



August 3, 2012

Ms. Kimberley Q. Lanterman
Dominion Resources, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060

**Re: Detailed Survey for Small Whorled Pogonia (*Isotria medeoloides*)
Blantons Powerline Conservation Site, Caroline County, Virginia
Latitude: 38°03'03.99"N Longitude: 77°34'29.83"W
WEG Project #4317A**

Dear Ms. Lanterman:

This report presents the results of habitat investigations and detailed surveys for the federal-listed threatened and state-listed endangered small whorled pogonia (*Isotria medeoloides*) by Williamsburg Environmental Group, Inc. (WEG), for the Blantons Powerline Conservation Site in Caroline County, Virginia. The approximate 49-acre site is located within the South River drainage basin, south of Blantons Road (Route 604), and west of Countyline Church Road (Route 603) (Figures 1-1 and 1-2). The survey area includes a portion of the right-of-way between towers 67 and 71 along transmission line 575, in addition to forested and open-field areas lying directly adjacent to the north and south.

Sean Wender of WEG, who is listed by the U.S. Fish and Wildlife Service (FWS) as a survey contact for the small whorled pogonia (SWP), coordinated this survey in accordance with habitat criteria specific to the plant. The following sections will present a brief description of the plant, the methodology utilized, and the results of this habitat survey for SWP.

Species Description

SWP is a self-pollinating perennial orchid (Family: Orchidaceae), four to twelve inches in height, with a characteristic whorl of five to seven leaves at the summit of a singular, hollow, pale green stem with one or two pale yellowish-green irregular flowers (Mehrhoff 1983, Gleason and Cronquist 1991, Vitt and Campbell 1997). Morphologically similar species include large whorled pogonia (*Isotria verticillata*) and Indian cucumber root (*Medeola virginiana*), the former distinguished from SWP by a reddish-purple stem and the latter by a wiry stem with cotton-like hairs (Ware 1991).

Habitat Factors

SWP occupies a very specific habitat type within its range. In particular, the species seems to require the following conditions: mature, mixed hardwood, upland forests; generally open understory conditions with minimal aggressive ground level species; generally level to moderately sloping land within shallow upland draws often, but not always, of northerly or easterly exposure; scattered ground-level sunlight; and, acidic, sandy loam soils (Ware 1991,

Gleason and Cronquist 1991, Weakley 2010). In addition, many professionals have noted a prevalence of decaying logs and a well-developed detritus layer on the forest floor. These attributes tend to be present with the species when found, although the exact mechanisms associated with each affinity are not understood (Ware 1991).

Certain indicator species, among others, may also be helpful in identifying small whorled pogonia habitat, such as large whorled pogonia, strawberry bush (*Euonymus americanus*), tick trefoil (*Desmodium* spp.), and striped prince's pine (*Chimaphila maculata*). These species, among others, are considered associates, and occur frequently near documented SWP colonies. It should be noted that the absence of one or even several of the above-referenced habitat criteria does not necessarily preclude the species from occurring on a particular site. A habitat determination should therefore be based upon the experience of a qualified professional.

Methodology

A detailed field survey for the SWP was conducted on June 27, 2012, a time frame that occurs within the sampling window suggested by the FWS (approximately June 1st through July 20th in Caroline County, Virginia). During this time, the target species may be identified in vegetative phase (i.e. without flower or fruit). The normal vegetative cycle is late spring to mid-summer.

This SWP detailed survey was conducted within previously identified habitat areas that were surveyed by WEG in 2010. Notes were previously taken regarding cover types, community assemblages, slope aspect and grade, associate species, substrate, and other relevant information concerning habitat quality. Such reconnaissance and data collection allows for grouping of various regions into general habitat types: suitable, marginal, or poor, based on the presence of favorable habitat conditions for the target species. These categories represent the relative degree to which areas express favorable site attributes for the target species. Suitable habitat is present in areas that retain most of the habitat factors described above. Marginal habitat occurs in somewhat degraded areas, but based on professional judgment may still support the target species. Poor habitat is not sufficient for SWP colonization.

Detailed survey methods typically include utilization of contour transects. For the survey of potential habitat areas, a baseline is established and transects are walked parallel to the baseline on approximately 15-foot spacing, to ensure that the visual ranges of adjacent transects are overlapping. Each transect set is marked with flagging as it is searched, to ensure that subsequent transects are not established off course from the baseline. In areas determined to have marginal habitat for the species, a combination of transects and areal spot-checks are employed where topography, canopy density, and understory density reflect improved habitat.

