TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

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December 7, 2021

Mr. Andy Hull
Apex Clean Energy Holdings, LLC
310 4th Street NE, Suite 300
Charlottesville, VA 22902

RE: Dogwood Lane Solar – Environmental Impacts Memorandum

Dear Mr. Hull,

Timmons Group has completed a desktop environmental impact review of the Dogwood Lane Solar project for a proposed solar electric power generation facility. The project is located on approximately 31.2 acres and is located in Lunenburg County, Virginia (see Figure 1: County Map). The study was developed as a preliminary planning tool to help identify potential constraints to assist in developing the proposed Dogwood Lane Solar facility (Site). The study consists of an analysis on the potential impacts of the Site on the environment, including water and air quality.

I. Water Quality Review

A limited water quality review was conducted to gain insight regarding the existing water quality in the vicinity of the Site using information retrieved from the U.S. Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (DEQ). EPA's How's My Waterway? Tool was quiered for information about Big Hounds Creek, the closest waterway to the Site. Immediately adjacent to the Site is an unsegmented portion of Watershed K14 (Waterbody Report included as Attachment 1), which has generally not been assessed. There are no probable sources of impairment identified for this waterbody. The closest waterbody that has been assessed is Big Hounds Creek (Waterbody Report included as Attachment 2), which is impaired. The impairment is for benthic macroinvertebrates and excessive *E. coli*. EPA has listed probable sources of impairment, including livestock, municipal point source discharges, unspecified domestic waste, pet waste, and wildlife other than waterfowl. Therefore, while no sampling has occurred on the Site, and while there is no publicly-available information about the immediate vicinity, there is some indication of contamination in the larger watershed.

Information from the Virginia Department of Conservation and Recreation (DCR) was obtained through a project review of the Natural Heritage Database Review (NHDE) (Attachment 3). No natural heritage resources were identified on the Site, and there are no protected lands indicated.

As a means of development, wetlands and streams on Site will be delineated. Assuming that delineated features (if present) will be avoided and/or impacts minimized, and that best management practices (BMPs) will be followed during construction/operation, the facility is not expect to impact on-site water resources. Based upon the desktop review of the surrounding area, impacts to water resources in the vicinity are also not expected as a result of the facility.

II. Air Quality Review

DEQ's Environmental Data Mapper was quiered to obtain information about air quality in the vicinity of the Site. Information regarding air quality was obtained, specifically showing active air sites and air facilities (facilities regulated by the state). There are three facilities operating along Main Street/Route 40 that are in the "true minor" category, meaning the facilities emit regulated pollutants in a minor category threshold. Two of the facilities are associated with a tobacco company, and the third is associated with pest control

products (Attachment 4). It is unlikely that the Site would affect, or be affected by, any of these regulated entities.

The facility, if it were to be built, would have no negative impact on ambient air quality. Indeed, compared with traditional fossil-fuel methods of generating electricity, the facility will avoid negative air quality impacts. EPA's Avoided Emissions and Generation Tool (AVERT)[1] was utilized to calculate the potential beneficial air quality impacts if the Site proceeds. Avoided emissions data was calculated using Mid-Atlantic Regional data assuming a 5 MW project. Annual avoided impacts are as follows:

Pollutant	Annual avoided impacts (lb)
Sulfur Dioxide (SO_2)	-10,780
Nitrous Oxide (NO_X)	-7,060
Particulate Matter ($PM_{2.5}$)	-920
Volatile Organic Compounds (VOCs)	-190

III. Summary and Conclusions

We have conducted a limited desktop review of water and air quality at the Site. Generally speaking, water quality is unknown in the immediate vicinity of the Site, and impaired surface water exists in the larger watershed. On-site water resources (if present) can be protected through avoidance and minimization of potential impacts to streams and wetlands, as well as the use of BMPs during construction and operation of the facility. Additionally, implementing the planned project will reduce air pollution, compared with traditional fossil-fuel burning methods to generate electricity.

We appreciate the opportunity to present this preliminary analysis for planning purposes. Please note that DCR recommends re-accessing the NHDE database every six months for current information.

If you have any questions, please contact me at (804) 200-6577 or julia.jenkins@timmons.com.

