

1.0 INTRODUCTION

1.1 OVERVIEW

Stantec was retained by Dominion to conduct a Stage I Pre-Application Analysis for the proposed rebuilding of the Possum Point to Smoketown 115 kV Lines #145 and #18 project in Prince William County, Virginia. Dominion, in order to maintain the structural integrity and reliability of its transmission system, to comply with mandatory NERC's Reliability Standards, and to provide for the overall growth in the area, proposes to rebuild, entirely within an existing ROW, approximately 8.4 miles of existing 115 kV double circuit transmission lines, Possum Point to Smoketown Line #18 and Possum Point to Smoketown Line #145, located between the Dominion's Possum Point Station and NOVEC's Smoketown DP, entirely in Prince William County, Virginia. The rebuild will utilize 230 kV design clearances. Although the Rebuild Project proposes to construct the lines to be capable of operating at 230 kV, operation of the lines would continue at 115 kV until such time as needed to serve the Woodbridge load area. Figure 1 depicts the location of Dominion's existing Line #145 and Line #18 transmission line corridor in this area. The rebuild of the Possum Point to Smoketown Line #145 and Line #18 would require the tear-down and replacement of approximately 125 existing 115 kV structures with new tower structures of comparable size or exhibiting, at the maximum height, an increase of 73.5 feet (Tower 145/18; 18/18) within the existing ROW. Five structures will remain with no change in height.

The existing transmission line (Lines #145 and #18) consists of H-frame, two-pole, and three-pole wood, as well as galvanized steel lattice structures located within an existing ROW measuring between approximately 200 to 285 feet. In the northern half of the existing Possum Point and Smoketown Road transmission line corridor, an adjacent 230 kV (Line #2022) transmission line, comprised of lattice structures, is also located within the ROW. The existing 230 kV structures range in average height from 101 feet to 147 feet and, on average, are greater in height than the existing Lines #145 and #18 structures. The proposed Line #145 and Line #18 structures will include mainly galvanized and weathering steel poles and range in height from approximately 34 to 136.5 feet. At maximum height, the proposed Lines #145 and #18 rebuild structures will be, on average, similar in height to the existing 230 kV lattice structures within the ROW. Final tower locations have not yet been established, but the preliminary locations indicate the towers, in some cases, will move approximately 50 to 100 feet from their original placement. Several structures will remain, with no change in height (Table 1).

Table 1. Proposed Structure Heights – Line #145/#18 Rebuild Project					
Old Structure No.	New Structure No.	Height (FT) Existing	Average Height (FT) Proposed	Approximate Change in Height (FT)	Comments
145/84, 18/1A	145/1A, 18/1A	63	63	0	Existing to Remain
145/85, 18/1	145/1, 18/1	90	90	0	Existing to Remain
No existing	145/2, 18/2	N/A	71	N/A	

Table 1. Proposed Structure Heights – Line #145/#18 Rebuild Project					
Old Structure No.	New Structure No.	Height (FT) Existing	Average Height (FT) Proposed	Approximate Change in Height (FT)	Comments
145/86, 18/2	N/A	90	N/A	N/A	Remove
145/87	145/3	65	65.5	0.5	
18/3	18/3	56	60	4.0	
145/88	145/4	35	56.5	21.5	
18/4	18/4	35	65	30.0	
145/89	145/5	46	60	14.0	
18/5	18/5	46	60	14.0	
145/90	145/6	48	65	17.0	
18/6	18/6	52	65	13.0	
145/91	145/7	77	79	2.0	
18/7	18/7	77	65	-12.0	
145/92, 18/8	145/8, 18/8	115	115	0	Existing to Remain
145/93, 18/9	145/9, 18/9	137	137	0	Existing to Remain
145/94, 18/10	145/10, 18/10	110	110	0	Existing to Remain
145/95 & 18/11	145/11, 18/11	63	65	2.0	
145/96 & 18/12	145/12, 18/12	53	65	12.0	
145/98	N/A	65	N/A	N/A	Removed
18/14	N/A	53	N/A	N/A	Removed
18/15	145/13, 18/13	48	116.5	68.5	
145/99	N/A	55	N/A	N/A	Removed
145/100	145/14, 18/14	52	106	54.0	2 Structures to 1
18/16	145/14, 18/14	55	106	51.0	2 Structures to 1
145/101 & 18/17	145/15, 18/15	48	96.5	48.5	2 Structures to 1
145/102	145/16, 18/16	51	101.5	50.5	2 Structures to 1
18/18	145/16, 18/16	52	101.5	49.5	2 Structures to 1
145/103	145/17, 18/17	58	96.5	38.5	2 Structures to 1
18/19	145/17, 18/17	47	96.5	49.5	2 Structures to 1
145/104 & 18/20	145/18, 18/18	58	131.5	73.5	2 Structures to 1
145/105	145/19, 18/19	43	96.5	53.5	2 Structures to 1
18/21	145/19, 18/19	58	96.5	38.5	2 Structures to 1
145/106	145/20, 18/20	46	101.5	55.5	2 Structures to 1
18/22	145/20, 18/20	43	101.5	58.5	2 Structures to 1
145/107	145/21, 18/21	47	91.5	44.5	2 Structures to 1
18/23	145/21, 18/21	46	91.5	45.5	2 Structures to 1

Table 1. Proposed Structure Heights – Line #145/#18 Rebuild Project					
Old Structure No.	New Structure No.	Height (FT) Existing	Average Height (FT) Proposed	Approximate Change in Height (FT)	Comments
145/108	145/22, 18/22	56	96.5	40.5	2 Structures to 1
18/24	145/22, 18/22	47	96.5	49.5	2 Structures to 1
145/109	145/23, 18/23	59	121.5	62.5	2 Structures to 1
18/25	145/23, 18/23	56	121.5	65.5	2 Structures to 1
145/110	N/A	58	N/A	N/A	Removed
18/26	N/A	59	N/A	N/A	Removed
No Existing	145/24, 18/24	N/A	116.5	N/A	
18/27	N/A	58	N/A	N/A	Removed
145/111	N/A	56	N/A	N/A	Removed
145/112	145/25, 18/25	52	111.5	59.5	2 Structures to 1
18/28	145/25, 18/25	56	111.5	55.5	2 Structures to 1
145/113	145/26, 18/26	46	106.5	60.5	2 Structures to 1
18/29	145/26, 18/26	52	106.5	54.5	2 Structures to 1
145/114	145/27, 18/27	39	91.5	52.5	2 Structures to 1
18/30	145/27, 18/27	46	91.5	45.5	2 Structures to 1
145/115	145/28, 18/28	47	96.5	49.5	2 Structures to 1
18/31	145/28, 18/28	39	96.5	57.5	2 Structures to 1
145/116	145/29, 18/29	44	106.5	62.5	2 Structures to 1
18/32	145/29, 18/29	47	106.5	59.5	2 Structures to 1
145/117	N/A	41	N/A	N/A	Removed
18/33	N/A	44	N/A	N/A	Removed
No Existing	145/30, 18/30	N/A	136.5	N/A	
145/118	N/A	68	N/A	N/A	Removed
18/34	N/A	41	N/A	N/A	Removed
145/119	145/31, 18/31	45	111.5	66.5	2 Structures to 1
18/35	145/31, 18/31	68	111.5	43.5	2 Structures to 1
145/120	145/32, 18/32	53	101.5	48.5	2 Structures to 1
18/36	145/32, 18/32	45	101.5	56.5	2 Structures to 1
145/121	145/33, 18/33	52	101.5	49.5	2 Structures to 1
18/37	145/33, 18/33	53	101.5	48.5	2 Structures to 1
145/122	145/34, 18/34	58	106.5	48.5	2 Structures to 1
18/38	145/34, 18/34	52	106.5	54.5	2 Structures to 1
145/123	145/35, 18/35	57	101.5	44.5	2 Structures to 1
18/39	145/35, 18/35	58	101.5	43.5	2 Structures to 1
145/124	145/36, 18/36	50	101.5	51.5	2 Structures to 1
18/40	145/36, 18/36	57	101.5	44.5	2 Structures to 1

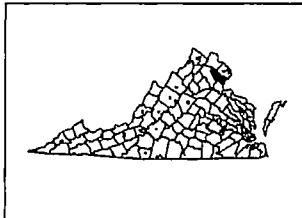
Table 1. Proposed Structure Heights – Line #145/#18 Rebuild Project

Old Structure No.	New Structure No.	Height (FT) Existing	Average Height (FT) Proposed	Approximate Change in Height (FT)	Comments
145/125	145/37, 18/37	58	101.5	43.5	2 Structures to 1
18/41	145/37, 18/37	50	101.5	51.5	2 Structures to 1
145/126	145/38, 18/38	66	116.5	50.5	2 Structures to 1
18/42	145/38, 18/38	58	116.5	58.5	2 Structures to 1
145/127	145/39, 18/39	53	101.5	48.5	2 Structures to 1
18/43	145/39, 18/39	58	101.5	43.5	2 Structures to 1
145/128	145/40, 18/40	47	101.5	54.5	2 Structures to 1
18/44	145/40, 18/40	53	101.5	48.5	2 Structures to 1
145/129	145/41	50	91.5	41.5	New 145/41 & 18/41 w/in 35' of Each Other
18/45	18/41	47	90	43.0	New 145/41 & 18/41 w/in 35' of Each Other
145/130, 18/46	N/A	52	N/A	N/A	Removed
No Existing	145/42, 18/42	N/A	126.5	N/A	
145/131, 18/47	N/A	45	N/A	N/A	Removed
No Existing	145/43, 18/43	N/A	101.5	N/A	
145/132, 18/48	N/A	45	N/A	N/A	Removed
145/133, 18/49	145/44, 18/44	47	106.5	59.5	2 Structures to 1
145/134, 18/50	18/45	47.5	95	47.5	1 Structure to 2
145/134, 18/50	145/45	47.5	95	47.5	1 Structure to 2
No Existing	TAP 2	N/A	34.2	N/A	
145/134A	N/A	23	N/A	N/A	Removed
145/134B	N/A	25	N/A	N/A	Removed
18/50A	N/A	23	N/A	N/A	Removed
18/50B	N/A	25	N/A	N/A	Removed
18/201	N/A	32	N/A	N/A	Removed
18/202	N/A	44	N/A	N/A	Removed
18/203	N/A	40	N/A	N/A	Removed
145/135	145/46	47.5	70	22.5	1 Structure to 2
18/51	18/46	47.5	95	47.5	1 Structure to 2
145/136, 18/52	145/47, 18/47	52	96	44	
145/137, 18/53	145/48, 18/48	66	107	41	
145/138, 18/54	145/49, 18/49	52	116.5	64.5	
145/139, 18/55	N/A	38.5	N/A	N/A	Removed
145/140 & 18/56	145/50, 18/50	132	101.5	-30.5	2 Structures to 1
18/56	145/50, 18/50	72	101.5	29.5	2 Structures to 1

Table 1. Proposed Structure Heights – Line #145/#18 Rebuild Project

Old Structure No.	New Structure No.	Height (FT) Existing	Average Height (FT) Proposed	Approximate Change in Height (FT)	Comments
145/141, 18/57	N/A	52	N/A	N/A	Removed
No Existing	145/51, 18/51	N/A	131.5	N/A	
145/142, 18/58	N/A	54	N/A	N/A	Removed
145/143, 18/59	145/52, 18/52	64	111.5	47.5	
145/144, 18/60	145/53, 18/53	58	116.5	58.5	
145/145, 18/61	N/A	52	N/A	N/A	Removed
No Existing	145/54, 18/54	N/A	106.5	N/A	
145/146, 18/62	N/A	52	N/A	N/A	Removed
145/147, 18/62A	N/A	54	N/A	N/A	Removed
145/2001	N/A	32	N/A	N/A	Removed
145/2002	N/A	44	N/A	N/A	Removed
145/2003	N/A	40	N/A	N/A	Removed
145/2004	N/A	34	N/A	N/A	Removed
No Existing	145/55, 18/55	N/A	131.5	N/A	
145/148, 18/63	145/56, 18/56	54	121	67	
145/149, 18/64	145/57, 18/57	61	111.5	50.5	
145/150, 18/65	N/A	47.5	N/A	N/A	Removed
No Existing	145/58, 18/58	N/A	106	N/A	
145/151, 18/66	N/A	43	N/A	N/A	Removed
145/152, 18/67	145/59, 18/59	61	96.5	35.5	
145/153, 18/68	145/60, 18/60	61	101.5	40.5	
145/153, 18/69	145/61, 18/61	61	106.5	45.5	
145/154, 18/69	N/A	47.5	N/A	N/A	Removed
145/155, 18/70	N/A	47.5	N/A	N/A	Removed
145/155A	N/A	38	N/A	N/A	Removed
18/70A	N/A	42	N/A	N/A	Removed
No Existing	145/62, 18/62	N/A	101	N/A	
145/156, 18/71	N/A	43	N/A	N/A	Removed
145/156A	N/A	24	N/A	N/A	Removed
145/156B	N/A	30	N/A	N/A	Removed
145/157, 18/72	145/63	43	81.5	38.5	
18/72A	N/A	24	N/A	N/A	Removed
18/72B	N/A	30	N/A	N/A	Removed

170610148



Legend

 Transmission Line Corridor

0 3,000 6,000
Feet
1:72,000 (at original document size of 8.5x11)



Project Location
County: Prince William
USGS: Queen Occoquan, Fort Belvoir,
Owens, Indian Head
Prepared by: SWS on 2017-03-03
Technical Review by: ASB on 2017-03-03
Independent Review by: CH2M on 2017-03-03

Client/Project

Dominion Virginia Power

Figure No.
1

Location of the Transmission Line Corridor

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Orthoimagery © Bing Maps

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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 State Corporation Commission (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*.

This document includes a view shed analysis to address views from five resources identified pursuant to the guidance of the VDHR for the proposed improvements, which include the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299), the Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301), Camp French/Battle of the Potomac (VDHR #076-5313), the Quantico Marine Corps Base Historic District (VDHR #287-0010), and the Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100).

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 corridor. Two NRHP-listed resources, the Quantico Marine Corps Base Historic District (VDHR #287-0010) and the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299), were identified within the 1.0-mile buffer of the project corridor. The Quantico Marine Corps Base Historic District, as an active military base, was not accessible during the current survey effort. A small section of NRHP-listed Camp French/Battle of the Potomac (VDHR #076-5313) was located within the 1.0-mile buffer as well; however, the portion of the resource under consideration is located within the bounds of Quantico and also was not accessible during the current view shed analysis. The Quantico Marine Corps Base Historic District and Camp French/Battle of the Potomac were, however, analyzed by line-of-sight computer modeling. The visual impact recommendations are based solely on the computer analysis for these two resources. Two resources, which have been determined eligible for listing on the NRHP, were identified within the 0.5-mile buffer of the transmission line corridor and include Tayloe's Iron Works (VDHR #076-0265) and the Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301). The c. 1730 iron works was demolished prior to the current view shed analysis and is now an archaeological site. The site does not cross the transmission line corridor and as an archaeological site, does not meet the criteria for consideration per VDHR's transmission line guidelines. Therefore, the resource was not evaluated for visual impacts. In addition to the previously recorded resources listed above, the American Battlefield Preservation Program (ABPP) Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100) falls within the project area. Since the study was completed prior to filing an SCC application, all digital images were taken from public ROW and/or Dominion property easements.

This Stage I Pre-Application Analysis project was directed by Senior Principal Investigator Ellen Brady. Senior Architectural Historian Sandra DeChard co-authored the report with Ms. Brady. Architectural Historian Metaya Tilahun conducted the fieldwork under the supervision and direction of Sandra DeChard and Ms. Brady. GIS Technician Sean Sutor prepared the report graphics and project maps.

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). Per this 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 resources located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW corridor.

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 corridor. 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

There are 92 previously identified architectural resources located within a 1.5-mile radius of the project centerline for this rebuild project. No NHL-listed architectural resources are located within the 1.5-mile buffer. Two NRHP-listed resources, the Quantico Marine Corps Base Historic District (VDHR #287-0010), not accessible during the current survey, and the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299), were identified in the 1.0-mile buffer of the project corridor. A small section of NRHP-listed Camp French/Battle of the Potomac (VDHR #076-5313) was located within the 1.0-mile buffer as well; however, the portion of the resource under consideration is located within the bounds of Quantico and was not accessible during the current view shed analysis. The two resources, which were not accessible, are analyzed by computer line-of-sight modeling only with visual impact recommendations based solely on the line-of-sight view shed modeling. Two resources, which have been determined eligible for listing on the NRHP, were identified within the 0.5-mile buffer of the transmission line corridor and include Tayloe's Iron Works (VDHR #076-0265) and the Richmond, Fredericksburg &

Potomac Railroad. (VDHR #076-0301; Table 3; Appendix B). The c. 1730 iron works was demolished prior to the current view shed analysis and as such was not studied. In addition to the previously recorded resources listed above, the American Battlefield Preservation Program (ABPP) Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100) falls within the project area. The battlefield was analyzed using both photographs taken during the fieldwork phase and computer line-of-site modeling.

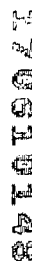
Table 3. Previously Recorded Architectural Resources Considered within the Stage I Pre-Application			
VDHR ID	Resource Name	VDHR/NRHP Status	Distance to Line (feet)
042-5842; ABPP VA100	Cockpit Point Battlefield	Potentially Eligible (ABPP)	0
076-0299	Chopawamsic Recreation Demonstration Area/Prince William Forest Park Historic District	NRHP-Listed 2012	3,500
076-0301	Richmond, Fredericksburg & Potomac Railroad	Determined Eligible by VDHR in 2010; Determined Potentially Eligible by VDHR in 2016	0
076-5313	Camp French/ Battle of the Potomac/ Camp Mallory	NRHP-Listed 2008	5,100
287-0010	Quantico Marine Corps Base Historic District	NRHP-Listed 2001	3,670

2.1.2 Archaeological Resources

Twelve previously identified archaeological resources are located within the project ROW (Appendix C, Table 4). The sites range in date from the Archaic Period through the early seventeenth century. One resource, Site 44PW1023, has been determined not eligible for listing on the NRHP by VDHR in 2004. The remainder of the previously recorded sites is noted as unevaluated in the records of the VDHR.

Table 4. Previously Recorded Archaeological Resources Located within the ROW			
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)
44PW0766	Early Archaic/Early Woodland Camp	Not Evaluated	0
44PW0782	Unknown Camp	Not Evaluated	0
44PW0793	Early Woodland Camp	Not Evaluated	0
44PW0794	Late Archaic Camp	Not Evaluated	0
44PW0795	Prehistory/Unknown Camp	Not Evaluated	0
44PW0804	Prehistory/Unknown Camp	Not Evaluated	0
44PW0807	Early Woodland Camp/ Lithic Workshop	Not Evaluated	0
44PW0814	Prehistoric/Historic Camp	Not Evaluated	0
44PW0843	Early Woodland Camp	Not Evaluated	0
44PW0844	Prehistoric Camp	Not Evaluated	0

Table 4. Previously Recorded Archaeological Resources Located within the ROW			
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)
44PW1023	Unknown	Determine Not Eligible by VDHR in 2004	0
44PW1030	Unknown	Not Evaluated	0



3.0 STAGE I PRE-APPLICATION ANALYSIS RESULTS

3.1 ARCHITECTURAL FIELD WORK METHODOLOGY

Fieldwork for the proposed transmission line project, under the direction of the Stantec's Senior Architectural Historian, Sandra DeChard, was undertaken by Architectural Historian Metaya Tilahun on January 5, 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. Since 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. 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.

3.2 INDIVIDUAL ARCHITECTURAL RESOURCES CONSIDERED

Individual architectural resources noted within the limits of the study area were considered for visual effects for the proposed project. The Richmond, Fredericksburg & Potomac Railroad, is the only individual resource located within the defined project area that met the criteria for consideration per VDHR guidelines and is further described below along with a discussion and recommendation of potential effects as a result of the project.

3.2.1 Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301)

The Richmond, Fredericksburg & Potomac Railroad, completed in the late nineteenth century, extends 11 miles through Prince William and Stafford counties, from Cherry Hill on its northern end to Arkendale, at its southern-most point. The line runs parallel to Route 1 and the Potomac River. The resource comprises two tracks (Figure 2) and a number of bridges, a majority of which has been replaced. The freight station and passenger station, constructed after World War II, located in Quantico, remains. The section of the railroad line located in Prince William and Stafford counties was determined eligible for listing on the NRHP in 2010 by VDHR, although the determination was changed to potentially eligible in 2016 (VDHR Site Form).



Figure 2. Overview of Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301), View Looking Northeast.

3.2.1.1 Visual Effect Assessment

The property is located to the east of, and crosses, the existing transmission line ROW corridor where the line comes into the Possum Point Substation (Appendix B). The resource crosses the corridor between tower 145/2 and 145/3A and is visible from this point. The existing line as well as the 230 kV transmission line, also within the ROW, is visible at this intersection; however, photographs were not able to be taken at this point due to security at the substation. Instead, photographs were taken at a point off Cockpit Point Road north of the substation's entrance (Figures 4-6). Although the existing Lines #145 and #18 were not visible from the point of survey, additional 230 kV transmission line structures were highly visible as two other lines converge into the substation.

