

Wroxeter Estates

Anne Arundel County, Maryland

WSSI #MD1398.01

Chesapeake Bay Critical Area Report

July 25, 2017 (Revised October 6, 2017)

Prepared for:

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1. INTRODUCTION

The property is located at 185 Wroxeter Drive, in Arnold, Anne Arundel County, Maryland (Figure 1). The property is identified as Parcel 51, Tax Map 39, Block 9 and Lot 1, Severn View Subdivision P.B. 13 P. 19, and is zoned R1 and OS.

2. EXISTING SITE CONDITIONS

The subject property covers 56.00 acres of land, of which, 28.86 acres are located within the Chesapeake Bay Critical Area (critical area). Therefore, this report only addresses the environmental conditions for the 28.86-acre section of the property (hereafter referred to as the "study area") located within the critical area. Within the Critical Area, 1.55 acres are zoned Open Space (OS), while the remaining 27.01 acres are zoned low density residential (R1). The entire study area is designated as Resource Conservation Area (RCA).

The study area fronts Asquith Creek, a tidal waterway of the Severn River that ultimately drains to the Chesapeake Bay. Currently, 14.53 acres of the study area is comprised of mixed-hardwood forest, which generally exists on the steep slopes and stream valleys around the perimeter of the site. The central section of the study area contains one single family residence, several barns and outbuildings, and open fields/horse pasture. Additionally, there is a second single family residence located in the southern section of the study area. One wooden pier currently extends into Asquith Creek. There is also a small boat house along the tidal shoreline on the site. Existing lot coverage totals 0.72 acres.

The updated soil survey for Anne Arundel County (Figure 2) that can be accessed on-line at <http://websoilsurvey.nrcs.usda.gov> revealed that seven (7) soil types are mapped within the study area. One of the soil types (WBA) is classified as predominantly hydric by the U.S.D.A. Natural Resource Conservation Service, while three other soil types (AsF, CSE, and SCG) are classified as potentially containing hydric inclusions. The soil descriptions are listed in Table 1, along with the erodibility factors for each. Soils are considered highly erodible if the K-factor exceeds 0.35.

TABLE 1: MAPPED SOIL TYPES

Map Unit Symbol	Map Unit Name	Percent Hydric Components	Drainage Class	K-Factor (Whole soil)
AsF	Annapolis fine sandy loam, 25-40% slopes	5	Well-Drained	0.24
CRD	Collington and Annapolis soils, 10-15% slopes	0	Well-Drained	0.17
CSE	Collington, Wist, and Westphalia soils, 15-25% slopes	5	Well-Drained	0.17
CSG	Collington, Wist, and Westphalia soils, 40-80% slopes	5	Well-Drained	0.17
TsB	Tinton loamy sand, 2-5% slopes	0	Well-Drained	0.10
TsC	Tinton loamy sand, 5-10% slopes	0	Well-Drained	0.10

Map Unit Symbol	Map Unit Name	Percent Hydric Components	Drainage Class	K-Factor (Whole soil)
WBA	Widewater and Issue soils, 0-2% slopes	60	Poorly-Drained	0.37

Source: <http://websoilsurvey.nrcs.usda.gov> (September 2016)

3. PROPOSED DEVELOPMENT

The applicant proposes to construct three (3) new single family residences, while removing two (2) existing single family dwellings, several barns/outbuildings, and other impervious areas such as driveways, as shown on the *Developed Conditions Critical Area Plan*, prepared by Boyd & Dowgiallo, P.A.. The other existing residence will be renovated to allow it to meet current County Building Code requirements. The three new residences and driveways will be located in the existing horse pasture and their proposed construction will not result in the clearing of any existing forest within the study area. However, renovation of the existing residence will require 0.04 acre of forest clearing. Clearing associated with the renovation work will be mitigated at a 3:1 ratio through reforestation of the proposed clearing area and in an existing field within the expanded buffer. Overall, the project will result in a slight net increase in impervious lot coverage of 0.26 acres.