Sincerely,

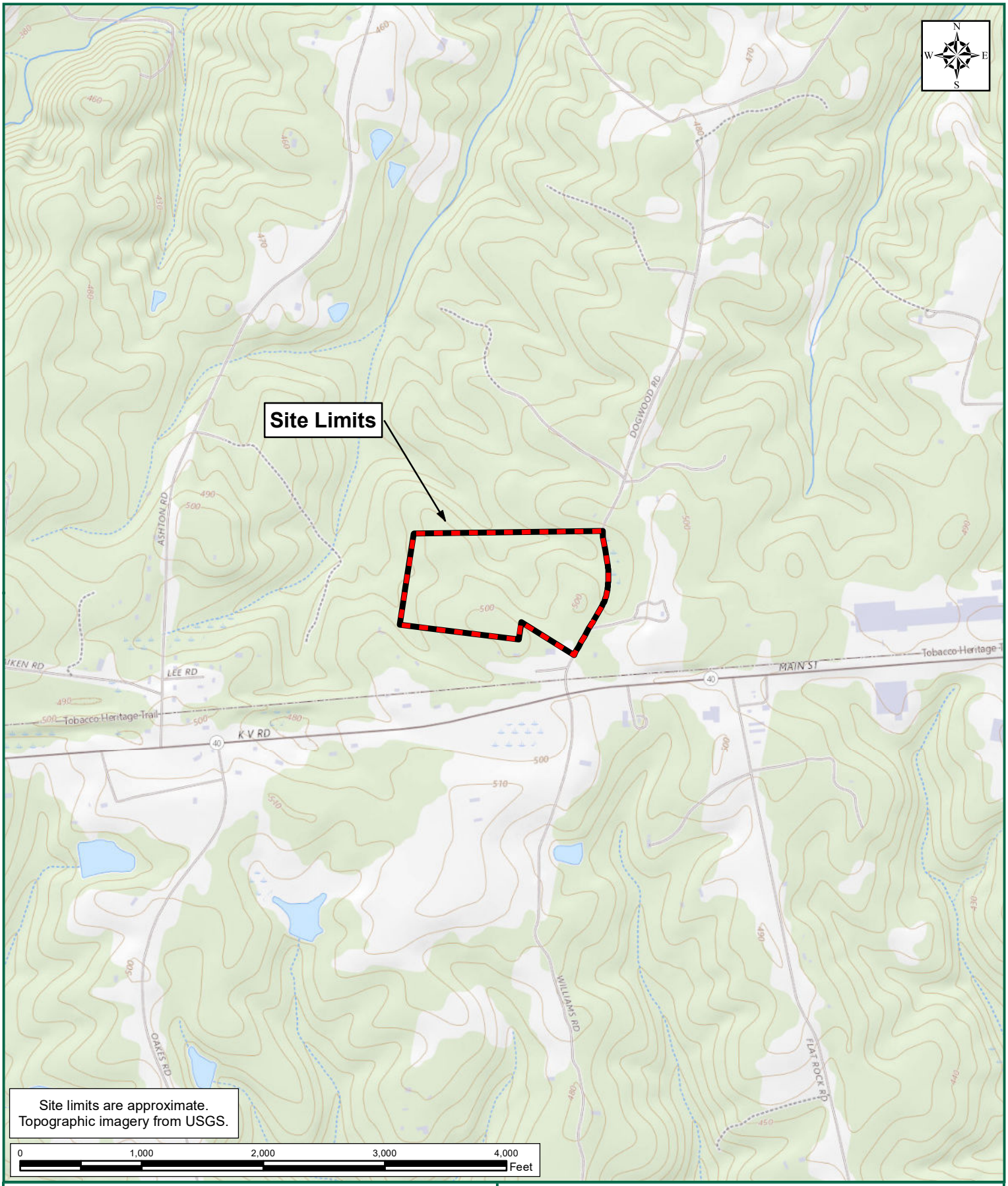
Julia Jenkins

Attachments

Figure 1	Vicinity Map
Figure 2	Overview of DEQ's 'How's My Waterway?' Watershed
Attachment 1	Waterbody Report – Unsegmented Portion of Watershed K14
Attachment 2	Waterbody Report – Big Hounds Creek
Attachment 3	DCR Project Review
Attachment 4	DEQ – EDM – Active Air Sites

[1] https://www.epa.gov/avert/avert-web-edition

Path: Y:\852\99999-Dogwood_Lane_Apex\GIS\VIC.mxd



Site limits are approximate.
Topographic imagery from USGS.

