone 17):	113774276.5
Elevation of Photopoint Position (NAVD88):	3729.1
Height of Camera Above Ground (ft):	5.4
Date of Photography:	5-Nov-15 at 2:50 p.m.
Orientation of View:	S
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint locations have been precision surveyed by:

Rick Casteel & Adam Bosley
EI Engineering
LLC

Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17, NAD83

No part of this photo simulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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DATE	SHEET
21 April 2016	8

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3.4 ANST FULL VISUAL SIMULATIONS

Atlantic conducted full visual simulations of eight KOPs associated with the ANST, as listed in Table 2-2, using the TrueView methodology described in Section 2.4.2. As indicated in Table 2-2, KOP ANST 01 provided no view of the ACP corridor at all, due to topography and direction of the only possible sight line. The subsections below present the simulations for the other ANST KOPs, showing the ACP corridor as it would be seen from each of these KOPs. This includes imagery of existing conditions, as well as separate simulations of views one growing season following construction, and approximately 5 years and 15 to 20 years following construction. High-resolution, large-format versions of these simulations are provided in Appendix B.

3.4.1 KOP ANST 02: Humpback Rocks

Figures 3-24, 3-25, 3-26, and 3-27 show the full simulation images for KOP ANST 02. Figure 3-25 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, the segment of the ACP corridor within the "seen area" (see Section 2.1) is approximately MP 152-154, and located approximately 3 to 4 miles from the KOP. As shown in the Figures, due to existing vegetation patterns in the vicinity of the ACP corridor, Project-related changes in color, line, texture, and other visual characteristics would be minimally perceptible from this KOP, and would be indistinguishable from other development and evidence of human activity already within the view. The corridor would become even less prominent as trees and other vegetation reclaim the temporary right-of-way over time.

3.4.2 KOP ANST 03: Battery Cliffs

Figures 3-28, 3-29, 3-30, and 3-31 show the full simulation images for KOP ANST 03. Figure 3-29 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, the segment of the ACP corridor within the "seen area" (see Section 2.1) is approximately MP 152-154, and located approximately 2.5 to 4 miles from the KOP. As shown in the Figures, only a short portion of the cleared pipeline corridor would be visible and clear of tree cover and at this distance, and views would be fairly minimal and not noticeable. Project-related changes in color, line, texture, and other visual characteristics would be minimally perceptible from this KOP. The ACP corridor would generally be indistinguishable from other development and evidence of human activity within the view.

3.4.3 KOP ANST 04: Laurel Springs

Figures 3-32, 3-33, 3-34, and 3-35 show the full simulation images for KOP ANST 04. Figure 3-33 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, the segment of the ACP corridor within the "seen area" (see Section 2.1) is approximately MP 152-154, and located approximately 2 to 4 miles from the KOP. As demonstrated by the yellow "indicative overlay" in Figure 3-32, the view of the right-of-way from this KOP would be blocked by vegetation, particularly during leaf-on conditions. A viewer standing slightly to the left of the location depicted in the Figures could see more of the right-of-way, but generally only during leaf off conditions. From such a view, project-related changes in color, line, texture, and other visual characteristics would be minimally perceptible

from this KOP, and would be indistinguishable from other development and evidence of human activity already within the view.

3.4.4 KOP ANST 05: Cedar Cliffs

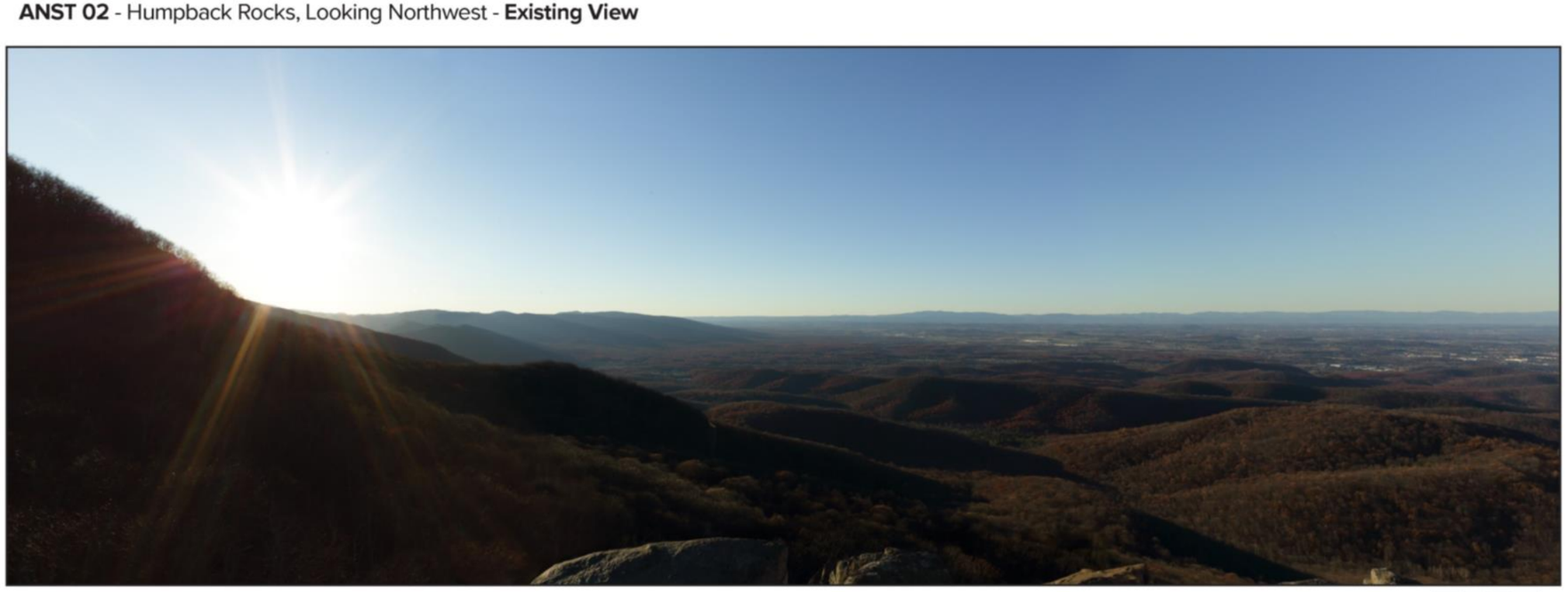
Figure 3-36, 3-37, and 3-38 show the full simulation images for KOP ANST 05. From this KOP, the ACP corridor would be clearly visible as a narrow band of vegetated open land to the east of Torry Ridge (the mountain feature in the left-center of the image) and between two large cleared agricultural fields, approximately from MPs 153 to 156 (from right to left). The corridor is located approximately 0.8 mile from the Cedar Cliffs location on the ANST (KOP ANST 05) at its closest point (bottom-center of the images, corresponding approximately to MP 155), with MP 152 approximately 3 miles away (center of the images, approaching the horizon). The appearance of the corridor would be similar to the cleared areas along Back Creek and Mount Torry Road, closer to the base of Torry Ridge. As shown in the Figures, Project-related changes in color, line, texture, and other characteristics considered in the SMS would be apparent to the viewer, although these changes would not dominate the view. The corridor would become less prominent over time, as vegetation reclaims the temporary right-of-way, as demonstrated in Figure 3-38.

3.4.5 KOP ANST 06: Little Ravens Roost

Figure 3-39, 3-40, and 3-41 show the full simulation images for KOP ANST 06. From this KOP, the ACP corridor would be visible as a narrow band of vegetated open land wrapping around Torry Ridge (the mountain feature in the approximate center of the image), approximately from MPs 152 to 156 (from right to left). The corridor is approximately 0.65 mile from KOP ANST 06 at its closest point (bottom-center of the image, corresponding approximately to MP 155), with MP 152 approximately 3.3 miles away (middle-right of the images, approaching the horizon). The appearance of the corridor would be similar to the cleared areas along Back Creek and Mount Torry Road, closer to the base of Torry Ridge. As shown in the Figures, Project-related changes in color, line, texture, and other characteristics considered in the SMS would be apparent to the viewer, and would be a new and prominent element of the view. The corridor would become less prominent over time, as vegetation reclaims the temporary right-of-way.

