

**STAGE I PRE-APPLICATION ANALYSIS  
FOR THE PROPOSED DOMINION  
ENERGY VIRGINIA REBUILD OF LINE 224  
230 kV TRANSMISSION LINE,  
PAMUNKEY RIVER CROSSING, KING  
WILLIAM AND NEW KENT COUNTIES,  
VIRGINIA**

**VDHR File No. TBD**



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## Executive Summary

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion) to conduct a Stage I Pre-Application Analysis for the proposed rebuilding of Line #224 at the crossing of the Pamunkey River (Rebuild Project) in King William and New Kent Counties, Virginia. In order to maintain the structural integrity and reliability of its transmission system and perform needed maintenance on its existing facilities, Dominion proposes to rebuild, pending final approval by the State Corporation Commission (SCC), entirely within existing right-of-way, approximately 1.7 miles of existing double circuit 230 kV transmission line approximately 6.5 miles west, northwest of West Point. Dominion proposes to remove and replace nine existing transmission support structures, of varying type, associated foundations and overhead conductor wire as part of the Rebuild Project. Severe concrete and steel deterioration has reduced the structural capacity of these foundations, jeopardizing the reliability of Line #224.

Summary of Structures for the Proposed Rebuild Project				
Structure No.	Height (FT) Existing	Height (FT) Proposed	Approximate Change in Height (FT)	Existing/Proposed Structure Type
224/226	67	61	-6	Wood H-Frame/ Steel 3-Pole
224/227	72	107	35	Wood 3-Pole/ Galvanized Lattice
224/228	190	196	6	Corten Lattice/ Galvanized Lattice
224/229	189	196	7	Corten Lattice/ Galvanized Lattice
224/230	157	166	9	Corten Lattice/ Galvanized Lattice
224/231	157	166	9	Corten Lattice/ Galvanized Lattice
224/232	157	166	9	Corten Lattice/ Galvanized Lattice
224/233	137	137	0	Corten Lattice/ Galvanized Lattice
224/234	71	66	-5	Wood H-Frame/ Steel 3-Pole

Note: Existing and proposed structure heights include foundation reveal. This information is preliminary and subject to final engineering.

Background research for the Stage I Pre-Application Analysis was conducted in November 2017 by Stantec staff. The preliminary background research and a field study was conducted pursuant to the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (Virginia Department of Historic Resources [VDHR] 2008) for proposed transmission line improvements. As detailed by VDHR guidance, consideration was given to National Historic Landmark (NHL) properties located within a 1.5-mile radius of the project centerline; National Register of Historic Places (NRHP)-listed properties, Battlefields, and Historic Landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW. Two previously identified architectural



resources and one previously recorded archaeological resource were identified for inclusion in the Stage I analysis, as described in the tables below.

## Recommendations

### Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile buffer and no NRHP-listed resources or battlefields are located in the 1.0-mile buffer. Two NRHP-listed resources, Sweet Hall (VDHR #050-0067) and Ruffin's Ferry (VDHR #050-0070), were identified in the 0.5-mile buffer of the project centerline. Additionally, the Captain John Smith Chesapeake National Historic Trail crosses the ROW at the Pamunkey River; however, the nationally designated trail has not been evaluated by VDHR for NRHP eligibility. As this study was completed prior to filing an SCC application, all digital images were taken from public ROW and/or Dominion property easements.

**Based on preliminary structure heights, the proposed Rebuild Project would increase in height of the structures approximately 6 to 35 (maximum) feet for the lattice structures and decrease 5 to 6 feet in height for 3-pole structures. Based on the analysis, it is recommended that the rebuild would have a Minimal Visual Impact on Ruffin's Ferry/Windsor Shade (VDHR #050-0070), and the Captain John Smith Chesapeake National Historic Trail. It is recommended that the proposed rebuild would have a Moderate Visual Impact to Sweet Hall (VDHR #050-0067). The latter due to the 35-foot increase of Structure #224/227. Photo simulations of the potential impacts to Sweet Hall and Ruffin's Ferry have been included in Appendix C to more clearly depict the potential degree of visual impact from the proposed line on the resource.**

Previously Recorded Architectural Resources Considered within the Stage I Pre-Application Process				
VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact
050-0067	Sweet Hall, Route 634	NRHP-Listed 1977	0	Moderate
050-0070	Ruffin's Ferry/Windsor Shade, 1685 Sweet Hall Road	NRHP-Listed 1978	0	Minimal
N/A	Captain John Smith Chesapeake National Historic Trail	Not Evaluated within APE	0	Minimal

### Archaeological Resources

One archaeological resource was identified during the background research. Site 44NK0248, a Woodland lithic scatter, was determined potentially eligible for listing on the NRHP in 2008. Although the site is not identified as being located within the transmission line ROW it is immediately adjacent and may extend into the ROW. **It is recommended, therefore, that the archaeological**

site be avoided during construction or investigated and evaluated as appropriate during future investigations.

Previously Recorded Archaeological Resources Located adjacent to the Project Limits				
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (FT)	Recommendation
44NK0248	Woodland	Determined Potentially Eligible by VDHR in 2008	0	Avoid During Construction or Investigate During Archaeological Survey

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## Abbreviations

kV	Kilovolt
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
ROW	Right-of-Way
SCC	State Corporation Commission
Stantec	Stantec Consulting Services, Inc.
USDI	United States Department of the Interior
V-CRIS	Virginia Cultural Resources Information System
VLR	Virginia Landmarks Register
VDHR	Virginia Department of Historic Resources

## 1.0 INTRODUCTION

### 1.1 OVERVIEW

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion) to conduct a Stage I Pre-Application Analysis for the proposed rebuilding of Line #224 at the crossing of the Pamunkey River (Rebuild Project) in King William and New Kent Counties, Virginia. In order to maintain the structural integrity and reliability of its transmission system and perform needed maintenance on its existing facilities, Dominion proposes to rebuild, pending final approval by the State Corporation Commission (SCC), entirely within existing right-of-way, approximately 1.7 miles of existing double circuit 230 kV transmission line approximately 6.5 miles west, northwest of West Point. Dominion proposes to remove and replace nine existing transmission support structures and associated foundations, including H-frame, 3-Pole and Corten lattice towers. Based upon preliminary engineering, in most cases, the proposed structures will be taller than the existing structures, as described in Table 1. Severe concrete and steel deterioration has reduced the structural capacity of these foundations, jeopardizing the reliability of Line #224. Additionally, the existing overhead single 1109 ACAR conductor is proposed to be replaced with new bundled 768 ACSS conductor.

Table 1. Summary of Structures for the Proposed Rebuild Project				
Structure No.	Height (FT) Existing	Height (FT) Proposed	Approximate Change in Height (FT)	Existing/Proposed Structure Type
224/226	67	61	-6	Wood H-Frame/ Steel 3-Pole
224/227	72	107	35	Wood 3-Pole/ Galvanized Lattice
224/228	190	196	6	Corten Lattice/ Galvanized Lattice
224/229	189	196	7	Corten Lattice/ Galvanized Lattice
224/230	157	166	9	Corten Lattice/ Galvanized Lattice
224/231	157	166	9	Corten Lattice/ Galvanized Lattice
224/232	157	166	9	Corten Lattice/ Galvanized Lattice
224/233	137	137	0	Corten Lattice/ Galvanized Lattice
224/234	71	66	-5	Wood H-Frame/ Steel 3-Pole

Note: Existing and proposed structure heights include foundation reveal. This information is preliminary and subject to final engineering.

### 1.2 STAGE I PRE-APPLICATION ANALYSIS

The *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) were developed by

the VDHR to assist the SCC and their applicants to address and minimize potential impacts to historic resources associated with the construction of large-scale transmission lines and associated facilities. In consideration to the general project design, as described above, and other elements associated with the proposed undertaking, including current ROW conditions within the proposed project area, Stantec designed the present study to identify all previously recorded architectural and archaeological resources requiring inclusion in a formal Stage I Pre-Application Analysis, as defined by the 2008 *Guidelines*.

As detailed by VDHR guidance, consideration was given to NHL properties located within a 1.5-mile radius of the project centerline; NRHP-listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW. No NHL-listed architectural resources are located within the 1.5-mile buffer and no NRHP-listed resources or battlefields were located in the 1.0-mile buffer. Two NRHP-listed resources, Sweet Hall (VDHR #050-0067) and Ruffin's Ferry/Windsor Shade (VDHR #050-0070), were identified in the 0.5-mile buffer of the project centerline. The boundaries of these resources are also within or immediately adjacent to the ROW. Pursuant to VDHR guidelines, this document includes a line-of-sight analysis to address potential views from the two resources in the vicinity of the proposed improvements; Sweet Hall (VDHR #050-0067) and Ruffin's Ferry/Windsor Shade (VDHR #050-0070). Additionally, The Captain John Smith Chesapeake National Historic Trail crosses the ROW at the Pamunkey River; however, the nationally designated trail has not been evaluated by VDHR for NRHP eligibility. As this study was completed prior to filing an SCC application, the digital images during the initial fieldwork for the view shed analysis were taken from public ROW and/or Dominion property easements. Access to the properties was granted by the owner for the photosimulations.

This Stage I Pre-Application Analysis project was directed by Senior Principal Investigator Ellen Brady and co-authored by Senior Architectural Historian Sandra DeChard. Architectural Technician Jody Kutzler conducted the fieldwork under the supervision and direction of Sandra DeChard. GIS Coordinator Melissa Sanderson prepared the report graphics and project maps.





Figure No.

1

Title

## Project Location Map

Client/Project  
 Dominion Energy Virginia  
 Line #224 Partial Rebuild Projects  
 Pamunkey River Rebuild

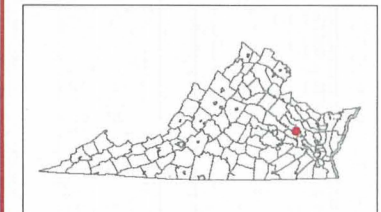
Project Location  
 King William and  
 New Kent Counties, Virginia

203400940  
 Prepared by MGS on 2018-01-08  
 Technical Review by TFS on 2018-01-24  
 Independent Review by JBJ on 2018-01-24

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 1:24,000 (A1 original document size of 11x17)

### Legend

- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Existing Structure Location
- Right-of-Way



### Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
3. Orthomageary © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



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## 2.0 BACKGROUND RESEARCH

As part of the Stage I Pre-Application Analysis effort, VDHR guidance recommends a four-tier study area strategy to be considered for each alternative alignment for the proposed undertaking (Table 2).