The proposed Line #145 and Line #18 rebuild project is sited within existing ROW with the existing 115 kV circuit structures ranging from approximately 35 feet in height to 137 feet in the vicinity of the resource. The proposed replacement towers will range from approximately 56.5 feet in height to 79 feet. Three of the towers; 145/1, 18/1 (90 feet), 145/8, 18/8 (115 feet), and 145/9, 18/9 (137 feet), will remain with no change in height.

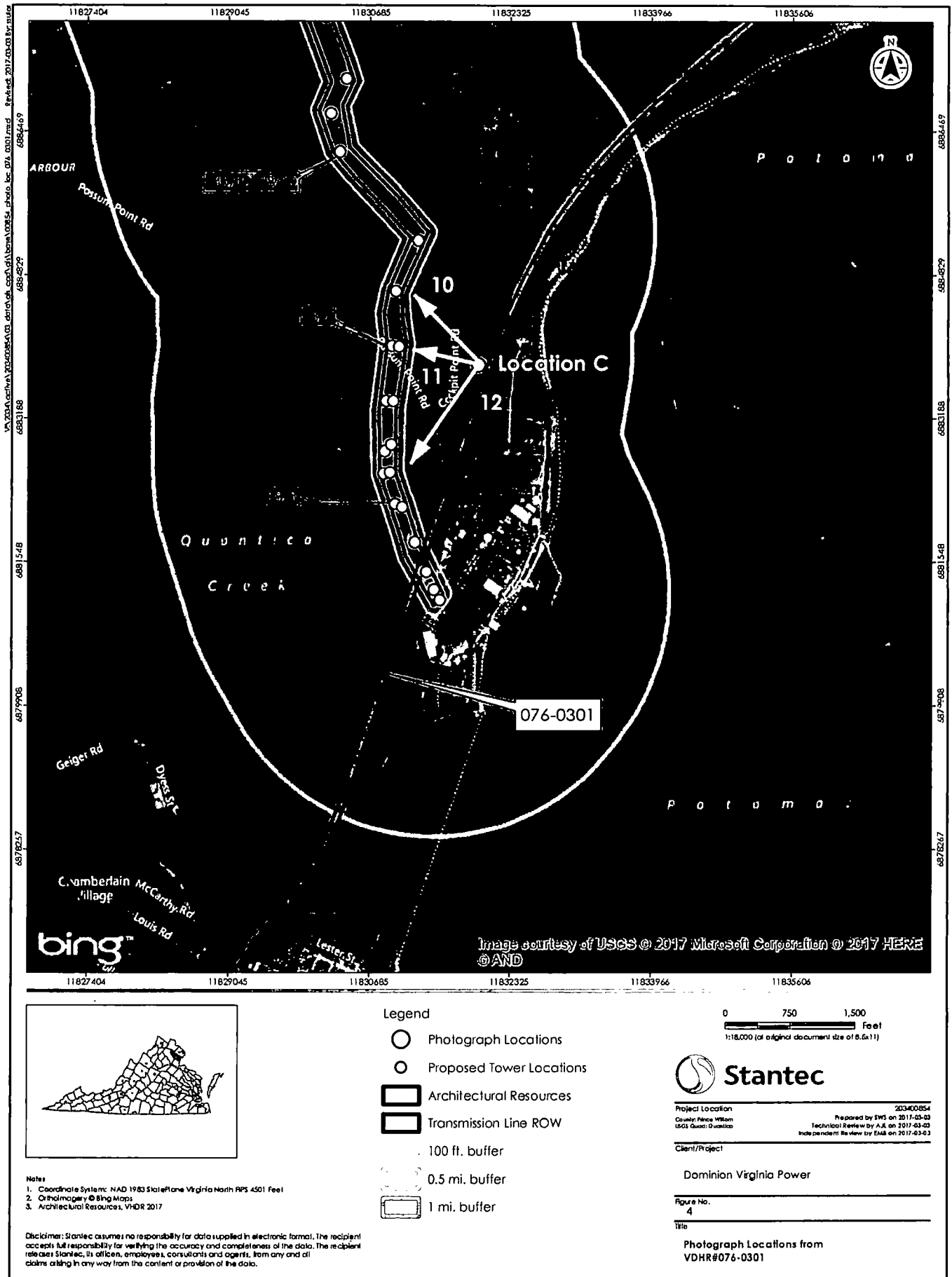
Since the existing tallest structures, 145/8, 18/8 (115 feet) and 145/9, 18/9 (137 feet), will remain and are currently not visible from the resource, and since the proposed new structures will have a minimal height change, and in some cases will decrease, little additional visual impact will occur to the resource. In addition, due to the landscape elevation and density of trees to the west of the resource, the current transmission line was not visible from the point of survey. In other areas,

approximately 580 to 1,200 feet of forest shields the resource from the project transmission line. Currently, the existing Line #145 and Line #18 are visible at the point the line crosses the resource. An existing line, not part of the current project, is also visible from the resource as it runs along-side the tracks (Figure 3). ***It is therefore recommended that the proposed project would have No Visual Impact or at the most a Minimal Visual Impact to the Richmond, Fredericksburg, & Potomac Railroad (VDHR #076-0301).***



Figure 3. View to the Southeast from Photo Location C 12, Toward the Existing Transmission Line. Project Transmission Line is Not Visible. The Red Arrow Denotes the Direction of the Transmission line and Proposed Line #145/#18 Rebuild.

170610148



3.3 HISTORIC DISTRICTS CONSIDERED

Historic Districts noted within the limits of the study area were further considered for visual effects from the proposed project. Two historic districts, which met the criteria for consideration per VDHR guidelines, were within the APE and include the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299) and the Quantico Marine Base Historic District (VDHR #287-0010). Both resources have been listed on the NRHP.

3.3.1 Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299)

The Prince William Forest Park Historic District encompasses approximately 10,900 acres, although the park property contains approximately 15,000 acres. Located on the western side of Dumfries Road, the park has been owned by the National Park Service since 1935, and contains approximately 400 surveyed resources, including a water tower, nature center, cabins, sheds, recreation staff offices, an amphitheater, swimming pool, radio towers, firehouses, and other camp associated buildings. Most of the buildings located on the park property were constructed by the Civilian Conservation Corps (CCC) in the late 1930s as part of President Roosevelt's New Deal Recreation Demonstration Areas (RDA) program. The Prince William Forest Park Historic District was listed on the NRHP in 2012 for its significance as a New Deal recreation area under Criterion A and for its architecture under Criterion C as one of the most intact assemblage of CCC built structures (VDHR Site Form).

3.3.1.1 Visual Effect Assessment

To assess the potential visual effects on the historic district, photographs were taken from accessible points of the district within the 1.0-mile buffer. The points selected were chosen as areas most likely to have a view of the proposed transmission line improvement for Line #145 and Line #18. The district is characterized by the presence of dense mature trees and slight changes in elevation. Several areas along the eastern boundary of the district, in the area to the south of the portion under consideration, contain modern residential housing developments.

The existing transmission line is located northeast and east of the historic district (Appendix B). The proposed structures in the vicinity of the historic district (Towers 145/35, 18/35 to 145/45, 18/45) will replace existing H-frame structures that presently range in height from 50 to 66 feet in height. The proposed towers in the vicinity of the resource will range in height from approximately 90 to 126.5 feet. The ROW in this section of the line also contains the 230 kV #2022 Line, which, on average, is approximately 104 feet in height.

The portion of the NRHP-listed district under consideration is within the 1.0-mile buffer of the existing transmission line corridor includes the northeastern-most area of the resource west/southwest of Dumfries Road. The towers closest to the resource include 145/37 through 145/43, with tower #145/41 located at the turn in the line, and approximately 4,000 feet from the eastern edge of the resource. None of the existing towers or lines was visible from the district from the points of survey (Figures 5-8). Since the existing towers, including the 230 kV line, were not visible from the point of

survey, and due to the changes in elevation, location of the line, and density of trees, it is likely that the proposed structures for the Line #145 and Line #18 rebuild project will not be visible from the resource. In addition, modern development between the resource and existing ROW corridor shields the resource from view of the transmission line. ***It is therefore recommended, that even with an increase in the height of the proposed Line #145 and Line #18, the proposed project would have No Effect to the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299).***

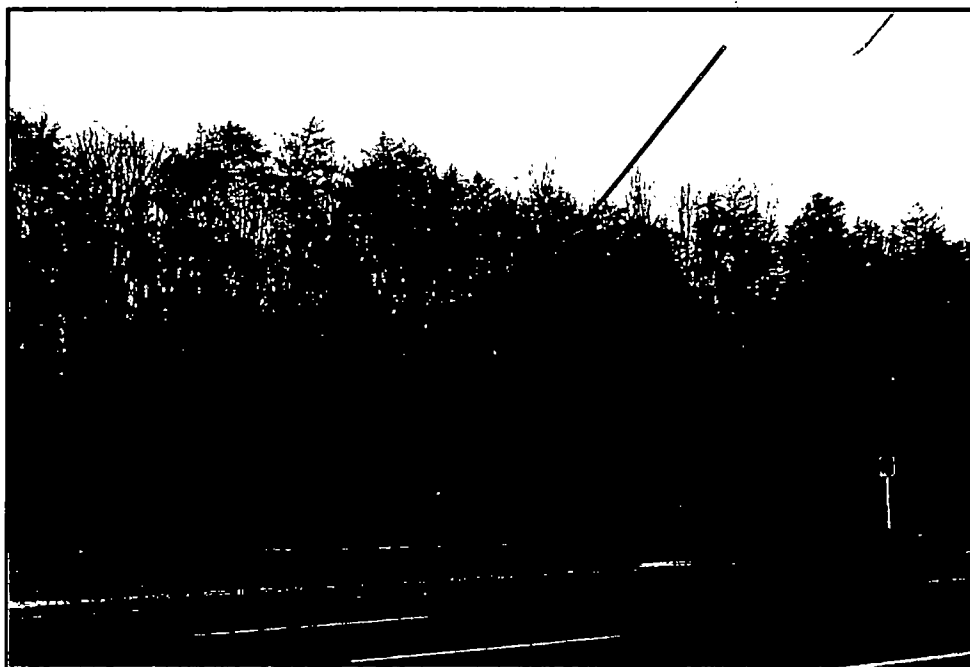


Figure 5. View from Photo Location A (Photo 6), from the Prince William Forest Park Historic District (VDHR #076-0299) Looking Northeast toward the Transmission Line. The Existing Transmission Line Is Not Visible. Red Arrow Denotes Approximate Location of Existing Corridor (Photograph was Taken from Public ROW).



Figure 6. View from Photo Location A (Photo 4), from the Prince William Forest Park Historic District (VDHR #076-0299) Looking Northeast toward the Transmission Line. The Existing Transmission Line is Not Visible. Red Arrow Denotes Approximate Location of Existing Corridor (Photograph was Taken from Public ROW).

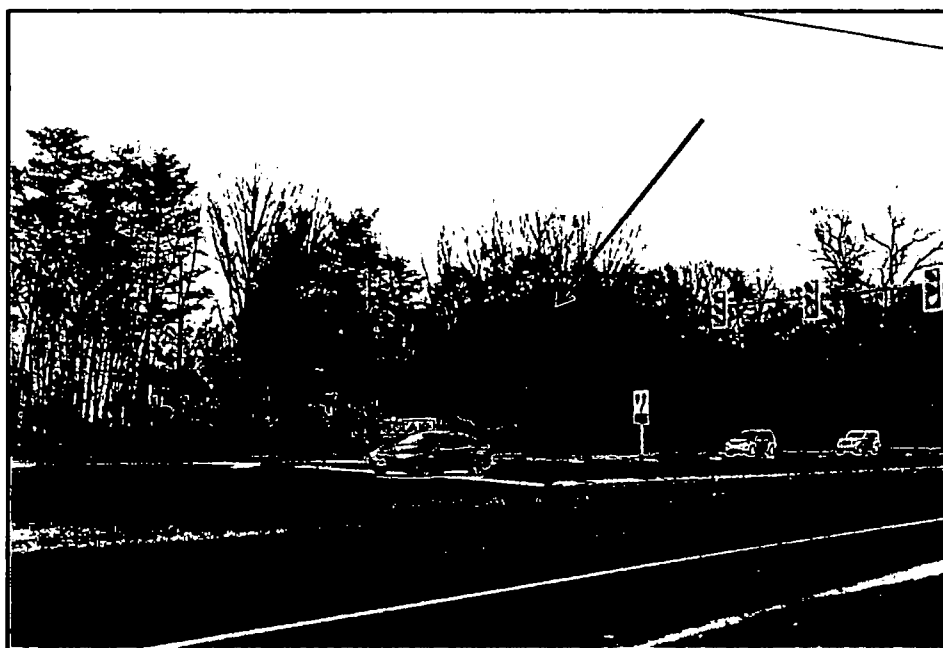


Figure 7. View from Photo Location B (Photo 7), from the Prince William Forest Park Historic District (VDHR #076-0299) Looking Southeast toward the Transmission Line. The Existing Transmission Line is Not Visible. Red Arrow Denotes Approximate Location of Existing Corridor (Photograph was Taken from Public ROW).

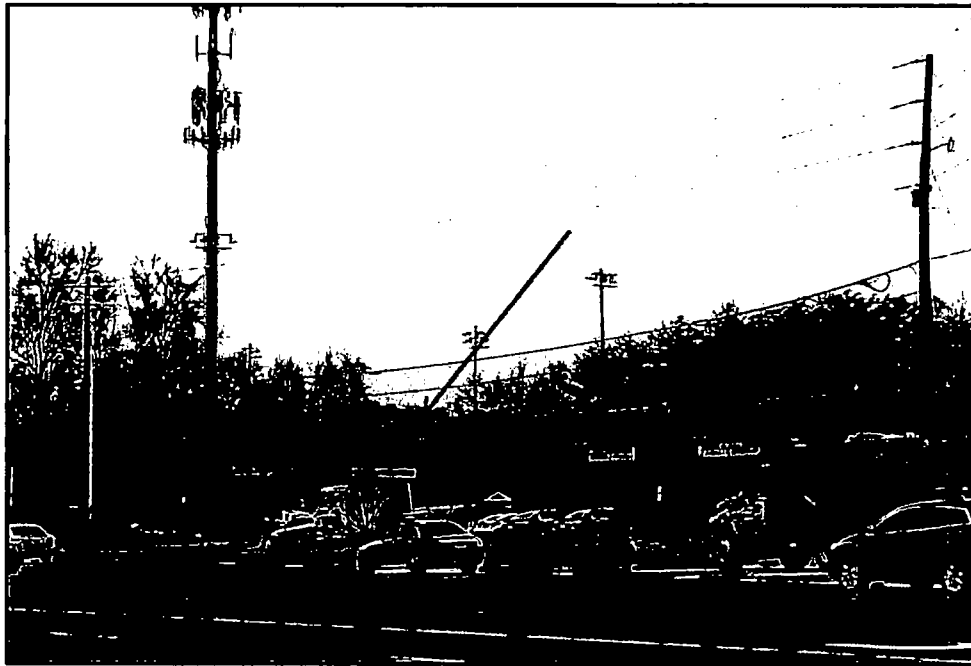
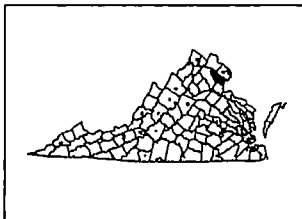


Figure 8. View from Photo Location B (Photo 9), from the Prince William Forest Park Historic District (VDHR #076-0299) Looking Northeast toward the Transmission Line. The Existing Transmission Line is Not Visible. Red Arrow Denotes Approximate Location of Existing Corridor (Photograph was Taken from Public ROW).

170610143



1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Bing Imagery © Bing Maps
3. Elevation Data, USGS 2017
4. Vegetation Data, USDA NLCD
5. Cultural Resources, VDH 2017

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Legend

- Photograph Locations
- Proposed Tower Locations
- Architectural Resources
- Transmission Line ROW
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer
- 1.5 mi. buffer

0 1,000 2,000 Feet
1:24,000 (at original document size of 8.5x11)



Project Location
County: Prince William
USGS Quad: Quantico
203400854
Revised by: SWS on 2017-03-03
Technical Review by: AAK on 2017-03-03
Independent Review by: EAB on 2017-03-03

Client/Project

Dominion Virginia Power

Figure No.
9

Photograph Locations from
VDHR#076-0299

3.3.2 Quantico Marine Corps Base Historic District (VDHR #287-0010)

The Quantico Marine Corps Base Historic District, located in Prince William and Stafford counties, is located on the western shore of the Potomac River. The base, which includes both the Marine Corps Combat Development Command and the Naval Regional Medical Clinic, comprises approximately 100 square miles. The district is characterized by the presence of dense wooded areas as well as open areas containing buildings associated with the Marine Corps facility. The district itself comprises 239 contributing and 188 non-contributing resources located on approximately 1,025 acres. Resources listed as contributing within the NRHP-listed district reflect significance in aviation, education, and industry as well as African-American and military history with a period of significance from 1918 to 1949 (VDHR Site Files; Quantico Marine Corps Base Historic District Nomination Form).

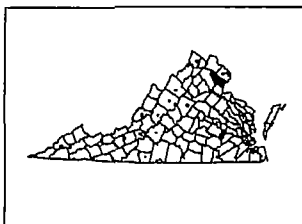
3.3.2.1 Visual Effect Assessment

Access to the Quantico Marine Corps Base Historic District was not permitted at the time of the Stage I field study. A majority of the historic district is situated beyond the 1.0-mile buffer (Appendix B). Since the resource is not an NHL, the section within the 1.5-mile buffer does not meet the criteria for consideration. Two small areas of the NRHP-listed property on the far northeastern end of the historic district are located within the 1.0-mile buffer of the existing/proposed transmission line and meet the criteria for consideration per VDHR guidelines. As access to the resources was not permitted, assessment of the potential visual effects on the historic district was conducted using computer line-of-sight modeling only (Figures 10 and 11).

The existing transmission line and Possum Point Substation are located to the northeast of the historic district. The proposed Line #145 and Line #18 rebuild project is sited within existing ROW with the existing 115 kV circuit structures ranging from approximately 35 feet in height to 137 feet in the vicinity of the resource. The proposed replacement towers will range from approximately 56.5 feet in height to 79 feet. Three of the towers; 145/1, 18/1 (90 feet), 145/8, 18/8 (115 feet), and 145/9, 18/9 (137 feet), will remain with no change in height.

The computer line-of-sight modeling used structures 145/1, 18/1 through 145/13, 18/3 for the view shed analysis. The proposed towers from Location 1, according to the modeling, will not be visible from the resource (Figure 10). The proposed structures from Location 2, according to the modeling, will be visible from the point, the line enters the Possum Point Substation to tower 145/2, 18/2 (Figure 11). As tower 145/1, 18/1 is existing and will remain, it is likely that the structure is currently visible. The proposed tower 145/2; 18/2 will be similar in height to the existing towers that are visible; therefore the view shed of the resource will not change, any marked degree. ***It is therefore recommended that the proposed project would have Minimal Effect to the Quantico Marine Corps Base Historic District (VDHR #287-0010).***

170610148



Legend

- Architectural Resources
- Transmission Line APE
- Proposed Tower Locations
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer
- 1.5 mi. buffer
- Point of Origin of View Shed
- Point of Visual Obstruction
- Tower Potentially Visible from Resource
- Tower Not Visible from Resource

0 1,000 2,000
Feet
1:24,000 (at original document size of 8.5x11)



Project Location: 203400554
County: Prince William
USGS Quad: 01000000
Prepared by: SWS on 2017-03-03
Technical Review by: A.A. on 2017-03-03
Inks provided by: EMB on 2017-03-03

Client/Project:

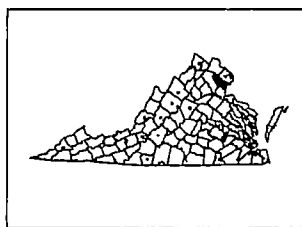
Dominion Virginia Power

Figure No.
10

Title
Line of Sight Analysis
VDHR#287-0010

- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified Bing Maps
 3. Elevation Data: USGS 2017
 4. Vegetation Data: USDA NLCD
 5. Cultural Resources: VDH 2017

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Legend

- Architectural Resources
- Transmission Line APE
- Proposed Tower Locations
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer
- 1.5 mi. buffer
- Point of Origin of View Shed
- Point of Visual Obstruction
- Tower Potentially Visible from Resource
- Tower Not Visible from Resource

0 1,000 2,000
Feet
1:24,000 (at original document size of 8.5x11)



Project Location: 203400854
County: Prince William
USGS Quad: 040810
Prepared by: SWS on 2017-03-03
Technical Review by: A.J.L. on 2017-03-03
Independent Review by: EMB on 2017-03-03

Client/Project:

Dominion Virginia Power

Figure No.
11

Title
Line of Sight Analysis
VDHR#287-0010

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Orthorectified Bing Maps
3. Elevation Data: USGS 2017
4. Vegetation Data: USDA, NLCD
5. Cultural Resources: VDH 2017

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3.4 BATTLEFIELD RESOURCES CONSIDERED

Battlefields and associated fortifications noted within the limits of the study area were further considered for visual effects for the proposed project. Two battlefields were located within the project area and include Camp French/Confederate Cantonment at Evansport/Battle of the Potomac (VDHR #076-5313) and the Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100). The resources are further described below along with a discussion of potential effects as a result of the project. Recommendations on visual effects are provided. Potential direct effects to the battlefield resources will be assessed during future archaeological investigations.