Results

No SWP individuals were found within the survey area at the Blantons Powerline Conservation Site. No significant changes have occurred within the marginal habitat areas that were previously surveyed by WEG in 2010. The attached Small Whorled Pogonia Habitat Map depicts the approximate locations of these marginal habitat areas along with the location of representative

photographs, which are included as Attachment A. The FWS Survey Summation form is provided in Attachment B.

Conclusion

In summary, the results of this study show that SWP was not present within the survey area at the Blantons Powerline Conservation Site. This result is consistent with the previous survey conducted by WEG in 2010. Areas of marginal SWP habitat identified by WEG are located within forested communities outside the transmission line corridor. If you have any questions regarding the information presented herein, please feel free to call at your convenience.

Sincerely,



Sean M. Wender, PWD
Senior Ecologist

Attachments

References Cited

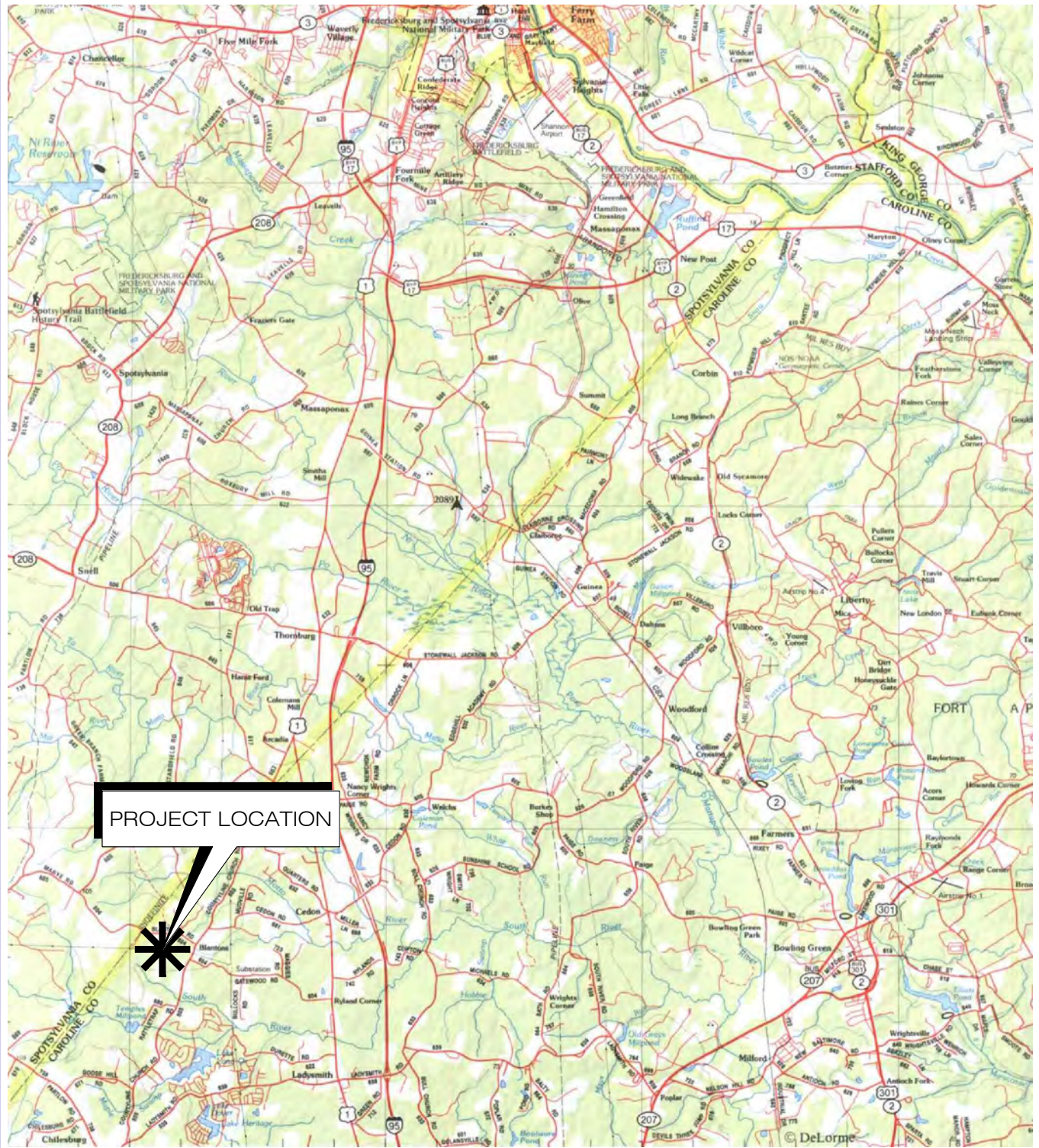
Gleason, H. A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. New York Botanical Garden, Bronx, New York. p. 828.

