

A G E N D A
ISLE OF WIGHT COUNTY PLANNING COMMISSION
January 25, 2022

1. CALL TO ORDER

INVOCATION

PLEDGE OF ALLEGIANCE

2. ROLL CALL/DETERMINATION OF A QUORUM

BRIAN CARROLL, CHAIRMAN

BOBBY BOWSER, VICE-CHAIRMAN

CYNTHIA TAYLOR

JAMES FORD

THOMAS DUERIG

JENNIFER S. BOYKIN

GEORGE RAWLS

THOMAS J. DISTEFANO

A. ELECTION OF CHAIRMAN FOR 2022

B. ELECTION OF VICE-CHAIRMAN FOR 2022

C. APPOINTMENT OF SECRETARY FOR 2022

D. ADOPTION OF 2022 PLANNING COMMISSION MEETING SCHEDULE

**E. ADOPTION OF 2022 PLANNING COMMISSION INVOCATION
SCHEDULE**

**3. ACTION ON REQUESTS TO WITHDRAW OR TABLE PENDING AGENDA
ITEMS**

4. APPROVAL OF AGENDA

5. CONSENT AGENDA

A. OCTOBER 21, 2021 BOARD OF SUPERVISORS ACTION LIST

B. OCTOBER 26, 2021 REGULAR MEETING MINUTES

C. NOVEMBER 18, 2021 BOARD OF SUPERVISORS ACTION LIST

D. DECEMBER 9, 2021 BOARD OF SUPERVISORS WORK SESSION &
REGULAR MEETING ACTION LIST

6. CITIZENS' COMMENTS

7. PUBLIC HEARINGS

A. CONDITIONAL USE PERMIT REQUEST FOR NUBY RUN SOLAR
ENERGY FACILITY

Request of Nuby Run Solar, LLC, applicant, on behalf of Robert Benjamin Stagg,

property owner, for a conditional use permit (CUP) to establish a major utility service, specifically a utility scale solar energy facility, on property located on Orbit Road with tax parcel number 39-01-038, and zoned RAC, Rural Agricultural Conservation. The application includes a request to withdraw twenty acres of the property from the Courthouse Agricultural/Forestal District.

8. OLD BUSINESS

9. NEW BUSINESS

A. HERITAGE APARTMENTS HEIGHT EXCEPTION REQUEST

Request of Jerry Kooiman on behalf of KS Carrollton, LLC, property owner, for a height exception for the Heritage Apartment building located at 23321 Sugar Hill Road on property with tax map number 34-01-106B to allow the building to exceed the maximum height limit of 35 feet permitted in the Urban Residential district by 2.25 feet. The total building height requested is 37.25 feet.

B. RESOLUTIONS OF APPRECIATION

C. COUNTY ATTORNEY'S REPORT

D. PLANNING DIRECTOR'S REPORT

1. PROPOSED ORDINANCE REVISIONS DISCUSSION

Discussion on the Proposed Revisions to the Isle of Wight County Zoning and Subdivision Ordinances

10. CLOSED MEETING

11. ADJOURNMENT

PLANNING REPORT

APPLICATION:

A. ELECTION OF CHAIRMAN FOR 2022

PLANNING REPORT

APPLICATION:

B. ELECTION OF VICE-CHAIRMAN FOR 2022

PLANNING REPORT

APPLICATION:

C. APPOINTMENT OF SECRETARY FOR 2022

PLANNING REPORT

APPLICATION:

D. ADOPTION OF 2022 PLANNING COMMISSION MEETING SCHEDULE

ATTACHMENTS:

Description	Type	Upload Date
2022 PLANNING COMMISSION MEETING SCHEDULE	Cover Memo	1/19/2022

ISLE OF WIGHT COUNTY PLANNING COMMISSION 2022 MEETING SCHEDULE

Tuesday, January 25 th	6:00pm	Regular Meeting
Tuesday, February 22 nd	6:00pm	Regular Meeting
Tuesday, March 22 nd	6:00pm	Regular Meeting
Tuesday, April 26 th	6:00pm	Regular Meeting
Tuesday, May 24 th	6:00pm	Regular Meeting
Tuesday, June 28 th	6:00pm	Regular Meeting
Tuesday, July 26 th	6:00pm	Regular Meeting
Tuesday, August 23 rd	6:00pm	Regular Meeting
Tuesday, September 27 th	6:00pm	Regular Meeting
Tuesday, October 25 th	6:00pm	Regular Meeting
Tuesday, November 22 nd	6:00pm	Regular Meeting
Tuesday, December 27 th	6:00pm	Regular Meeting
Tuesday, January 24 th , 2023	6:00pm	Regular Meeting

WORK SESSIONS

Work Sessions will be held on an as-needed basis on the 2nd Tuesday of the month at 6:00 p.m.