3.4.1 Camp French/ Confederate Cantonment at Evansport/Battle of the Potomac (VDHR #076-5313)

The Potomac River, historically, was part of a major supply route via water to Washington DC. In the first months of the Civil War, after the Union's defeat at the First Battle of Manassas, and in an attempt to block the supply route and cripple the nation's capital, Confederate forces constructed batteries along the shores of the river. The batteries were armed with artillery abandoned by the retreating Union troops. The largest guns were placed at the deepest points of the River including the vicinity of Evansport and Shipping Point on the southern side near the mouth of Quantico Creek.

Union warships, on October 15, 1861, fired at Shipping Point, unaware of the strength of the Confederate positions. The warships *Seminole* and *Pocahontas* were greeted with return fire of large caliber. The unmasking of the batteries along the Potomac effectively formed a blockade for the Union fleet to reach the capital via the waterway. In response, Lincoln sent Joseph Hooker's troops to the opposite shore in Maryland and fired on the Confederate's batteries while General George McClellan, commander of the army, led the campaign up the peninsula between the York and James rivers toward Richmond. Attacks by Hooker's forces were formidable, but caused little in the way of damage or casualties to the Confederate forces across the river. While Union troops continued to fire on Evansport, among other batteries, McClellan's forces were moving up the peninsula. In order to defend areas closer to Richmond, the Confederates abandoned the Potomac batteries. On March 9, 1862, ships of the Union's fleet fired on the batteries one last time, although no fire was returned. The Potomac was once again safe for shipping by the Union (VDHR Site Files).

Camp French/ Confederate Cantonment at Evansport/Battle of the Potomac (VDHR #076-5313) was listed on the NRHP in 2008 as part of the Properties Associated with Campaigns for Navigation on the Lower Potomac River Multiple Property District (VDHR #076-5312).

3.4.1.1 Visual Effects Assessment

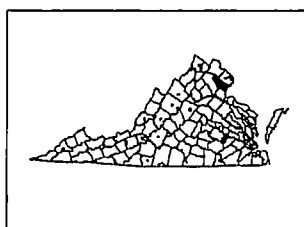
Camp French/Confederate Cantonment at Evansport/Battle of the Potomac is located approximately 4,700 feet to the southwest of the Possum Point Substation at its closest point (Appendix B). Only a small area of the NRHP-listed resource is located within the 1.0-mile buffer that meets the criteria for consideration per VDHR guidelines. The landscape between the

resource and the Possum Point Substation consists of mainly dense areas of woods broken by several roads with small areas of residential development, which appears to be base housing. As the resource is located within the Quantico Marine Corps Base, access to Camp French/Confederate Cantonment at Evansport/Battle of the Potomac was not permitted at the time of the Stage I field study. As such, assessment of the potential visual effects on the historic district was conducted using computer line-of-sight modeling only (Figure 12).

The existing transmission line and Possum Point Substation are located to the northeast of the historic district. Proposed structures for the Line #145 and Line #18 rebuild project will be sited within existing ROW with the existing 115 kV circuit structures ranging from approximately 35 feet in height to 137 feet in the vicinity of the resource. The proposed replacement towers will range from approximately 56.5 feet in height to 79 feet. Three of the towers; 145/1, 18/1 (90 feet), 145/8, 18/8 (115 feet), and 145/9, 18/9 (137 feet), will remain with no change in height.

The computer line-of-sight modeling used structures 145/1, 18/1 through 145/13, 18/3 for the view shed analysis. The proposed towers, according to the modeling, will not be visible from the resource (Figure 12). ***It is therefore recommended that the proposed project would have a No Visual Effect to Camp French/Confederate Cantonment at Evansport/Battle of the Potomac (VDHR #076-5313).***

170610148



Legend

- Architectural Resources
- Transmission Line APE
- Proposed Tower Locations
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer
- 1.5 mi. buffer
- Point of Origin of View Shed
- Point of Visual Obstruction
- Tower Potentially Visible from Resource
- Tower Not Visible from Resource

0 1,000 2,000
Feet
1:24,000 (at original document size of 8.5x11)



Project Location
County: Prince William
USGS: Quantico
Prepared by: SWS on 2017-03-03
Technical Review by: A.S. on 2017-03-03
Independent Review by: E.M. on 2017-03-03

Client/Project

Dominion Virginia Power

Figure No.
12

Line of Sight Analysis
VDHR#076-5313

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Orthorectified Bing Maps
3. Elevation Data, USGS 2017
4. Vegetation Data, USDA, NLCD
5. Cultural Resources, VDH 2017

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3.4.2 Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100)

The Battle of Cockpit Point took place on January 3, 1862 and was part of the Blockade of the Potomac River Campaign. Batteries has been previously set up on the Point as part of the defensive line, which also included Evansport, Freestone Point, and Shipping Point. The battle on January 3rd pitted Lieutenant R. H. Wyman, Commander of the Union forces, against Brigadier General S. G. French, Commander of the Confederate forces. The battle was inconclusive and limited damage was done to either the Union ships, the *Anacostia* and *Yankee*, engaged in the battle, or to the Cockpit Point battery (VDHR Site Files; Townsend 1988; ABPP 2016).

3.4.2.1 Visual Effects Assessment

The ABPP core and PotNR area of Cockpit Point Battlefield is located directly east of the project transmission line as well as the transmission line which runs in a northerly direction from the Possum Point Substation. The southern end of the ABPP study area is located within and adjacent to the Possum Point to Smoketown transmission line corridor. The core area directly to the east abuts the existing transmission line corridor between 18/6 and 18/9 (Figures 14 and 15). The landscape between the resource and the existing transmission line consists of mainly dense areas of woods broken by several roads with areas of residential development located within the northwestern-most end of the Cockpit Point Battlefield ABPP Study Area. Assessment of the potential visual effects on the historic district was conducted mainly using computer line-of-sight modeling (Figure 15).

The existing transmission line is located northwest and west of the resource. Proposed structures in and in the vicinity of the battlefield will replace existing 115 kV structures that range in height from approximately 60 to 137 feet in height. The proposed replacement towers within the PotNR and core areas of the battlefield will range from approximately 56.5 feet in height to 79 feet. Several proposed towers will be lower than the current structures. Three of the towers; 145/1, 18/1 (90 feet), 145/8, 18/8 (115 feet), and 145/9, 18/9 (137 feet), will remain with no change in height. The existing towers in the vicinity of the study area at the northwestern end of the resource and where the resource boundary crosses the corridor range in height from 39 to 59 feet. The proposed towers in this area range in height from approximately 91 to 136 feet (145/19 through 145/30).

The computer line-of-sight modeling used structures include 18/6 through 18/9 for the core study area (Figure 15) and 145/14 through 145/16, 145/20 through 145/22, and 145/23, 145.25 and 145/29 for the study areas. According to the line-of-sight analysis, none of the towers evaluated for the core area will be visible from this area of the resource. Two towers, 145/20 and 145/23, according to the line-of-sight analysis, will be visible from the ABPP study areas (Figure 15). ***It is therefore recommended that the proposed project would have a Minimal Visual Effect to the Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100).***

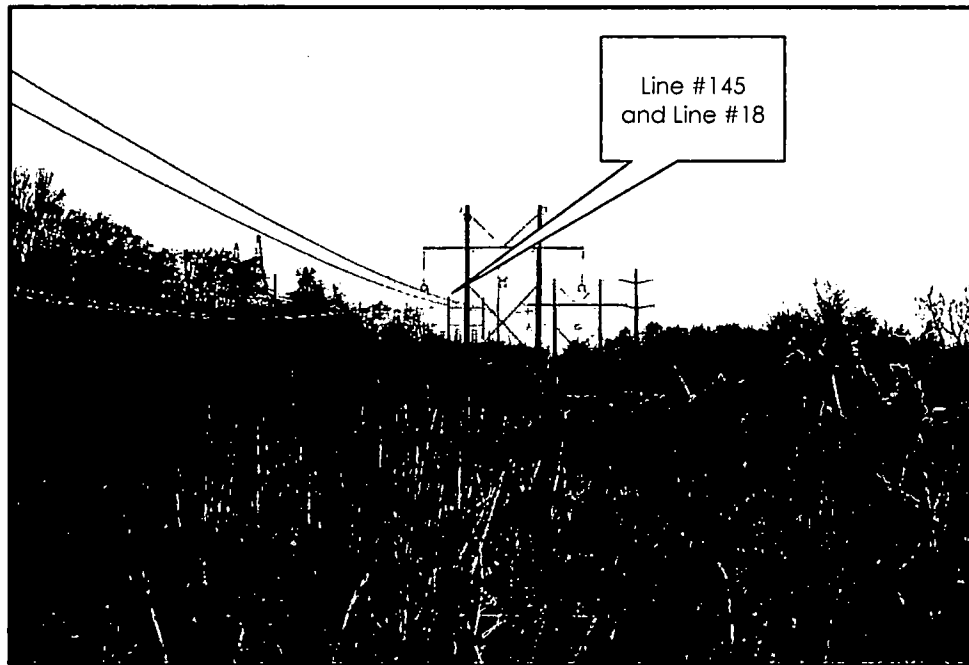
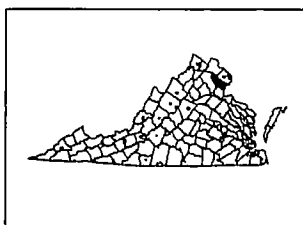
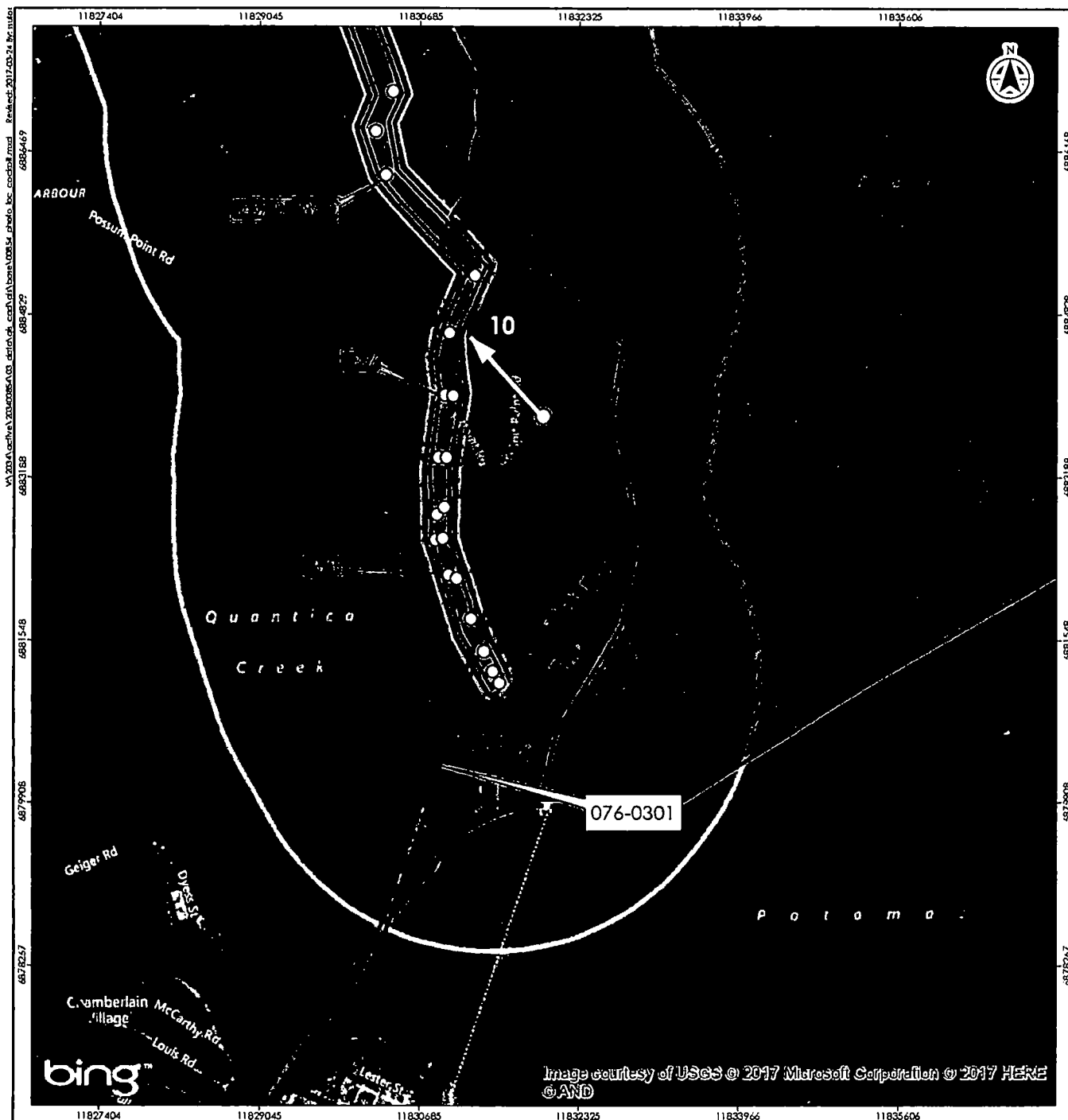


Figure 13. View from Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100), Looking Northwest (Transmission Line Visible In Foreground of the Photograph is not Line #145 or Line #18; Line #145 and Line #18 is Slightly Visible In the Background).

170610148



Legend

- Photograph Locations
- Proposed Tower Locations
- Architectural Resources
- Transmission Line ROW
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer

0 750 1,500 Feet
1:18,000 (at original document size of 8.5x11)



Stantec

Project Location: 203400554
County: Prince William
USGS Quad: 040100
Prepared by SWB on 2017-03-24
Technical Review by AJL on 2017-03-24
Independent Review by EMB on 2017-03-24

Client/Project

Dominion Virginia Power

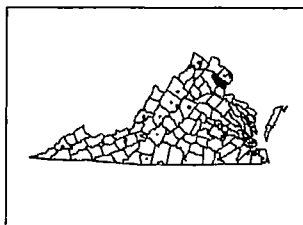
Figure No.
14

Title
Photograph Locations from
ABPP Study Areas of Cockpit Point Battlefield

- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North RPS 4501 Feet
 2. Orthomosaic: © Bing Maps
 3. Cultural Resources: VHDNR 2017, ABPP

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170610148



- Transmission Line Corridor
- Point of Origin of View Shed
- Proposed Tower Locations
- Point of Visual Obstruction
- 100 ft. buffer
- 0.5 mi. buffer
- 1 mi. buffer
- 1.5 mi. buffer
- Tower Potentially Visible from Resource
- Tower Not Visible from Resource
- Cockpit Point Core Areas
- Cockpit Point Potential NR Areas
- Cockpit Point Study Areas

0 1,500 3,000
Feet
1:36,000 (at original document size of 8.5x11)



Project Location: 203400 054
County: Prince William
1405 Quantico
Prepared by: SWS on 2017-03-27
Technical Review by: A.A. on 2017-03-27
Independent Review by: EAB on 2017-03-27

Client/Project:

Dominion Virginia Power

Figure No.
15

Title
Line of Sight Analysis
Cockpit Point Battlefield

- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified Bing Maps
 3. Elevation Data: USGS 2017
 4. Vegetation Data: USDA NLCD
 5. Cultural Resources: VDH 2017

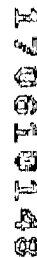
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3.5 ARCHAEOLOGICAL SITES WITHIN THE ROW CORRIDOR

Twelve previously identified archaeological resources are located within the project ROW (Appendix C, Table 5). The sites range in date from the Archaic Period through the early seventeenth century. One resource, Site 44PW1023, has been determined not eligible for listing on the NRHP by VDHR in 2004. The remainder of the previously recorded sites is noted as unevaluated in the records of the VDHR. Site 44PW0766 was documented as an Early Archaic/Early Woodland camp site with artifacts consisting of a quartz St. Albans stemmed projectile point, a quartz Vernon/Calvert projectile point with bifurcate base, two quartz distal end projectile point fragments, and nine flakes. Site 44PW0794 was documented as a Late Archaic camp site. Recovered artifacts included a quartz Savannah River projectile point, quartz post-Savannah River point with contracting stem and squared base, slate biface, nine flakes, and a quartz scraper with graver spur.

Table 5. Previously Recorded Archaeological Resources Located within the ROW

VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)
44PW0766	Early Archaic/Early Woodland Camp	Not Evaluated	0
44PW0782	Unknown Camp	Not Evaluated	0
44PW0793	Early Woodland Camp	Not Evaluated	0
44PW0794	Late Archaic Camp	Not Evaluated	0
44PW0795	Prehistory/Unknown Camp	Not Evaluated	0
44PW0804	Prehistory/Unknown Camp	Not Evaluated	0
44PW0807	Early Woodland Camp/ Lithic Workshop	Not Evaluated	0
44PW0814	Prehistoric/Historic Camp	Not Evaluated	0
44PW0843	Early Woodland Camp	Not Evaluated	0
44PW0844	Prehistoric Camp	Not Evaluated	0
44PW1023	Unknown	Determine Not Eligible by VDHR in 2004	0
44PW1030	Unknown	Not Evaluated	0



4.0 CONCLUSIONS

4.1 OVERVIEW

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Virginia Power (Dominion) to conduct a Stage I Pre-Application Analysis for the proposed rebuilding of the Possum Point to Smoketown 115 kV Lines #145 and #18 project in Prince William County, Virginia. Dominion proposes to rebuild, entirely within an existing right-of-way, approximately 8.4 miles of existing 115 kV double circuit transmission lines, Possum Point to Smoketown Line #18 and Possum Point to Smoketown Line #145, located between Dominion's Possum Point Station and NOVEC's Smoketown DP entirely in Prince William County, Virginia. The rebuild will utilize 230 kV design clearances. Although the Rebuild Project proposes to construct the lines to be capable of operating at 230 kV, operation of the lines would continue at 115 kV until such time as needed to serve the Woodbridge load area.

4.1.1 Recommendations - Architectural Resources

There are 92 previously identified architectural resources located within a 1.5-mile radius of the project centerline for this rebuild project. No NHL-listed architectural resources are located within the 1.5-mile buffer. Two NRHP-listed resources, the Quantico Marine Corps Base Historic District (VDHR #287-0010), not accessible during the current survey, and the Prince William Forest Park Historic District/Chopawamsic Recreation Demonstration Area (VDHR #076-0299), have been identified in the 1.0-mile buffer of the project corridor. A small section of NRHP-listed Camp French/Camp Mallory (VDHR #076-5313) is located within the 1.0-mile buffer as well; however, the portion of the resource under consideration is located within the bounds of Quantico and was not accessible during the current view shed analysis. The two resources which were not accessible are analyzed by computer line-of-sight modeling only with visual impact recommendations based solely on the line-of-sight view shed modeling. Two resources, which have been determined eligible for listing on the NRHP have been identified within the 0.5-mile buffer of the transmission line corridor and include Tayloe's Iron Works (VDHR #076-0265) and the Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301). The c. 1730 iron works was demolished prior to the current view shed analysis and as such was not studied. In addition to the previously recorded resources listed above, the American Battlefield Preservation Program (ABPP) Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100) falls within the project area. Table 6 details the recommendations for the project.

The proposed rebuild would increase structure heights approximately 0.5 to 73.5 (maximum) feet over the existing structure heights. New structures will be located, in some cases, approximately 50 to 100 feet from the locations of existing 115 kV structures. Several structures at the southern end of the line will remain, while several will be lower than the existing structures. The proposed structure heights will be, in most cases, equal to or lower than the existing 230 kV Line #2022, also located within the ROW corridor in the northern end of the project area. Based on the analysis, it is recommended that the rebuild would have a None to Minimal Visual Impact to the Richmond, Fredericksburg & Potomac Railroad (VDHR #076-0301), and the Quantico Marine Corps Base

Historic District (VDHR #287-0010) as the existing line is currently visible in areas and the proposed structures will change in height approximately 30 feet or less. It is recommended that the ABPP Cockpit Point Battlefield (VDHR #042-5842; ABPP VA100) will be Minimally Visually Impacted as several of the towers in the northwestern end of the resource within the Study Areas will range in height from approximately 56 to 136 feet, with tower 145/30, which is in a new location, constructed at the maximum height of approximately 136 feet. It is also recommended that the rebuild would have No Visual Impact to the Chopawamsic Recreation Demonstration Area/Prince William Forest Park Historic District (VDHR #076-0299) and Camp French/Battle of the Potomac/Camp Mallory (VDHR #076-5313).