Figure 3-24: Full Simulation, KOP ANST 02, Regrowth Following Construction

ANST 02 - Humpback Rocks, Looking Northwest - **Existing View**



ANST 02 - Humpback Rocks, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Figure 3-25: Full Simulation, KOP ANST 02, Regrowth Following Construction, Permanent ROW Outlined

ANST 02 - Humpback Rocks, Looking Northwest - **Existing View**

ANST 02 - Humpback Rocks, Looking Northwest - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 197 inches (50 cm)

Atlantic Coast Pipeline

ANST 02

Humpback Rocks

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2245449.9
Northing Position (UTM - Zone 17):	13795128.7
Elevation of Photopoint Position (AMSL):	3114.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 05:21 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	6

Figure 3-26: Full Simulation, KOP ANST 02, Regrowth 5 Years after Construction

ANST 02 - Humpback Rocks, Looking Northwest - **Existing View**

ANST 02 - Humpback Rocks, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

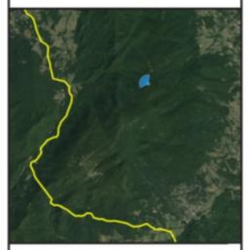
For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 02

Humpback Rocks

Viewpoint Location Project Area



Easting Position (UTM - Zone 17)	2245449.9
Northing Position (UTM - Zone 17)	13793328.7
Elevation of Photopoint Position (AMSL)	3114.2
Height of Camera Above Ground (ft)	5.4
Date of Photography	21 November 2016 at 05:21 PM
Orientation of View	NW
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

Photo Simulation Created Using TrueView™ Technology (Patent No.: US 8,934,906 B2)

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Figure 3-27: Full Simulation, KOP ANST 02, Regrowth 15-20 Years after Construction

ANST 02 - Humpback Rocks, Looking Northwest - **Existing View**

ANST 02 - Humpback Rocks, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 02

Humpback Rocks

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2245449.9
Northing Position (UTM - Zone 17)	1379328.7
Elevation of Photopoint Position (AMSL)	3114.2
Height of Camera Above Ground (ft)	5.4
Date of Photography:	21 November 2016 at 05:21 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	8

Figure 3-28: Full Simulation, KOP ANST 03, Regrowth Following Construction

ANST 03 - Battery Cliffs, Looking West-Northwest - **Existing View**

ANST 03 - Battery Cliffs, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 03

Battery Cliffs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2242516.9
Northing Position (UTM - Zone 17):	13785131.6
Elevation of Photopoint Position (AMSL):	3542.0
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 10:38 AM
Orientation of View:	WNW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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Figure 3-29: Full Simulation, KOP ANST 03, Regrowth Following Construction, Permanent ROW Outlined

ANST 03 - Battery Cliffs, Looking West-Northwest - **Existing View**

ANST 03 - Battery Cliffs, Looking West-Northwest - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide).
Viewing distance is 13.7 inches (50 cm).

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ANST 03

Battery Cliffs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	224256.9
Northing Position (UTM - Zone 17):	13785131.6
Elevation of Photopoint Position (AMSL):	3542.0
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 10:38 AM
Orientation of View:	WNW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	10

Figure 3-30: Full Simulation, KOP ANST 03, Regrowth 5 Years after Construction

ANST 03 - Battery Cliffs, Looking West-Northwest - **Existing View**

ANST 03 - Battery Cliffs, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 13.7 inches (50 cm)

Figure 3-31: Full Simulation, KOP ANST 03, Regrowth 15-20 Years after Construction

ANST 03 - Battery Cliffs, Looking West-Northwest - **Existing View**

ANST 03 - Battery Cliffs, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 03

Battery Cliffs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2242516.9
Northing Position (UTM - Zone 17):	13785131.6
Elevation of Photopoint Position (AMSL):	3542.0
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 10:38 AM
Orientation of View:	WNW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc-degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	12

Figure 3-32: Full Simulation, KOP ANST 04, Regrowth Following Construction

ANST 04 - Laurel Springs, Looking Northwest - **Existing View**

ANST 04 - Laurel Springs, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 13.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 04

Laurel Springs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2236577.3
Northing Position (UTM - Zone 17):	13783641.2
Elevation of Photopoint Position (AMSL):	3315.6
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 11:18 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	13

Figure 3-33: Full Simulation, KOP ANST 04, Regrowth Following Construction, Permanent ROW Outlined

ANST 04 - Laurel Springs, Looking Northwest - **Existing View**

ANST 04 - Laurel Springs, Looking Northwest - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 04

Laurel Springs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2238677.3
Northing Position (UTM - Zone 17):	13783641.2
Elevation of Photopoint Position (AMSL):	3315.6
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 11:18 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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DATE	SHEET
05 January 2017	14

Figure 3-34: Full Simulation, KOP ANST 04, Regrowth 5 Years after Construction

ANST 04 - Laurel Springs, Looking Northwest - **Existing View**

ANST 04 - Laurel Springs, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 04

Laurel Springs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2238677.3
Northing Position (UTM - Zone 17):	13783641.2
Elevation of Photopoint Position (AMSL):	3315.6
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 11:18 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
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Figure 3-35: Full Simulation, KOP ANST 04, Regrowth 15-20 Years after Construction

ANST 04 - Laurel Springs, Looking Northwest - **Existing View**

ANST 04 - Laurel Springs, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 04

Laurel Springs

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2238677.3
Northing Position (UTM - Zone 17):	13783641.2
Elevation of Photopoint Position (AMSL):	3315.6
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 11:58 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit
Heights are above mean sea level
Projection/Zone/Datum
UTM ZONE 17

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DATE	SHEET
05 January 2017	16

Figure 3-36: Full Simulation, KOP ANST 05, Regrowth Following Construction

ANST 05 - Cedar Cliffs B, Looking Northwest - **Existing View**

ANST 05 - Cedar Cliffs B, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 05

Cedar Cliffs B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2233562.7
Northing Position (UTM - Zone 17)	13785356.2
Elevation of Photopoint Position (AMSL)	2829.7
Height of Camera Above Ground (ft)	5.4
Date of Photography:	1 December 2016 at 02:44 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	17

Figure 3-37: Full Simulation, KOP ANST 05, Regrowth 5 Years after Construction

ANST 05 - Cedar Cliffs B, Looking Northwest - **Existing View**

ANST 05 - Cedar Cliffs B, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 05

Cedar Cliffs B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2233562.7
Northing Position (UTM - Zone 17)	13785356.2
Elevation of Photopoint Position (AMSL)	2829.7
Height of Camera Above Ground (ft)	5.4
Date of Photography:	1 December 2016 at 02:44 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	18

Figure 3-38: Full Simulation, KOP ANST 05, Regrowth 15-20 Years after Construction

ANST 05 - Cedar Cliffs B, Looking Northwest - **Existing View**

ANST 05 - Cedar Cliffs B, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display.
Scale bar to be 4 inches (101.6mm wide).
Viewing distance is 13.7 inches (50 cm).

Atlantic Coast Pipeline

ANST 05

Cedar Cliffs B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2233562.7
Northing Position (UTM - Zone 17):	13785356.2
Elevation of Photopoint Position (AMSL):	2829.7
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 02:44 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	19

Figure 3-39: Full Simulation, KOP ANST 06, Regrowth Following Construction

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Existing View**

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 06

Little Ravens Roost A

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2230807.3
Northing Position (UTM - Zone 17)	13782727.6
Elevation of Photopoint Position (AMSL)	2708.7
Height of Camera Above Ground (ft)	5.4
Date of Photography	1 December 2016 at 12:39 PM
Orientation of View	WNW
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	20

Figure 3-40: Full Simulation, KOP ANST 06, Regrowth 5 Years after Construction

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Existing View**

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

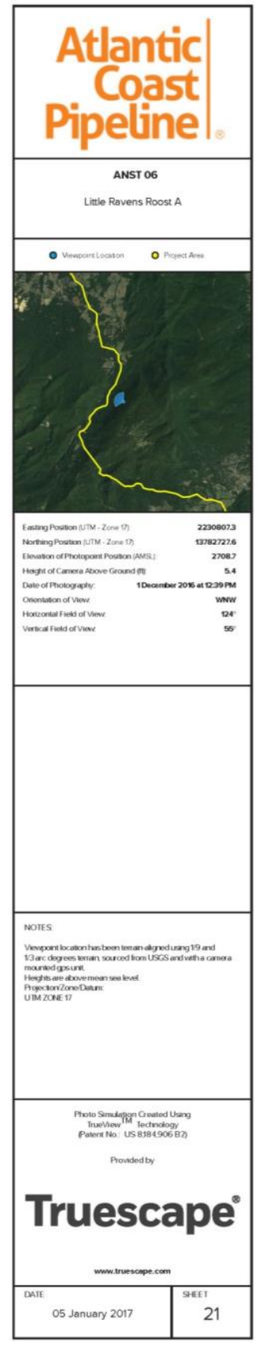

Figure 3-41: Full Simulation, KOP ANST 06, Regrowth 15-20 Years after Construction

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Existing View**

ANST 06 - Little Ravens Roost A, Looking West-Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 06

Little Ravens Roost A

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2230807.3
Northing Position (UTM - Zone 17)	13782727.6
Elevation of Photopoint Position (AMSL)	2708.7
Height of Camera Above Ground (ft)	5.4
Date of Photography:	1 December 2016 at 12:39 PM
Orientation of View:	WNW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level
Projection/Zone/Datum:
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05 January 2017	22

3.4.6 KOP ANST 07: Sherando Valley

Figures 3-42, 3-43, 3-44 and 3-45 show the full simulation images for KOP ANST 07. Figure 3-43 shows this simulation with the permanent right-of-way outlined in yellow, for viewer clarity. From this KOP, cleared areas of the ACP corridor would be intermittently and only slightly visible among foliage during leaf-off conditions (as shown in the Figures), but would likely be totally obscured during leaf-on conditions. This is because this KOP viewing area is primarily covered in and within mature forest cover. The partially visible segments of the right-of-way correspond to approximately MPs 152 through 157. The corridor is approximately 0.5 mile from KOP ANST 07 at its closest point (bottom-center of the images, corresponding approximately to MP 156.5), with MP 152 approximately 4 miles away (center of the images, approaching the horizon). The appearance of the corridor would be similar to, but less distinct than the cleared areas along Back Creek and Mount Torry Road, closer to the base of Torry Ridge. The corridor would become less prominent over time, as vegetation reclaims the temporary right-of-way.