Table 2. Study Areas as Defined by VDHR Guidelines for Transmission Lines	
Radial Buffer (in miles)	Considered Resources
1.5	National Historic Landmarks
1.0	Above resources and: National Register Properties (listed), Battlefields, Historic Landscapes (e.g. Rural HD)
0.5	Above resources and: National Register-eligible (as determined by VDHR)
0.0 (Within ROW)	Above resources and Archaeological Sites

The background research included a review of the VDHR archives and of data collected from the VDHR's Virginia Cultural Resource Information System (V-CRIS) database using the most current data as provided by the VDHR. The VDHR files of archaeological sites and historic structures were examined and information was retrieved on all archaeological sites located up to a 0.5-mile radius of the project area and all previously recorded architectural resources up to a 1.5-mile radius of the project centerline. ESRI ArcGIS Online aerial photography of current conditions was examined for the entire study area. Photographs of each of the architectural resources under consideration, if visible, as well as their view sheds, were taken from the public ROW.

## 2.1 RESULTS OF THE BACKGROUND RESEARCH

### 2.1.1 Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile buffer and no NRHP-listed resources or battlefields are located within the 1.0-mile buffer. Two NRHP-listed resources, Sweet Hall (VDHR #050-0067) and Ruffin's Ferry (VDHR #050-0070), were identified in the 0.5-mile buffer of the project centerline. Both resources intersect or are immediately adjacent to the existing transmission line ROW. Additionally, the Captain John Smith Chesapeake National Historic Trail crosses the ROW at the Pamunkey River; however, the nationally designated trail has not been evaluated by VDHR for NRHP eligibility (Appendix B; Table 3).

Table 3. Previously Recorded Architectural Resources Considered within the Stage I Pre-Application			
VDHR ID	Resource Name	VDHR/NRHP Status	Distance to Line (feet)
050-0067	Sweet Hall, Route 634	NRHP-Listed 1977	0
050-0070	Ruffin's Ferry/Windsor Shade, 1685 Sweet Hall Road	NRHP-Listed 1978	0
N/A	Captain John Smith Chesapeake National Historic Trail	Not Evaluated within APE	0

### 2.1.2 Archaeological Resources

One archaeological resource was identified during the background research. Site 44NK0248, a Woodland lithic scatter, was determined potentially eligible for listing on the NRHP in 2008 (Appendix D; Table 4). Although the site is not identified as being located within the transmission line ROW, it is immediately adjacent and may extend into the ROW. A visual effects evaluation is not required for archaeological resources for this study.

Table 4. Previously Recorded Archaeological Resources Located within the ROW			
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)
44NK0248	Woodland	Determined Potentially Eligible by VDHR in 2008	0

### **3.0 STAGE I PRE-APPLICATION ANALYSIS RESULTS**

#### **3.1 VISUAL EFFECTS METHODOLOGY**

Fieldwork for the proposed transmission line project, under the direction of the Stantec's Senior Architectural Historian Sandra DeChard, was undertaken by Architectural Technician Jody Kutzler on November 13 and 17, 2017. The fieldwork for the assessment entailed photographing the resources requiring view shed analysis according to the Stage I Pre-Application review process and examined the potential views from the resources towards the proposed transmission line improvements. As the fieldwork was conducted prior to a formal SCC application submittal, all photographs were taken from public ROW locations with aerial photography utilized to supplement the analysis of project visibility and potential visual effects. To further assess the potential visual impacts to Sweet Hall and Ruffin's Ferry, photosimulations of the proposed structures from the two resources were also prepared (Appendix C). As the proposed line is a rebuild of existing transmission lines and the proposed new lines will be located within the current alignment, the existing lines were utilized to assist with the assessment of potential visual effects.

A detailed view shed was modeled for the existing and proposed structures. This analysis required the creation of two datasets, a digital elevation model (DEM) which provided base ground elevations, and a digital surface model (DSM) which provided overall elevations for features on the terrain, such as trees and buildings. Using the existing structure heights and preliminary proposed structure heights provided by Dominion, two view shed analyses were run using these datasets to estimate where the existing and proposed towers are or will be visible in the landscape surrounding the river crossing. The visibility is illustrated by three color shadings, orange where both existing and proposed structures are/will be visible, red where the existing towers are visible but the proposed will not be, and blue where the existing are not visible but the proposed will be (see Figure 18).

Additionally, a line-of-sight analysis was conducted for each proposed structure from designated points to evaluate visibility. The analysis uses the same DEM and DSM datasets and illustrates the extent of the height of current vegetation, which potentially obstructs, or does not obstruct, the view from the resource. The black dot is the point at which the analysis was undertaken utilizing that location's elevation above mean sea level (amsl). The blue dot is the point where an object, typically a tree, is tall enough to obstruct the view of the transmission structure. The green dots indicate visibility of the proposed structures from the resource, while the red dots indicate towers which are not expected to be visible from the resource (see Figures 15-17).

#### **3.2 INDIVIDUAL ARCHITECTURAL RESOURCES CONSIDERED**

Two individual resources; Sweet Hall (VDHR #050-0067) and Ruffin's Ferry/Windsor Shade (VDHR #050-0070) were located within the 0.5-miles of the ROW and were therefore considered for visual effects per VDHR guidelines. The resources are further described below along with a discussion and recommendation of potential effects as a result of the project.

### 3.2.1 Sweet Hall (VDHR #050-0067)

Sweet Hall is a one-and-a-half-story, five-bay, Georgian-style dwelling constructed c. 1720 (Figure 2). The T-shaped residence is constructed of brick laid in a Flemish bond pattern on the front façade and an English bond pattern on the remaining elevations. In the nineteenth century, the exterior was covered in stucco. The house, at the time of its listing on the NRHP in 1977, featured nine-over-nine wood double-hung sash windows dating from the late eighteenth and early nineteenth century. The dwelling also featured a modillioned cornice, Greek Revival dormers projecting from the front roof slope, and interior end brick chimneys as well as an exterior brick chimney off the gable end of the ell. The dwelling was listed on the NRHP in 1977 for its significance in architecture (VDHR Site Form; NPS 1977).



Figure 2. View of Sweet Hall (VDHR #050-0067), Looking South.

#### 3.2.1.1 Visual Effect Assessment

The property of Sweet Hall is located within the 0.5-mile buffer and crosses the existing transmission line ROW (Appendix B). The house, at its closest point, is approximately 560 feet to the northeast from the existing lattice tower (Structure #224/228) where the line crosses the Pamunkey River. The house is set back from the road on a relatively level lot and faces the river. A long, gravel, tree-lined driveway, flanked on either side by open fields, provides access to the house. The proposed Rebuild Project is sited within existing ROW with the existing structures ranging from approximately 67 feet to 189 feet in height in the vicinity of the resource (Structures #224/226 through #224/230). The proposed structures range in height approximately 61 to 196 feet (see Table 1). Currently the



existing structures and conductor are visible from the public ROW (see Locations A and B) in a southwesterly direction as viewed during fieldwork (Figures 3-5).

All nine structures proposed for rebuild (Structures #224/226 through #224/234), were evaluated in the line-of-sight analysis using the heights of the proposed structures. The locations used include two views from the public ROW adjacent to the property boundary (Locations A and B), and from the primary resource (Locations C and D; Appendix C). According to the line-of-sight analysis, Location A will view four of the proposed towers (Structure #224/227 through #224/231) and Location B will view three of the proposed towers (Structure #224/227 through #224/229). Additionally, the primary resource (Locations C and D) will view only proposed Structures #224/227 and #224/228, which will be located in the field to the northwest of the house and on the northern shore of the river, respectively. The remaining seven towers will be obscured from view due to distance and/or tree cover (Figures 6-8). The line-of-sight findings were the same as the view shed modeling (Figure 17). The photosimulations for Sweet Hall, which were taken from the primary resource (Locations C and D), indicated that the existing and proposed Structures 224/228 through 224/233 are visible from the house due to open landscape. Additionally, due to the increase in height of 35 feet for the proposed Structure #224/227, which would increase the visibility of the line in the areas of open fields on the property, and the based on the computer line-of-sight analysis, view shed modeling, photosimulations, and the fieldwork, **it is recommended that the proposed project would have a Moderate Visual Impact on Sweet Hall (VDHR #050-0067).**



Figure 3. View of Sweet Hall (VDHR #050-0067) Looking Southwest from Location A towards the Existing Line 224 Transmission Line. The Existing Transmission Line is Visible (Structures #224/228 and #224/229).