Table 6. Previously Recorded Architectural Resources Considered within the Stage I Pre-Application				
VDHR #	Resource Name	VDHR/NRHP Status	Distance to Line (Feet)	Impact
042-5842; ABPP VA100	Cockpit Point Battlefield	Potentially Eligible (ABPP)	0	Minimal
076-0299	Chopawamsic Recreation Demonstration Area/Prince William Forest Park Historic District	NRHP-Listed 2012	3,500	None
076-0301	Richmond, Fredericksburg & Potomac Railroad	Determined Eligible by VDHR in 2010; Determined Potentially Eligible by VDHR in 2016	0	None to Minimal
076-5313	Camp French/ Battle of the Potomac/ Camp Mallory	NRHP-Listed 2008	5,100	None
287-0010	Quantico Marine Corps Base Historic District	NRHP-Listed 2001	3,670	None to Minimal

4.1.2 Recommendations - Archaeological Resources

Twelve previously identified archaeological resources are located within the project ROW (Table 7). The sites range in date from the Archaic Period through the early seventeenth century. One resource, Site 44PW1023, has been determined not eligible for listing on the NRHP by VDHR in 2004. The remainder of the previously recorded sites is noted as unevaluated in the records of the VDHR. *It is recommended that archaeological sites located within the ROW be investigated and evaluated as appropriate during future investigations.*

Table 7. Previously Recorded Archaeological Resources Located within the ROW				
VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)	Impact
44PW0766	Early Archaic/Early Woodland Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0782	Unknown Camp	Not Evaluated	0	Investigate During Archaeological Survey

Table 7. Previously Recorded Archaeological Resources Located within the ROW

VDHR ID	Resource Type	VDHR/NRHP Status	Distance to Line (feet)	Impact
44PW0793	Early Woodland Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0794	Late Archaic Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0795	Prehistory/Unknown Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0804	Prehistory/Unknown Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0807	Early Woodland Camp/ Lithic Workshop	Not Evaluated	0	Investigate During Archaeological Survey
44PW0814	Prehistoric/Historic Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0843	Early Woodland Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW0844	Prehistoric Camp	Not Evaluated	0	Investigate During Archaeological Survey
44PW1023	Unknown	Determine Not Eligible by VDHR in 2004	0	Investigate During Archaeological Survey
44PW1030	Unknown	Not Evaluated	0	Investigate During Archaeological Survey

5.0 REFERENCES

1999 "Quantico Marine Corps Base Historic District" National Register of Historic Places Nomination form.

American Battlefield Protection Program (ABPP)

2016 "CWSAC Battlefield Summaries: Cockpit Point"
<https://www.nps.gov/abpp/battles/va100.htm>, Accessed 24 March 2017.

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.

Townsend, Jan

1988 "Civil War Properties in Prince William County, VA" National Register of Historic Places Nomination form.

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.

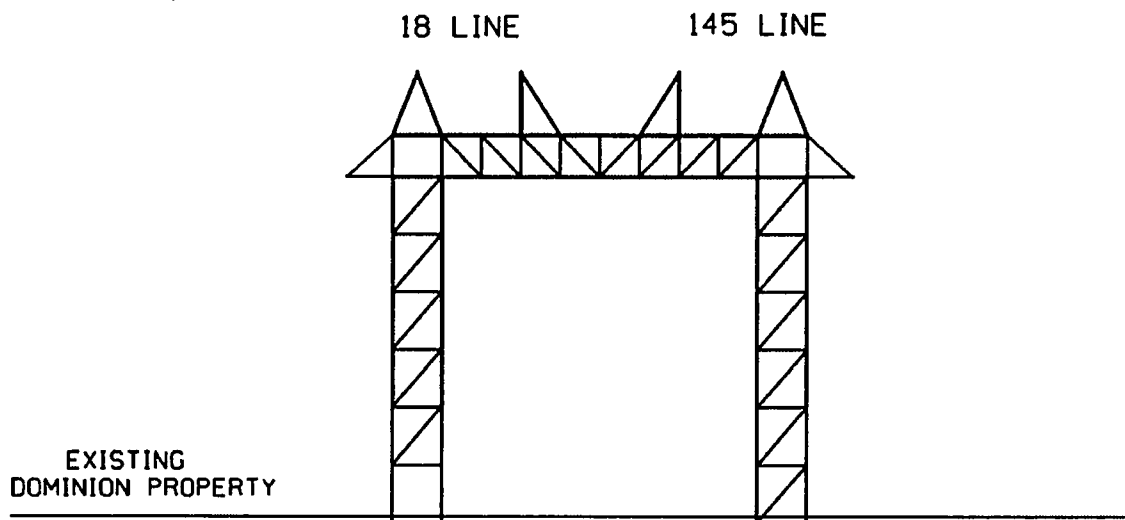
2016 Archive Files.

170619148

Appendix A

A.1 STRUCTURE DETAILS

EXISTING STRUCTURES: 18/2, 145/2

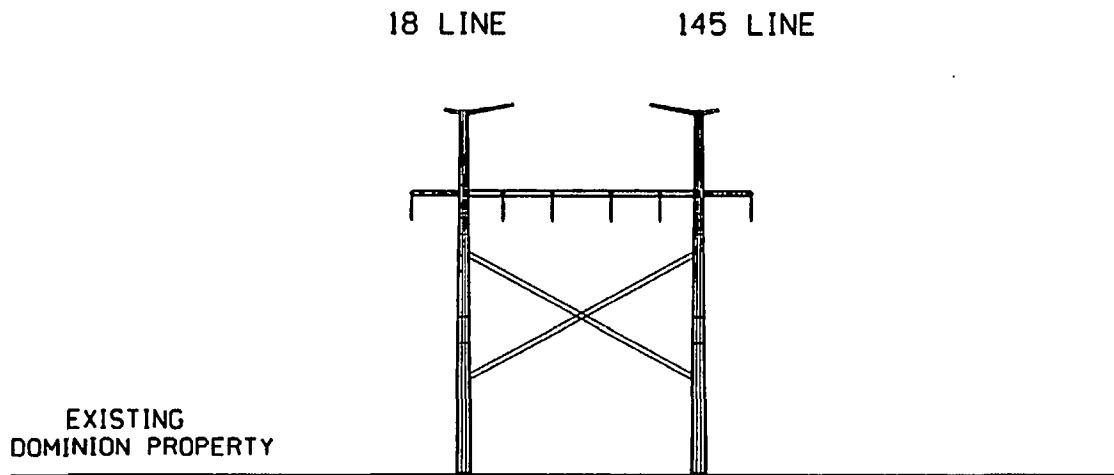


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED LATTICE H-FRAME
FOUNDATION :	EXISTING
APPROXIMATE HEIGHT:	86 FEET
WIDTH AT CROSSARM:	102 FEET
WIDTH AT BASE:	84 FEET
AVERAGE SPAN LENGTH:	388 FEET
CONDUCTOR TYPE:	ALUMINUM
RIGHT OF WAY WIDTH:	N/A
APPROXIMATE LENGTH:	0.14 MILES

PROPOSED STRUCTURES: 18/2, 145/2

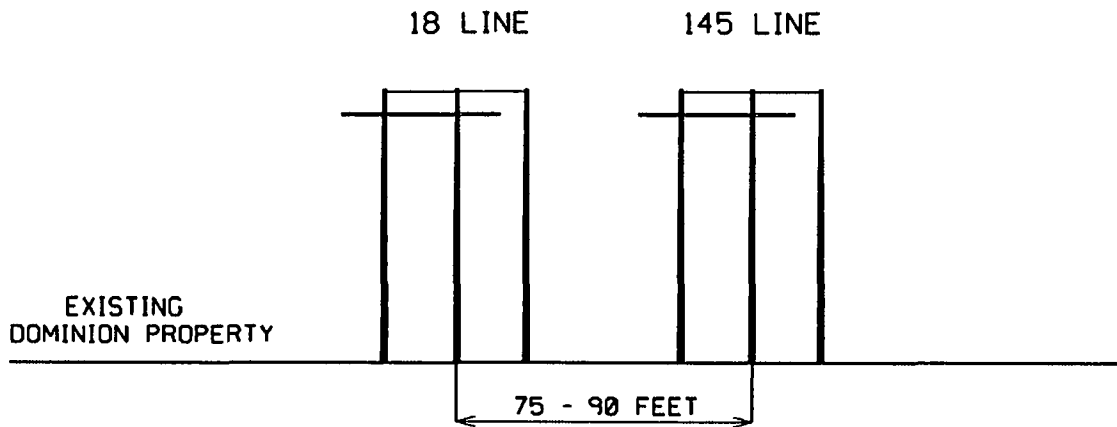


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED H-FRAME
FOUNDATION :	DRILLED PIER
APPROXIMATE HEIGHT:	71 FEET
WIDTH AT CROSSARM:	70 FEET
WIDTH AT BASE:	48 FEET
AVERAGE SPAN LENGTH:	265 FEET
CONDUCTOR TYPE:	ALUMINUM
RIGHT OF WAY WIDTH:	N/A
APPROXIMATE LENGTH:	0.06 MILES

EXISTING STRUCTURES: 18/4, 145/88, 18/6, 145/90 - 18/7, 145/91 &
18/11, 145/95 - 18/14, 145/97

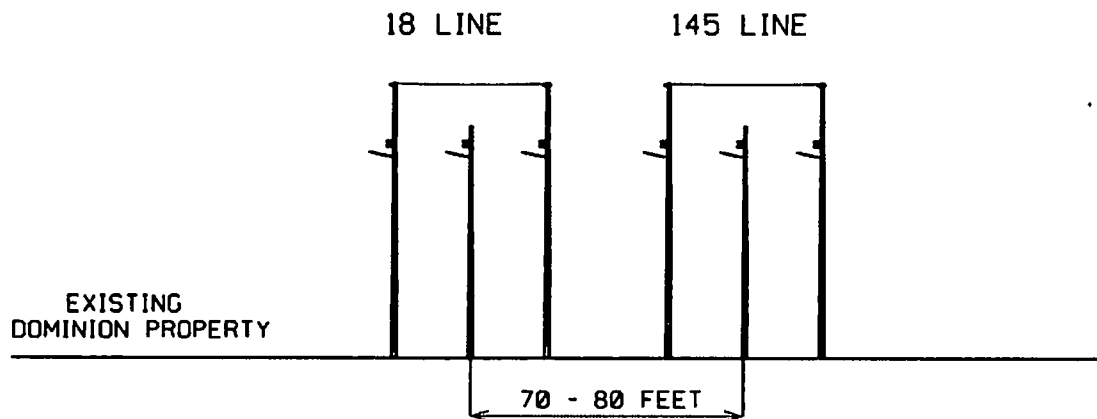


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	54 FEET	56 FEET
WIDTH AT CROSSARM:	32 FEET	32 FEET
WIDTH AT BASE:	42 FEET	42 FEET
AVERAGE SPAN LENGTH:	455 FEET	453 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.62 MILES	0.62 MILES

PROPOSED STRUCTURES: 18/2A, 145/2A, 18/4, 145/4,
18/6, 145/6, 18/7, 145/7, & 18/11, 145/11 - 18/12, 145/12

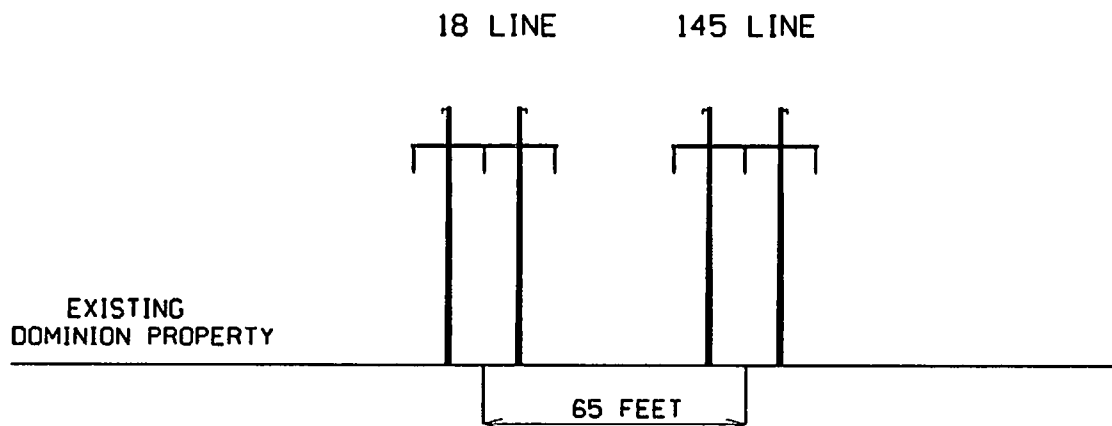


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	WEATHERING STEEL H-FRAME	WEATHERING STEEL H-FRAME
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	65 FEET	65 FEET
WIDTH AT CROSSARM:	32 FEET	32 FEET
WIDTH AT BASE:	32 FEET	32 FEET
AVERAGE SPAN LENGTH:	545 FEET	548 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.70 MILES	0.70 MILES

EXISTING STRUCTURES: 18/3, 145/87 & 18/5, 145/89

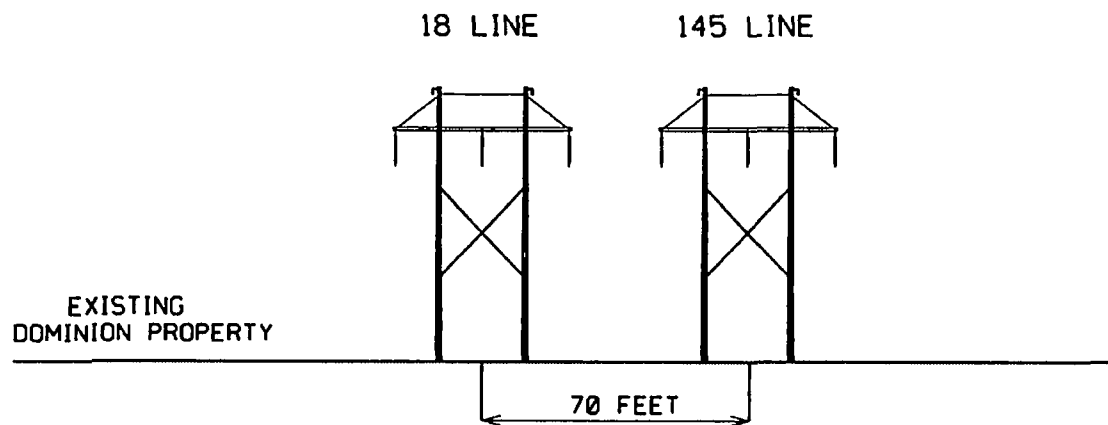


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	56 FEET	56 FEET
WIDTH AT CROSSARM:	32 FEET	32 FEET
WIDTH AT BASE:	16 FEET	16 FEET
AVERAGE SPAN LENGTH:	455 FEET	463 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.20 MILES	0.20 MILES

PROPOSED STRUCTURES: 18/3, 145/3 & 18/5, 145/5

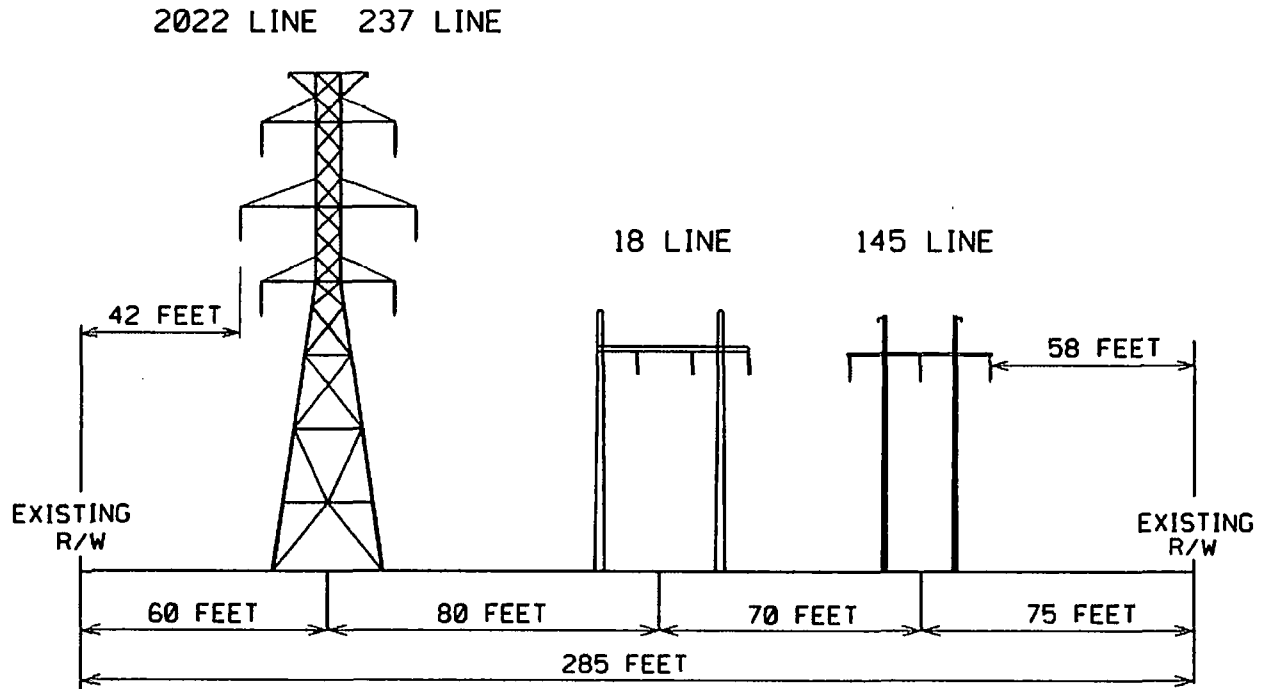


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	WEATHERING STEEL H-FRAME	WEATHERING STEEL H-FRAME
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	60 FEET	60 FEET
WIDTH AT CROSSARM:	37 FEET	37 FEET
WIDTH AT BASE:	18 FEET	18 FEET
AVERAGE SPAN LENGTH:	515 FEET	495 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.20 MILES	0.20 MILES

**EXISTING STRUCTURES: 2022/10, 237/10 - 2022/38, 237/38 &
18/15, 145/99 - 18/45, 145/129**



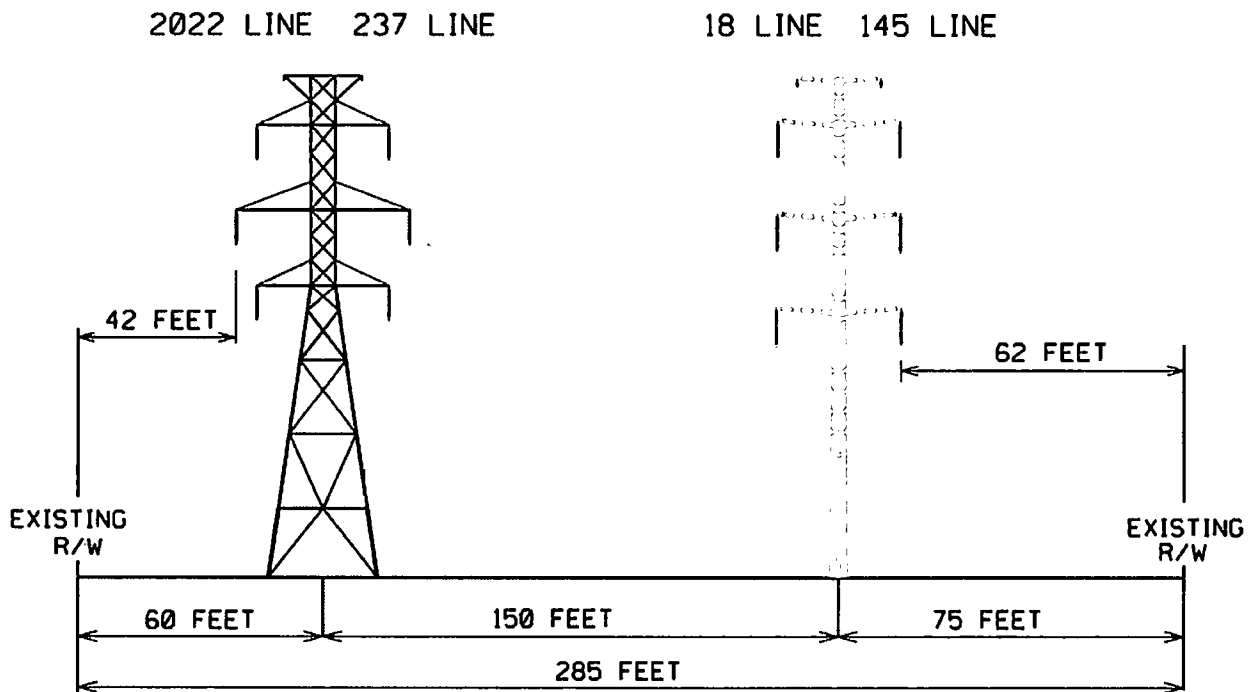
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TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	EXISTING	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	104 FEET	51 FEET	51 FEET
WIDTH AT CROSSARM:	36 FEET	32 FEET	32 FEET
WIDTH AT BASE:	24 FEET	26 FEET	16 FEET
AVERAGE SPAN LENGTH:	738 FEET	563 FEET	563 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	285 FEET	285 FEET	285 FEET
APPROXIMATE LENGTH:	4.0 MILES	4.0 MILES	4.0 MILES