Water quality volume (WQv) and Recharge volume (Rev) for the proposed development will be provided via a combination of ESD Practices, including permeable pavers, rooftop disconnection, and sheet flow to conservation areas. Channel protection volume (Cpv), flood protection volume (Qp10), and extreme flood protection is not required due to direct discharge to tidal waters. The only proposed impacts to significant environmental features are to 24,492 square feet of steep slope areas (many of which are man-made) and to 20,147 square feet of the expanded buffer.

4. HABITAT PROTECTION AREAS

Nontidal Wetlands

A formal wetland delineation in accordance with the 1987 U.S. Army Corps of Engineers' *Wetland Delineation Manual* and the *Regional Supplement* was conducted on the entire property during the months of December 2016 and January 2017 by Michael Klebasko, Kenneth Wallis, Audrey McTaggart, and Brianna Beauchamp of Wetland Studies and Solutions, Inc. (WSSI). The delineation revealed that potentially jurisdictional streams and non-tidal wetlands exist within the study area, as shown on the *Existing Conditions Critical Area Plan*, also prepared by Boyd & Dowgiallo, P.A.. An unnamed, perennial stream enters the northwestern corner of the site and flows south along the western property line directly into Asquith Creek. This tributary originates from multiple wetland seeps and just below an existing culvert under Wroxeter Road. Forested, nontidal wetlands border both sides of this tributary along most of its length. Another forested stream/wetland system exists along the eastern property line. This perennial stream enters the site in the extreme northeastern corner and also flows in a southerly direction directly to Asquith Creek.

Nontidal wetlands exist along both sides of stream channel and are predominantly confined to the toe of the existing steep slopes. The surveyed limits of potentially jurisdictional Waters of the U.S., including wetlands, are described in greater detail in WSSI's *Wetland Delineation Report* (dated July 12, 2017) and are depicted on the *Wetland Delineation Plan* that accompanies the report. In addition, these jurisdictional limits have been verbally confirmed in the field by Mary Frazier of the U.S. Army Corps of Engineers during a site visit on September 1, 2017, and written confirmation is pending. No impacts to nontidal wetlands and their 25-foot buffers are proposed.

Tidal Waters and Wetlands

This parcel has approximately 900 linear feet of frontage along Asquith Creek (as depicted on the *Existing Conditions Critical Area Plan*). The majority of the shoreline contains relatively steep drops down to the mean high waterline, with actively eroding banks in some areas. Approximately 70 linear feet of the shoreline near the existing pier has been bulkheaded. The existing wooden pier extends channelward for a distance of approximately 75 feet, and contains a 20' by 10' platform. No impacts to tidal waters and wetlands are proposed.

100-foot Buffer and Expanded Buffer

A 100-foot critical area buffer extends into the property from the limits of tidal waters and wetlands along the Asquith Creek shoreline. Because of the presence of steep slopes, the Expanded Critical Area Buffer extends an additional 100 feet into the site, thus creating a maximum 200-foot expanded buffer from the edge of tidal waters along Asquith Creek (as depicted on the *Existing Conditions Critical Area Plan*). In addition, a 100-foot buffer extends off the two perennial tributaries located along the eastern and western sides of the study area. Because of the presence of contiguous steep slopes, this 100-foot buffer is extended further as shown on the *Existing Conditions Critical Area Plan*.

No disturbances are proposed within the 100-foot buffer, however, 20,147 square feet of the expanded buffer will be disturbed in order to allow the renovation of one of the existing residences and the demolition of existing structures.

100-year Floodplain

According to the FEMA Digital Flood Insurance Rate Map (Panel 24003C0167F, effective 02/18/15), the only 100-year flood areas within the study area exist immediately adjacent to the tidal shoreline of Asquith Creek. These areas are designated as Zone AE- Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood Event, Base Flood Elevations Determined and as Zone X - Areas determined to be outside the 0.2% annual chance floodplain. While these areas are designated as tidal flooding, nontidal 100-year floodplain is not mapped within the study area. No disturbance is proposed within the 100-year floodplain.