DOGWOOD LANE SOLAR

LUNENBURG, VIRGINIA

FIGURE 1: VICINITY MAP

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP JOB NUMBER:*41659.081*
PROJECT STUDY LIMITS:*31.24 ACRES*
LATITUDE:*36.968127*
LONGITUDE:*-78.161389*

U.S.G.S. QUADRANGLE(S):*KENBRIDGE WEST*
DATE(S):*2019*
WATERSHED(S):*NOTTOWAY (ALBEMARLE-CHOWAN RIVER BASIN)*
HYDROLOGIC UNIT CODE(S):*03010201*

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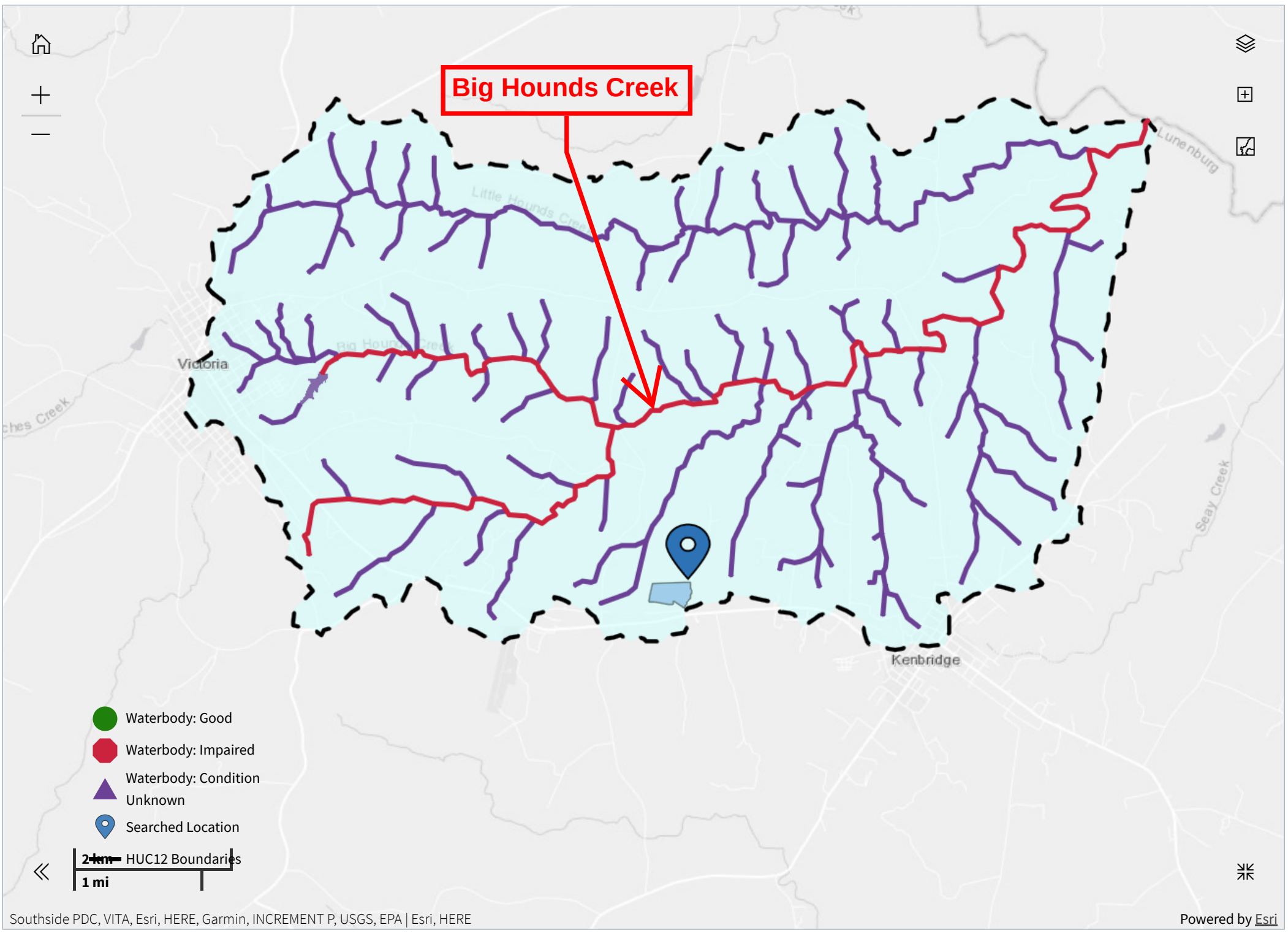
How's My Waterway?

Informing the conversation about your waters.