**Figure 4. View from Sweet Hall (VDHR #050-0067) Looking Southwest from Location B towards the Existing Line 224 Transmission Line. Existing Transmission Line is Visible (Structures #224/227 and #224/228).**



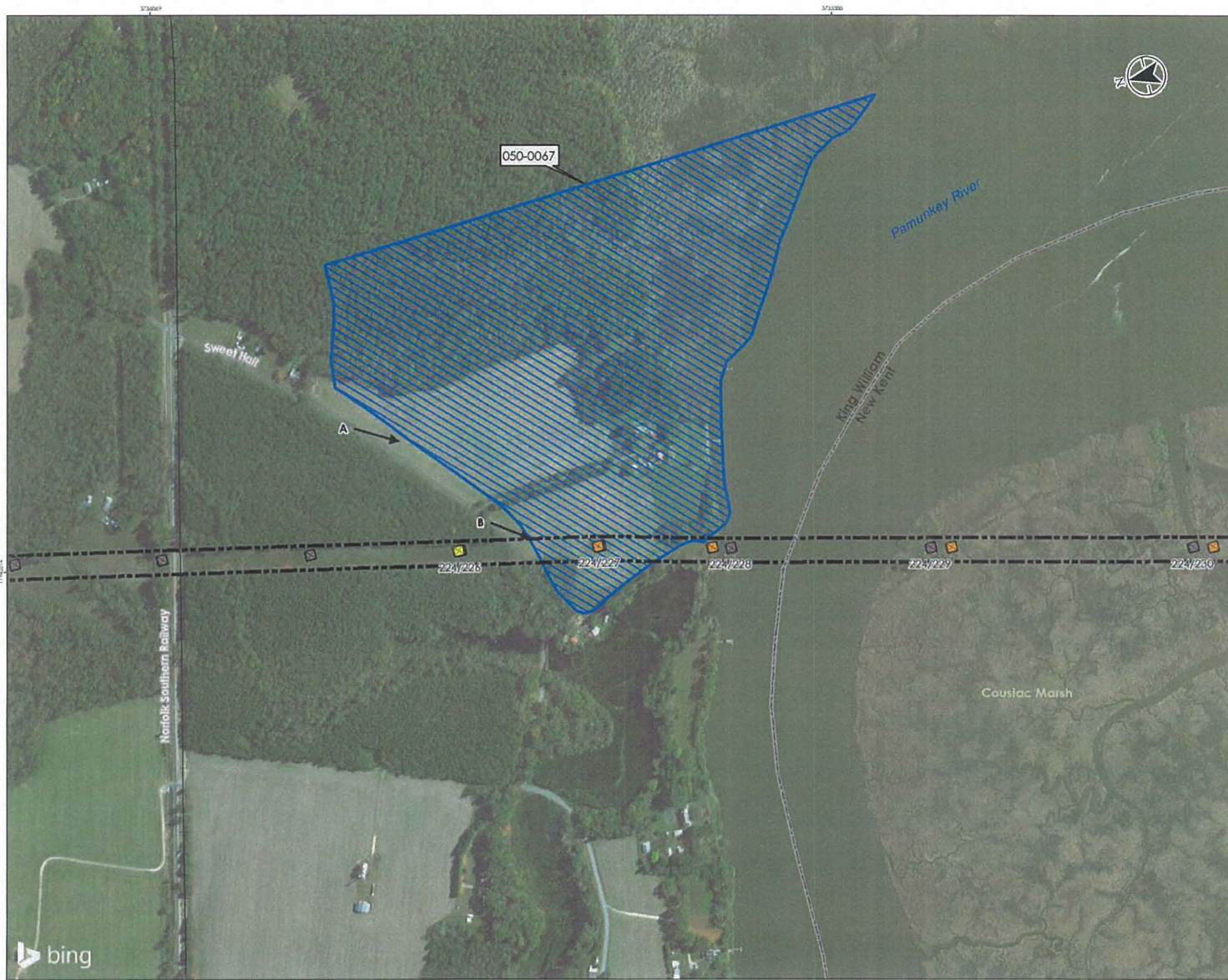


Figure No.  
5

Title  
Photo Location Map of Sweet Hall  
(VDHR #050-0067)

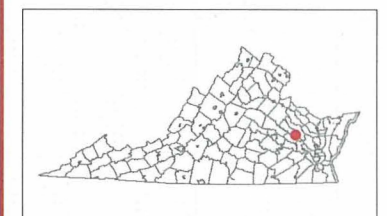
Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

Project Location  
King William and  
New Kent Counties, Virginia

203400940  
Prepared by MGS on 2018-01-08  
Technical Review by TFS on 2018-01-24  
Independent Review by JBJ on 2018-01-24

0 500 1,000  
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1:6,000 (At original document size of 11x17)

- Legend
- Photo Location
  - ☒ Proposed 3-Pole Structure
  - ☒ Proposed Lattice Tower
  - ☒ Existing Structure Location
  - ▨ Architectural Resource
  - ▬ Right-of-Way



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomosaic © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation







Figure No.  
6

Title  
Line of Sight of Sweet Hall  
(VDHR #050-0067) Location A

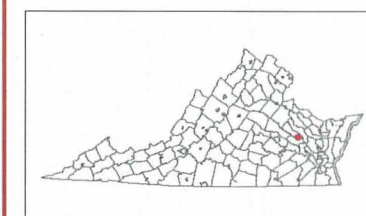
Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

Project Location  
King William and  
New Kent Counties, Virginia

Prepared by MGS on 2018-01-17  
Technical Review by TFS on 2018-01-24  
Independent Review by JBJ on 2018-01-24

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- Legend
- Proposed 3-Pole Structure
  - Proposed Lattice Tower
  - Point of Origin
  - Point of Visual Obstruction
  - Line of Sight Tower Not Visible
  - Line of Sight Tower Visible
  - Architectural Resources



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
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  4. Cartography © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation







Figure No.  
7

Title  
Line of Sight of Sweet Hall  
(VDHR #050-0067) Location B

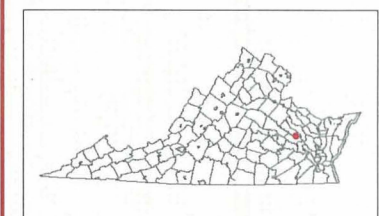
Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

Project Location  
King William and  
New Kent Counties, Virginia

Prepared by MGS on 2018-01-17  
Technical Review by JFS on 2018-01-24  
Independent Review by JBI on 2018-01-24

0 1,000 2,000 Feet  
1:12,000 (At original document size of 11x17)

- Legend
- Proposed 3-Pole Structure
  - Proposed Lattice Tower
  - Point of Origin
  - Point of Visual Obstruction
  - Line of Sight Tower Not Visible
  - Line of Sight Tower Visible
  - Architectural Resources



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomagnery © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



Page 01 of 01





Figure No.  
8

Title  
Line of Sight of Sweet Hall  
(VDHR #050-0067) Location C and D

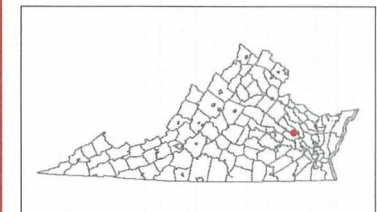
Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

Project Location  
King William and  
New Kent Counties, Virginia

203400940  
Prepared by MGS on 2018-01-17  
Technical Review by TFS on 2018-01-24  
Independent Review by BJ on 2018-01-24

0 1,000 2,000  
Feet  
1:12,000 (At original document size of 11x17)

- Legend
- Proposed 3-Pole Structure
  - Proposed Lattice Tower
  - Point of Origin
  - Point of Visual Obstruction
  - Line of Sight Tower Not Visible
  - Line of Sight Tower Visible
  - Architectural Resources



- Notes
- Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  - Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  - Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  - Orthomageery © Bing Maps
  - Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





### 3.2.2 Ruffin's Ferry/Windsor Shade (VDHR #050-0070)

Ruffin's Ferry/Windsor Shade is a one-and-a-half-story, frame, gambrel-roofed dwelling constructed c. 1745 (Figure 9). The exterior is clad in beaded wood weatherboards with a brick foundation laid in an English bond pattern. Five hipped roof dormers project through the front roof slope. Large brick chimneys laid in a Flemish bond pattern are located off each end of the building. The current one-story wings were constructed in 1999. The property was listed on the NRHP in 1976. An easement, held by VDHR, was placed on the property in 2009 (VDHR Site Files; Figure 10).



Figure 9. View of Ruffin's Ferry/Windsor Shade (VDHR #050-0070), Looking Southwest.



**Figure 10. Aerial Map Depicting VDHR Easement on Ruffin's Ferry/Windsor Shade (VDHR #050-0070).**

### **3.2.2.1 Visual Effect Assessment**

A majority of the Ruffin's Ferry/Windsor Shade property is located directly to the northwest of the transmission line. The far eastern corner of the property as mapped in V-CRIS, however, falls within the transmission line ROW (Appendix B). The house, which is approximately 1,315 feet to the west of the transmission line, is accessed by a long driveway and is set within an area of trees. An open lawn area to the south of the house provides a water view of the Pamunkey River. The proposed Rebuild Project is sited within existing ROW with the existing structures ranging from approximately 67 feet to approximately 189 feet in height in the vicinity of the resource (Structures #224/226 through #224/230). The proposed structures range in height approximately 61 to 196 feet (Table 1). Currently the existing structures and conductor are visible from the public ROW (see Location C) in a southeasterly direction as viewed during fieldwork (Figures 11-14).

All nine structures proposed for rebuild (Structures #224/226 through #224/234), were evaluated in the line-of-sight analysis using the heights of the proposed structures. The point locations used include two views from the public ROW adjacent to the property boundary (Locations E and F; Figure 14), and from the primary resource (Locations G and H). According to the line-of-sight analysis, Location E would not view the proposed towers; however, location F would view Structure 224/229. The primary resource, according to the line-of-sight analysis, will view Structures #224/232 and #224/233 of the proposed transmission line improvements. Due to extensive tree cover surrounding the house, the remaining seven towers would not be visible from the resource (Figures 15-17). The line-of-sight findings were the same as the view shed modeling (Figure 17). The photosimulations developed from photographs taken from the primary indicate; however, that