Mehrhoff, L. A. III. 1983. Pollination in the genus *Isotria* (Orchidaceae). *American Journal of Botany* 70:1444-1453.

Vitt, P. and C. S. Campbell. 1997. Reproductive biology of *Isotria medeoloides* (Orchidaceae). *Rhodora* 99:56-63.

Ware, D. M. E. 1991. Small Whorled Pogonia, *Isotria medeoloides* (Pursh) Rafinesque. In *Virginia's Endangered Species*, K. Terwilliger, ed. McDonald and Woodward, Blacksburg, Virginia.

Weakley, A. S. 2010. *Flora of the Carolinas and Virginia*. Working draft. UNC Herbarium, University of North Carolina, Chapel Hill, NC.



PROJECT LOCATION



2.4 MILES 1.2 0 MILES 2.4 MILES
 SCALE: 1 INCH = 2.4 MILES



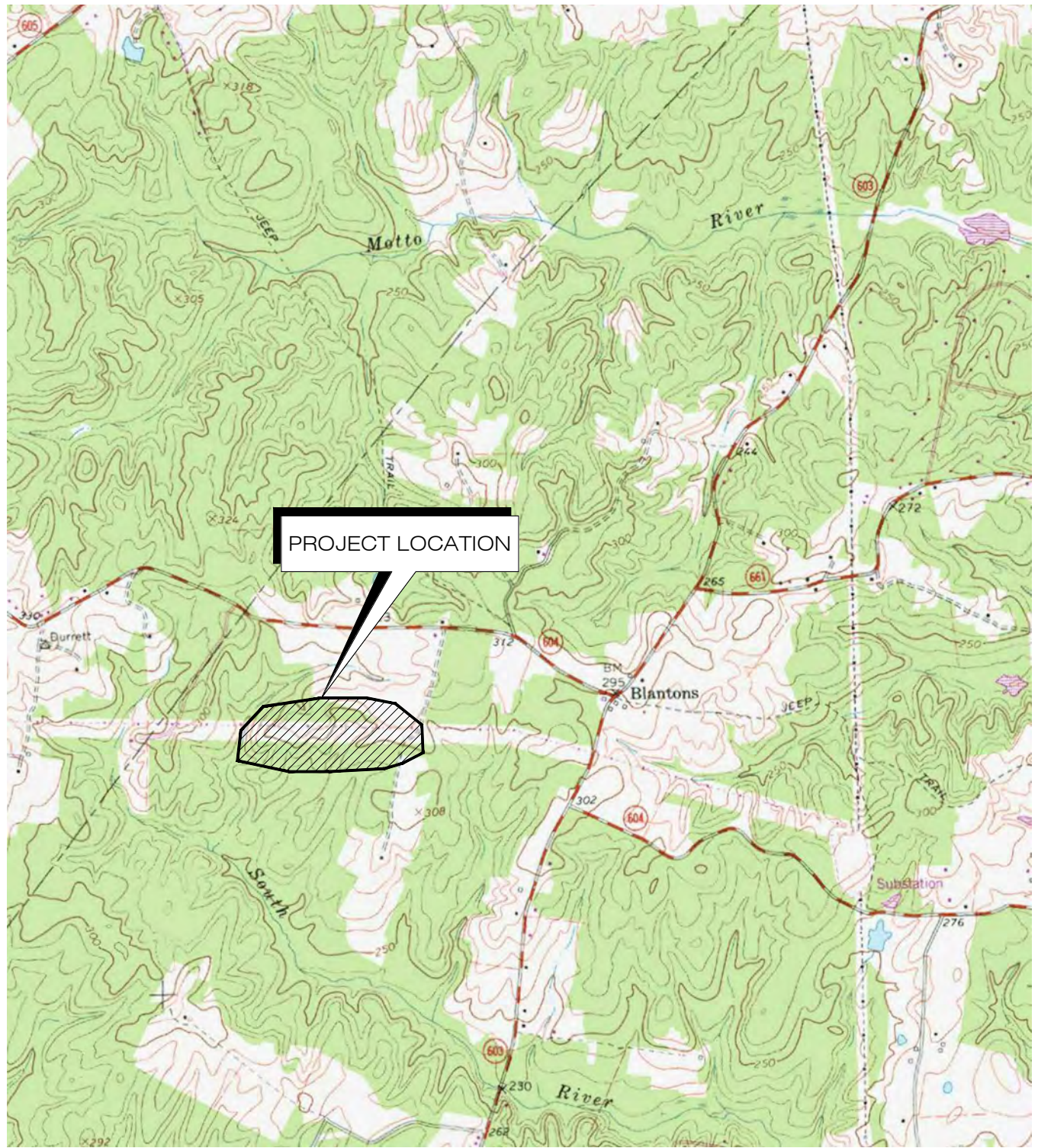
WILLIAMSBURG
 ENVIRONMENTAL
 GROUP, INC.