EXISTING STRUCTURES: 2022/10, 237/10 - 2022/37, 237/37

PROPOSED STRUCTURES: 18/13, 145/13 - 18/40, 145/40



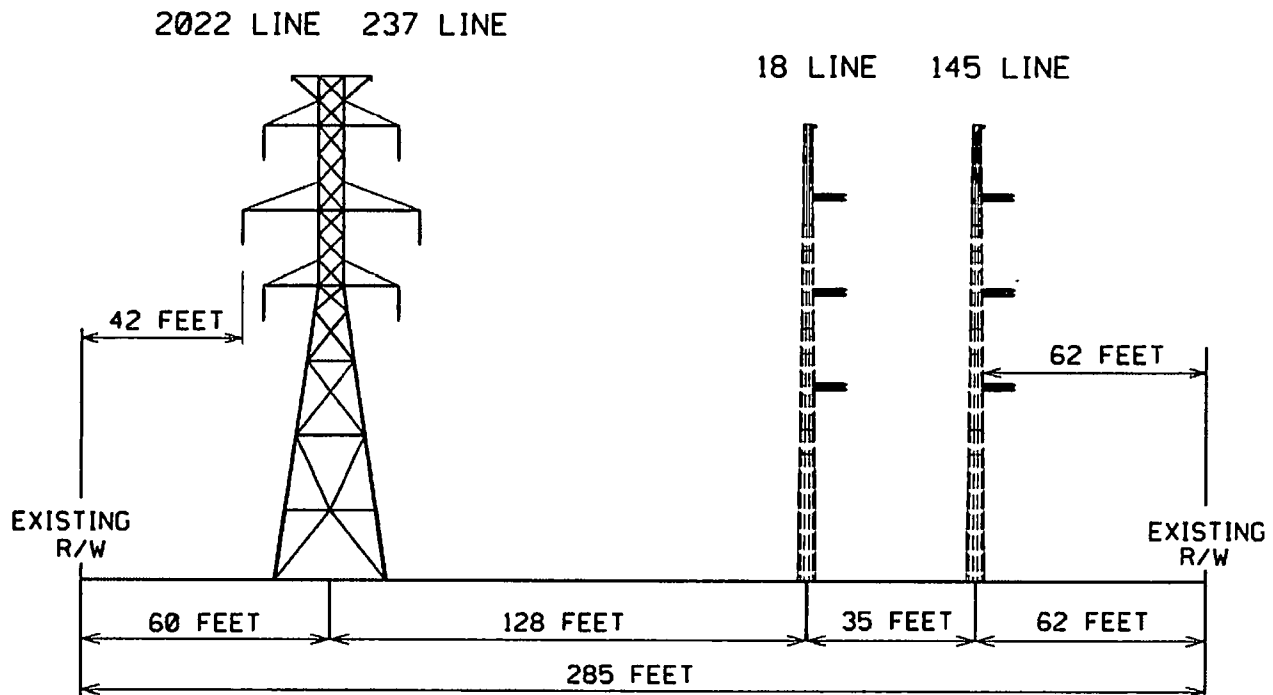
PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	104 FEET	106 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	738 FEET	737 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	285 FEET	285 FEET
APPROXIMATE LENGTH:	3.85 MILES	3.85 MILES

EXISTING STRUCTURES: 2022/38, 237/38 & 2022/59, 237/59

PROPOSED STRUCTURES: 18/41, 145/41 & 18/63, 145/63

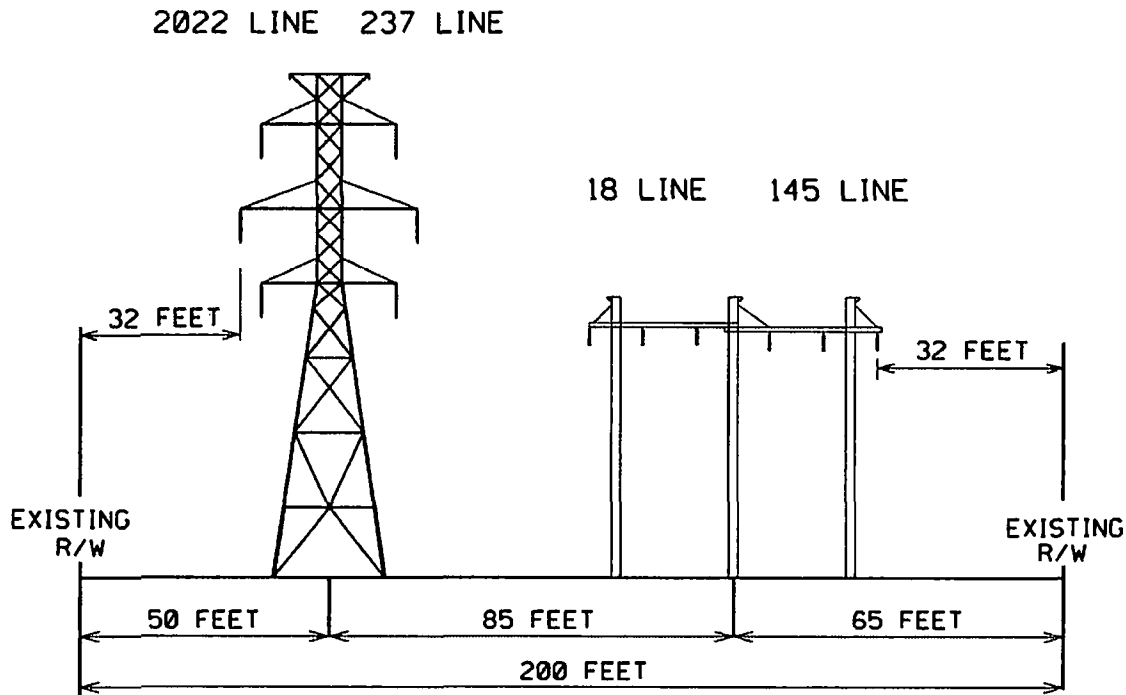


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER	DRILLED PIER
APPROXIMATE HEIGHT:	104 FEET	90 FEET	90 FEET
WIDTH AT CROSSARM:	36 FEET	3 FEET	3 FEET
WIDTH AT BASE:	24 FEET	4 FEET	4 FEET
AVERAGE SPAN LENGTH:	775 FEET	688 FEET	688 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	285 FEET	285 FEET
APPROXIMATE LENGTH:	0.15 MILES	0.15 MILES	0.15 MILES

EXISTING STRUCTURES: 2022/39, 237/39 - 2022/45, 237/45 &
2022/47, 237/47 - 2022/57, 237/57 & 2022/59, 237/59 &
18/46, 145/130 - 18/55, 145/139 &
18/57, 145/141 - 18/72, 145/157

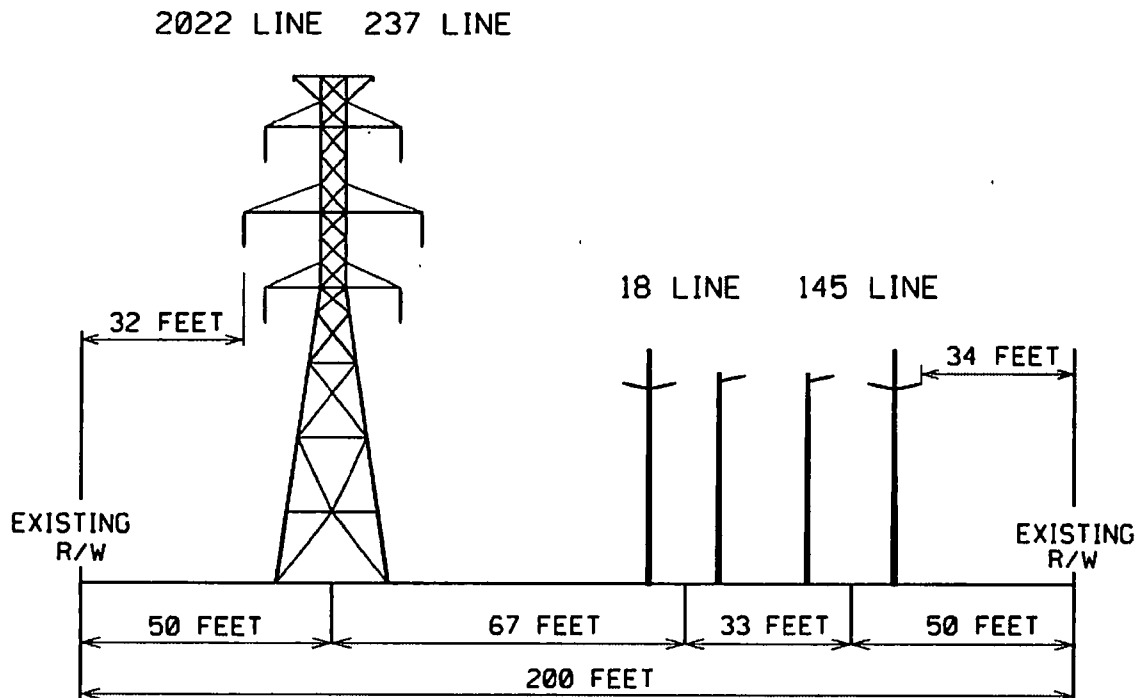


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	3 POLE WOOD
FOUNDATION :	EXISTING	DIRECT BURIED
APPROXIMATE HEIGHT:	107 FEET	51 FEET
WIDTH AT CROSSARM:	36 FEET	65 FEET
WIDTH AT BASE:	24 FEET	52 FEET
AVERAGE SPAN LENGTH:	778 FEET	563 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET
APPROXIMATE LENGTH:	2.94 MILES	2.94 MILES

EXISTING STRUCTURES: 2022/58, 237/58 & 18/56A, 145/70A



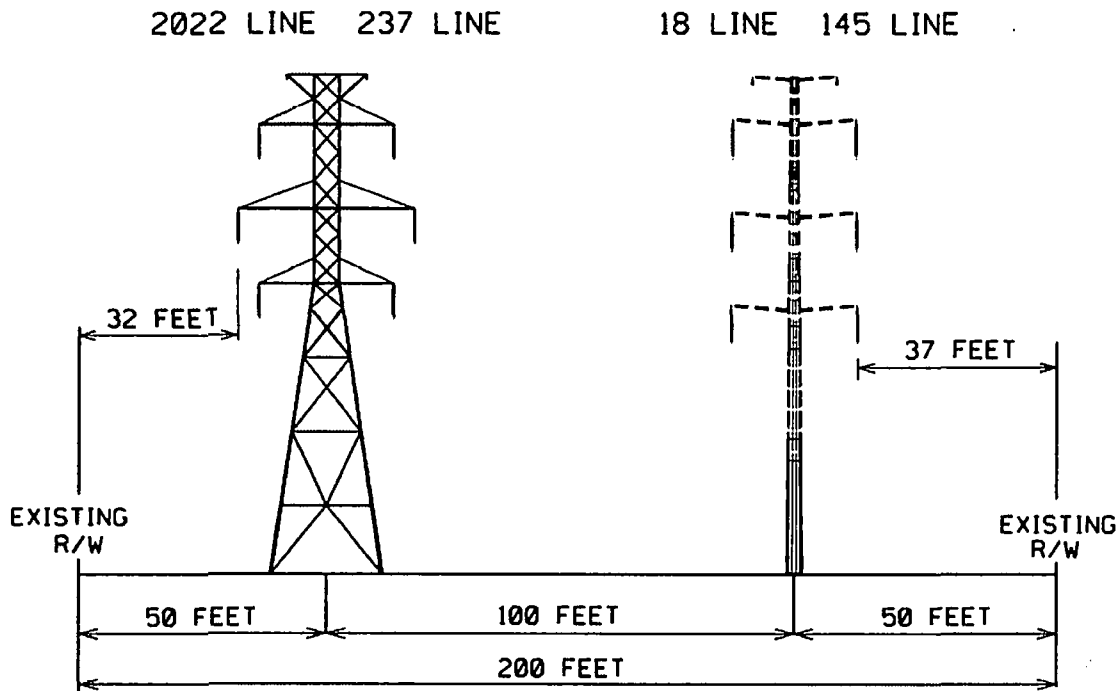
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TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	2 POLE WOOD	2 POLE WOOD
FOUNDATION :	EXISTING	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	147 FEET	37 FEET	33 FEET
WIDTH AT CROSSARM:	36 FEET	25 FEET	28 FEET
WIDTH AT BASE:	24 FEET	14 FEET	24 FEET
AVERAGE SPAN LENGTH:	812 FEET	252 FEET	252 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET	200 FEET
APPROXIMATE LENGTH:	0.06 MILES	0.06 MILES	0.06 MILES

EXISTING STRUCTURES: 2022/39, 237/39 - 2022/41, 327/41 &
2022/43, 237/43 - 2022/45, 237/45 &
2022/47, 237/47 - 2022/59, 237/59

PROPOSED STRUCTURES: 18/42, 145/42 - 18/44, 145/44 &
18/47, 145/47 - 18/49, 145/49
18/51, 145/51 - 18/62, 145/62



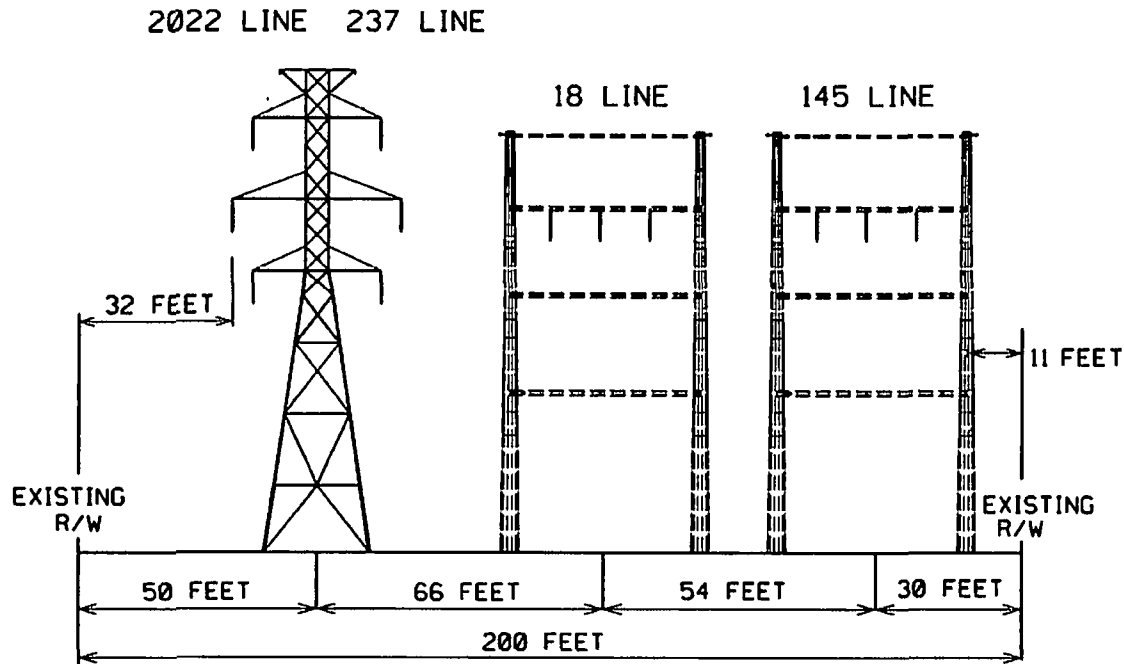
PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	107 FEET	107 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	778 FEET	717 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET
APPROXIMATE LENGTH:	2.81 MILES	2.81 MILES

EXISTING STRUCTURE: 2022/42, 237/42

PROPOSED STRUCTURE: 18/45, 145/45



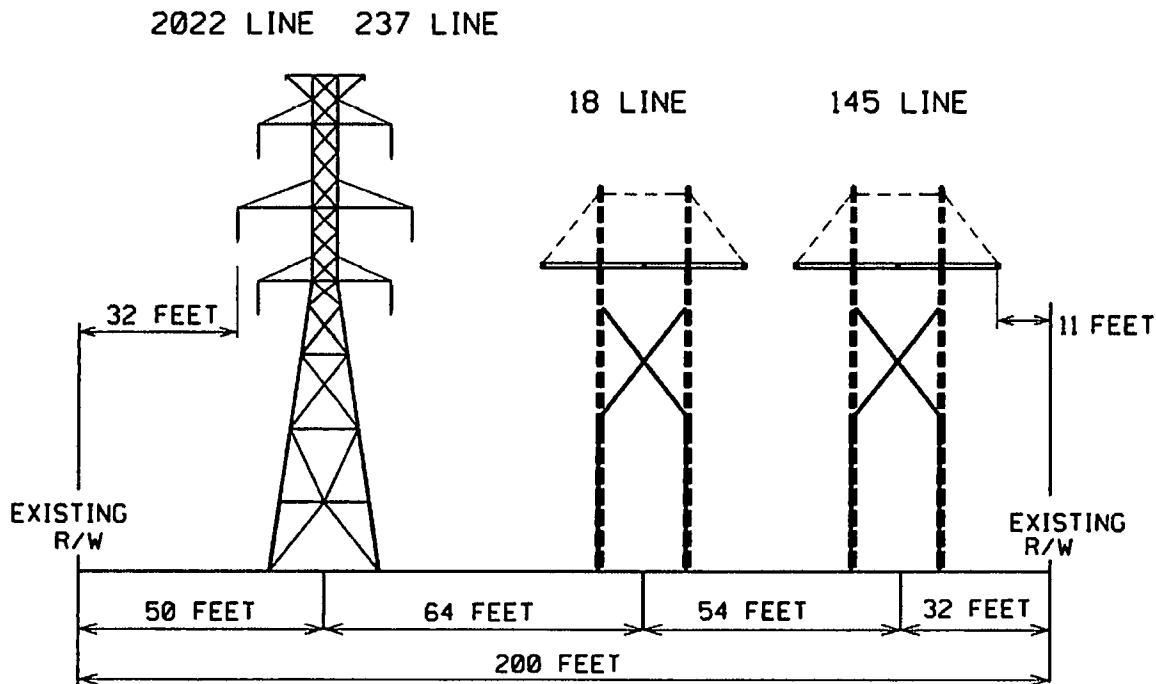
PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER	DRILLED PIER
APPROXIMATE HEIGHT:	101 FEET	90 FEET	90 FEET
WIDTH AT CROSSARM:	36 FEET	40 FEET	40 FEET
WIDTH AT BASE:	24 FEET	40 FEET	40 FEET
AVERAGE SPAN LENGTH:	661 FEET	447 FEET	447 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET	200 FEET
APPROXIMATE LENGTH:	0.19 MILES	0.10 MILES	0.10 MILES