Community | State | National



Attachment 1 Waterbody Report – Unsegmented Portion of Watershed K14

How's My Waterway?

Informing the conversation about your waters.

Waterbody Report

Unsegmented Portion of Watershed K14

Assessment Unit ID: VAP-K14R_ZZZ01B14

Waterbody Condition: Condition Unknown

Existing Plans for Restoration: No

303(d) Listed: No

Year Reported: 2020

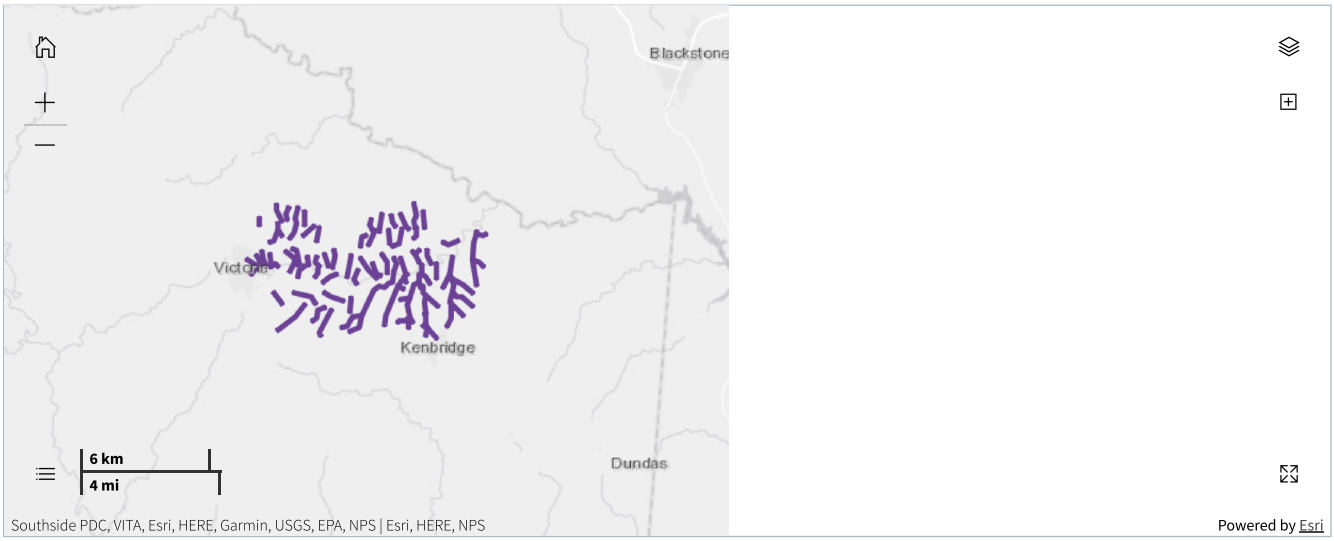
Organization Name (ID): Virginia (21VASWCB)

What type of water is this?

River (44.86 Miles)

Where is this water located?

Unnamed tributaries to Big Hounds Creek in CU03



Assessment Information from 2020

What is this water used for?

Collapse All

Aquatic Life Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Fish Consumption Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Recreation Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Wildlife Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Probable sources contributing to impairment from 2020:

No probable sources of impairment identified for this waterbody.

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

No plans for this waterbody.

Attachment 2 Waterbody Report – Big Hounds Creek

How's My Waterway?

Informing the conversation about your waters.

Waterbody Report

Big Hounds Creek

Assessment Unit ID: VAP-K14R_BHC01B98

Waterbody Condition: Impaired

Existing Plans for Restoration: Yes

303(d) Listed: Yes

Year Reported: 2020

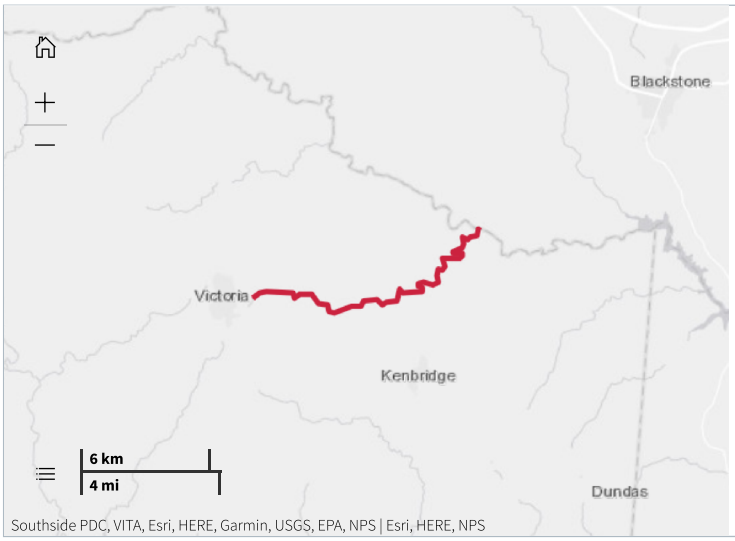
Organization Name (ID): Virginia (21VASWCB)

What type of water is this?