Rare, Threatened & Endangered Species

In a letter dated February 1, 2017 (Figure 3), the Maryland Department of Natural Resources (MDNR) - Wildlife and Heritage Service determined that there are no official State or Federal records for listed plant or animal species on the property. In addition, no rare, threatened or endangered species were observed while performing the wetland delineation study and critical area field work.

Steep Slopes

Steep slopes are defined as areas with greater than a 25% slope or areas with greater than a 15% slope on soils with a K-value of greater than 0.35. Steep slopes exist along portions of the Asquith Creek shoreline and the slopes bordering the two streams located along the eastern and western sides of the property. In addition, isolated areas of steep slopes occur around the existing single family residences and scattered sheds/outbuildings on the site. Existing steep slopes are demarcated on the *Existing Conditions Critical Area Plan*. The proposed project will disturb 24,492 square feet of steep slopes during the removal of the existing structures and impervious cover, as well as during grading of the proposed shared access driveway. Steep slopes located within the 100-foot buffer will not be disturbed. However, minor disturbances to steep slopes within the expanded buffer will occur during the renovation of one of the existing residences and the demolition of existing structures.

Submerged Aquatic Vegetation

Submerged Aquatic Vegetation (SAV) has been mapped along the tidal shoreline of the property within Asquith Creek in 2015 and in other previous years according to the MDNR's Merlin Online website. In addition, a large SAV bed has been mapped at the mouth of Asquith Creek in recent years. No impacts to tidal waters are proposed.

Shellfish Beds

According to the MDNR's Merlin Online website, all tidal portions of Asquith Creek have been demarcated as Pre-2010 Oyster Sanctuaries. The proposed development will incorporate ESD stormwater management techniques and will only minimally impact lot coverage on a large site, and therefore, no adverse impacts to shellfish beds will occur.

Environmental Features Not Mapped within Study Area

A review of MDNR's MERLIN Online website confirmed that the following environmental features are not mapped on or within 300 feet of the study area: waterfowl staging and concentration areas, sensitive species project review areas, and natural heritage areas. In addition, this property is not designated as part of a Green Infrastructure hub or corridor.

5. EXISTING VEGETATIVE COVER

Two forest stands (totaling 14.68 acres) exist on the subject property, as described in more detail below and depicted on the *Existing Conditions Critical Area Plan*.

Stand 1 (11.61 acres) is a mature, mixed-hardwood forest dominated by yellow poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), chestnut oak (*Quercus prinus*), black gum (*Nyssa sylvatica*), and northern red oak (*Quercus rubra*). The understory contains American holly (*Ilex opaca*), paw paw (*Asimina triloba*), common privet (*Ligustrum vulgare*), mountain laurel (*Kalmia latifolia*), bamboo, and black cherry (*Prunus serotina*). The relatively open herbaceous layer is generally dominated by common greenbriar (*Smilax rotundifolia*), American holly, English ivy (*Hedera helix*), and Japanese honeysuckle (*Lonicera japonica*). Stand 1 has an average DBH of approximately 20 inches and over 80% of the larger trees are rated in good to fair condition. There is no evidence of insect activity in this stand; however, there is a significant amount of invasive vine cover which could negatively impact the overall health and quality of the trees in this stand. In addition, several dense stands of bamboo occur in this stand.

Stand 2 (3.07 acres) is an immature, mixed-hardwood forest dominated by bottom land species such as red maple, sweet gum (*Liquidambar styraciflua*), and yellow poplar. This stand has an average DBH of approximately 10 inches, and shrub and herbaceous layers that are dominated by English ivy, spice bush (*Lindera benzoin*), privet, common greenbriar, devil's walking stick (*Aralia spinosa*), multiflora rose (*Rosa multiflora*), and wood reed-grass (*Cinna arundinacea*). Diameters-at-breast-height for trees generally range from 5-15 inches.