3.4.7 KOP ANST 08a: Three Ridges Overlook, North

Figures 3-46, 3-47, 3-48, and 3-49 show the full simulation images for KOP ANST 08a. As shown in the figures, observers would have a nearly axial view (facing southeast and down the right-of-way) of the ACP corridor at approximately MP 159 as it climbs over Piney Mountain, just south of Atlantic's proposed HDD. This segment of the corridor, which is not within the GWNF, would be approximately 0.75 to 1.0 mile from the viewer. The simulation in Figures 3-46, 3-47, and 3-48 show the likely conditions after construction, with no visual mitigation incorporated. With no mitigation, shortly after construction, the ACP corridor would be visible axially and prominently as a "stripe" for all viewers at the top of Piney Mountain. The grassy corridor would contrast with surrounding forest in terms of color (grasses would generally be lighter than trees, even during leaf-off conditions) and vegetative texture, and would introduce a linear feature inconsistent with the existing landscape.

As with other visible segments of the corridor, regrowth in the temporary right-of-way would reduce visual contrast over time. Figure 3-49 shows the right-of-way at this location, approximately 15-20 years after construction, with the incorporation of shallow-rooted perennial shrubs within the right-of-way, planted as visual mitigation to break up the linear nature of the corridor. The combination of these plantings, which would occur soon after completion of construction, and natural regrowth in the temporary right-of-way would significantly reduce contrast between the corridor and surrounding forest, in terms of color and texture, and would reduce the prominence of the corridor's linear character.

3.4.8 KOP ANST 08b: Three Ridges Overlook, South

Figures 3-50, 3-51, 3-52, and 3-53 show the full simulation images for KOP ANST 08b. Views and visual contrast from this location (approximately 200 feet southwest of ANST 8a), as shown in Figures 3-50, 3-51, and 3-52 would be similar to those described for KOP ANST 8a. This segment of the corridor, which is not within the GWNF, would be approximately 0.75 to 1.0 mile from the viewer.

With no mitigation, shortly after construction, the ACP corridor would be visible axially and prominently as a "stripe" for all viewers at the top of Piney Mountain. The grassy corridor would contrast with surrounding forest in terms of color (grasses would generally be lighter than trees, even during leaf-off conditions) and vegetative texture, and would introduce a linear feature inconsistent with the existing landscape.

As with other visible segments of the corridor, regrowth in the temporary right-of-way would reduce visual contrast over time. Figure 3-53 shows the right-of-way at this location, approximately 15-20 years after construction, with the incorporation of shallow-rooted perennial shrubs within the right-of-way, planted as visual mitigation to break up the linear nature of the corridor. As discussed for KOP 08a, the combination of these plantings and natural regrowth in the temporary right-of-way would significantly reduce contrast between the corridor and surrounding forest, in terms of color and texture, and would reduce the prominence of the corridor's linear character.

3.5 SSF FULL VISUAL SIMULATIONS

Atlantic conducted full visual simulations of seven KOPs associated with the SSF, as listed in Table 2-3, using the TrueView methodology described in Section 2.4.2. As indicated in Table 2-2, KOP SSF 03 provided no view of the ACP corridor at all, due to steep topography and tree cover. The subsections below present the simulations, which show the ACP corridor as it would be seen from each of these KOPs. This includes imagery of existing conditions, as well as separate simulations of views one growing season following construction, and approximately 5 years and 15 to 20 years following construction. High-resolution, large-format versions of these simulations are provided in Appendix B.

3.5.1 KOP SSF 01: Greenbrier River Crossing

Figures 3-54, 3-55, and 3-56 show the full simulation images for KOP SSF 01. From this KOP, located on the Greenbrier Trail adjacent to the Greenbrier River, the ACP corridor would be clearly visible at approximately MP 76.5, approximately 0.2 mile away, as it climbs southeastward from the Greenbrier River. Following construction, trail users, including cyclists and pedestrians, would cross directly over the right of way, although the cleared corridor on the opposite (west) side of the river would be the most distinct visible evidence of the corridor. As shown in the Figures, regrowth in the temporary right-of-way would reduce the scale of the right-of-way, and foliage on the trees adjacent to the river could partially screen views of the corridor at this KOP during leaf-on conditions; however, the right-of-way would remain a distinct visual feature, particularly for people using the Greenbrier trail along the west side of the river. The corridor would become narrower, but not meaningfully less distinct, over time, with regrowth of vegetation in the temporary right-of-way. This KOP, and the land visible from it, are adjacent to, but are not within the SSF.

3.5.2 KOP SSF 02: Public Road 1/8

Figure 3-57 shows the full simulation images for KOP SSF 02, immediately following construction, and shows the permanent right-of-way outlined in yellow, for viewer clarity. The segment of the ACP represented by the yellow overlay corresponds to approximately MP 77.5,

and would be 0.4 mile away through dense forest from the viewer at its closest point. The yellow overlay in Figure 3-57 shows the location of the right-of-way if it could be seen through the existing dense mature state forest lands. As shown in the Figures, this vegetation makes Project-related changes in color, line, texture, and other visual characteristics imperceptible from this KOP, even in leaf-off conditions (e.g., in late November, when the baseline imagery was captured).

3.5.3 KOP SSF 04: Loop Road

Figure 3-58 shows the full simulation images for KOP SSF 04, immediately following construction, and shows the permanent right-of-way outlined in yellow, for viewer clarity. The segment of the ACP represented by the yellow overlay corresponds to approximately MP 77.5, and would be 0.4 mile away from the viewer at its closest point. As shown in Figure 3-58, the view of the right-of-way would be entirely blocked by existing dense mature forest vegetation, even in leaf-off conditions (e.g., in November, when the baseline imagery was captured).

3.5.4 KOP SSF 05: Allegheny Trail

Figures 3-59, 3-60, and 3-61 show the full simulation images for KOP SSF 05. This KOP provides an axial view along the current Allegheny Trail and proposed ACP right-of-way east of MP 78.3, facing east. As shown in the Figures, the right-of-way would be a dominant visual feature in this location, and would remain so even after regrowth of vegetation in the temporary right-of-way.

As a mitigation measure to reduce the visual and recreational impacts associated with the pipeline corridor being collocated with the Allegheny trail in this location, Atlantic has proposed to and is working with the State of West Virginia to relocate the Allegheny Trail in this location, and to pay for vegetation clearing and other activities necessary to establish the new trail route. The State of West Virginia and Seneca State Forest have tentatively agreed to this relocation. As a result, the ACP would cross the relocated Allegheny Trail perpendicularly at approximately MP 78.1 (at the location of KOP 45—see Table 2-1), rather than being collocated with the trail for approximately 0.3 mile, between MPs 78.1 and 78.4. After trail relocation, KOP SSF 05 would no longer be on the Allegheny Trail. Views at the intersection of the Allegheny Trail and ACP—at MP 78.1—would be comparable to those shown in Figures 3-59 through 3-61.

3.5.5 KOP SSF 06: WV Route 28

Figures 3-62, 3-63, and 3-64 show the full simulation images for KOP SSF 06. From this KOP, the ACP corridor would be visible at approximately MP 79.2, about 0.1 miles away, as it crosses the road. The corridor in this location would appear as a gap in the trees on the right (west) side of the road and another gap in the trees to the east of the agricultural field on the left (east) side of the road. Land to the west is within SSF, while the land to the east is privately owned. Travelers on WV 28 would have an axial view along the corridor, but only at the right-of-way crossing while traveling along the roadway; however, as shown in the Figures, the corridor would be minimally perceptible from viewpoints not at or immediately adjacent to the crossing. As shown in the Figures, regrowth in the temporary right-of-way would further reduce the perceived size of the right-of-way.