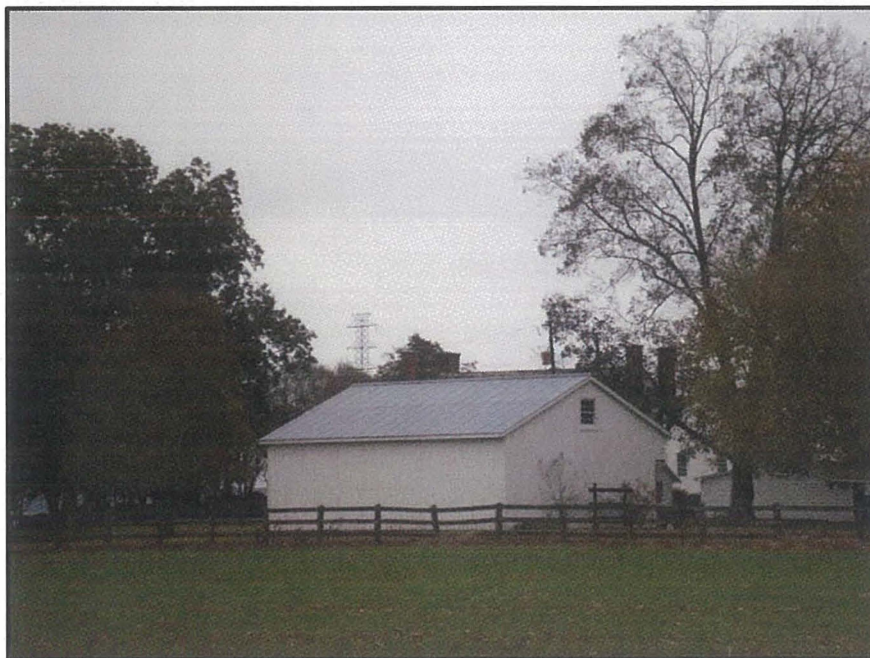
existing and proposed Structures 224/228 through 224/233 are currently and will be visible from the primary resource. According to the photosimulations the change in height from existing to proposed is visually minimal. The increase in height of 35 feet for proposed Structure #224/227 would increase the visibility of that structure. However, according to the line-of-sight analysis, view shed modeling, and the fieldwork, the proposed structure will not be visible from Locations E through H. Based on the computer line-of-sight analysis, view shed modeling, photosimulations, and the fieldwork, ***it is recommended that the proposed project would have a Minimal Visual Impact to Ruffin's Ferry/Windsor Shade property (VDHR #050-0070).***



**Figure 11. View from Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Looking Southeast (Location E) towards the Existing Line 224 Transmission Line. Existing Transmission Line is Not Visible from the Public ROW.**



**Figure 12. View from Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Looking East (Location E) towards the Existing Line 224 Transmission Line. Existing Transmission Line is Not Visible from the Public ROW.**



**Figure 13. View from Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Looking Southeast (Location F) towards the Existing Line 224 Transmission Line. Existing Transmission Line is Visible (Structure #224/229).**





Figure No.  
**14**

Title  
**Photo Location Map of Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Location E and F**

Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

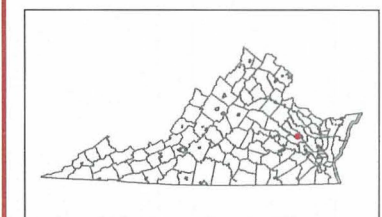
Project Location  
King William and  
New Kent Counties, Virginia

203400940  
Prepared by MGS on 2018-01-08  
Technical Review by TFS on 2018-01-24  
Independent Review by JBJ on 2018-01-24

0 500 1,000  
Feet  
1:6,000 (At original document size of 11x17)

Legend

- Photo Location
- ☒ Proposed 3-Pole Structure
- ☒ Proposed Lattice Tower
- ☒ Existing Structure Location
- ▨ Architectural Resources
- ▭ Right-of-Way



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomageary © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





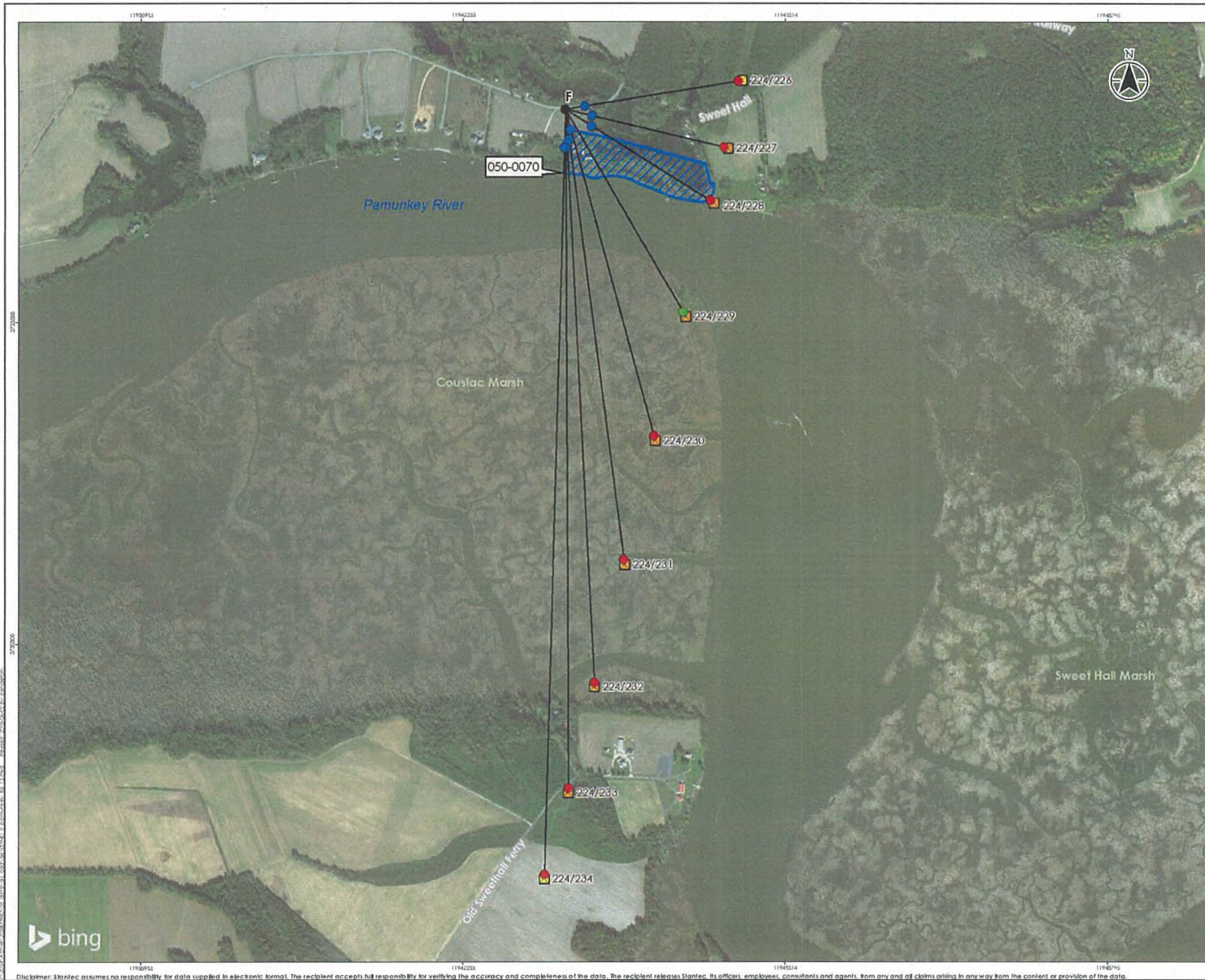


Figure No.  
15

Title  
Line of Sight of Ruffin's Ferry/Windsor  
Shade (VDHR #050-0070) Location F

Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

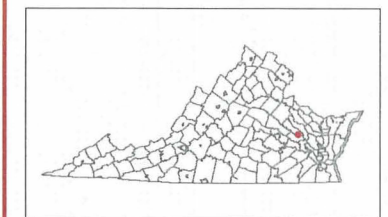
Project Location  
King William and  
New Kent Counties, Virginia

Prepared by MG5 on 2018-01-17  
Technical Review by TFS on 2018-01-24  
Independent Review by J82 on 2018-01-24

0 1,000 2,000  
1:12,000 (At original document size of 11x17)  
Feet

#### Legend

- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Point of Origin
- Point of Visual Obstruction
- Line of Sight Tower Not Visible
- Line of Sight Tower Visible
- Architectural Resources



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only.
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthoimagery © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





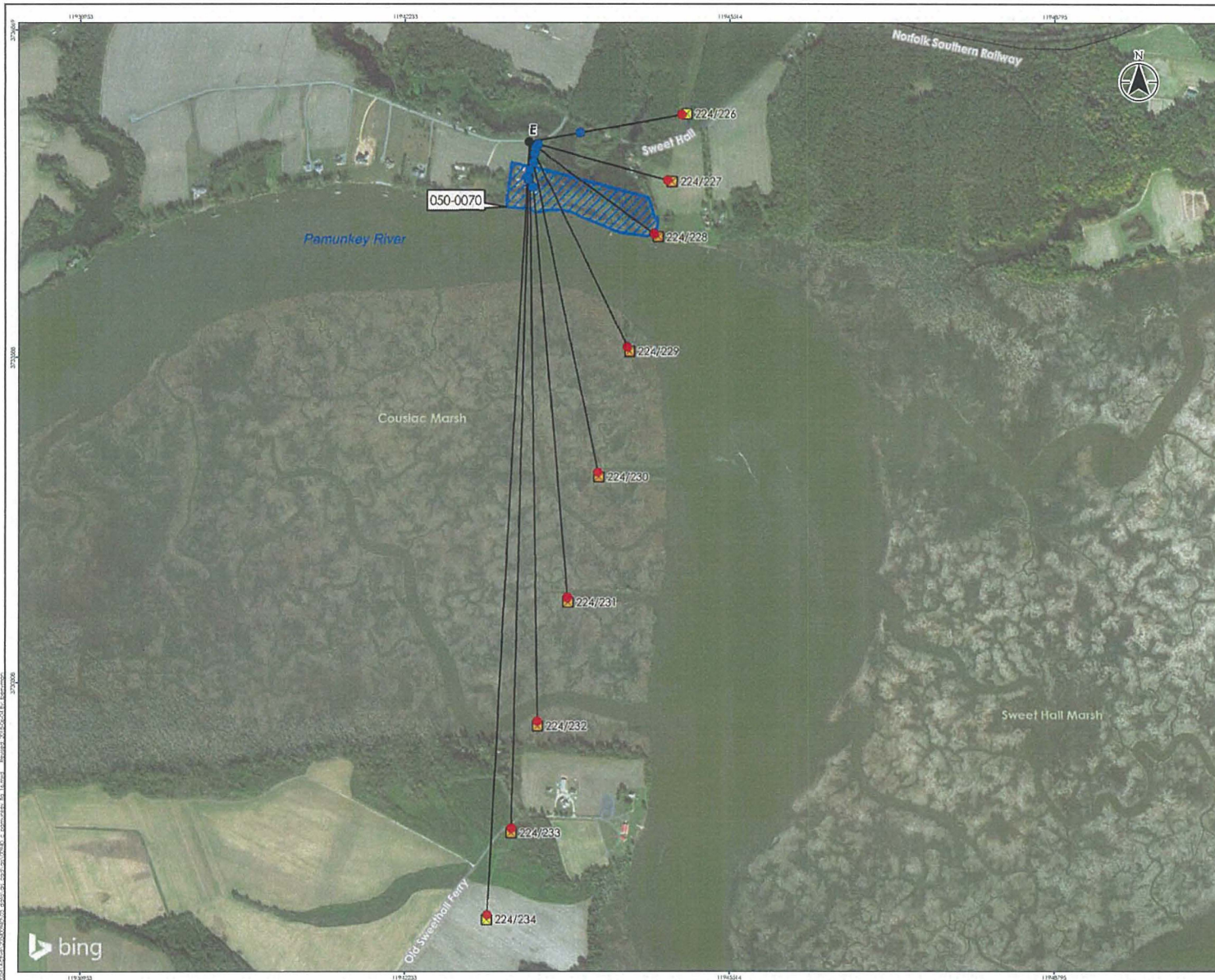


Figure No.  
**16**

Title  
**Line of Sight of Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Location E**

Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

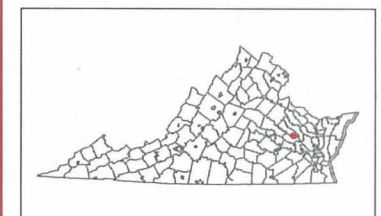
Project Location  
King William and  
New Kent Counties, Virginia

203400940  
Prepared by MGS on 2018-01-17  
Technical Review by TPS on 2018-01-24  
Independent Review by BJ on 2018-01-24

0 1,000 2,000 Feet  
1:12,000 (At original document size of 11x17)

#### Legend

- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Point of Origin
- Point of Visual Obstruction
- Line of Sight Tower Not Visible
- Architectural Resources



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthoimagery © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





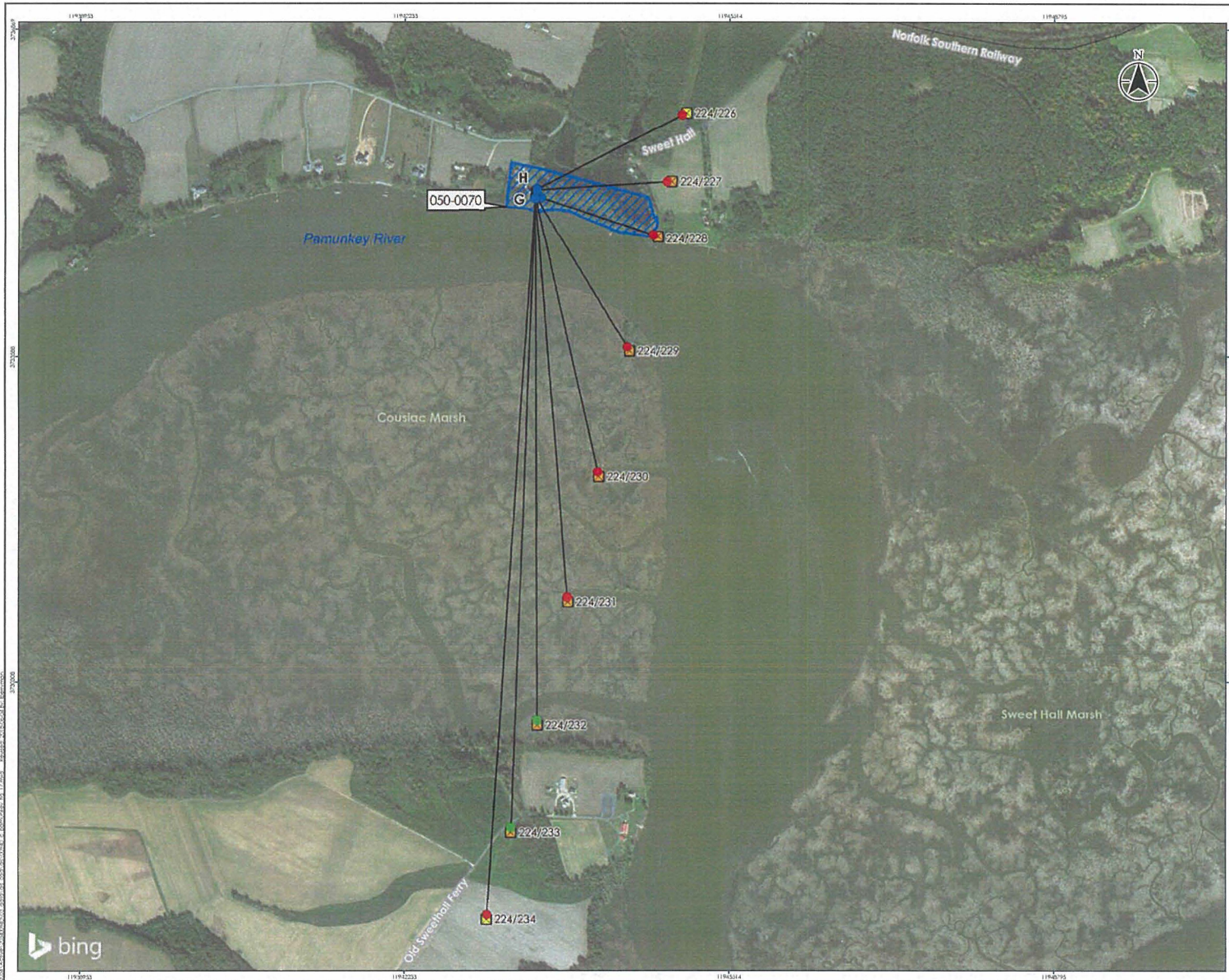


Figure No.  
17

Title  
**Line of Sight of Ruffin's Ferry/Windsor Shade (VDHR #050-0070) Location G and H**

Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

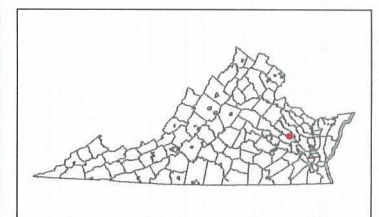
Project Location  
King William and  
New Kent Counties, Virginia

203400940  
Prepared by MGS on 2018-01-17  
Technical Review by TPS on 2018-01-24  
Independent Review by JBJ on 2018-01-24

0 1,000 2,000  
Feet  
1:12,000 (At original document size of 11x17)

#### Legend

- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Point of Origin
- Point of Visual Obstruction
- Line of Sight Tower Not Visible
- Line of Sight Tower Visible
- Architectural Resources



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Cartography © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





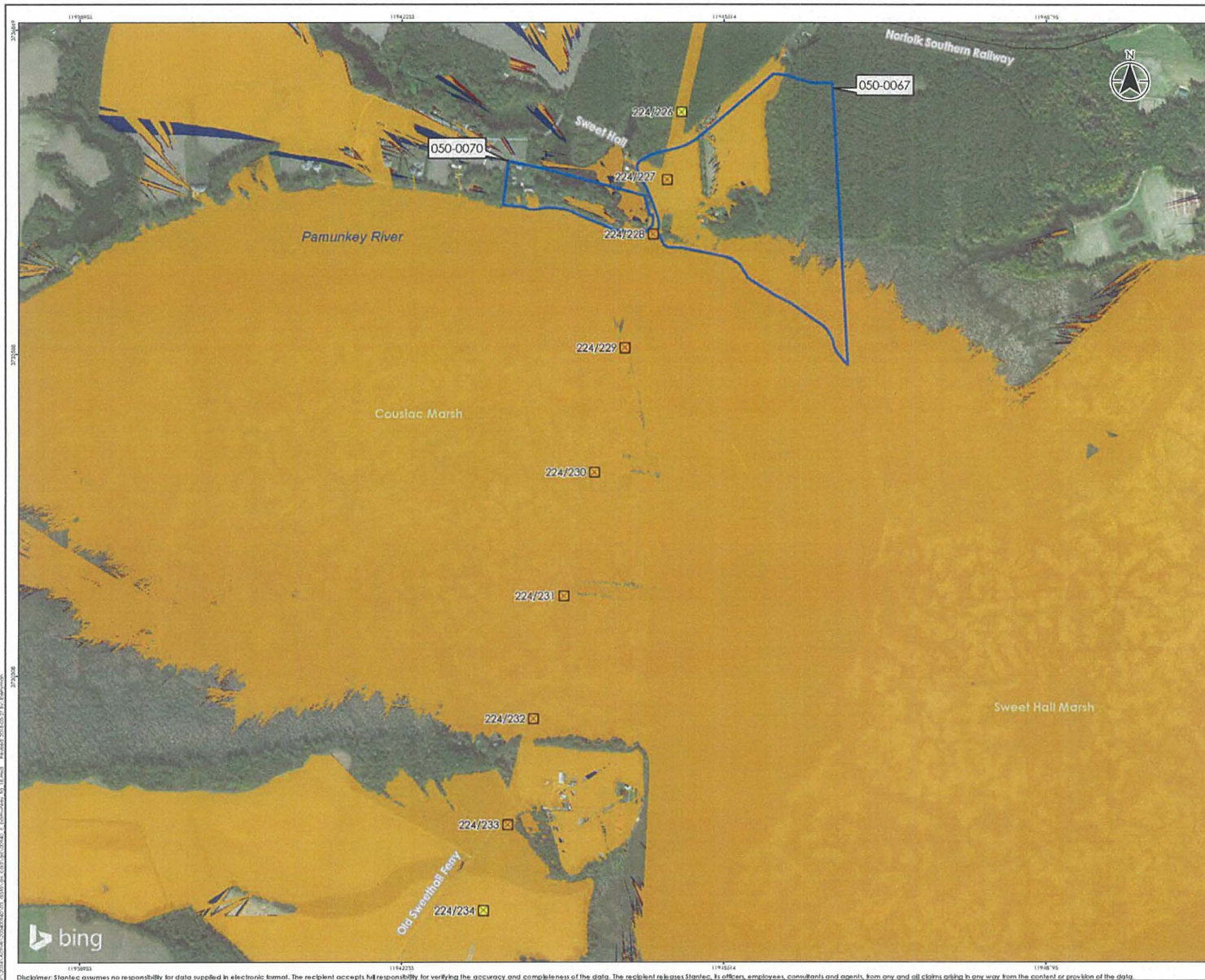


Figure No.  
18

## Viewshed Analysis

Client/Project  
Dominion Energy Virginia  
Line #224 Partial Rebuild Projects  
Pamunkey River Rebuild