EXISTING STRUCTURE: 2022/42, 237/42

PROPOSED STRUCTURE: 18/46, 145/46

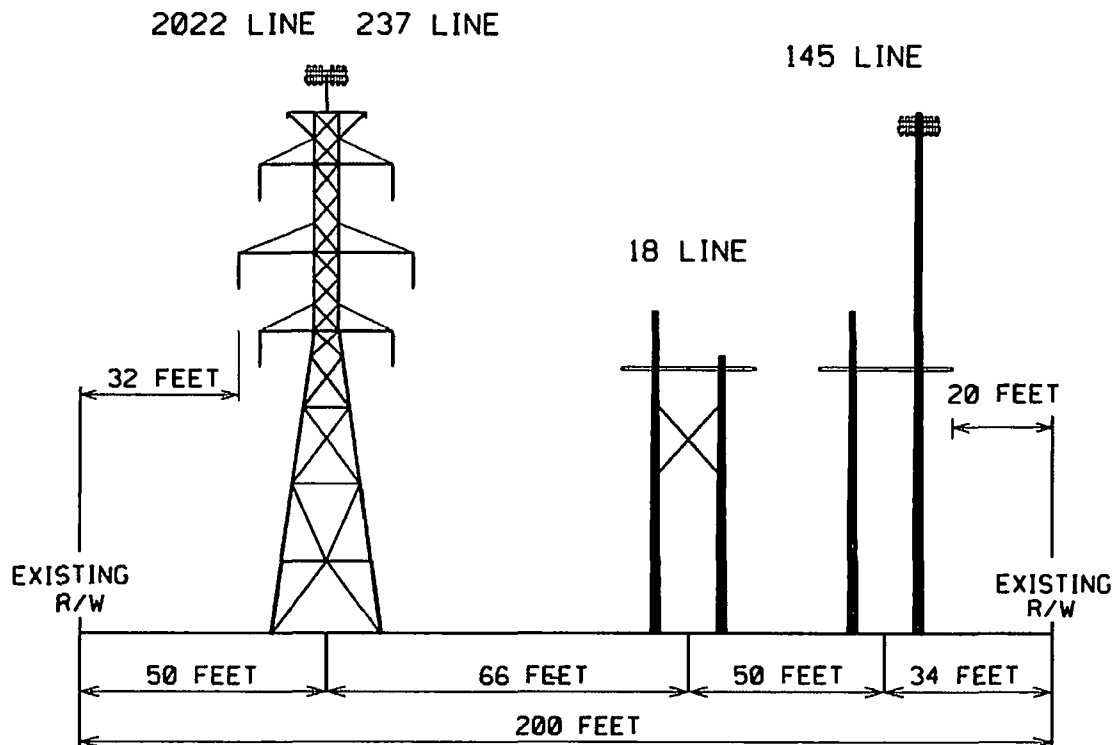


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	WEATHER STEEL POLE	WEATHER STEEL POLE
FOUNDATION :	EXISTING	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	101 FEET	75 FEET	75 FEET
WIDTH AT CROSSARM:	36 FEET	42 FEET	42 FEET
WIDTH AT BASE:	24 FEET	18 FEET	18 FEET
AVERAGE SPAN LENGTH:	661 FEET	421 FEET	421 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET	200 FEET
APPROXIMATE LENGTH:	0.19 MILES	0.09 MILES	0.09 MILES

EXISTING STRUCTURES: 2022/46, 237/46, 18/56 & 145/140



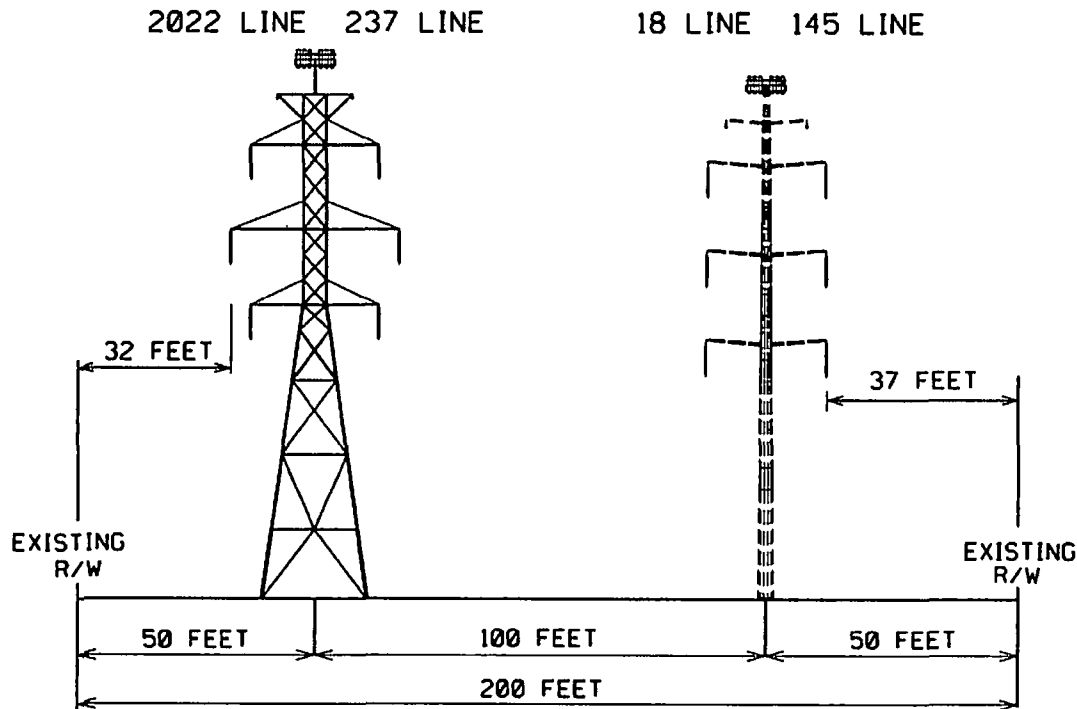
EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	CONCRETE H-FRAME	WEATHERING STEEL H-FRAME
FOUNDATION :	EXISTING	DIRECT BURIED	EXISTING
APPROXIMATE HEIGHT:	147 FEET	72 FEET	132 FEET
WIDTH AT CROSSARM:	36 FEET	30 FEET	30 FEET
WIDTH AT BASE:	24 FEET	15 FEET	15 FEET
AVERAGE SPAN LENGTH:	775 FEET	563 FEET	563 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET	200 FEET
APPROXIMATE LENGTH:	0.16 MILES	0.16 MILES	0.16 MILES

EXISTING STRUCTURES: 2022/46, 237/46

PROPOSED STRUCTURES: 18/50, 145/50



PROPOSED CONFIGURATION

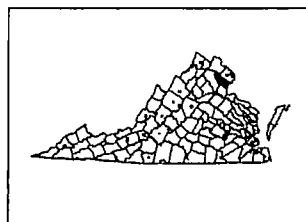
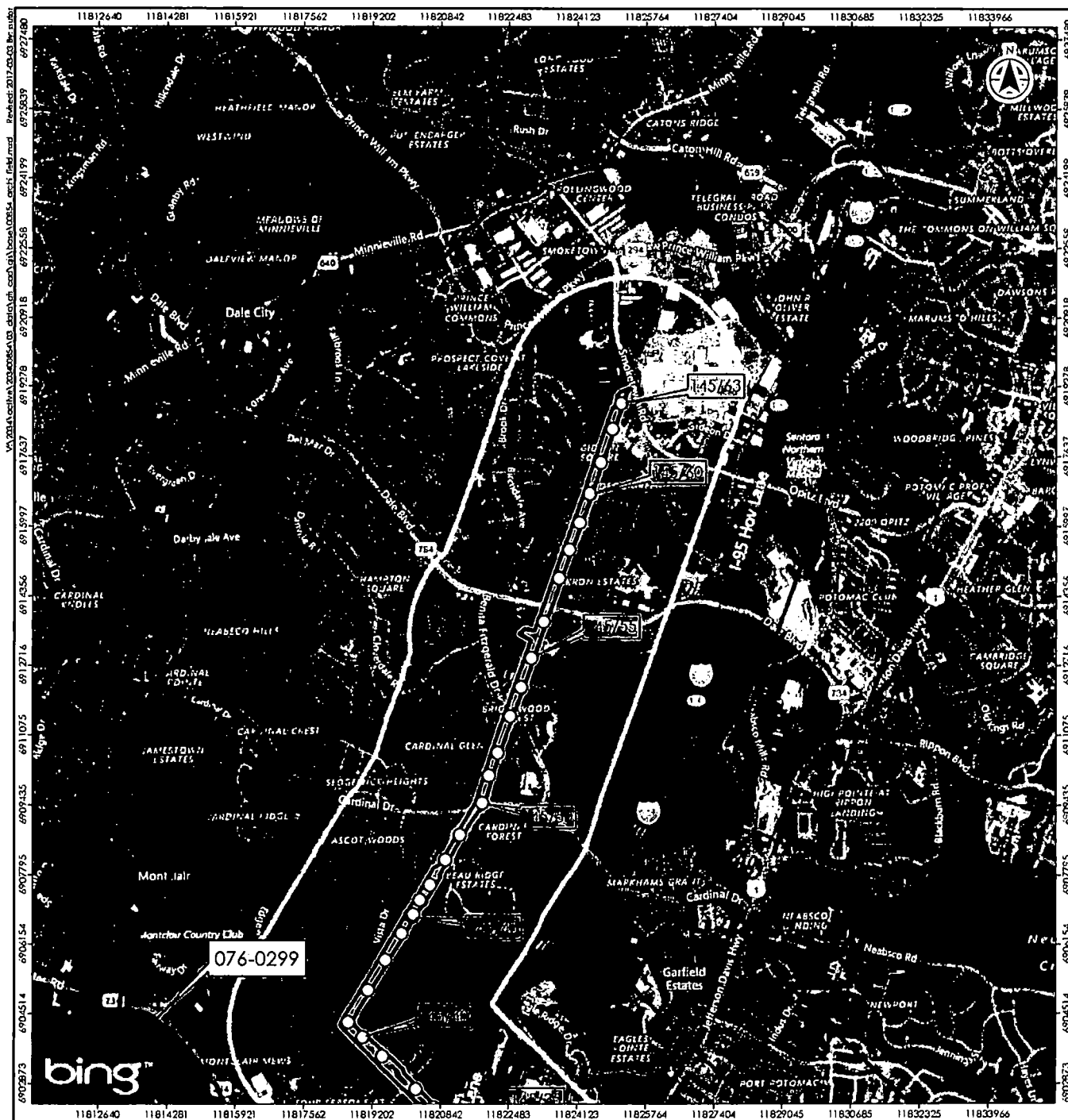
TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	147 FEET	116 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	775 FEET	717 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET
APPROXIMATE LENGTH:	0.16 MILES	0.16 MILES

Appendix B

B.1 ARCHITECTURAL RESOURCE MAPS – LINE #145 AND LINE #18 REBUILD PROJECT

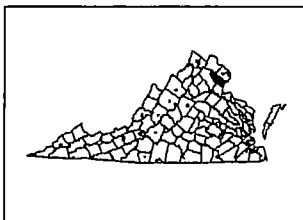
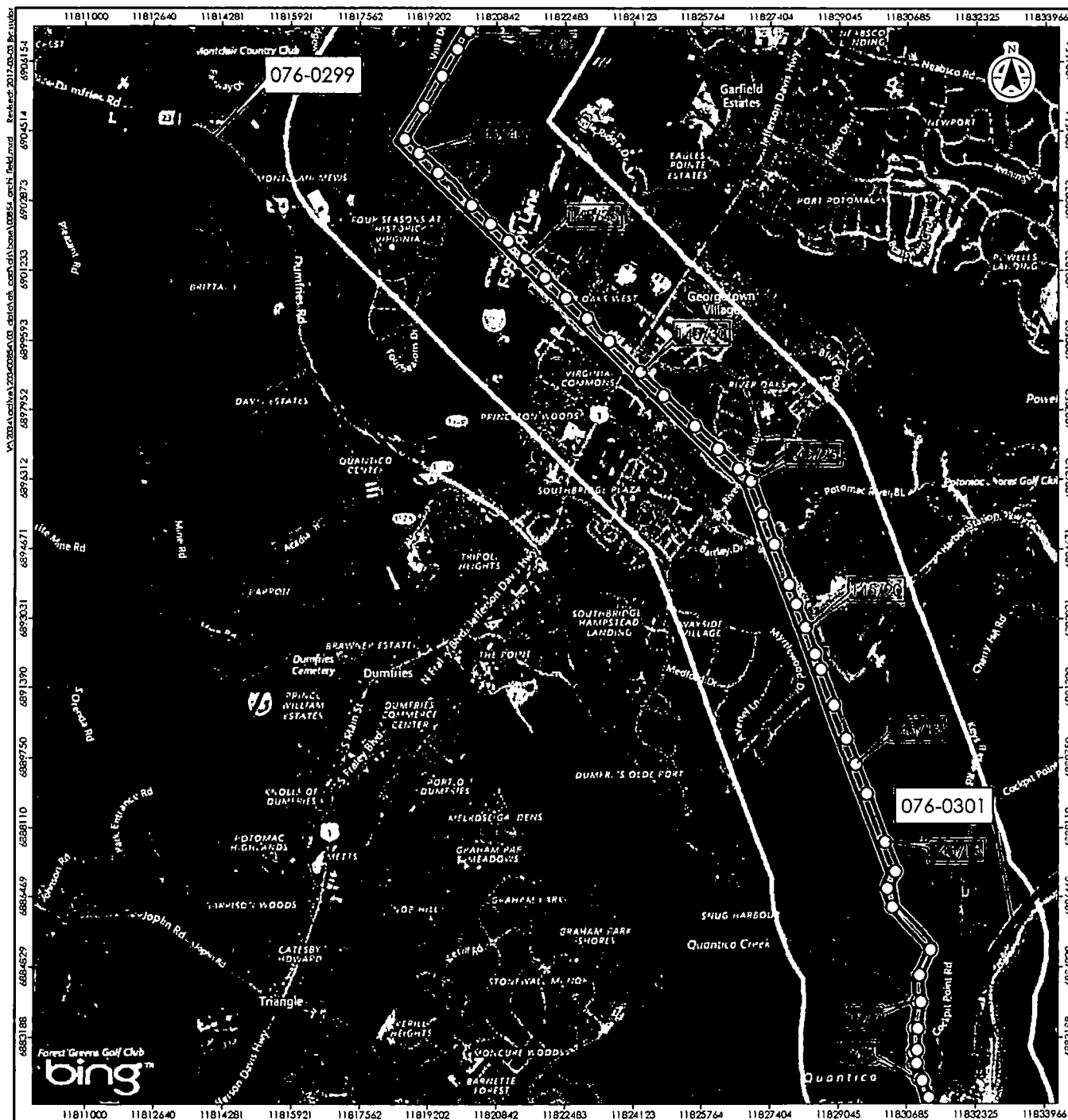
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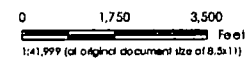
- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified © Bing Maps
 3. Cultural Resources, VDH 2017

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

170610148



- Legend**
- Architectural Resources
 - Transmission Line Corridor
 - Proposed Tower Locations
 - 0.5 mi. buffer
 - 1 mi. buffer
 - 1.5 mi. buffer



Project Location: 20040054
County: Prince William
USGS Quad: 040004
Prepared by: SWG on 2017-03-03
Technical Review by: A.J. on 2017-03-03
Independent Review by: EMB on 2017-03-03

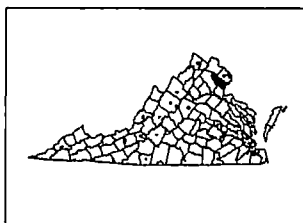
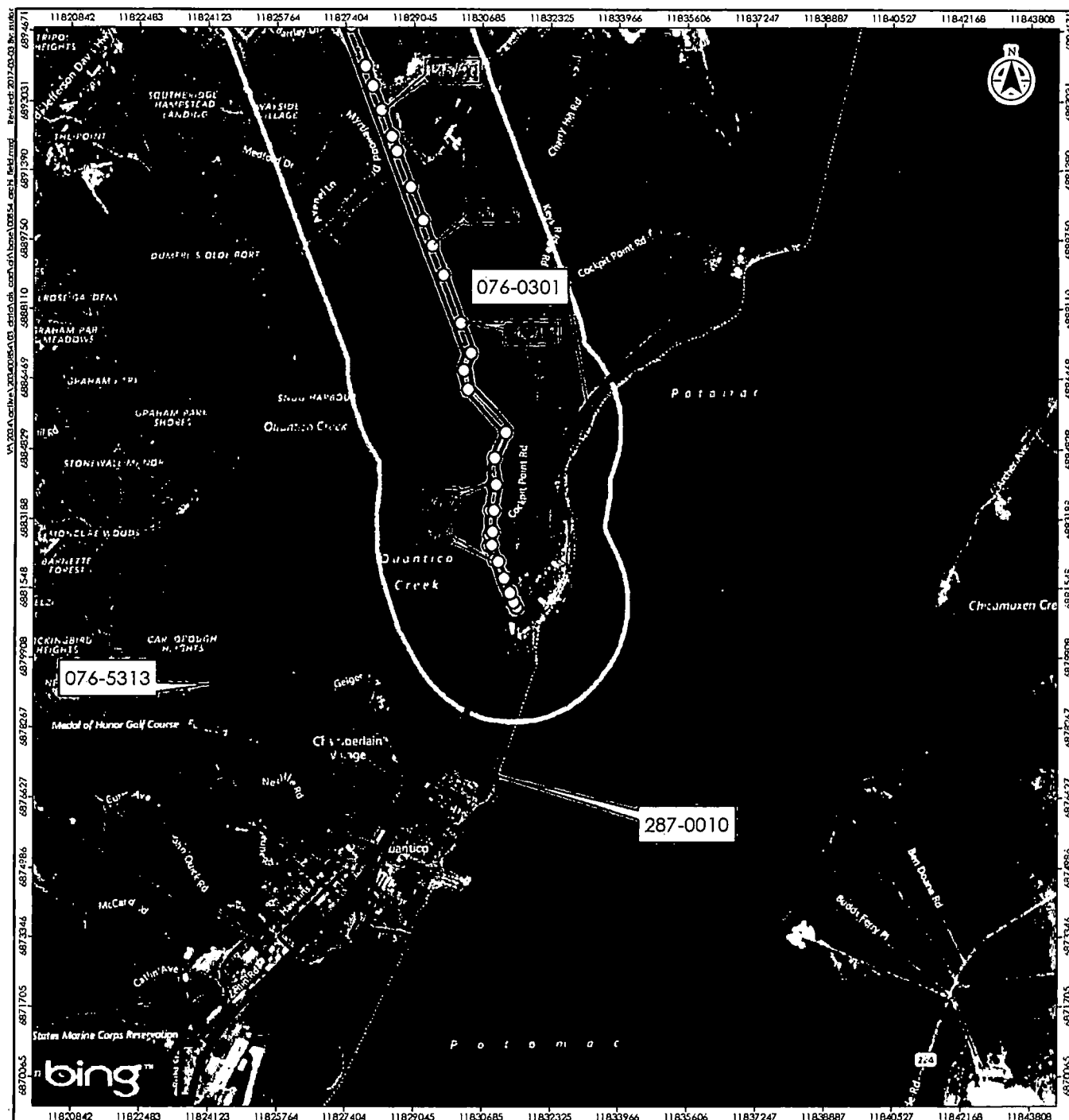
Client/Project: Dominion Virginia Power

Figure No.: Appendix B
Title:

Architectural Resources Under Consideration

- Notes**
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified © Bing Maps
 3. Cultural Resources: VDH 2017

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its offices, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



- Legend
- Architectural Resources
 - Transmission Line Corridor
 - Proposed Tower Locations
 - 0.5 mi. buffer
 - 1 mi. buffer
 - 1.5 mi. buffer

0 1,750 3,500
Feet
1:41,999 (at original document size of 8.5x11)



Project Location: 203-400-854
County: Prince William
USGS Quad: 010000, Section: 10
Technical Review by A/E/C on 2017-03-03
Independent Review by ERM on 2017-03-03

Client/Project: Dominion Virginia Power

Figure No.: Appendix B

Title:

Architectural Resources Under Consideration

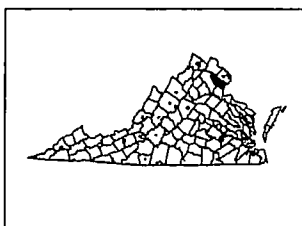
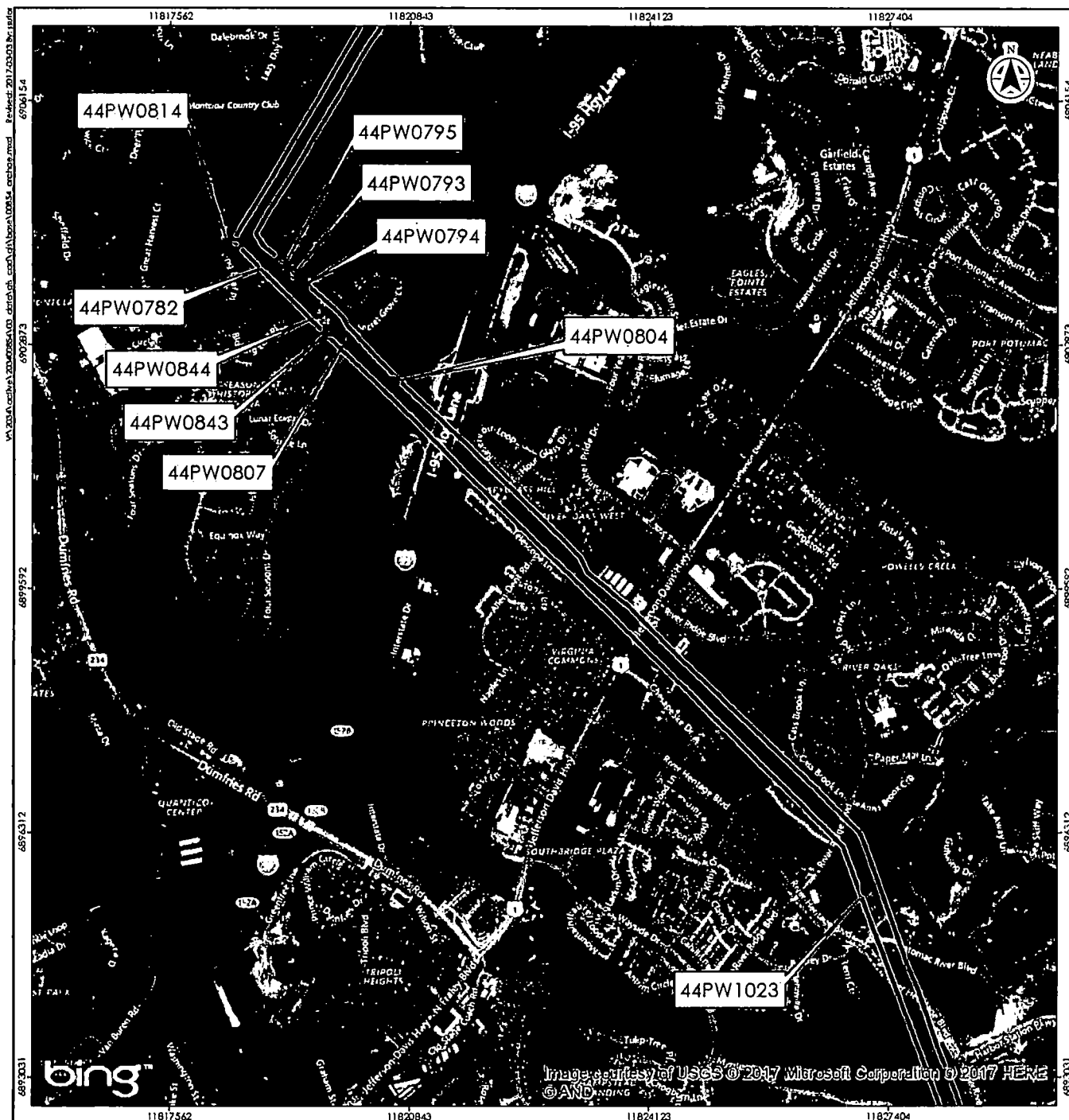
- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified by Bing Maps
 3. Cultural Resources: VDH 2017