Figure 3-42: Full Simulation, KOP ANST 07, Regrowth Following Construction

ANST 07 - Sherando Valley B, Looking North - **Existing View**

ANST 07 - Sherando Valley B, Looking North - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 07

Sherando Valley B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2226843.8
Northing Position (UTM - Zone 17):	13778413
Elevation of Photopoint Position (AMSL):	2721.5
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 01:29 PM
Orientation of View:	N
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	23

Figure 3-43: Full Simulation, KOP ANST 07, Regrowth Following Construction, Permanent ROW Outlined

ANST 07 - Sherando Valley B, Looking North - **Existing View**

ANST 07 - Sherando Valley B, Looking North - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 07

Sherando Valley B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2226843.8
Northing Position (UTM - Zone 17):	137784013
Elevation of Photopoint Position (AMSL):	2721.5
Height of Camera Above Ground (ft):	5.4
Date of Photography:	1 December 2016 at 01:29 PM
Orientation of View:	N
Horizontal Field of View:	124°
Vertical Field of View:	59°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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Figure 3-44: Full Simulation, KOP ANST 07, Regrowth 5 Years after Construction

ANST 07 - Sherando Valley B, Looking North - **Existing View**

ANST 07 - Sherando Valley B, Looking North - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 07

Sherando Valley B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2226843.8
Northing Position (UTM - Zone 17)	13778401.3
Elevation of Photopoint Position (AMSL)	2721.5
Height of Camera Above Ground (ft)	5.4
Date of Photography:	1 December 2016 at 01:29 PM
Orientation of View:	N
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	25

Figure 3-45: Full Simulation, KOP ANST 07, Regrowth 15-20 Years after Construction

ANST 07 - Sherando Valley B, Looking North - **Existing View**

ANST 07 - Sherando Valley B, Looking North - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 07

Sherando Valley B

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2226843.8
Northing Position (UTM - Zone 17)	13778401.3
Elevation of Photopoint Position (AMSL)	2721.5
Height of Camera Above Ground (ft)	5.4
Date of Photography	1 December 2016 at 01:29 PM
Orientation of View	N
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	26

Figure 3-46: Full Simulation, KOP ANST 08a, Regrowth Following Construction

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Existing View**

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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ANST 08a

Three Ridges North Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2223364.0
Northing Position (UTM - Zone 17)	13771174.9
Elevation of Photopoint Position (AMSL)	2715.2
Height of Camera Above Ground (ft)	5.4
Date of Photography	21 November 2016 at 02:33 PM
Orientation of View	SSE
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	31

Figure 3-47: Full Simulation, KOP ANST 08a, Regrowth 5 Years after Construction

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Existing View**

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide).
Viewing distance is 13.7 inches (50 cm).

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ANST 08a

Three Ridges North Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2223364.0
Northing Position (UTM - Zone 17)	1377174.9
Elevation of Photopoint Position (AMSL)	2715.2
Height of Camera Above Ground (ft)	5.4
Date of Photography:	21 November 2016 at 02:33 PM
Orientation of View:	SSE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
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Figure 3-48: Full Simulation, KOP ANST 08a, Regrowth 15-20 Years after Construction

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Existing View**

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

ANST 08a

Three Ridges North Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2223364.0
Northing Position (UTM - Zone 17):	1377117.4
Elevation of Photopoint Position (AMSL):	2715.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 02:33 PM
Orientation of View:	SSE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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Figure 3-49: Full Simulation, KOP ANST 08a, Regrowth 15-20 Years after Construction, with Indicative Restoration

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Existing View**

ANST 08a - Three Ridges North Overlook, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth with indicative restoration)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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ANST 08a

Three Ridges North Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2223364.0
Northing Position (UTM - Zone 17):	13771174.9
Elevation of Photopoint Position (AMSL):	2715.2
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 02:33 PM
Orientation of View:	SSE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	34

Figure 3-50: Full Simulation, KOP ANST 08b, Regrowth Following Construction

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Existing View**

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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ANST 08b

Three Ridges South Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2223166.6
Northing Position (UTM - Zone 17):	137710391
Elevation of Photopoint Position (AMSL):	2706.0
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 04:45 PM
Orientation of View:	ESE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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Figure 3-51: Full Simulation, KOP ANST 08b, Regrowth 5 Years after Construction

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Existing View**

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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ANST 08b

Three Ridges South Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	2223166.6
Northing Position (UTM - Zone 17)	13779039.1
Elevation of Photopoint Position (AMSL)	2706.0
Height of Camera Above Ground (ft)	5.4
Date of Photography	21 November 2016 at 04:45 PM
Orientation of View:	ESE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	36

Figure 3-52: Full Simulation, KOP ANST 08b, Regrowth 15-20 Years after Construction

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Existing View**

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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ANST 08b

Three Ridges South Overlook

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	2223166.6
Northing Position (UTM - Zone 17):	13771039.1
Elevation of Photopoint Position (AMSL):	2706.0
Height of Camera Above Ground (ft):	5.4
Date of Photography:	21 November 2016 at 04:45 PM
Orientation of View:	ESE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	37

Figure 3-53: Full Simulation, KOP ANST 08b, Regrowth 15-20 Years after Construction, with Indicative Restoration

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Existing View**

ANST 08b - Three Ridges South Overlook, Looking East-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth with indicative restoration)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Figure 3-54: Full Simulation, KOP SSF 01, Regrowth Following Construction

SSF 01 - Greenbrier River Trail, Looking South - **Existing View**

SSF 01 - Greenbrier River Trail, Looking South - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 01

Greenbrier River Trail

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1936156.7
Northing Position (UTM - Zone 17)	139225771
Elevation of Photopoint Position (AMSL)	2286.4
Height of Camera Above Ground (ft)	5.4
Date of Photography	22 November 2016 at 11:07 AM
Orientation of View	S
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	39

Figure 3-55: Full Simulation, KOP SSF 01, Regrowth 5 Years after Construction

SSF 01 - Greenbrier River Trail, Looking South - **Existing View**

SSF 01 - Greenbrier River Trail, Looking South - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 01

Greenbrier River Trail

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	1936156.7
Northing Position (UTM - Zone 17):	1392257.1
Elevation of Photopoint Position (AMSL):	2286.4
Height of Camera Above Ground (ft):	5.4
Date of Photography:	22 November 2016 at 11:07 AM
Orientation of View:	S
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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05 January 2017	40

Figure 3-56: Full Simulation, KOP SSF 01, Regrowth 15-20 Years after Construction

SSF 01 - Greenbrier River Trail, Looking South - **Existing View**

SSF 01 - Greenbrier River Trail, Looking South - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 01

Greenbrier River Trail

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1936156.7
Northing Position (UTM - Zone 17)	139225771
Elevation of Photopoint Position (AMSL)	2286.4
Height of Camera Above Ground (ft)	5.4
Date of Photography	22 November 2016 at 11:07 AM
Orientation of View	S
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level
Projection/Zone/Datum
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DATE	SHEET
05 January 2017	41

Figure 3-57: Full Simulation, KOP SSF 02, Regrowth Following Construction, Permanent ROW Outlined

SSF 02 - Public Road 1/8, Looking North-Northwest - **Existing View**

SSF 02 - Public Road 1/8, Looking North-Northwest - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 02

Public Road 1/8

Viewpoint Location Project Area

Existing Position (UTM - Zone 17)	1939976.0
Northing Position (UTM - Zone 17)	13919490.1
Elevation of Photopoint Position (AMSL)	2702.1
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 11:39 AM
Orientation of View:	NNW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
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DATE	SHEET
05 January 2017	42

Figure 3-58: Full Simulation, KOP SSF 04, Regrowth Following Construction, Permanent ROW Outlined

Figure 3-59: Full Simulation, KOP SSF 05, Regrowth Following Construction

SSF 05 - Existing Allegheny Trail East, Looking East - **Existing View**

SSF 05 - Existing Allegheny Trail East, Looking East - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

SSF 05

Existing Allegheny Trail East

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	1948198.9
Northing Position (UTM - Zone 17):	13919352.0
Elevation of Photopoint Position (AMSL):	3177.8
Height of Camera Above Ground (ft):	5.4
Date of Photography:	22 November 2016 at 01:35 PM
Orientation of View:	E
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	46

Figure 3-60: Full Simulation, KOP SSF 05, Regrowth 5 Years after Construction

SSF 05 - Existing Allegheny Trail East, Looking East - **Existing View**

SSF 05 - Existing Allegheny Trail East, Looking East - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 05

Existing Allegheny Trail East

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1948198.9
Northing Position (UTM - Zone 17)	13919352.0
Elevation of Photopoint Position (AMSL)	3177.8
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 01:35 PM
Orientation of View:	E
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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DATE	SHEET
05 January 2017	47

Figure 3-61: Full Simulation, KOP SSF 05, Regrowth 15-20 Years after Construction

SSF 05 - Existing Allegheny Trail East, Looking East - **Existing View**

SSF 05 - Existing Allegheny Trail East, Looking East - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

SSF 05

Existing Allegheny Trail East

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	1948198.9
Northing Position (UTM - Zone 17):	13919352.0
Elevation of Photopoint Position (AMSL):	3177.8
Height of Camera Above Ground (ft):	5.4
Date of Photography:	22 November 2016 at 01:35 PM
Orientation of View:	E
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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Figure 3-62: Full Simulation, KOP SSF 06, Regrowth Following Construction

SSF 06 - State Route 30, Looking South-Southeast - **Existing View**

SSF 06 - State Route 30, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 6 inches (1016mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

SSF 06

State Route 30

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1952812.9
Northing Position (UTM - Zone 17)	13917022.0
Elevation of Photopoint Position (AMSL)	2584.6
Height of Camera Above Ground (ft)	5.4
Date of Photography	22 November 2016 at 12:14 PM
Orientation of View	SSE
Horizontal Field of View	124°
Vertical Field of View	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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Figure 3-63: Full Simulation, KOP SSF 06, Regrowth 5 Years after Construction

SSF 06 - State Route 30, Looking South-Southeast - **Existing View**

SSF 06 - State Route 30, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 06

State Route 30

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1952812.9
Northing Position (UTM - Zone 17)	1391022.0
Elevation of Photopoint Position (AMSL)	2584.6
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 12:14 PM
Orientation of View:	SSE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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Figure 3-64: Full Simulation, KOP SSF 06, Regrowth 15-20 Years after Construction

SSF 06 - State Route 30, Looking South-Southeast - **Existing View**

SSF 06 - State Route 30, Looking South-Southeast - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 13.7 inches (5.0 cm)