River (10.34 Miles)

Where is this water located?

From Lunenburg Lake dam to the Nottoway River.



Assessment Information from 2020

What is this water used for?

Collapse All

Aquatic Life Impaired

Impairments Evaluated

Impairment	Plan in Place
Benthic Macroinvertebrates Bioassessments	No

Other Parameters Evaluated

No other parameters evaluated for this use.

Fish Consumption

Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Recreation

Impaired

Impairments Evaluated

Impairment	Plan in Place
Escherichia Coli (E. coli)	Yes

Other Parameters Evaluated

No other parameters evaluated for this use.

Wildlife

Not Assessed

Impairments Evaluated

No impairments evaluated for this use.

Other Parameters Evaluated

No other parameters evaluated for this use.

Probable sources contributing to impairment from 2020:

Source	Confirmed
Livestock (Grazing or Feeding Operations)	Yes
Municipal Point Source Discharges	Yes
Source Unknown	No
Unspecified Domestic Waste	Yes
Wastes From Pets	Yes
Wildlife Other Than Waterfowl	Yes

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Date
Big Hounds Creek	Escherichia Coli (E. coli), Fecal Coliform	TMDL	2005-10-14

Attachment 3 DCR Project Review

Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

Web Project ID: WEB0000016773

Client Project Number: 99999

PROJECT INFORMATION

TITLE: Dogwood Solar Lunenburg

DESCRIPTION: Dogwood Solar is a proposed solar facility in Lunenberg County.

EXISTING SITE CONDITIONS: recently timbered

QUADRANGLES: Kenbridge West

COUNTIES: Lunenburg

Latitude/Longitude (DMS): 36° 58' 7.9581" N / 78° 9' 41.8329" W

Acreage: 30 acres

Comments:

REQUESTOR INFORMATION

Priority: N

Tier Level: Tier I

Tax ID: 54-1301413

Contact Name: Julia Jenkins

Company Name: Timmons Group

Address: 1001 Boulders Pkwy Ste 300

City: Richmond

State: VA

Zip: 23225

Phone: 8042006577

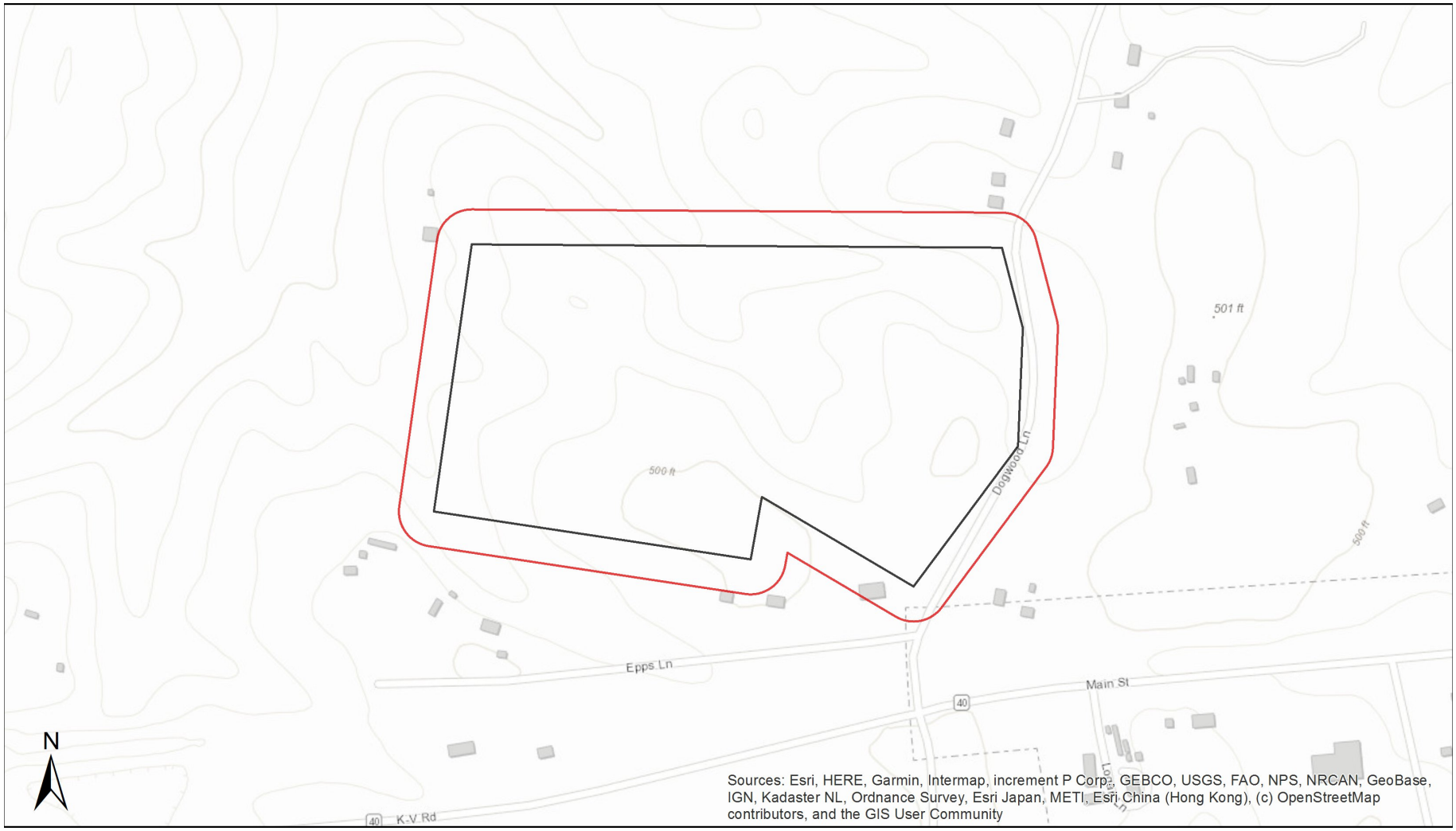
Fax:

Email: julia.jenkins@timmons.com

Conservation Site	Site Type	Brank	Acreage	Listed Species Presence	Essential Conservation Site?
Natural Heritage Screening Features Intersecting Project Boundary					

Intersecting Predictive Models
Predictive Model Results

Dogwood Solar Lunenburg



Project Boundary

Buffered Project Boundary

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Quads: Kenbridge West

Counties: Lunenburg

Company: Timmons Group

Lat/Long: 365807 / -780941

Ann Jennings
Secretary of Natural and Historic Resources and Chief Resilience Officer

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Clyde E. Cristman
Director

The project mapped as part of this report has been searched against the Department of Conservation and Recreation's Biotics Data System for occurrences of natural heritage resources in the vicinity of the area indicated for this project. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100 foot buffer. In addition, the project area does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics. Please revisit this website or contact DCR for an update on this natural heritage information if a significant amount of time passes (DCR recommends no more than six months) before it is utilized.

The Virginia Department of Wildlife Resources maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in the Natural Heritage Data Explorer. Their database may be accessed from http://vafwis.org/fwis/ or contact Amy Martin (804-367-2211 or amy.martin@dwr.virginia.gov).

Thank you for submitting your project to the Virginia Department of Conservation and Recreation's Natural Heritage Data Explorer Web Service. Based on the preliminary screening results for this project, no further correspondence will be sent from this office. Should you have any questions or concerns about this report, the Data Explorer, or other Virginia Natural Heritage Program services, please contact the Natural Heritage Project Review Unit at 804-371-2708.

Attachment 4 DEQ – EDM – Active Air Sites

Environmental Data Mapper Air Layers

12/7/2021, 1:58:04 PM

ProjLimits

Active Air Sites (Daily)

Major/Potential Major

Synthetic Minor

True Minor

1:36,112

0 0.25 0.5 1 mi

0 0.38 0.75 1.5 km

Virginia Department of Environmental Quality, This EPA Geospatial data set is generated from the following national environmental programs: Superfund National Priorities List (NPL) from the Superfund Enterprise Management System (SEMS); Resource Conservation and Recovery Act (RCRA); Air Facility

Provided by Virginia Department of Environmental Quality

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