The applicant proposes to clear 1,700 square feet (0.04 acre) of forest within Stand 1 during the renovation of the existing single family residence. This forest clearing will be mitigated at a 3:1 ratio which equates to 5,100 square feet (0.12 acre) of reforestation. Once the renovation work is complete, the 1,700-square foot cleared area will be reforested with native plant species acceptable to Anne Arundel County. The remaining mitigation balance of 3,400 square feet (0.08 acre) will be achieved through reforestation of an on-site, open field area within the expanded buffer, as shown on the *Developed Conditions Critical Area Plan*.

6. WILDLIFE

Wildlife observed during the site visit included common songbirds, gray squirrels (*Sciurus carolinensis*), and various waterfowl. In their letter dated February 1, 2017 (Figure 3), the MDNR – Wildlife and Heritage Service stated that their remote analysis suggests that the existing forest on the property contains Forest Interior Dwelling Bird (FIDS) habitat. However, at this time, a survey has not been done to determine if FIDS are present within the existing forest. Minimal forest clearing (1,700 square feet) as a result of renovation work to an existing residence is proposed, and it is highly unlikely that the forest clearing will have an adverse effect on FIDS habitat. Furthermore, the applicant proposes to

mitigate for the forest clearing at a 3:1 ratio and by expanding the edge of the existing forest.

7. DATES OF FIELD WORK

December 2016 through January 2017, September 1, 2017 - Michael J. Klebasko, P.W.S.

8. LIMITATIONS

Conclusions presented herein are based upon our review of available information, the results of our field studies, and/or professional judgement. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property.

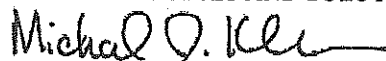
We offer no opinion and do not purport to opine on the possible application of various building codes, zoning ordinances, other land use or platting regulations, environmental or health laws and other similar statutes, laws, ordinances, code and regulations affecting the possible use and occupancy of the Property for the purpose for which it is being used, except as specifically provided above.

The foregoing opinions are based on applicable laws, ordinances, and regulations in effect as of the date hereof and should not be construed to be an opinion as to the matters set out herein should such laws, ordinances or regulations be modified, repealed or amended.

Any reuse or modification of any of this document (whether hard copies or electronic transmittals) prepared by WSSI without written verification or adaptation by WSSI will be at the sole risk of the individual or entity utilizing said document and such use is without the authorization of WSSI. WSSI shall have no legal liability resulting from any and all claims, damages, losses, and expenses, including attorney's fees arising out of the unauthorized reuse or modification of this document. Client shall indemnify WSSI from any claims arising out of unauthorized use or modification of the document whether hard copy or electronic.