Atlantic Coast Pipeline

SSF 06

State Route 30

Viewpoint Location Project Area

Easting Position (UTM - Zone 17):	1952812.9
Northing Position (UTM - Zone 17):	13917022.0
Elevation of Photopoint Position (AMSL):	2584.6
Height of Camera Above Ground (ft):	5.4
Date of Photography:	22 November 2016 at 12:14 PM
Orientation of View:	SSE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	51

3.5.6 KOP SSF 07: Michael Mountain

Figure 3-65 shows the full simulation images for KOP SSF 07, immediately following construction, and shows the permanent right-of-way outlined in yellow, for viewer clarity. KOP SSF 07 is located at the highest point along Crestline Trail, which traverses the ridge of Michael Mountain through heavily forested areas. The entire trail is within the forest and, although the trail runs along the ridgeline with multiple outcrops, there are no clear views to the east in the direction of the proposed pipeline right-of-way. The segment of the ACP represented by the yellow overlay corresponds to approximately MP 80.3 to 80.7, and would be 0.3 mile away from the viewer at its closest point. The yellow overlay in Figure 3-65 shows the location of the right-of-way if it could be seen through the existing dense vegetation. As shown in the Figures, this vegetation makes Project-related changes in color, line, texture, and other visual characteristics imperceptible from this KOP, even in leaf-off conditions (e.g., in late November, when the baseline imagery was captured).

3.5.7 KOP SSF 08: WV Route 92

Figures 3-66, 3-67, and 3-68 show the full simulation images for KOP SSF 08. From this KOP, the ACP corridor would be visible at approximately MP 81.1, approximately 0.1 mile away, as it crosses WV 92. The corridor in this location would appear as a gap in the trees on the right (west) side of the road and another gap in the trees to the east of the agricultural field on the left (east) side of the road. Travelers on WV 92 would have a brief axial view along the corridor at the right-of-way crossing; however, as shown in the Figures, the corridor would be minimally perceptible from viewpoints not at or immediately adjacent to the crossing. As shown in the Figures, regrowth in the temporary right-of-way would further reduce the perceived size of the right-of-way. This KOP is approximately 0.6 mile south of the nearest SSF boundary, and is approximately 0.9 mile southeast of the point at which the ACP would cross the SSF boundary.

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Figure 3-65: Full Simulation, KOP SSF 07, Regrowth Following Construction, Permanent ROW Outlined

SSF 07 - Michael Ridge, Looking Southeast - **Existing View**

SSF 07 - Michael Ridge, Looking Southeast - **Indicative Overlay: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

SSF 07

Michael Ridge

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1959196.6
Northing Position (UTM - Zone 17)	13911313.0
Elevation of Photopoint Position (AMSL)	3556.8
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 01:30 PM
Orientation of View:	SE
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted ogis unit.
Heights are above mean sea level.
Projection/Zone/Datum
UTM ZONE 17

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05 January 2017	52

Figure 3-66: Full Simulation, KOP SSF 08, Regrowth Following Construction

SSF 08 - State Route 96, Looking Northwest - **Existing View**

SSF 08 - State Route 96, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

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SSF 08

State Route 96

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1964416.9
Northing Position (UTM - Zone 17)	13909400.8
Elevation of Photopoint Position (AMSL)	2695.5
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 10:02 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	53

Figure 3-67: Full Simulation, KOP SSF 08, Regrowth 5 Years after Construction

SSF 08 - State Route 96, Looking Northwest - **Existing View**

SSF 08 - State Route 96, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (5 Year Tree Growth)**

For on-screen display:
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline®

SSF 08

State Route 96

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	**1964416.9**
Northing Position (UTM - Zone 17)	**13909400.8**
Elevation of Photopoint Position (AMSL)	**2695.5**
Height of Camera Above Ground (ft)	**5.4**
Date of Photography:	**22 November 2016 at 10:02 AM**
Orientation of View:	**NW**
Horizontal Field of View:	**124°**
Vertical Field of View:	**55°**

NOTES:

Viewpoint location has been terrain-aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
UTM ZONE 17

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05 January 2017	54

Figure 3-68: Full Simulation, KOP SSF 08, Regrowth 15-20 Years after Construction

SSF 08 - State Route 96, Looking Northwest - **Existing View**

SSF 08 - State Route 96, Looking Northwest - **Proposed View: 75' Permanent ROW, 50' Temp. ROW (15-20 Year Tree Growth)**

For on-screen display.
Scale bar to be 4 inches (101.6mm wide)
Viewing distance is 19.7 inches (50 cm)

Atlantic Coast Pipeline

SSF 08

State Route 96

Viewpoint Location Project Area

Easting Position (UTM - Zone 17)	1964416.9
Northing Position (UTM - Zone 17)	13909400.8
Elevation of Photopoint Position (AMSL)	2695.5
Height of Camera Above Ground (ft)	5.4
Date of Photography:	22 November 2016 at 10:02 AM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:

Viewpoint location has been terrain aligned using 1/9 and 1/3 arc degrees terrain, sourced from USGS and with a camera mounted gps unit.
Heights are above mean sea level.
Projection/Zone/Datum:
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4.0 DISCUSSION OF POTENTIAL IMPACTS

This section discusses the potential visual impacts of the ACP on the Monongahela and George Washington National Forests, the NPS-managed Blue Ridge Parkway and Appalachian National Scenic Trail, and the Seneca State Forest. Visual assessments are based on the visual analyses presented in Section 3.0.

4.1 GEORGE WASHINGTON NATIONAL FOREST AND BLUE RIDGE PARKWAY

4.1.1 USFS Scenic Integrity Objectives

Table 4-1 lists the KOPs in the GWNF for which visual analyses were conducted (see Section 3.0), as well as the SIO present and generally within the viewshed (the area visible to an observer at the KOP). All of the KOPs listed in Table 4-1 have a Concern Level of 1, meaning users are considered to have a high regard for scenery and they value the natural appearing landscape character. Figure 1-2 shows SIOs in the study area within the GWNF. Table 4-2 shows the length of ACP corridor centerline within the GWNF by SIO. Approximately 13.9 miles of the ACP corridor's 14.2 mile crossing of GWNF-owned land would be through areas with medium SIO. The remaining 0.1 mile would be through areas with High SIO (including less than 0.1 mile where there would be no aboveground evidence of the corridor, due to the HDD crossing of the BRP and ANST).

4.1.2 Visual Impacts of the ACP in the GWNF and from the BRP

This section discusses potential visual impacts in the GWNF. Section 4.1.3 discusses the measures that Atlantic will implement to mitigate these measures.

4.1.2.1 Discussion

The 21 KOPs for the GWNF presented in Table 2-1 were intended to be representative of a wide variety of publicly accessible views from USFS-owned land within the GWNF. As described in Section 2.3, only 7 of these 21 KOPs provided potential views of the ACP corridor. Views of the corridor may be available from other locations within GWNF boundaries (although not on USFS-owned land), such as public roads; however, topography and the screening effect of existing forests would greatly limit the number of such views (see Appendix A).

As shown in Figures 3-3 through 3-18, middleground and background views of the ACP corridor would be most likely to occur from the two BRP overlooks and gaps in vegetation along the Torry Ridge Trail. Potential views from the ANST as it crosses the summit of Bee Mountain (KOP 40) would be through existing vegetation. As demonstrated by Figures 3-15 through 3-18, the ACP corridor would be imperceptible from this location. No potential views of the ACP corridor would be available from this location during leaf-on conditions. No views would be available from the summit of Three Ridges Mountain (KOP 41) due to dense mature tree vegetation. Section 4.3 discusses the visual impacts from other locations along the ANST.

Post-construction the ACP corridor would be noticeable to casual observers at most of the modeled KOPs. The degree of contrast introduced by the project will vary by KOP, depending on the distance viewed, the extensiveness of the view and the scale of the right-of-way within that view, the angle of view, the aspect of view, and the terrain upon which the pipeline is located. For some KOPs that view a small area at a relatively close distance to the project area, the pipeline corridor would begin to dominate the characteristic landscape. For KOPs that have a relatively expansive view at a greater distance and with other alterations visible on the landscape, the project is not likely to dominate the characteristic landscape. .

The ACP corridor would be visible only from areas with open views of the potential right-of-way where it crosses forested areas. From the Torry Ridge Trail and BRP overlooks, these changes would take the form of a thin linear strip of open land in an otherwise forested area. Depending on the time of year a viewer would see this as a light green, tan, or brown stripe amid darker green (leaf-on) or gray-brown (leaf-off) forest, or a white stripe if snow cover were present.

TABLE 4-1

Summary of Scenic Integrity Objectives for KOPs

ID	Location	Scenic Integrity Objective in Viewshed
34	Torry Ridge Trail 1 (revised location, per Table 2-1)	High
35	Torry Ridge Trail 2 (revised location, per Table 2-1)	High
38	Blue Ridge Parkway: Ravens Roost Overlook	Moderate
39	Blue Ridge Parkway: Three Ridges Overlook	NA[1]
40	ANST: Bee Mountain, near Three Ridges Wilderness	Very High
64	Shenandoah Mountain Trail near MP 98.7	Moderate
65	Devil's Knob (Wintergreen Resort)—Contingency only	NA[1]

[1] Lands viewed from this KOP are not part of the GWNF, and are therefore not assigned a SIO.