FIGURE 1-1
 PROJECT VICINITY MAP
 BLANTONS POWERLINE CONSERVATION SITE

SOURCE: VIRGINIA ATLAS AND GAZETTEER,
 DeLORME MAPPING CO., 2005.

CAROLINE CO., VA

JULY 2012



2000' 1000' 0' 2000'
 SCALE: 1 INCH = 2000 FEET



LATITUDE: 38° 03' 3.99"
 LONGITUDE: 77° 34' 29.83"

SOURCE: USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP,
 LADYSMITH, VA QUADRANGLE,
 1966 (REVISED 1979)



**WILLIAMSBURG
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 GROUP, INC.**

FIGURE 1-2
PROJECT LOCATION MAP
 BLANTONS POWERLINE CONSERVATION SITE

CAROLINE CO., VA

JULY 2012

Appendix A

Representative Photographs



Photograph 1: View of marginal SWP habitat within southeast portion of property.



Photograph 2: View of marginal SWP habitat in southwest portion of property.



*Photos taken by: Sean Wender
Williamsburg Environmental Group, Inc.
June 27, 2012
WEG Project # 4317C*



Photograph 3: View of marginal SWP habitat in northeast portion of property.



Photograph 4: View of marginal SWP habitat within northwest portion of property.



*Photos taken by: Sean Wender
Williamsburg Environmental Group, Inc.
June 27, 2012
WEG Project # 4317C*

Appendix B

FWS Survey Summation Form


**Please provide a clear copy of a USGS topographic map(s),
with the survey area(s) clearly indicated on the map(s).**


SURVEY SUMMATION FORM		Year:	2012	
Report Title:	Detailed Survey for Small Whorled Pogonia (<i>Isotria medeoloides</i>), Blantons's Powerline Conservation Site			
Collector(s):	Sean Wender, Jason Teschler			
Quad(s):	Ladysmith			
County / City:	Caroline County, Virginia			
Survey Site Information ⁽¹⁾ :	The approximate 49-acre study area is located south of Blanton's Road (Rte 604), and west of Countyline Church Road (Rte 603). It includes a portion of the right-of-way between towers 67 and 71 along transmission line 575, in addition to forested and open-field areas lying directly adjacent to the north and south.			
Habitat Type:	<input checked="" type="radio"/> Appropriate	<input checked="" type="radio"/> Not Appropriate	<input type="radio"/> Not Definitive	
SPECIES INFORMATION:				
Target Species:	<i>Isotria medeoloides</i>			
Target Species Found?	<input type="radio"/> YES	<input checked="" type="radio"/> NO		
Species (common or scientific name):	Number of Specimens ⁽²⁾			
	Live	Fresh Dead	Relic	Unspecified
<u>N/A</u>				
Comments:	This detailed survey for <i>Isotria medeoloides</i> was completed on June 27, 2012. Portions of the approximate 49-acre study area can be considered poor, inappropriate SWP habitat due to limiting factors including pine-dominated forests, wetlands, and cleared areas within the transmission line corridor and agricultural field. Appropriate SWP habitat includes marginal habitat within semi-mature hardwood communities both north and south of the transmission line corridor.			

(1) This is detailed information on where the survey was done (Example: 50 yards above, and 200 yards below the Route 623 crossing of the Pamunkey River). This information will assist in mapping of the survey data.

(2) Place a check mark in any of the columns if present but not counted.