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Appendix C

C.1 ARCHAEOLOGICAL RESOURCE MAPS – LINE #145 AND LINE #18 REBUILD PROJECT

170610148



Legend

-  Transmission Line Corridor
-  Archaeological Resources

0 1,000 2,000 Feet
1:24,000 (at original document size of 8.5x11)



Stantec

Project Location: County: Prince William
1403 Grandview
Prepared by: EWS on 2017-03-03
Technical Review by: A.A. on 2017-03-03
Interim Review by: EWS on 2017-03-03

Client/Project:

Dominion Virginia Power

Figure No.
Appendix C

Title:

Archaeological Resources within the
Transmission Line Corridor

- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Orthorectified Bing Maps
 3. Cultural Resources: VDH 2017

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its offices, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Attachment 2.H.2

**Addendum to Department of Historic Resources
Correspondence**



Stantec Consulting Services Inc.
1049 Technology Park Drive
Glen Allen VA 23059
Tel: (804) 355-7200
Fax: (804) 355-1520

May 31, 2017

Mr. Roger Kirchen
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Kirchen:

RE: Stage I Pre-Application Analysis for the Proposed Rebuild of Possum Point to Smoketown 115 kV Lines #145 and #18, Prince William County, Virginia

On May 5, 2017, Stantec submitted the report entitled *Stage I Pre-Application Analysis for the Proposed Rebuild of Possum Point to Smoketown 115 kV Lines #145 and #18, Prince William County, Virginia* for your review in accordance with the State Corporation Commission (SCC) guidelines as well as the Virginia Department of Historic Resources' (VDHR) guidance entitled *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008). We understand that we are still within the 30-day review period for this document, but did wish to make the VDHR aware of recent minor changes to the proposed structure heights and several structure designs that will be presented in the SCC application that Dominion Energy Virginia (Dominion) intends to file in June.

In advance of the filing of the SCC Application for the project, we, on behalf of Dominion, wish to acknowledge these changes and provide the revised typical structure drawings (attached). We understand, as does Dominion, that the proposed height changes may require updates to the information provided to you for review in the Stage I Pre-Application Analysis report. Any such changes that would require updates to the visual effects assessments and/or line-of-sight analyses will be addressed in future studies that we anticipate will be required for this project. However, we do not anticipate that these minor height changes would alter our current recommendations regarding visual effects assessments.

On behalf of Dominion, the applicant, we thank you for your time and assistance. If you have any questions or need additional information please do not hesitate to contact me at 757.831.3979 or ellen.brady@stantec.com.

Regards,

A handwritten signature in cursive script, appearing to read "Ellen M. Brady".

Ellen M. Brady
Senior Principal Investigator

Cc Amanda Mayhew, Dominion
Corey Gray, Stantec

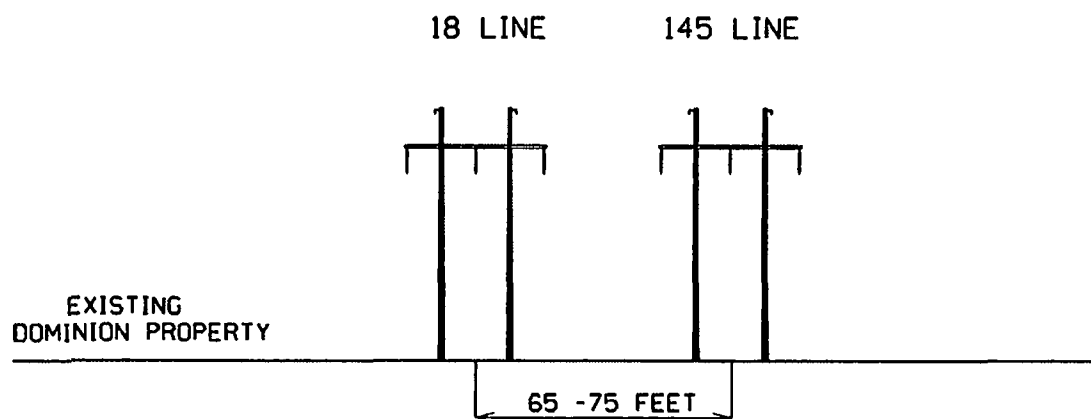
Attachments Revised Typical Structure Drawings

06101430

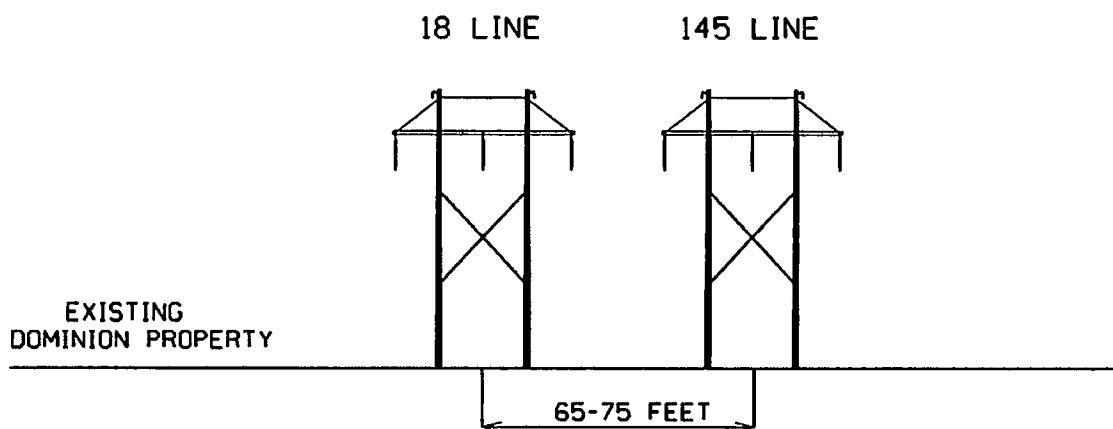
Attachment: Revised Typical Structure Drawings

Attachment II.A.3.a

0.0 - 0.70 MILES FROM POSSUM POINT

EXISTING CONFIGURATIONTYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	55 FEET	56 FEET
WIDTH AT CROSSARM:	32 FEET	32 FEET
WIDTH AT BASE:	15 FEET	15 FEET
AVERAGE SPAN LENGTH:	461 FEET	463 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.70 MILES	0.70 MILES

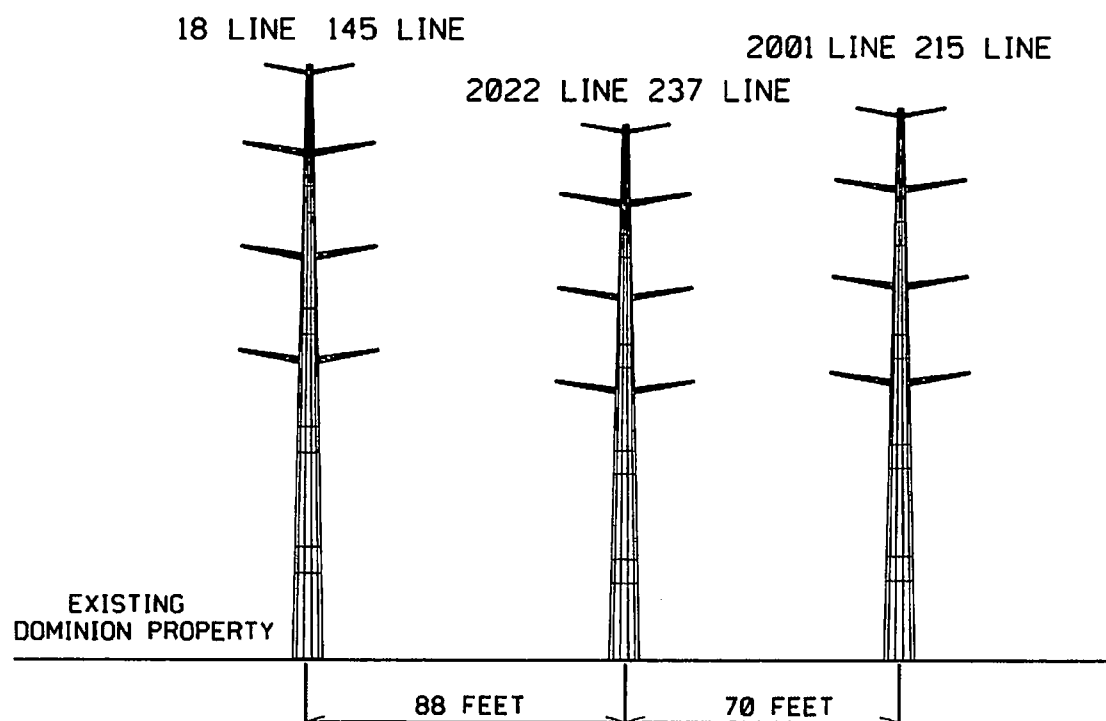
PRELIMINARY**0.0 - 0.70 MILES FROM POSSUM POINT****PROPOSED CONFIGURATION****TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP**

TYPE OF STRUCTURE:	WEATHERING STEEL H-FRAME	WEATHERING STEEL H-FRAME
FOUNDATION :	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	64 FEET	64 FEET
WIDTH AT CROSSARM:	37 FEET	37 FEET
WIDTH AT BASE:	18 FEET	18 FEET
AVERAGE SPAN LENGTH:	411 FEET	412 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.70 MILES	0.70 MILES

NOTE: INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

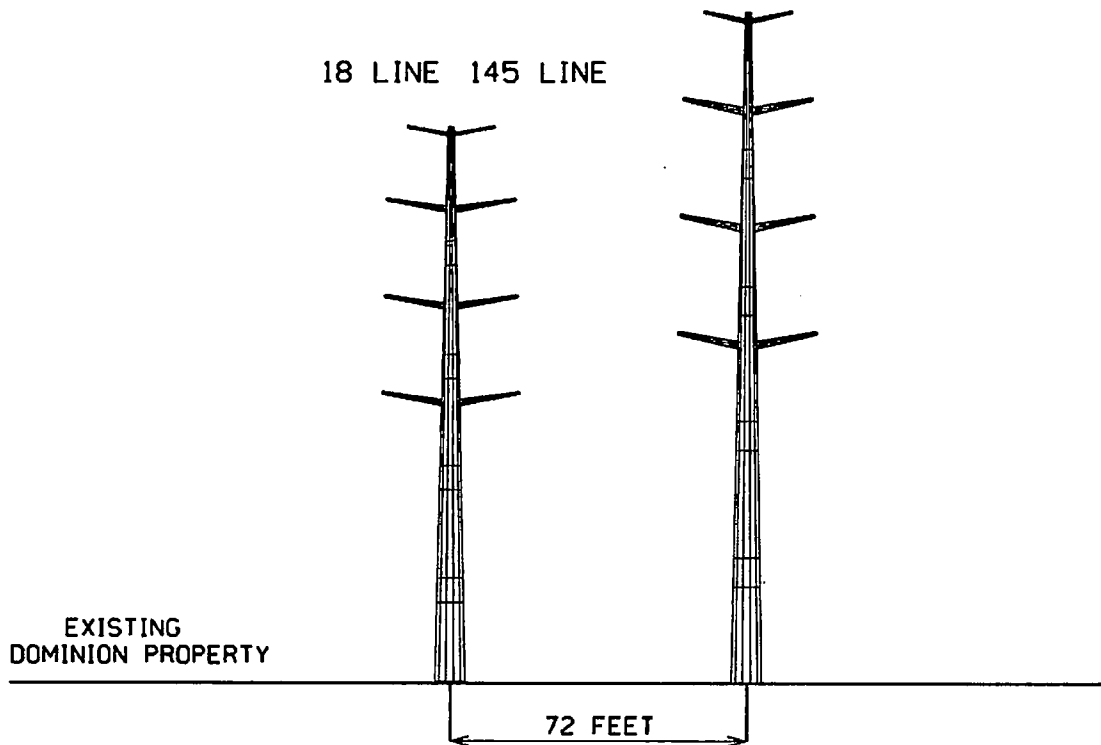
PROPOSED - PRELIMINARY

Attachment II.A.3.c

0.70 - 0.82 MILES FROM POSSUM POINT**EXISTING AND PROPOSED CONFIGURATION****TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP**

TYPE OF STRUCTURE:	WEATHERING STEEL MONO-POLE	WEATHERING STEEL MONO-POLE	WEATHERING STEEL MONO-POLE
FOUNDATION :	EXISTING	EXISTING	EXISTING
APPROXIMATE HEIGHT:	126 FEET	112 FEET	115 FEET
WIDTH AT CROSSARM:	28 FEET	28 FEET	28 FEET
WIDTH AT BASE:	6 FEET	6 FEET	6 FEET
AVERAGE SPAN LENGTH:	630 FEET	570 FEET	409 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A	N/A
APPROXIMATE LENGTH:	0.12 MILES	0.12 MILES	0.12 MILES

NOTE: PROPOSED INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

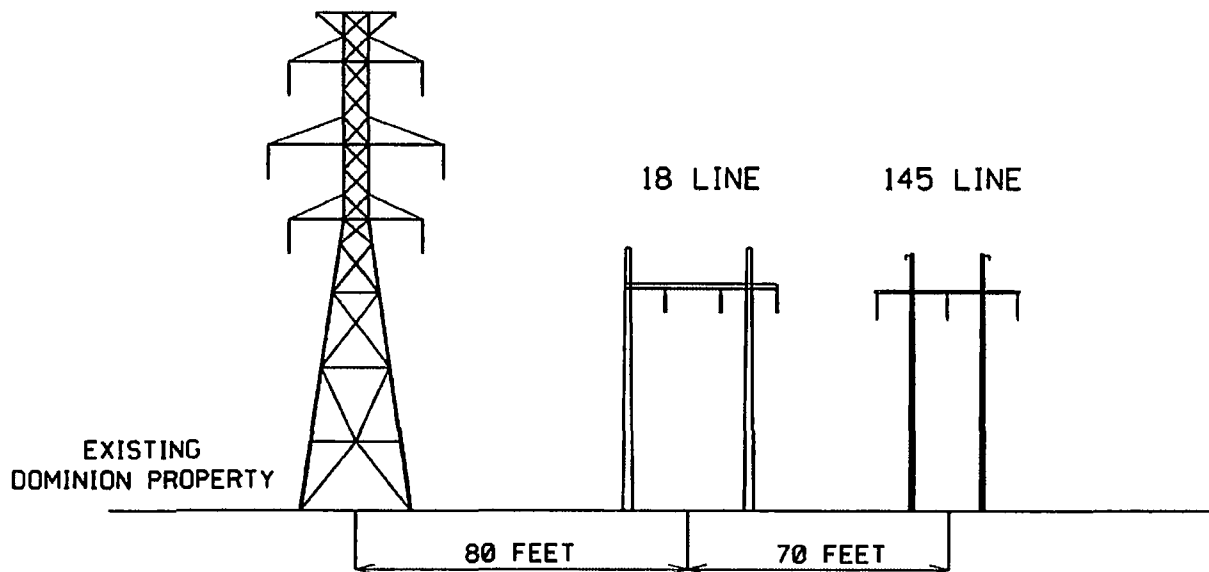
PROPOSED - PRELIMINARY**0.82 - 1.08 MILES FROM POSSUM POINT****2022 LINE 237 LINE****18 LINE 145 LINE****EXISTING AND PROPOSED CONFIGURATION****TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP**

TYPE OF STRUCTURE:	WEATHERING STEEL MONO-POLE	WEATHERING STEEL MONO-POLE
FOUNDATION :	EXISTING	EXISTING
APPROXIMATE HEIGHT:	112 FEET	144 FEET
WIDTH AT CROSSARM:	28 FEET	29 FEET
WIDTH AT BASE:	6 FEET	7 FEET
AVERAGE SPAN LENGTH:	1360 FEET	1383 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.26 MILES	0.26 MILES

NOTE: PROPOSED INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

1.08 - 1.50 MILES FROM POSSUM POINT

2022 LINE 237 LINE

EXISTING CONFIGURATIONTYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

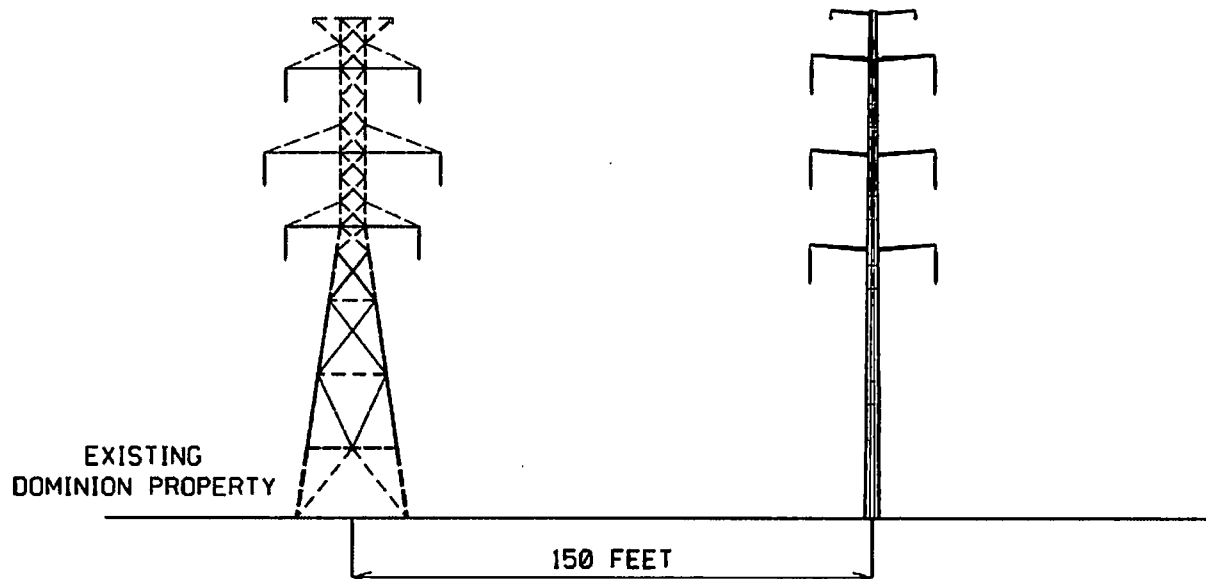
TYPE OF STRUCTURE:	GALVANIZED TOWER	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	EXISTING	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	122 FEET	53 FEET	54 FEET
WIDTH AT CROSSARM:	36 FEET	32 FEET	32 FEET
WIDTH AT BASE:	24 FEET	26 FEET	16 FEET
AVERAGE SPAN LENGTH:	910 FEET	561 FEET	564 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A	N/A
APPROXIMATE LENGTH:	0.42 MILES	0.42 MILES	0.42 MILES

PRELIMINARY

1.08 - 1.50 MILES FROM POSSUM POINT

2022 LINE 237 LINE

18 LINE 145 LINE

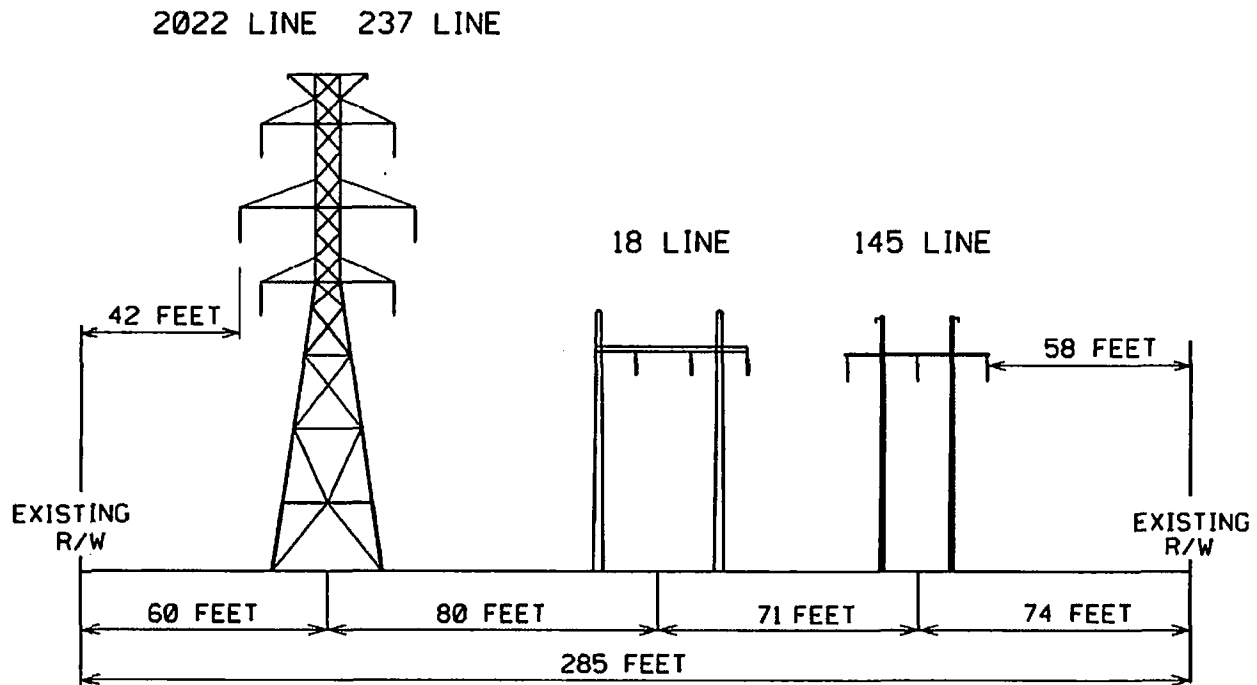
**PROPOSED CONFIGURATION****TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP**

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	122 FEET	126 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	910 FEET	708 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	N/A	N/A
APPROXIMATE LENGTH:	0.42 MILES	0.42 MILES

NOTE: 1. THIS SECTION INCLUDES A CROSSING UNDER 230KV AND 500KV LINES
REFER TO DRAWING I.D.1 FOR MORE DETAILS.

2. INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING

1.50 - 5.30 MILES FROM POSSUM POINT



EXISTING CONFIGURATION

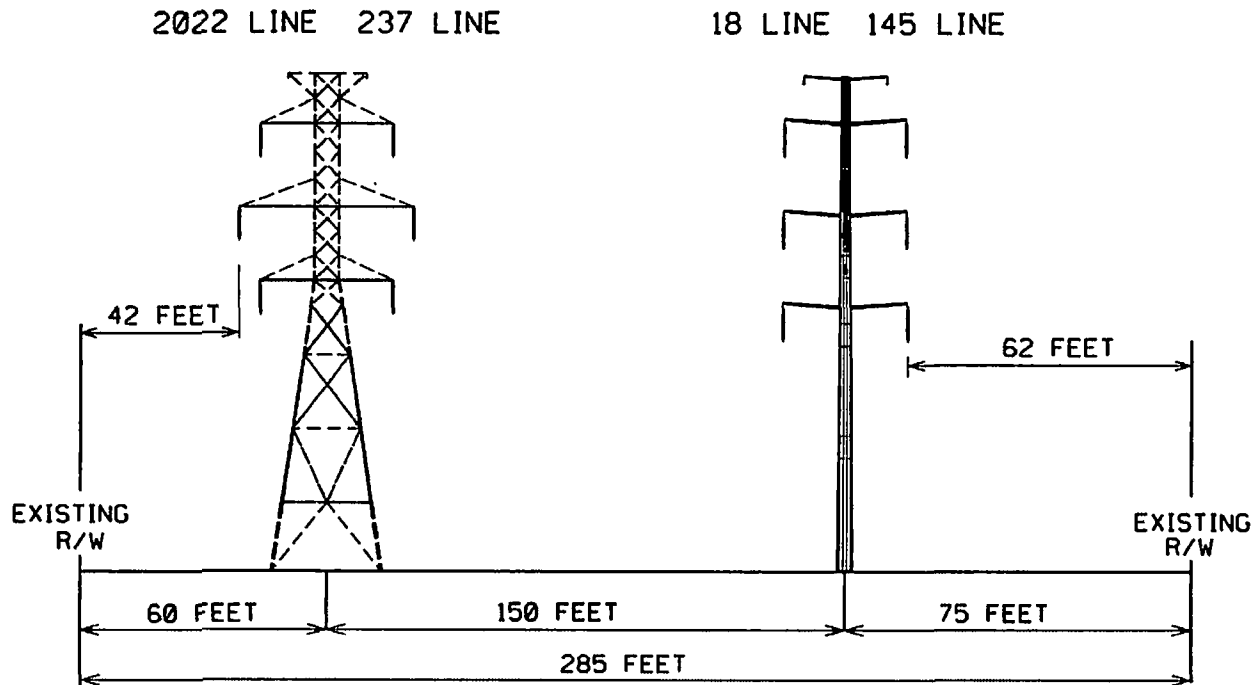
TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	H-FRAME WOOD	H-FRAME WOOD
FOUNDATION :	EXISTING	DIRECT BURIED	DIRECT BURIED
APPROXIMATE HEIGHT:	104 FEET	51 FEET	51 FEET
WIDTH AT CROSSARM:	36 FEET	32 FEET	32 FEET
WIDTH AT BASE:	24 FEET	26 FEET	16 FEET
AVERAGE SPAN LENGTH:	720 FEET	670 FEET	668 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	285 FEET	285 FEET	285 FEET
APPROXIMATE LENGTH:	3.8 MILES	3.8 MILES	3.8 MILES

PRELIMINARY

Attachment II.A.3.h

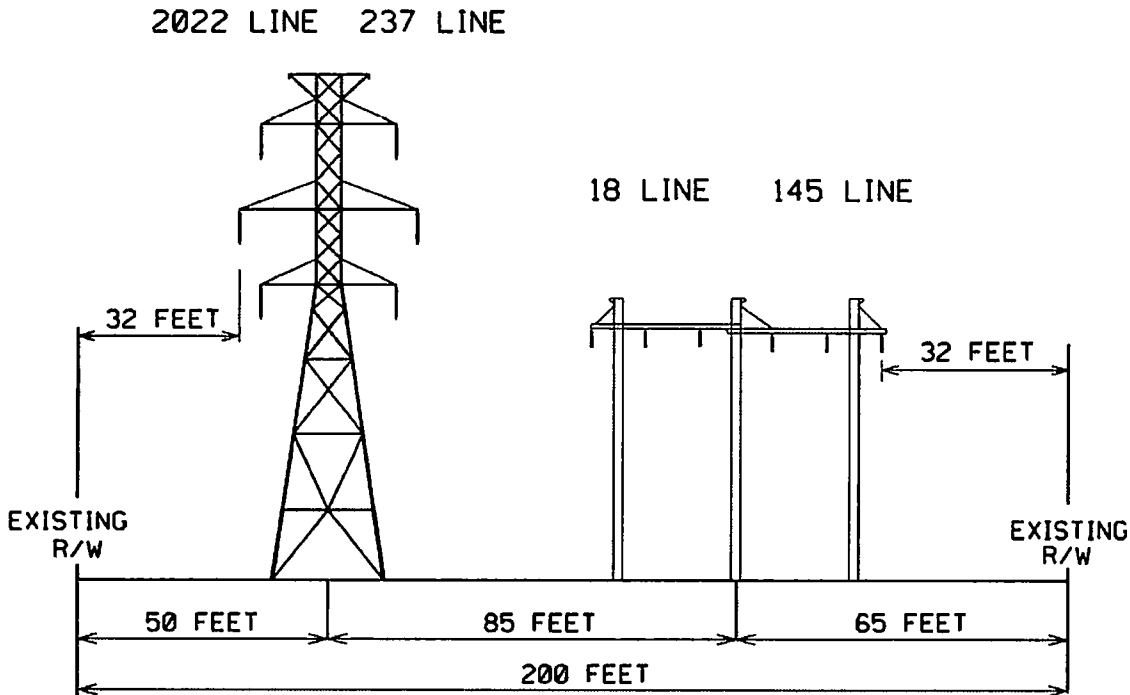
1.50 - 5.30 MILES FROM POSSUM POINT

**PROPOSED CONFIGURATION****TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP**

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	104 FEET	106 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	720 FEET	720 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	285 FEET	285 FEET
APPROXIMATE LENGTH:	3.8 MILES	3.8 MILES

NOTE: INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

5.30 - 8.40 MILES FROM POSSUM POINT



EXISTING CONFIGURATION

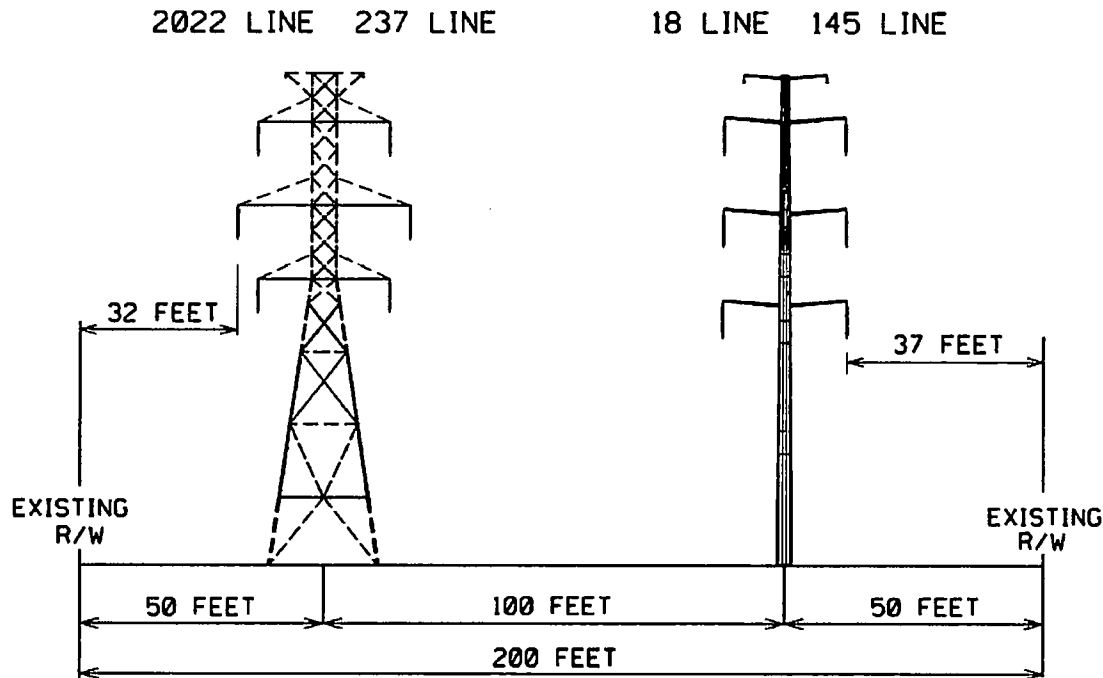
TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	3 POLE WOOD
FOUNDATION :	EXISTING	DIRECT BURIED
APPROXIMATE HEIGHT:	107 FEET	51 FEET
WIDTH AT CROSSARM:	36 FEET	65 FEET
WIDTH AT BASE:	24 FEET	52 FEET
AVERAGE SPAN LENGTH:	778 FEET	560 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET
APPROXIMATE LENGTH:	3.1 MILES	3.1 MILES

PRELIMINARY

Attachment II.A.3.

5.30 - 8.40 MILES FROM POSSUM POINT



PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD SMOKETOWN DP

TYPE OF STRUCTURE:	GALVANIZED TOWER	GALVANIZED POLE
FOUNDATION :	EXISTING	DRILLED PIER
APPROXIMATE HEIGHT:	107 FEET	107 FEET
WIDTH AT CROSSARM:	36 FEET	26 FEET
WIDTH AT BASE:	24 FEET	4 FEET
AVERAGE SPAN LENGTH:	778 FEET	723 FEET
CONDUCTOR TYPE:	ALUMINUM	ALUMINUM
RIGHT OF WAY WIDTH:	200 FEET	200 FEET
APPROXIMATE LENGTH:	3.1 MILES	3.1 MILES

NOTE: INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

Attachment 2.K.1

Virginia Outdoors Foundation Correspondence

Dominion Virginia Power
701 East Cary Street, Richmond, VA 23219
dom.com



April 13, 2017

Ms. Martha Little
Virginia Outdoors Foundation
600 East Main Street, Suite 402
Richmond, Virginia 23219

Reference: **Rebuild of Possum Point-Smoketown 115 kV Lines #18 and #145**

Dear Ms. Little:

Dominion Virginia Power (Dominion) currently operates two 115 kilovolt (kV) transmission lines (Lines #18 and #145) that exclusively feed three NOVEC substations which serve more than 11,000 NOVEC customers in Prince William County. The project corridor is approximately 8.4 miles long and runs northwest from the Company's Possum Point Switching Station and terminates at NOVEC's Smoketown Substation west of I-95. These existing transmission lines were built in 1948 and 1954 and, although well maintained, are approaching the end of their designed service life.

Dominion is proposing to replace both transmission lines in order to continue to provide safe and reliable electric service to customers.

Although the transmission lines will continue to operate at 115kV, we believe that is prudent to propose building these lines at a 230kV design to add system flexibility in the event a higher voltage is needed in the future. As such, Dominion is preparing an application for a Certificate of Public Convenience and Necessity from the State Corporation Commission (SCC). The Department of Environmental Quality (DEQ), on behalf of the SCC, will coordinate agency comments and include you in the review of the proposed project. At this time, in advance of the SCC filing, Dominion respectfully requests that you submit any comments or additional information you feel would have bearing on the proposed project. If you would like to receive a GIS shapefile of the transmission line route to assist in your project review or if you have any questions, please do not hesitate to contact me at (804) 771-6145 or Amanda.M.Mayhew@dom.com.

Dominion appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

A handwritten signature in black ink, appearing to read "Amanda Mayhew", written in a cursive style.

Amanda Mayhew
Permitting Specialist

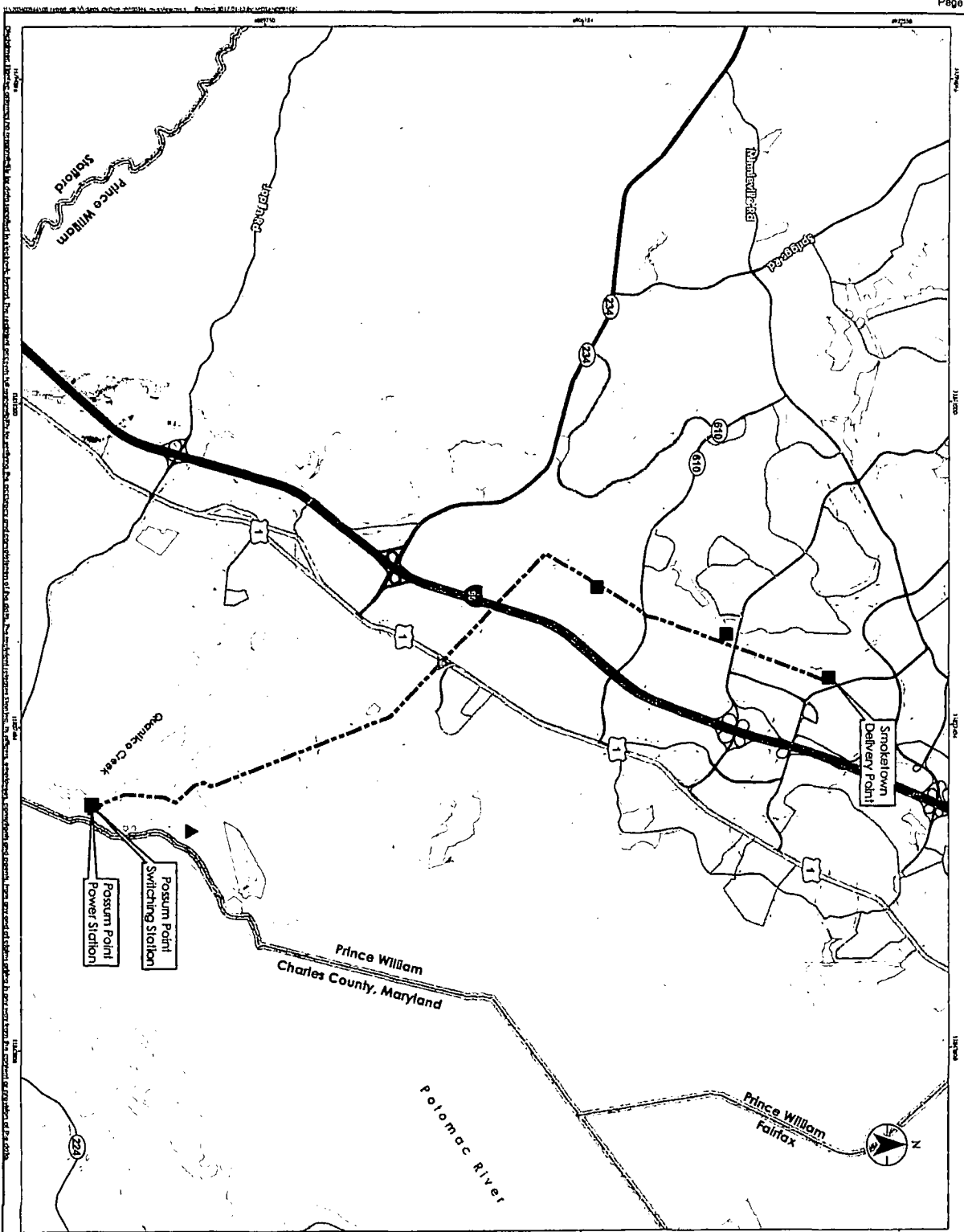


Figure No. 1
Project Overview Map

Client/Project
Dominion Virginia Power
Lines #18 and #145
Possum Point to Smokestown Rebuild Project

Project Location
Prince William County, Virginia
Prepared by: E2C, Inc. 05/20/10
Reviewed by: E2C, Inc. 06/11/10
Approved by: E2C, Inc. 06/11/10

0 5000 10000 Feet
1:62,500 (A original document size of 11x17)

- Legend**
- Existing Power Station
 - ▲ Existing Substation/Switching Station
 - Delivery Point
 - Lines #18 and #145
 - Local Open Space
 - Local Park
 - Quantico MDCDC
 - Prince William Forest Park
 - National Wildlife Refuge
 - State Park
 - Conservation Easements



Notes

1. Coordinates System: NAD 1983 StatePlane Virginia North (4201 Feet)
2. Data provided by E2C, Inc.
3. Data provided by E2C, Inc.
4. Conservation Lands and Easements provided by VA DCR
5. National Wildlife Refuge Program
6. Wetlands and waters data provided by USFWS National Wetlands Inventory (NWI) and USGS National Wetlands Inventory (NWI)
7. Wetlands and waters data provided by USFWS National Wetlands Inventory (NWI) and USGS National Wetlands Inventory (NWI)

Stantec
Dominion
It's all about the power.

Attachment 2.N.1

Department of Aviation Correspondence



COMMONWEALTH of VIRGINIA

Randall P. Burdette
Executive Director

Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624
FAX • (804) 236-3635

ISO 9001:2008 Certified
IS-BAO Registered

April 20, 2017

Ms. Amanda Mayhew, Permitting Specialist
Dominion Virginia Power
701 East Cary Street
Richmond, Virginia 23219

RE: Rebuild of Possum Point-Smoketown 115kV Lines #18 and #145

Dear Ms. Mayhew:

The Virginia Department of Aviation received your April 13, 2017 letter requesting a review of the above referenced project. Following our review staff has determined that due to the proximity of the proposed project to the Quantico Marine Airfield, a 7460 form must be completed and submitted to the Federal Aviation Administration.

Additionally any portion of the project which will require towers to be constructed to a height of 200' above ground level or higher will also require the submission of a 7460 form.

If you have any questions regarding this matter, please contact me at (804) 236-3638.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Scott Denny".

S. Scott Denny
Senior Aviation planner

Virginia Department of Aviation