TABLE 4-2

Scenic Integrity Objectives crossed by ACP in GWNF

Begin Milepost	End Milepost	Miles Crossed	Scenic Integrity Objective	Begin Milepost	End Milepost	Miles Crossed	Scenic Integrity Objective
83.9	86.7	3.9	Moderate	115.8	116.2	0.4	Moderate
86.8	86.9	0.1	Moderate	116.4	116.5	0.1	Moderate
93.7	94.3	0.7	Moderate	116.8	120.6	3.8	Moderate
96.1	96.3	0.4	Moderate	121.1	122.4	1.3	Moderate
96.5	96.6	0.2	Moderate	122.4	122.7	0.3	Moderate
96.9	97.5	0.8	Moderate	122.7	123.2	0.5	Moderate
99.3	99.7	0.5	Moderate	154.0	155.1	1.1	Moderate
105.9	106.0	0.1	Moderate	158.0	158.1	0.1	High[1]

1 The ACP corridor would cross this portion of the GWNF underground, as part of the HDD crossing of the Blue Ridge Parkway and ANST; as a result, there would be no aboveground evidence of the corridor in this location.

From the BRP Ravens Roost overlook (KOP 38), while the corridor would be visible within the forested area at the base of Torry Ridge (the ridge in the middle of Figure 3-6) and in areas further to the northwest, it would be one of several visible human-made features within the overall view, including roads and buildings. As such, the ACP corridor at KOP 38 would not be inconsistent with NPS management objectives for visual resources.

As viewed from KOP 38, a small portion of the pipeline corridor in the valley is on the GWNF. The pipeline right-of-way mimics the road corridor at the base of Torry Ridge, but will be wider. It will be more highly visible than the road as it sweeps to the north through a forested area where there are no other openings in the immediate vicinity. The length of the pipeline that would be visible is substantial. The contrast in color and line will attract the viewer's eye. The northwest portion of the pipeline closest to the KOP is less visible than the northern portion that is further away. This is due to the height and density of the trees in front of the right-of-way which hinder visibility from KP 38. As the right-of-way continues, turning northwest, the view from the KOP becomes axial, thereby increasing visibility of its width.

The corridor would be visible from the BRP Three Ridges overlook (KOP 39) approximately 0.75 to 1.0 mile from the viewer, in the middleground, as defined by the USFS (although the corridor in this location is not within the GWNF). With no additional vegetative plantings, the ACP corridor would be clearly visible from this location, to a greater degree than from the Ravens Roost overlook (KOP 38) or other KOPs. The corridor here would be a prominent landscape feature. With no mitigation, the ACP corridor at KOP 39 would likely be inconsistent with NPS management objectives for visual resources. Atlantic would plant additional shrubs along the right-of-way, as shown in Figure 3-14. These plantings would help to reduce the contrast between the right-of-way and surrounding areas, and would reduce the inconsistency with NPS management objectives.

Hikers along the southern end of the Shenandoah Mountain Trail would see the ACP corridor crossing in the immediate foreground and foreground, where the ACP crosses the trail. In this location, alteration of the landscape would include permanent replacement of existing forest with open land (typically grasses and low shrubs). This change in vegetation type would dominate the view, and would thus be inconsistent with SMS objectives in this location. As a result of ongoing consultations (see Section 2.1), GWNF concurred with Atlantic's conclusion (based on field surveys and review of aerial photography) that the viewing area for these changes would be relatively small—limited to the area immediately near each intersection of the corridor with an existing road or trail. Outside of this immediate viewing location, trees and terrain (as visible on publicly available aerial photography and topographic maps) would likely minimize or eliminate the ability to see the remainder of the ACP corridor, particularly during leaf-on conditions.

The Shenandoah Mountain Trail crossing is the only known case in the GWNF where the ACP corridor would be visible from USFS-owned land in the immediate foreground or foreground. To the degree that other similar crossings exist, the views and visual effects at such locations would be similar to those described for the Shenandoah Mountain Trail crossing. Middleground and background views and visual effects from other USFS-owned land would be similar in nature to those described above. The ACP pipeline route would have no aboveground facilities within the GWNF except for small, widely-spaced mainline valves.

4.1.2.2 Summary

Based on the discussion above, the relationship between the ACP and SIOs in the GWNF would be as follows:

- Views from Torry Ridge (KOPs 34 and 35) would be somewhat inconsistent with the High SIO assigned to the area of the Blue Ridge Mountains visible from the Torry Ridge KOPs. The changes in form, line, color, texture, and pattern associated with the ACP right-of-way would be somewhat evident (although by no means dominant) on the landscape.

- Views of the ACP corridor from the Ravens Roost overlook (KOP 38) would not be inconsistent with NPS management objectives for visual resources, since the corridor would be one amongst other human-made features on the landscape.

- Views of the ACP corridor from the Three Ridges overlook (KOP 39) would likely be inconsistent with NPS management objectives, given the proximity to the viewer, the axial nature of the view, and the corridor's contrast with the surrounding forest. To mitigate this effect, Atlantic has committed to planting shrubs and other low vegetation in the right-of-way, to reduce visual contrast (see Figure 3-13).

- Views of the ACP corridor from Bee Mountain on the ANST (KOP 40) would be imperceptible.

- Views from KOP 64, the Shenandoah Mountain Trail near MP 98.7, would be inconsistent with the Moderate SIO designation, because views of the right-of-way where it intersects the trail would not be "visually subordinate to" the surrounding landscape character. The extent of such inconsistency would be limited to within a few hundred feet of the intersection location, due to the presence of dense forest.

The majority of GWNF-owned land crossed by the ACP has a Moderate SIO, a designation where human activities may be visible but where natural landscapes should be dominant. The ACP would be consistent with this designation: the corridor would be visible, but would not dominate the view, except in the area immediately surrounding any ACP crossings of public roads or trails.

4.1.3 Mitigation of Visual Impacts in the GWNF

In addition to the site-specific plantings described above for Piney Mountain (visible from KOP 39), Atlantic is considering specific clearing and replanting actions within the GWNF. These mitigation measures are described below.

4.1.3.1 Feathering Vegetation Clearing on the Right-of-Way

At the request of the USFS, on Forest Service lands Atlantic is considering "feathering" the edges of the right-of-way during construction. Feathering the edges of the right-of-way refers to the selective clearing of trees and vegetation at specific locations along the edges of the right-of-way such that existing vegetation, including fully grown trees, are left up to 10 feet within the boundaries of the construction right-of-way to create a visually uneven edge along both sides of the right-of-way. When viewed axially or along the length of the right-of-way at these locations, there are no parallel, straight edges and the cleared right-of-way appears more natural. Atlantic is considering applying this process within long straight line tangents of pipeline corridor where immediate foreground and foreground views (i.e., from trail or road crossings) and middleground and background views (i.e., from highways) of the pipeline corridor would be visible from publicly accessible locations.

If implemented, vegetation that is left standing within the edges of the construction right-of-way would extend 5 to 10 feet into the right-of-way, and would occur periodically along both edges of the right-of way in the selected areas. These areas would be identified and mapped by Atlantic on drawings, and the trees to be left standing would be flagged in the field and reviewed with the Forest Service prior to construction.

4.1.3.2 Replanting the Right-of-Way

Atlantic will replant the entire construction right-of-way with seed mixes that it has selected in consultation with the Forest. These seed mixes consists of a selection of warm season native grasses, some select cool season grasses in steep slope areas, and various native flowering forbs/pollinator species. Where it crosses U.S. Forest Service land, the temporary construction right-of-way will have a nominal width of 125 feet, including the 50-foot-wide permanent right-of-way that is centered on the installed pipeline.

To potentially reduce the visual contrast of the cleared construction right-of-way on Forest Service lands, Atlantic is also considering active replanting of the outer most 20 feet of the working side of the construction right-of-way and the remaining outer 15 feet of the spoil side of the construction right-of-way, including all additional temporary extra workspace areas, with a combination of indigenous tree and shrub seedlings. If replanting is conducted, tree and shrub species, seed stocks, and planting densities used within these areas would be selected based on availability within the project area, as well as consultations with Forest Service staff. Atlantic would monitor the planted areas for successful growth of the seedlings, but would not plan to actively maintain or manage the planted areas, which would allow natural revegetation from surrounding forest species and sprouting of stumps to occur and supplement the growing seedlings.

Additionally, in the area between the edge of the 50-foot-wide permanent right-of-way and the replanted area described above (about 40 feet on the working side of the construction right-of-way), Atlantic will allow the natural regrowth and succession of trees and shrubs following the initial planting of grasses and forbs after construction. During operation of the ACP pipeline, only the 50-foot-wide permanent right-of-way will be periodically mowed and maintained in an herbaceous state.

4.2 MONONGAHELA NATIONAL FOREST

This section discusses potential visual impacts in the GWNF. Section 4.2.3 discusses the measures that Atlantic is considering to mitigate these measures.