PLANNING REPORT

APPLICATION:

E. ADOPTION OF 2022 PLANNING COMMISSION INVOCATION SCHEDULE

ATTACHMENTS:

Description	Type	Upload Date
2022 INVOCATION SCHEDULE	Cover Memo	1/19/2022

2022 PLANNING COMMISSION MEETING INVOCATION SCHEDULE

January 12 th	Work Session	Jennifer Boykin	Carrsville District
January 25 th	Regular Meeting	Brian Carroll	Carrsville District
February 8 th	Work Session	Thomas Distefano	Newport District
February 22 nd	Regular Meeting	Cynthia Taylor	Smithfield District
March 8 th	Work Session	Thomas Duerig	Smithfield District
March 22 nd	Regular Meeting	Bobby Bowser	Hardy District
April 12 th	Work Session	James Ford	Hardy District
April 26 th	Regular Meeting	Jennifer Boykin	Carrsville District
May 10 th	Work Session	George Rawls	Windsor District
May 24 th	Regular Meeting	Thomas Distefano	Newport District
June 14 th	Work Session	Brian Carroll	Carrsville District
June 28 th	Regular Meeting	Thomas Duerig	Smithfield District
July 12 th	Work Session	Cynthia Taylor	Smithfield District
July 26 th	Regular Meeting	James Ford	Hardy District
August 9 th	Work Session	Bobby Bowser	Hardy District
August 23 rd	Regular Meeting	George Rawls	Windsor District
September 13 th	Work Session	Jennifer Boykin	Carrsville District
September 27 th	Regular Meeting	Brian Carroll	Carrsville District
October 11 th	Work Session	Thomas Distefano	Newport District
October 25 th	Regular Meeting	Cynthia Taylor	Smithfield District
November 8 th	Work Session	Thomas Duerig	Smithfield District
November 22 nd	Regular Meeting	Bobby Bowser	Hardy District
December 13 th	Work Session	James Ford	Hardy District
December 27 th	Regular Meeting	Jennifer Boykin	Carrsville District
January 10 th , 2023	Work Session	George Rawls	Windsor District
January 24 th , 2023	Regular Meeting	Thomas Distefano	Newport District

PLANNING REPORT

ATTACHMENTS:

Description	Type	Upload Date
October 21, 2021 Board of Supervisors Action List	Cover Memo	10/26/2021

Action List
Board of Supervisors
October 21, 2021

1. APPROVAL OF AGENDA: Supervisor McCarty moved that the Resolution to Amend the FY2021-22 Budget and Appropriate Funds to the Schools Budget under the Consent Agenda be moved to Old Business and that the Public Hearing be moved prior to Special Presentations. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.
2. CLOSED MEETING: There was no action taken following the closed meeting.
3. CITIZENS' COMMENTS
 - A. Herb DeGroft of Mill Swamp Road requested the Board to direct the County Attorney to investigate the School Board's misappropriation of taxpayer funds.
 - B. Curt Lytle of Blackwater Road requested that the County change its ordinance to reflect that riffles be allowed to hunt deer and bear.
 - C. Matthew O'Brien of the Carrsville District spoke in favor of the County's ordinance being revised to reflect that riffles can be used to hunt deer and bear.
 - D. Matthew Johnson of Founders Point Trail addressed the Board regarding his recent water bill and suggested submeters would be a fair way to treat wastewater.
4. CONSENT AGENDA: Supervisor McCarty moved that the following Consent Agenda be adopted which carried unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisor voting against the motion:
 - A. Resolution to Approve the Cross-fund Transfer for Batiste Court Road Improvements (\$4,361)
 - B. Resolution to Amend the FY 2021-2022 Budget and Appropriate Funding for E911 System Redundancy Memorandum of Understanding with the City of Suffolk (\$61,000)
 - C. Resolution to Amend the FY 2021-22 Operating Budget and Appropriate Funding to Accept and Appropriate Funds from the Septic Tank Pump Out Assistance Grant Program (\$5,000)
 - D. Resolution to Amend the FY2021-22 Operating Budget and Appropriate Funding for Repairs of County Property from Insurance Proceeds (\$3,502)

E. Resolution to Amend the FY2021-2022 Operating Budget and Appropriate Funding from the Virginia Department of Fire Programs Aid to Locality Fund Grant (\$99,386)

F. Minutes

- . August 5, 2021 Work Session Minutes
- . August 19, 2021 Regular Meeting Minutes
- . September 2, 2021 Work Session Minutes

5. REGIONAL AND INTER-GOVERNMENTAL REPORTS

A. Hampton Roads Transportation Planning Organization: County Administrator Keaton reported that Supervisor McCarty was elected as Vice-Chairman and he was reelected as Treasurer of the Hampton Roads Transportation Planning Organization.

B. Hampton Roads Bridge Tunnel Project: County Administrator Keaton reported that the Hampton Roads Bridge Tunnel is the largest project administered by VDOT and has an anticipated completion date of 2025.

C. Southeastern Public Service Authority: County Administrator Keaton reported that the Authority received an update on the Navy's new steam plant. He cautioned the Board that it will have cost implications for the region and the Authority is looking at various options.

D. Commission on Aging: Supervisor Jefferson reported on a recent program held by the Commission at The Smithfield Center which was well attended.