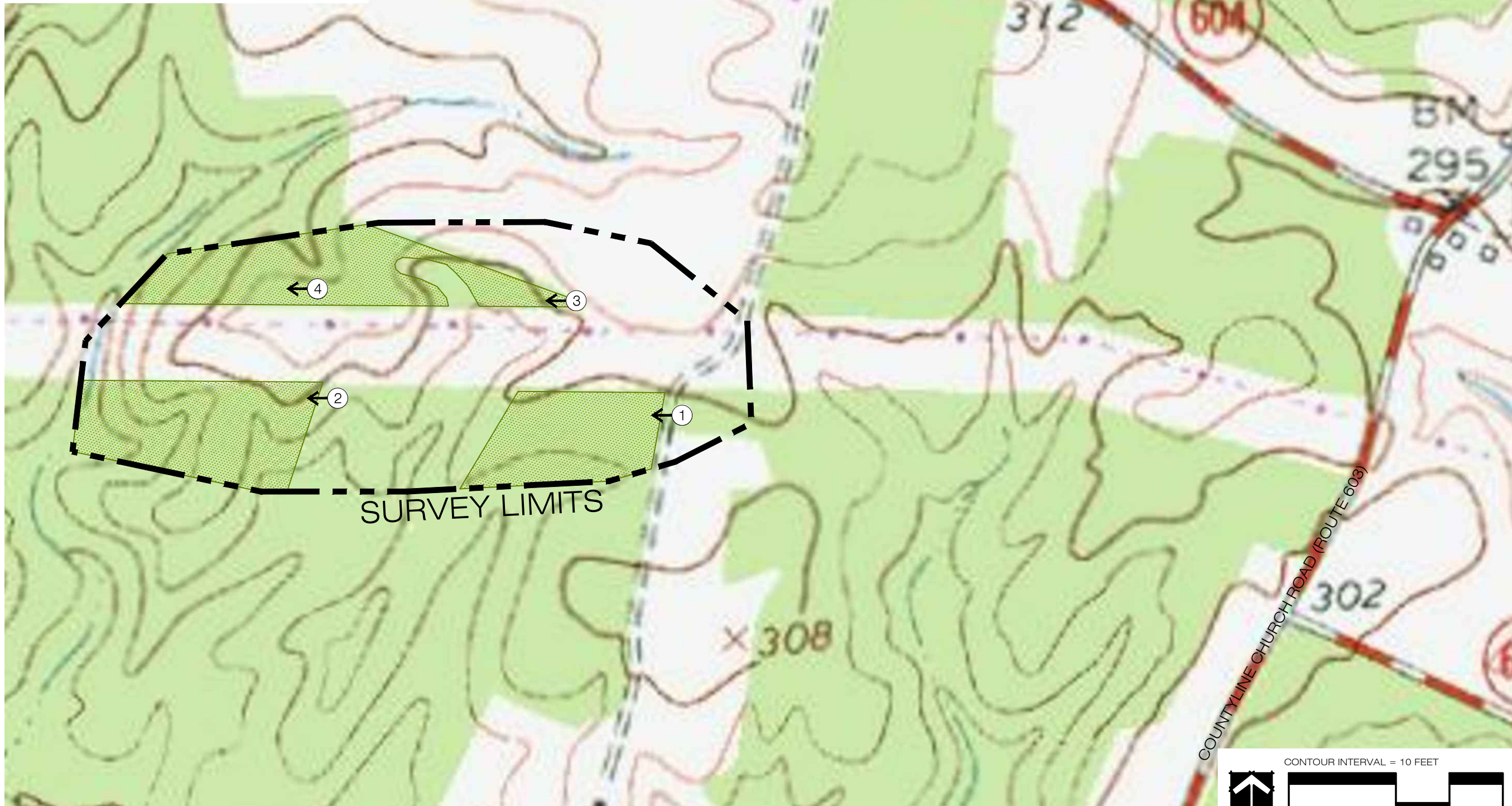
LEGEND:

 MARGINAL SMALL WHORLED POGONIA HABITAT

 PHOTO STATION LOCATION

SITE DATA:

APPROXIMATE SURVEY AREA 49.00 ACRES ±



**SMALL WHORLED POGONIA
HABITAT MAP
BLANTONS POWERLINE
CONSERVATION SITE
CAROLINE COUNTY, VIRGINIA**

DATE: JULY 18, 2012
 JOB NUMBER: 4317C
 SCALE: 1 INCH = 400 FEET
 SOURCE: BASE MAP PROVIDED BY MAPTECH



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