4.2.1 USFS Scenic Classes

The ten KOPs for the MNF in Table 2-1 were intended to be representative of a wide variety of publicly accessible views within the forest; however, field surveys (see Section 2.2) determined that none of these KOPs offered potential views of the ACP corridor, due to existing vegetation. Figure 1-4 shows Scenic Classes in the study area within the MNF,[5] while Table 4-3 shows the length of the ACP corridor centerline within USFS-owned portions of the MNF by Scenic Class. Of the approximately 6.9 miles of USFS-owned land crossed by the ACP in the MNF, approximately 5.8 miles would be through areas with high scenic value, another 1.1 miles would be through areas with medium-high scenic value, and less than 0.1 mile would be through an area with medium scenic value.

TABLE 4-3

Summary of Scenic Classes crossed by ACP in MNF

Begin Milepost	End Milepost	Miles Crossed	Scenic Class[1]
71.2	71.5	0.6	2
73.1	73.6	0.9	2
80.4	80.6	0.3	2
80.6	80.6	0.1	3
80.7	80.9	0.3	2
81.2	81.3	0.1	2
81.3	81.4	0.1	3
81.4	81.4	0.1	2
81.4	81.8	0.6	3
81.8	83.2	2.6	2
83.2	83.3	0.2	3
83.3	83.6	0.5	2
83.6	83.7	0.1	3
83.7	83.9	0.4	2
83.9	83.9	<0.1	4

[1] Scenic classes correspond to the following general definitions:
2 "high" scenic value.
3 "medium-high" scenic value.
4 "medium" scenic value.

4.2.2 Visual Impacts of the ACP in the MNF

Views of the ACP corridor may be available from USFS-owned land within the MNF, aside from the KOPs identified in Table 2-1. Middleground and background views of the ACP

[5] Mapping provided by USFS includes Scenic Class designations for the entire MNF, including USFS-owned land and private land not owned or managed by USFS.

corridor would be particularly sporadic in the MNF due to screening from existing forest. To the degree that such views exist, visual effects in such locations would be similar in nature to those described for the KOPs in the GWNF.

Views of the ACP corridor within the MNF would be most likely to occur where the corridor crosses or is collocated with a public road or trail in forested areas (although few such instances appear to exist on USFS-owned land). In such cases, alteration of the landscape would occur in the immediate foreground and foreground, where existing forest would be permanently replaced with open land (typically grasses and low shrubs), which would become narrower as regrowth occurs along the temporary right-of-way. The change in vegetation type would dominate the view, particularly where viewers are able to look down the axis of the ACP corridor. The viewing area for these changes would be relatively small—limited to the area immediately near each intersection of the corridor with an existing road or trail. Outside of this immediate viewing location, trees and terrain would likely minimize or eliminate the ability to see the ACP corridor, particularly during leaf-on conditions. The ACP pipeline route would have no aboveground facilities within the MNF except for small, widely-spaced mainline valves.

As discussed in Section 4.2.1, a portion of the ACP corridor would cross areas of the MNF with high Scenic Class designations. For purposes of analysis, this VIA assumes that a high or very high Scenic Class designation carries the same management intent as a High SIO designation: changes in landscape character associated with the ACP or other human activities are intended to be imperceptible.

In locations where the ACP crosses areas with high Scenic Class designations on MNF lands, the ACP would be inconsistent with MNF scenery management goals. In such locations, the removal of forest along the corridor would be clearly visible for observers at that location. That finding notwithstanding, public opportunities to view the ACP corridor from or on USFS-owned land within the MNF are limited. No such locations were identified through this process.

4.2.3 Mitigation of Visual Impacts in the MNF

In addition to the site-specific plantings described above for Piney Mountain (visible from KOP 39), Atlantic is considering specific clearing and replanting actions to mitigate the Project's visual impacts in the MNF. These potential mitigation measures are the same as those described for the GWNF in Section 4.1.3.

4.3 VISUAL IMPACTS OF THE ACP CONTINGENCY PLAN

Under the HDD Contingency Plan, the ACP corridor would cross the BRP and ANST via a shorter, shallower tunnel. The right-of-way on the ground surface above this tunnel, including the crossing of the BRP and ANST, would not be disturbed or affected. Views of the corridor from other segments of the BRP and ANST would be similar to those under the Proposed Action, except that the extent of the cleared corridor on either side of the Blue Ridge would appear to be slightly longer.

As shown in the simulations in Figures 3-19 through 3-23, the contingency crossing area corridor would be visible from KOPs to the west of the crossing (i.e., Torry Ridge), but not from

KOPs to the east of the crossing. Comparing Proposed Action and contingency plan simulations from KOP 34 (Torrey Ridge) and KOP 40 (Bee Mountain) shows that the incremental difference in disturbed area during operations between Proposed Action and contingency plan is minimal. As with the proposed action, views of the ACP contingency corridor from KOP 40 would be minimal and only available during leaf-off conditions. Viewers on the ANST and BRP would not experience any changes in scenery conditions at the ACP crossing under either scenario. As a result, the visual impacts of the contingency plan would be essentially the same as the visual impacts of the proposed action.

4.4 APPALACHIAN NATIONAL SCENIC TRAIL AND SENECA STATE FOREST

4.4.1 National Park Service Visual Impact Considerations

As described in Section 1.3, there are no NPS management designations or visual impact guidance specific to the ANST. The ACP would drill under a segment of the ANST (approximately at MP 158.1) on GWNF land with a High SIO designation. (This crossing is adjacent to a segment of the BRP that is within the Scenic Character management zone, a designation whose objectives are generally consistent with High to Medium SIO). KOPs ANST 05, 06, and 07 are also on GWNF land with a High SIO designation, while KOPs ANST 02, 03, and 04 are near GWNF lands with High SIO designations. KOPs ANST 08a and 08b are part of the BRP; the management objectives for these locations are the same as for KOP 39 (the BRP's Scenic Character management designation), as discussed in Section 4.1.2.

Figure 1-4 shows Scenic Classes in the study area within the MNF, including for the SSF, which is within the MNF Proclamation Boundary, but is not owned by the USFS. Table 4-4 shows the length of the ACP corridor centerline within the SSF by Scenic Class. Of the approximately 3.3 miles of the SSF crossed by ACP, approximately 2.3 miles would be through areas with very high or high scenic value, another 0.4 mile would be through areas with medium or medium-high scenic value, and approximately 0.6 mile would be through areas with medium-low or very low scenic value.

Another 1.4 mile of the centerline would cross areas near, but not within SSF, which are visible from the KOPs listed in Section 3.5. These segments would cross approximately 3.4 miles of land with high or very high scenic value, 0.5 mile of land with medium-high or medium scenic value, 0.1 mile of land with medium-low scenic value, and 0.7 mile of very low scenic value.

4.4.2 Visual Impacts of the ACP on the ANST

4.4.2.1 Discussion of Impacts

The nine KOPs (including KOP 8a and 8b) for the ANST were identified by the ATC and NPS, and are intended to be representative of a wide variety of publicly accessible views from the ANST. As listed in Table 2-2, there is no view of the ACP from KOP ANST 01 (Afton Mountain), due to intervening topography and direction of view.

As shown in Figures 3-24 through 3-32, the corridor would be barely perceptible from KOPs ANST 02, 03, and 04, and would generally be visible from middleground distances (up to four miles away, as defined by the USFS) As shown in Figures 3-24 through 3-32, due to existing vegetation patterns, the corridor's contrast in color and line would be difficult to distinguish from, would be generally consistent with the surrounding landscape—which includes roads, buildings, and cleared agricultural lands—and would not meaningfully affect the character of the existing landscape. Some views of the corridor may only be present during leaf-off conditions. As such, the corridor would not be inconsistent with nearby High SIO designations.

TABLE 4-4

Summary of Scenic Classes crossed by ACP in SSF[1]

Begin Milepost	End Milepost	Miles Crossed	Scenic Class[2]
76.6	76.9	0.3 [3]	1 and 2
76.9	77.0	0.1	1 and 2
77.0	77.1	0.1	3
77.1	77.2	0.1	5
77.2	77.3	0.1	7
77.3	77.4	0.1	3 and 4
77.4	78.7	1.3	2
78.7	78.8	0.1	3
78.8	79.2	0.4	7
79.2	79.4	0.2 [3]	7
79.4	79.5	0.1	3
79.5	80.4	0.9	2
80.4	80.6	0.2 [3]	2
80.6	80.7	0.1 [3]	3
80.7	81.3	0.6 [3]	2

[1] MNF has identified Scenic Classes for all areas within its Proclamation Boundary. While the SSF is within the MNF Proclamation Boundary, it is not owned by USFS.

[2] Scenic classes correspond to the following general definitions:

1 "very high" scenic value
2 "high" scenic value.
3 "medium-high" scenic value.
4 "medium" scenic value
5 "medium-low" scenic value
7 "very low" scenic value

[3] Segment is not within SSF, but may be visible from one or more KOP.

The ACP corridor would be clearly visible from KOPs ANST 05 (Cedar Cliffs) and ANST 06 (Little Ravens Roost). As shown in Figures 3-33 through 3-38, views from these locations would be similar to but closer to the corridor than the views described for KOP 38 (BRP Ravens Roost Overlook—see Section 4.1.2 and Figure 3-6). The corridor would be visible within the forested area at the base of Torry Ridge (the ridge in the middle of the Figures), approximately 0.6 mile from the viewer at the closest location, within the middleground, as defined by the USFS.