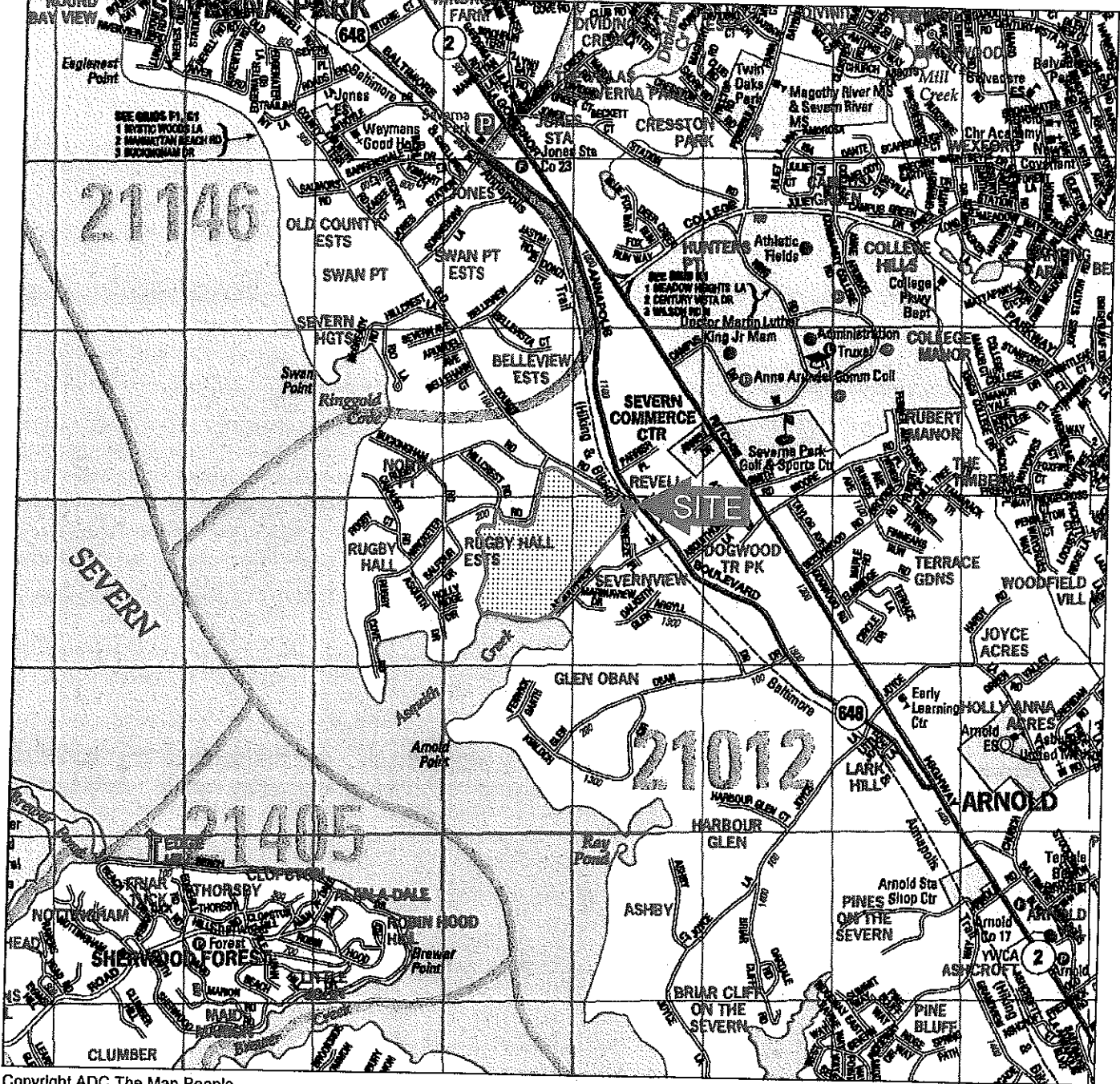
This report does not constitute a jurisdictional determination of waters of the U.S. since such determinations must be verified by the U.S. Army Corps of Engineers or the Natural Resources Conservation Service (as applicable), and are subject to review by the U.S. Environmental Protection Agency.

WETLAND STUDIES AND SOLUTIONS, INC.



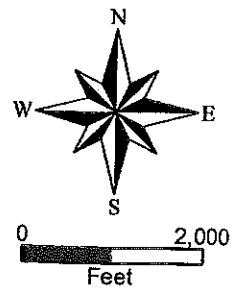
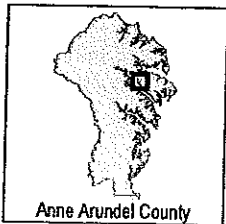
Michael J. Klebasko, PWS