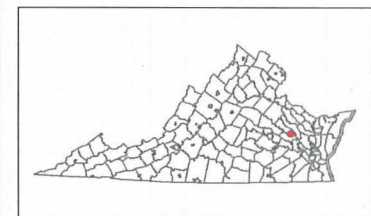
Project Location  
King William and  
New Kent Counties, Virginia

Prepared by MGS on 2018-01-17  
Technical Review by TPJ on 2018-01-24  
Independent Review by JBJ on 2018-01-24

0 1,000 2,000  
1:12,000 (At original document size of 11x17)  
Feet

### Legend

- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Architectural Resources
- Existing Visible, Proposed not Visible
- Both Existing and Proposed Visible
- Existing not Visible, Proposed Visible



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomosaic © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



Page 01 of 01

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### 3.2.3 Captain John Smith Chesapeake National Historic Trail

The Captain John Smith Chesapeake National Historic Trail encompasses over 3,000 miles of waterway associated with the voyages of John Smith as well as early explorations of the Chesapeake Bay region. The portion of the trail associated with this section of the Pamunkey River has a possible Kupkipcock Native American Site, as identified by Captain John Smith's Map of Virginia from 1607, on the property of Ruffin's Ferry/Windsor Shade. The archaeological resource is not within the existing transmission line ROW. Additional resources dating from the seventeenth century do not appear to be present within the APE. Modern residential development is present, but sparse in the vicinity of the project area.

The visibility of the proposed transmission line rebuild within the bounds of the Captain John Smith Trail would be nearly identical to that which is currently present. The increase in heights of the structures along the banks of the river (Structure #224/228 and #224/229), which is limited to a maximum of 6 feet, will not be significantly noticeable and would not result in a significant change over the existing conditions. ***Because the proposed rebuild is consistent with the transmission line which is currently in place, it is recommended that the rebuild would have a minimal or no adverse visual effect to the Captain John Smith Chesapeake National Historic Trail.***

## 4.0 CONCLUSIONS

### 4.1 OVERVIEW

Stantec was retained by Dominion to conduct a Stage I Pre-Application Analysis for the proposed Rebuild Project in King William and New Kent Counties, Virginia. In order to maintain the structural integrity and reliability of its transmission system and perform needed maintenance on its existing facilities, Dominion proposes to rebuild, pending final approval by the SCC, entirely within existing right-of-way, approximately 1.7 miles of existing double circuit 230 kV transmission line approximately 6.5 miles west, northwest of West Point. Dominion proposes to remove and replace nine existing transmission support structures, of varying type, associated foundations and overhead conductor wire as part of the Rebuild Project. Severe concrete and steel deterioration has reduced the structural capacity of these foundations, jeopardizing the reliability of Line #224.

#### 4.1.1 Recommendations - Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile buffer and no NRHP-listed resources or battlefields are located in the 1.0-mile buffer. Two NRHP-listed resources, Sweet Hall (VDHR #050-0067) and Ruffin's Ferry/Windsor Shade (VDHR #050-0070), were identified in the 0.5-mile buffer of the project centerline. Both resources intersect or are immediately adjacent to the existing transmission line ROW. Additionally, the Captain John Smith Chesapeake National Historic Trail crosses the ROW at the Pamunkey River; however, the nationally designated trail has not been evaluated by VDHR for NRHP eligibility. Table 5 details the recommendations for the project.

**Based on structure heights assumed during the conceptual phase of the project, the proposed Rebuild Project would increase the height of the structures approximately 6 to 35 (maximum) feet for the lattice structures and decrease 5 to 6 feet in height for 3-pole structures. Based on the analysis, it is recommended that the rebuild would have a Minimal Visual Impact on Ruffin's Ferry/Windsor Shade (VDHR #050-0070) and the Captain John Smith Chesapeake National Historic Trail. It is recommended that the proposed rebuild would have a Moderate Visual Impact to Sweet Hall (VDHR #050-0067). The latter due to the 35-foot increase of Structure #224/227. Photo simulations of the potential impacts to Sweet Hall and Ruffin's Ferry have been included in Appendix C to more clearly depict the potential degree of visual impact from the proposed line on the resource.**

Table 5. Previously Recorded Architectural Resources Considered within the Stage I Pre-Application Process				
VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact
050-0067	Sweet Hall, Route 634	NRHP-Listed 1977	0	Moderate

Table 5. Previously Recorded Architectural Resources Considered within the Stage I Pre-Application Process				
VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact
050-0070	Ruffin's Ferry/Windsor Shade, 1685 Sweet Hall Road	NRHP-Listed 1978	0	Minimal
N/A	Captain John Smith Chesapeake National Historic Trail	Not Evaluated within APE	0	Minimal

#### 4.1.2 Recommendations - Archaeological Resources

One archaeological resource was identified during the background research. Site 44NK0248, a Woodland lithic scatter, was determined potentially eligible for listing on the NRHP in 2008. Although the site is not identified as being located within the transmission line ROW, it is immediately adjacent and may extend into the ROW. **It is recommended, therefore, that the archaeological site be avoided during construction or investigated and evaluated as appropriate during future investigations.**

Table 6. Previously Recorded Archaeological Resources Located Adjacent to the Project Limits				
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (FT)	Recommendation
44NK0248	Woodland	Determined Potentially Eligible by VDHR in 2008	0	Avoid During Construction or Investigate During Archaeological Survey

## 5.0 REFERENCES

Advisory Council for Historic Preservation (ACHP)

2000 36 CFR 800: *Part 800- Protection of Historic and Cultural Properties*. Federal Register, September 2, Washington, D.C.

United States Department of the Interior (Interagency Resources Division)

1981 *Department of the Interior's Regulations, 36 CFR Part 60: National Register of Historic Places*. Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

1983 *Department of the Interior, Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*. Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

1991 *How to Apply the National Register Criteria of Evaluation. National Register Bulletin 15*. Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

Virginia Department of Historic Resources (VDHR)

1997 *Historic Context Guidelines for Preparing Cultural Resource Survey Reports*. VDHR, Richmond.

2008 *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia*. VDHR, Richmond.

2011 *Guidelines for Historic Resource Survey in Virginia*. VDHR, Richmond.