KOPs ANST 05 and 06 are on land with High SIO designation, although the corridor is not on USFS land. In such instances, the KOPs are considered to be located on Concern Level 1

National Scenic Trail. From these locations, the corridor would be clearly visible, and would be a prominent new feature within the view, although trees along the southeast side of the corridor, closer to KOP would obscure views of this portion of the corridor. Although the corridor is as close as 0.65 mile from KOP ANST 06, this closest segment would be viewed from a perpendicular angle. The closest axial view would be near MP 154, approximately 1.0 mile from KOP ANST 05 and 1.3 miles from KOP ANST 06. On its own, the corridor would be inconsistent with the High SIO designation's intent of preserving apparently "intact" landscapes; however, the landscapes in question are not on USFS-owned land, and are already affected by human activity, including linear features such as roads, as well as buildings and cleared agricultural areas. Within this context, the ACP corridor would not be inconsistent with USFS management intent, particularly as vegetation and trees regrow over time in the temporary right-of-way, reducing the scale of the corridor.

As shown in Figures 3-39 through 3-41, the ACP corridor at KOP ANST 07 would be only slightly visible through scattered vegetation in leaf-off-conditions, but likely would not be visible during leaf-on conditions. To the degree that it is visible (approximately 0.5 mile from the viewer, within the middleground, as defined by the USFS), the corridor would be similar in appearance to, but less prominent than the cleared corridor created by Mount Torrey Road, just above the corridor in the Figures. As a result of this limited contrast, the corridor in this location would not be inconsistent with the High SIO designation.

The ACP corridor would be clearly visible from KOPs ANST 8a and 8b (Figures 3-42 through 3-49), at the BRP Three Ridges Overlook, where the ANST crosses the BRP. Views here would be similar to those described for KOP 39 (see Section 4.1.2): the corridor would be visible approximately 0.75 to 1.0 mile from the viewer, in the middleground, as defined by the USFS. Viewers at the Three Ridges Overlook would have an axial view along the corridor, approximately at eye level, at the crest of a ridge. As a result, with no additional vegetative plantings, the ACP corridor would be clearly visible from this location, and would have a more distinct contrast with the surrounding landscape than is the case at other KOPs on the ANST. For example, KOP ANST 05 also offers a clear axial view of the corridor approximately 1.0 mile away; however, the corridor at that location would be within a larger and more complex vegetated and forested landscape, and would not be visible on the horizon.

With no mitigation, the ACP corridor at KOP 39 would likely be inconsistent with NPS management objectives for visual resources. Atlantic would plant additional shrubs along the right-of-way, as shown in Figure, 3-14. These plantings would help to reduce the contrast between the right-of-way and surrounding areas, and would reduce—but not eliminate—the inconsistency with NPS management objectives.

4.4.2.2 Mitigation of Impacts

The site-specific plantings described in Section 4.1.3 for Piney Mountain (visible from KOP 39), will mitigate impacts on views from KOP ANST 08a and 08b. In addition, Atlantic will actively replant the entire construction right-of-way visible from KOPs 38 (Ravens Roost), ANST 05 (Cedar Cliffs) and ANST 06 (Little Ravens Roost) with a combination of indigenous tree and shrub seedlings, leaving a 50-foot-wide permanent right-of-way, centered on the installed pipeline (compared to a nominal 75-foot-wide permanent right-of-way along the

remainder of the corridor). Figures 4-1 and 4-2 show the full simulation images for KOP 38 with a 50-foot-wide permanent right-of-way, instead of the 75-foot-wide right of way shown in the simulation images in Section 3. This image is representative of the visual mitigation effects from ANST viewpoints effects resulting from a 50-foot-wide permanent right-of-way.

Figure 4-1: Full Simulation, KOP 38, Regrowth 5 Years after Construction, 50-foot-wide Permanent Right-of-Way

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Existing View**

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Proposed View 50' Permanent ROW (5 Year Tree Growth)**

Atlantic Coast Pipeline

Viewpoint KOP38

Raven's Roost,
Blue Ridge Parkway Overlook

Viewpoint Location Existing Right-of-Way

NOTE: The above pipeline ROW alignment has been exaggerated in width for visual purposes only and does not represent the exact width of the pipeline ROW.

Easting Position (UTM - Zone 17):	2230689.4
Northing Position (UTM - Zone 17):	1378097.2
Elevation of Photopoint Position (NAVD88):	3888
Height of Camera Above Ground (ft):	5.4
Date of Photography:	6 November 2015 at 02:55 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	55°

NOTES:
Viewpoint locations have been surveyed by:

G Engineering Sciences,
P.O. Box 1600, Bluefield, WV 24701

Heights are above mean sea level
Projection Zone/Datum:
UTM ZONE 17, NAD83
No part of this photosimulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

Photo Simulation Created Using
TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Figure 4-2: Full Simulation, KOP 38, Regrowth 15-20 Years after Construction, 50-foot-wide Permanent Right-of-Way

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Existing View**

KOP38 - Raven's Roost, Blue Ridge Parkway Overlook, Looking Northwest - **Proposed View 50' Permanent ROW (15/20 Year Tree Growth)**

Atlantic Coast Pipeline℠

Viewpoint KOP38

Raven's Roost,
Blue Ridge Parkway Overlook

Viewpoint Location | Pipeline Right-of-Way

Easting Position (UTM - Zone 17):	2230689.4
Northing Position (UTM - Zone 17):	1378097.2
Elevation of Photopoint Position (NAVD88):	3188.8
Height of Camera Above Ground (ft):	5.4
Date of Photography:	6 November 2015 at 02:55 PM
Orientation of View:	NW
Horizontal Field of View:	124°
Vertical Field of View:	66°

NOTES:
Viewpoint locations have been surveyed by:

8 Engineering Sciences
P.O. Box 1608 Bluefield, WV 24701

Heights are above mean sea level
Projection/Zone/Datum:
UTM ZONE 17, NAD83
No part of this photosimulation shall be altered in any way.

Visual assessments should be made from the full size TrueView™ only.

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Tree and shrub species and planting densities used within these areas would be selected based on availability within the project area, as well as consultations with Forest Service staff. Atlantic would monitor the planted areas for successful growth of the seedlings, but would not plan to actively maintain or manage the planted areas, which would allow natural revegetation from surrounding forest species and sprouting of stumps to occur and supplement the growing seedlings. During operation of the ACP pipeline, only the 50-foot-wide permanent right-of-way will be periodically mowed and maintained in an herbaceous state.

4.4.3 Visual Impacts of the ACP in SSF

The eight KOPs for the SSF were identified by the NPS, and are intended to be representative of a wide variety of publicly accessible views from the ANST.

As listed in Table 2-2, there is no view of the ACP from KOP SSF 03, due to intervening topography and vegetation. As shown in Figures 3-53, 3-54, and 3-61, views of the corridor from KOPs SSF 02, 04, and 07 (respectively) are effectively blocked by intervening vegetation. The ACP would have no visual impact in these locations.

Observers at from KOP SSF 01 would have a relatively clear view of the corridor as it climbs from the Greenbrier River toward the SSF. Because this KOP is not within, and does not have a meaningful view of the SSF or other federal or state lands, visual resources management considerations are not applicable here.

Among the SSF viewpoints, the clearest views of the ACP corridor would be from KOP SSF 05 (Figures 3-55 through 3-57), along the Allegheny Trail. As described in Section 3.5.4, the trail in this location would be relocated; nonetheless, the simulations in the Figures are consistent with what a viewer might see at the nearest Allegheny Trail crossing: alteration of the landscape would occur in the immediate foreground and foreground, where existing forest would be permanently replaced with a linear stretch of open land (typically grasses and low shrubs), which would become narrower as regrowth occurs along the temporary right-of-way. The change in vegetation type would dominate the view, particularly where viewers are able to look down the axis of the ACP corridor. The viewing area for these changes would be relatively small—limited to the area immediately near each intersection of the corridor with an existing road or trail. Outside of this immediate viewing location, trees and terrain would likely minimize or eliminate the ability to see the ACP corridor, particularly during leaf-on conditions.

MNF has identified the area around KOP ANST 05 as being in Scenic Class 2, equivalent to “high” scenic value. The ACP corridor at the trail crossing would be generally inconsistent with this designation, although this inconsistency would apply to a limited area as described above.

As shown in Figures 3-58 through 3-60 (KOP SSF 06) and Figures 3-62 through 3-64 (KOP SSF 08), views of corridor crossings of roadways would be minimally distinguishable, even at relatively close range. At the crossing itself, observers would have axial views along the corridor, where alteration of the landscape (replacement of trees with low vegetation) would be dominant, even after trees and other vegetation reclaim the temporary right-of-way. The viewing area for these changes would be relatively small—limited to the area immediately near each

intersection of the corridor with an existing road or trail. Outside of this immediate viewing location, trees and terrain would likely minimize or eliminate the ability to see the ACP corridor, particularly during leaf-on conditions.

The visual mitigation measures described in Section 4.2.3, including feathering of right-of-way edges and replanting, will also help to reduce contrast between the right-of-way and surrounding areas for all SSF KOPs.

5.0 REFERENCES

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