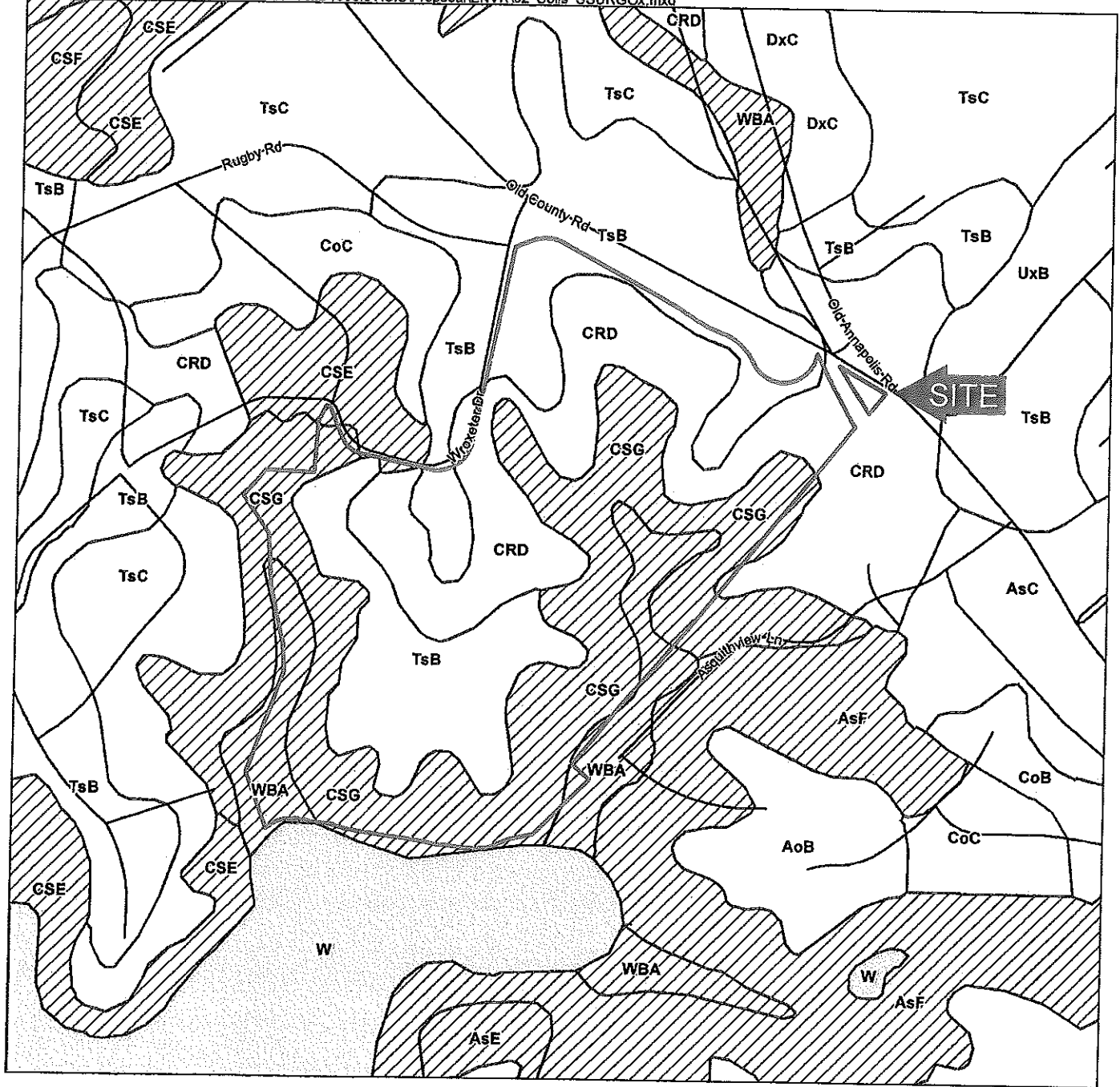
Manager - Maryland Environmental Services







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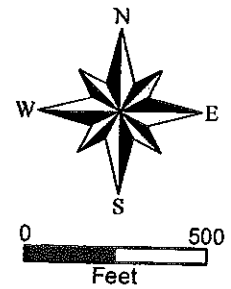
Vicinity Map
Wroxeter Drive Property
Original Scale: 1" = 2000'





Soils Map
SSURGO Digital Data
Wroxeter Drive Property
Original Scale: 1" = 500'

-  Hydric Soils: >65%
-  Soils with Hydric Inclusions: 1-65%
-  Non-Hydric Soils: 0%
-  Water





Larry Hagan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

February 1, 2017

Mr. Michael J. Klebasko
Wetland Studies and Solutions, Inc.
1131 Benfield Boulevard
Suite 1
Millersville, Maryland 21108

RE: Environmental Review for 185 Wroxeter Drive, Arnold, Anne Arundel County, Maryland.