2017 Archive Files.

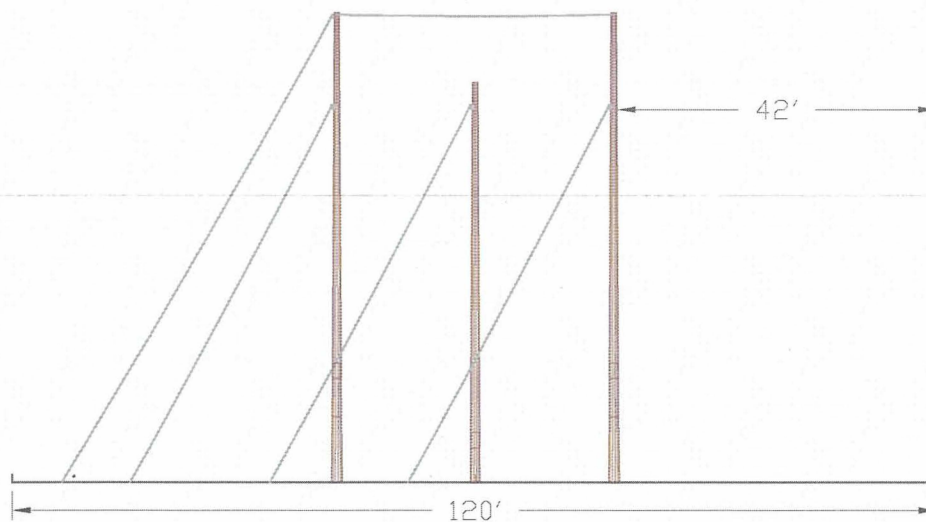
Appendix A

**A.1     STRUCTURE DETAILS**



# PROPOSED PRELIMINARY DESIGN

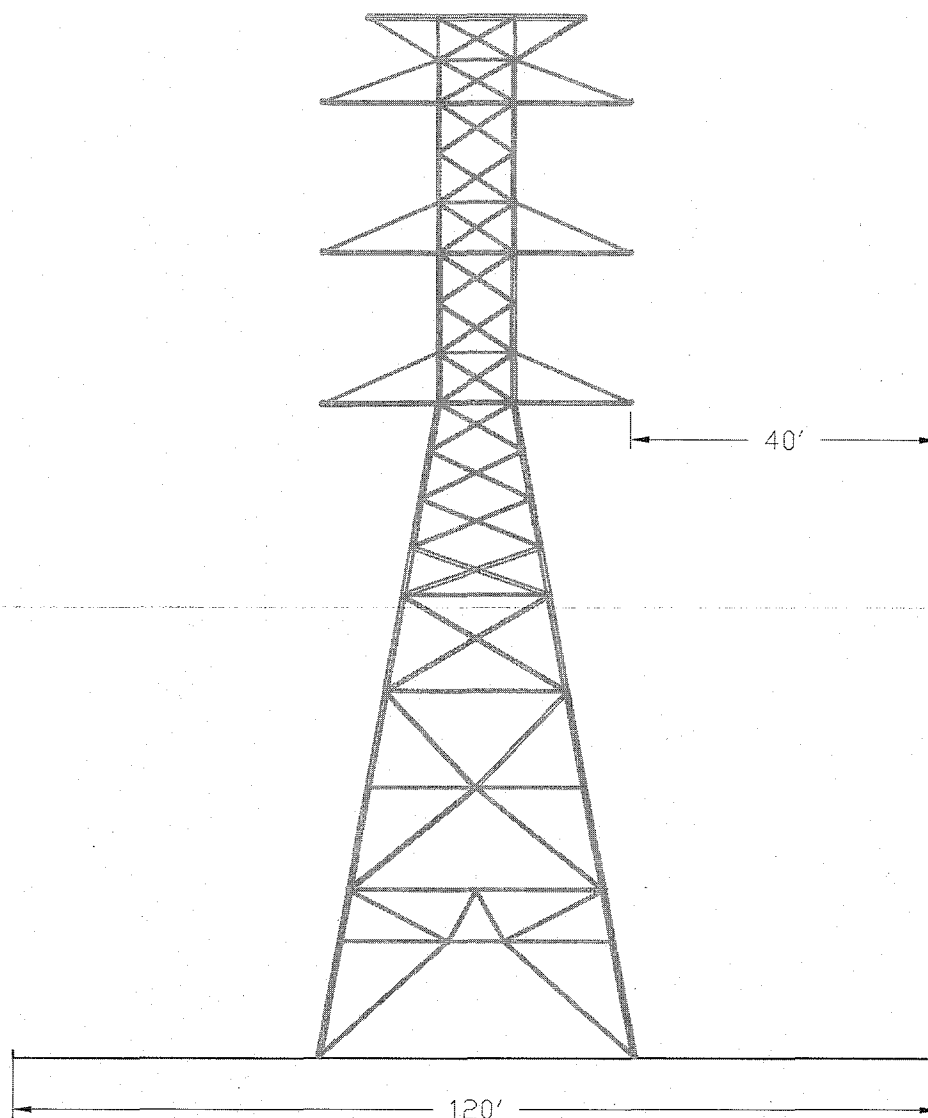
230KV CIRCUIT  
LINE #224



## STRUCTURE 224/226 & 224/234 RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND 3-POLE
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (2)
MATERIAL FOR STRUCTURE:	STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	N/A
WIDTH AT BASE (RANGE):	36'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	64' (61' - 65.5')
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

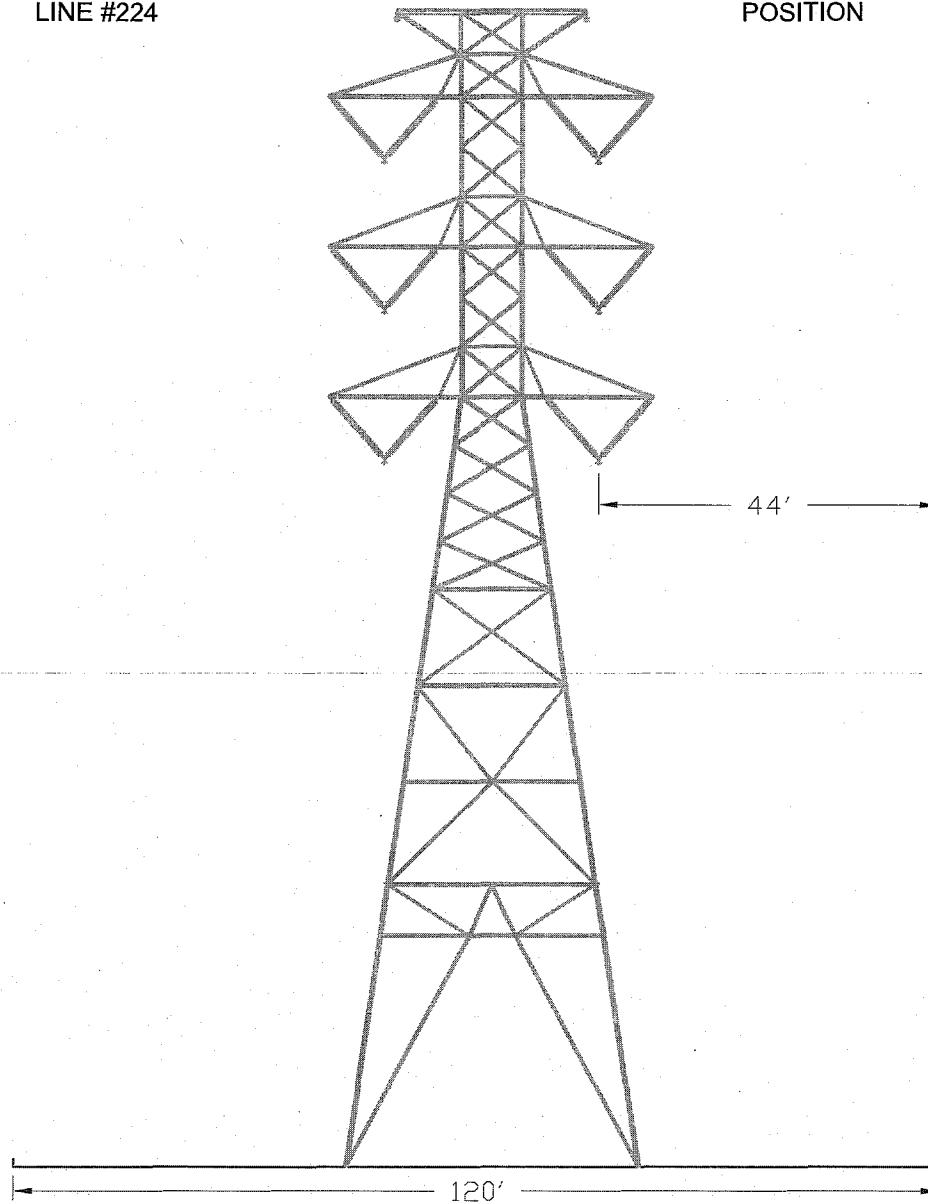
- NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
  2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

**PROPOSED  
PRELIMINARY DESIGN**230KV CIRCUIT  
LINE #224IDLE  
POSITIONAttachment  
Page 36 of 51**STRUCTURE 224/233****RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION**

STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.7'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	42'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	135'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

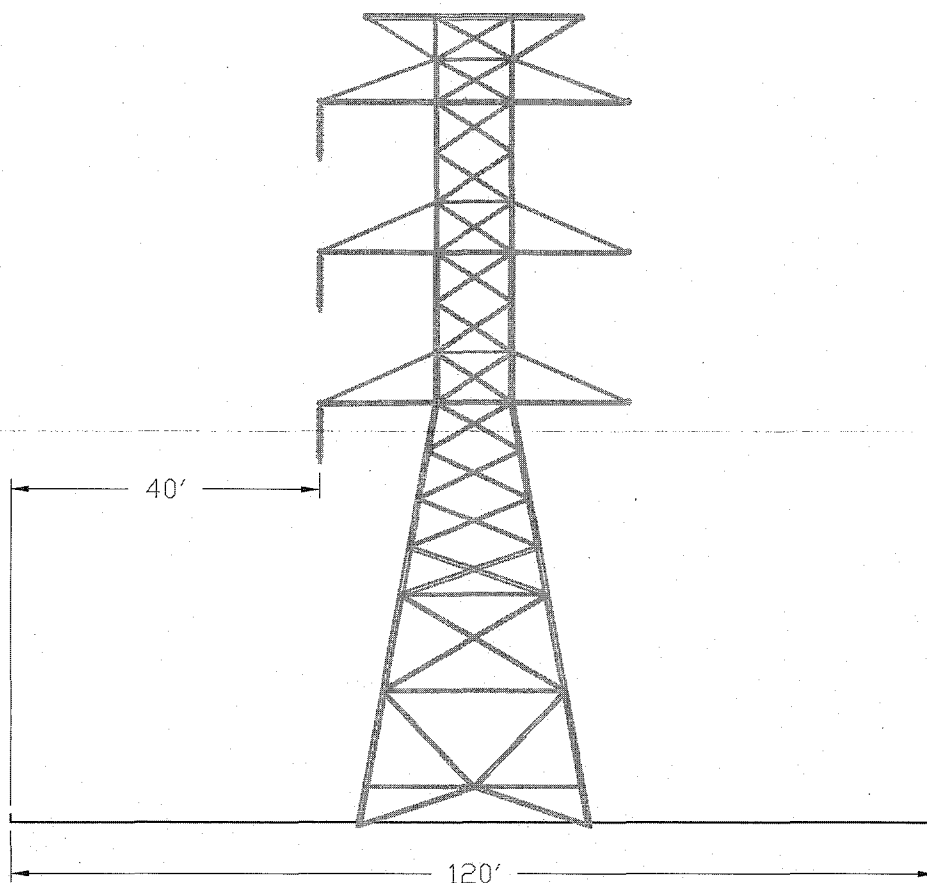
NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.  
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

# PROPOSED PRELIMINARY DESIGN

230KV CIRCUIT  
LINE #224IDLE  
POSITION**STRUCTURE 224/228 - 224/232****RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION**

STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (5)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	15.7' (15.5' - 16')
WIDTH AT CROSSARM:	42'
WIDTH AT BASE (RANGE):	42' (38' - 47')
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	162' (150' - 180')
MINIMUM CONDUCTOR - TO - MHW:	90'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.  
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

PROPOSED  
PRELIMINARY DESIGN230KV CIRCUIT  
LINE #224IDLE  
POSITIONSTRUCTURE 224/227  
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.5'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	31'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	105'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.  
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.



## Appendix B

### **B.1 ARCHITECTURAL RESOURCE MAPS – LINE 224 PAMUNKEY RIVER CROSSING REBUILD PROJECT**

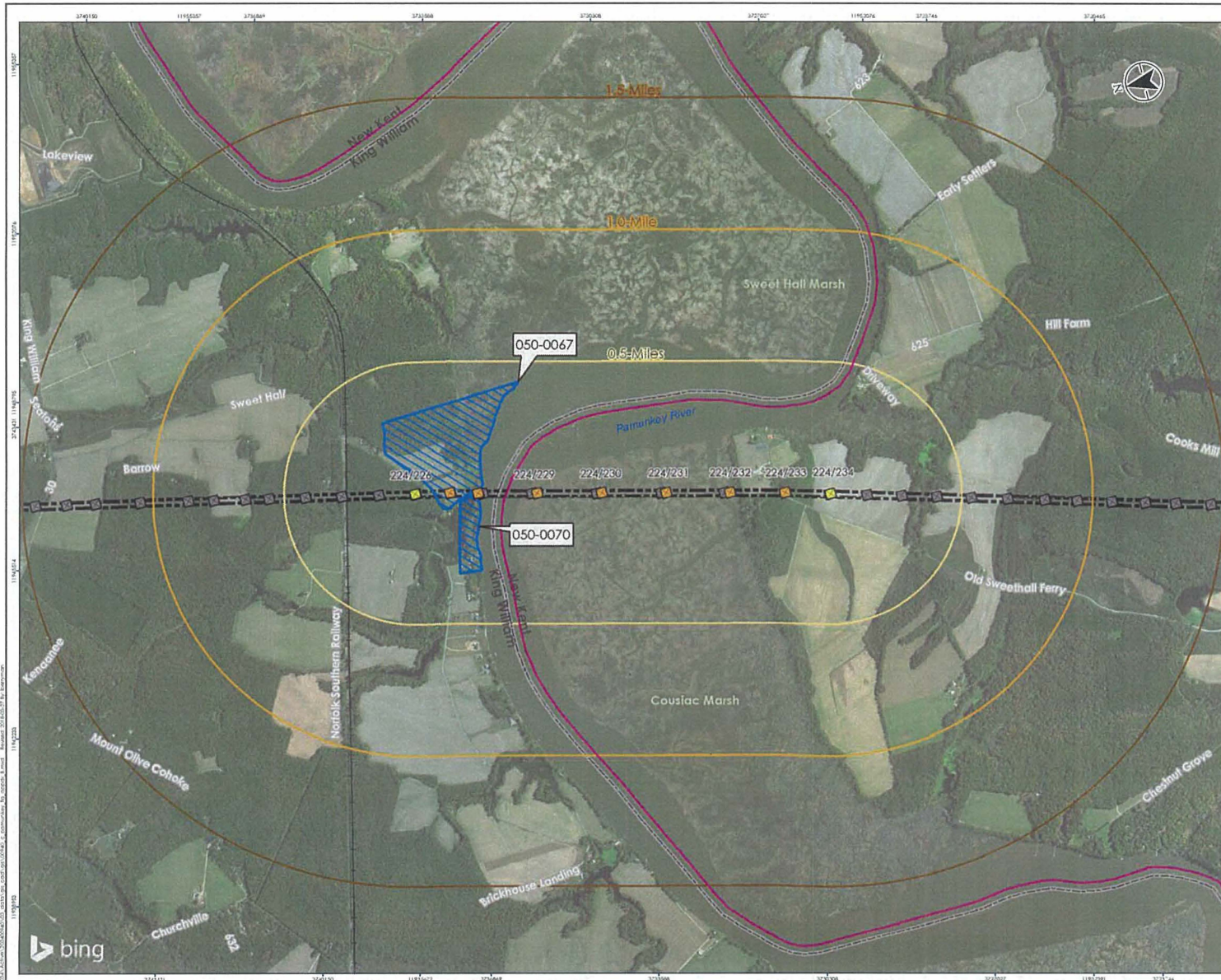
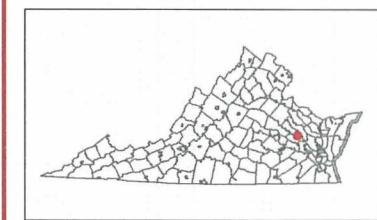


Figure No. **Appendix B**  
 Title **Architectural Resources Under Consideration**  
 Client/Project **Dominion Energy Virginia Line #224 Partial Rebuild Projects Pamunkey River Rebuild**  
 Project Location **King William and New Kent Counties, Virginia**  
 Prepared by MGS on 2018-01-08  
 Technical Review by TFS on 2018-01-24  
 Independent Review by JBJ on 2018-01-24



- Legend**
- Proposed 3-Pole Structure
  - Proposed Lattice Tower
  - Existing Structure Location
  - Capitan John Smith Chesapeake National Historic Trail
  - Architectural Resource
  - 0.5-Mile Buffer
  - 1-Mile Buffer
  - 1.5-Mile Buffer
  - Right-of-Way



- Notes**
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomageary © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



## **Appendix C**

### **C.1 PHOTO SIMULATIONS FOR SWEET HALL**





Photograph provided by Stantec

**Existing View** in front of Ruffins Ferry (DHR #050-0070)  
Looking South





**Proposed/Simulation** in front of Ruffins Ferry (DHR  
#050-0070) Looking South

Photograph provided by Stantec





**Existing View** beside Ruffins Ferry (DHR #050-0070)  
Looking East

Photograph provided by Stantec





Photograph provided by Stantec

**Proposed/Simulation** beside Ruffins Ferry (DHR  
#050-0070) Looking East





Photograph provided by Stantec

**Existing View** in front of Sweet Hall (DHR #050-0067)  
Looking South





**Proposed/Simulation** in front of Sweet Hall (DHR  
#050-0067) Looking South

Photograph provided by Stantec

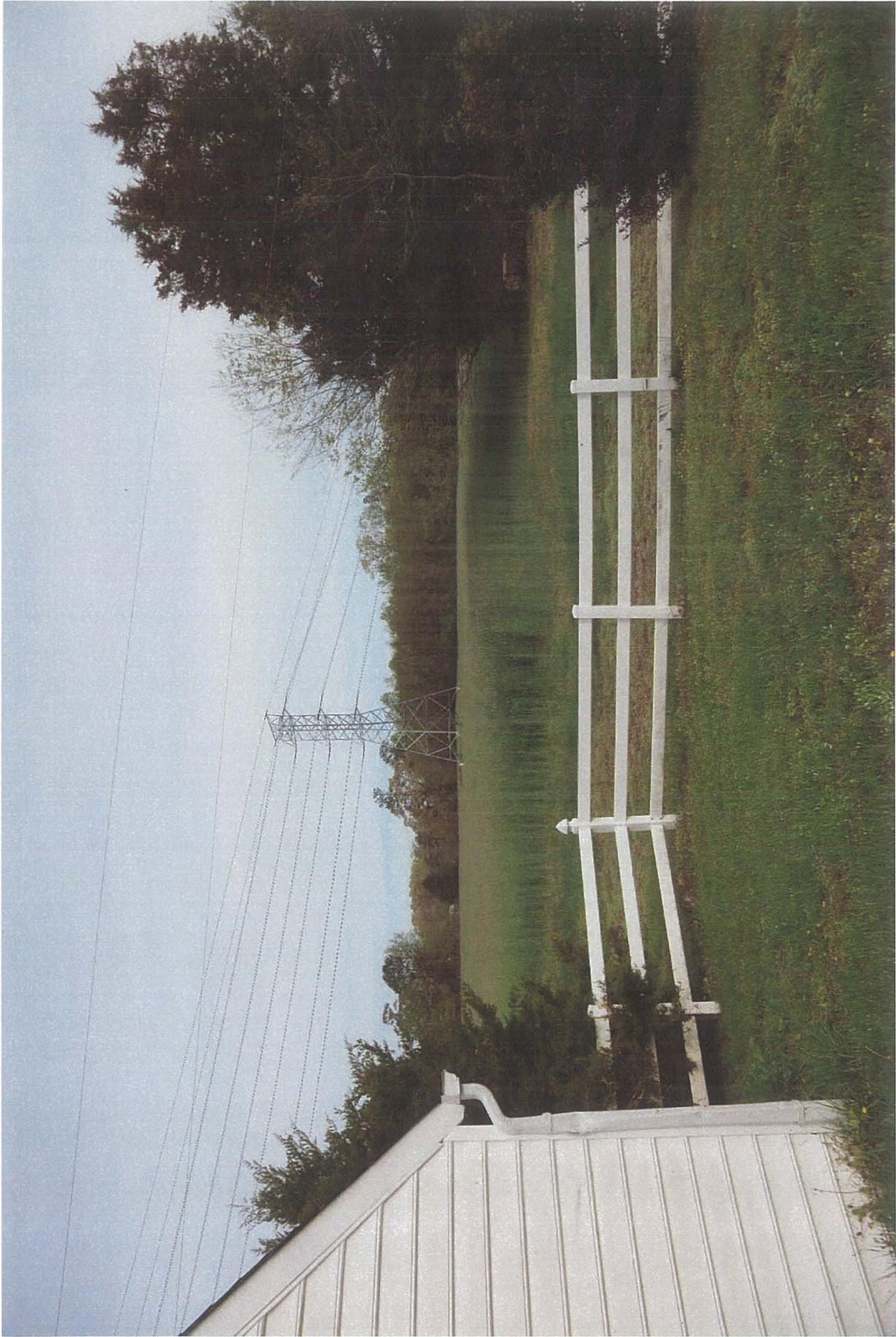




**Existing View** behind Sweet Hall (DHR #050-0067)  
Looking Northwest

Photograph provided by Stantec





**Proposed/Simulation** behind Sweet Hall (DHR  
#050-0067) Looking Northwest

Photograph provided by Stantec



## **Appendix D**

### **D.1 ARCHAEOLOGICAL RESOURCE MAPS – LINE 224 PAMUNKEY RIVER CROSSING REBUILD PROJECT**



Figure No. **Appendix D**  
**Archaeological Resources within the Transmission Line Corridor**

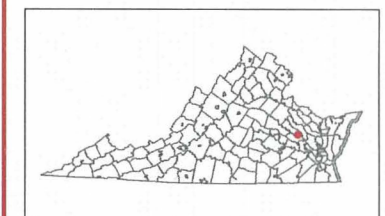
**Client/Project**  
 Dominion Energy Virginia  
 Line #224 Partial Rebuild Projects  
 Pamunkey River Rebuild

**Project Location**  
 King William and  
 New Kent Counties, Virginia

**Prepared by** MGS on 2018-01-08  
**Technical Review by** TFS on 2018-01-24  
**Independent Review by** JBJ on 2018-01-24

0 1,000 2,000 Feet  
 1:12,000 (At original document size of 11x17)

- Legend**
- Proposed 3-Pole Structure
  - Proposed Lattice Tower
  - Existing Structure Location
  - Archaeological Resource
  - Right-of-Way



- Notes**
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
  2. Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) and are for planning purposes only
  3. Structure locations and Right-of-Way dimensions provided by Dominion Energy Virginia
  4. Orthomagey © Bing Maps
  5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