Dear Mr. Klebasko:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. We would like to point out, however, that our remote analysis suggests that the forested area on this property contains Forest Interior Dwelling Bird habitat. Populations of many bird species which depend on this type of forested habitat are declining in Maryland and throughout the eastern United States. The conservation of this habitat is mandated within the Chesapeake Bay Critical Area and must be addressed by the project plan. Specifically, if FIDS habitat is present, the following guidelines should be incorporated into the project plan (as applicable):

1. Restrict development to nonforested areas.
2. If forest loss or disturbance is unavoidable, concentrate or restrict development to the following areas:
 - a. the perimeter of the forest (i.e., within 300 feet of existing forest edge)
 - b. thin strips of upland forest less than 300 feet wide
 - c. small, isolated forests less than 50 acres in size
 - d. portions of the forest with low quality FIDS habitat, (i.e., areas that are already heavily fragmented, relatively young, exhibit low structural diversity, etc.)
3. Maximize the amount of forest "interior" (forest area >300 feet from the forest edge) within each forest tract (i.e., minimize the forest edge:area ratio). Circular forest tracts are ideal and square tracts are better than rectangular or long, linear forests.
4. Minimize forest isolation. Generally, forests that are adjacent, close to, or connected to other forests provide higher quality FIDS habitat than more isolated forests.
5. Limit forest removal to the "footprint" of houses and to that which is necessary for the placement of roads and driveways.
6. Minimize the number and length of driveways and roads.
7. Roads and driveways should be as narrow and as short as possible; preferably less than 25 and 15 feet, respectively
8. Maintain forest canopy closure over roads and driveways.
9. Maintain forest habitat up to the edges of roads and driveways; do not create or maintain mowed grassy berms.
10. Maintain or create wildlife corridors.

Tawes State Office Building - 580 Taylor Avenue - Annapolis, Maryland 21401
410-260-RDNR or toll free in Maryland 877-670-RDNR - dnr.maryland.gov - TTY Users Call via the Maryland Relay

MDNR Letter
185 Wroxeter Drive

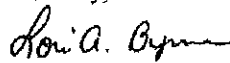
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11. Do not remove or disturb forest habitat during April-August, the breeding season for most FIDS. This seasonal restriction may be expanded to February-August if certain early nesting FIDS (e.g., Barred Owl) are present.
12. Landscape homes with native trees, shrubs and other plants and/or encourage homeowners to do so.
13. Encourage homeowners to keep pet cats indoors or, if taken outside, kept on a leash or inside a fenced area.
14. In forested areas reserved from development, promote the development of a diverse forest understory by removing livestock from forested areas and controlling white-tailed deer populations. Do not mow the forest understory or remove woody debris and snags.
15. Afforestation efforts should target a) riparian or streamside areas that lack woody vegetative buffers, b) forested riparian areas less than 300 feet wide, and c) gaps or peninsulas of nonforested habitat within or adjacent to existing FIDS habitat.

The Critical Area Commission's document "A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area" provides details on development standards and information about mitigation for projects where impacts to FIDS habitat cannot be totally avoided. Mitigation plantings for impacts to FIDS habitat may be required under the local government's Critical Area Program. The amount of mitigation required is generally based in whether the guidelines listed above are followed.

Please be sure to let us know if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation. Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,



Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2017.0089.aa
Cc: C. Shearin, CAC

MDNR Letter
185 Wroxeter Drive