E. Social Services Board Meeting: Supervisor Jefferson recognized the Director of Social Services and spoke favorably of the companion program administered by that department.

F. Smithfield Intergovernmental Relations Committee: Chairman Grice advised that the subject matter discussed at the Committee's most recent meeting will be brought up at the Board's next work session.

G. Western Tidewater Water Authority Meeting: Chairman Grice advised that he had taken a tour of the water plant.

6. APPOINTMENTS

Southeastern Public Service Authority: Supervisor McCarty moved that Dale Baugh be recommended to the Governor for reappointment to the SPSA Board of Directors. The motion

was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Storm

7. PUBLIC HEARINGS

Application of Bennis Saint Luke, LLC, Applicant and Property Owner, for a Conditional Use Permit to Allow a Child Care Center Located at 14355 Bennis Church Boulevard: Supervisor Acree moved that the application be approved with the condition that the use be limited to no more than 9,000 square feet and that any future expansions of the use shall require a formal traffic impact analysis and the construction of any needed improvements. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Ring

8. SPECIAL PRESENTATIONS/APPEARANCES

A. VDOT Update: Tommie Catlett, VDOT Resident Engineer for the Franklin Residency, provided an update on Residency operations.

The Board requested Mr. Catlett to look into the following concerns:

- . Supervisor Jefferson expressed concern that it took three hours for a VDOT person to respond to a call for detour signs.
- . Supervisor McCarty advised that there is a sink hole on Titus Creek and that the street signs at the Royal Farms prevent drivers from seeing traffic coming from downtown Smithfield.
- . Supervisor Rosie requested that the bushes at the Dairy Queen in Windsor be cut back and requested that Strawberry Plains Road be mowed.
- . Supervisor Acree requested that the BMP at Bennis Grant be mowed and he presented a request from residents on Oliver Drive for a speed study in hopes that the speed be reduced to from 40mph to 25 mph.
- . Chairman Grice asked that any work done on the bridge at Smithfield Station be minimized due to traffic.

B. Redistricting Task Force Report: The consensus of the Board was to move forward with Map #1 as recommended by the Redistricting Task Force.

Supervisor McCarty moved that the Board set a special joint meeting with the Redistricting Task Force at 6:00 p.m. on Monday, November 22, 2021. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones

- C. COVID-19 Vaccine Update: Assistant County Administrator Robertson provided an update on current vaccination efforts/challenges.

9. COUNTY ATTORNEY'S REPORT

Resolution Approving the County's Participation in the Proposed Settlement of Opioid Related Claims Against McKesson, Cardinal Health, Amerisource- Bergen, Janssen and their Related Companies and Directing the County Attorney and/or Outside Council to Execute the Documents Necessary to Affect the County's Participation in Such Settlements: Supervisor McCarty moved that the Resolution be adopted. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones

10. COUNTY ADMINISTRATOR'S REPORT

- A. Software Options for Appointed Boards, Committees: Assistant County Administrator Robertson advised that staff does not recommend any other software other than what is currently utilized in the County's systems today.
- B. County Administrator Keaton advised that notification has been received that the staff for the Certificate of Public Need application recommended denial of the Riverside Hospital application. County Administrator Keaton advised that the VDH will conduct an information fact finding conference on Friday, November 5th at 10:00 a.m. in Henrico County at the Virginia Department of Health office.

11. UNFINISHED/OLD BUSINESS

- A. One-time Hazard Pay Bonus for Sworn Sheriffs, Sheriffs' Deputies & Regional Jail Officers: Supervisor Jefferson moved to authorize the County Administrator to give the proper funding to make a one-time bonus to all sworn Sheriffs, Sheriffs' Deputies and regional jail officers. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: S. Humphries

- B. Estimate Funding for New Debt: County Administrator Keaton advised that he will be returning to the Board at its next meeting to request the Board to approve the additional \$10 million.

Assignment: S. Humphries

- C. Board Retreat/Tour: It was the consensus of the Board to revisit this issue at the Board's November 4, 2021 work session.

Assignment: Robertson

- D. Resolution to Amend the FY2021-22 Budget and Appropriate Funds to the Schools Budget: It was the consensus of the Board that action on the Resolution be tabled to the Board's November 4, 2021 work session. In the meantime, County Administrator Keaton is to contact Superintendent Thornton and obtain answers to the Board's questions involving instructional services and tables and chairs.

Assignment: Keaton

12. NEW BUSINESS

- A. Resolution to Amend the FY2022 Budget and Appropriate Funding for Projects Related to Economic Development at Shirley T. Holland Commerce Park: Supervisor McCarty moved that the Resolution be adopted. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: S. Humphries

- B. Bradby Park/Tyler's Beach: David Smith, Director of Parks & Recreation, provided an update on capital projects for Bradby Park/Tyler's Beach.

- C. VACo Voting Credentials: Supervisor Acree moved that Supervisor McCarty be designated as the County's voting delegate and Supervisor Jefferson be voted as the alternate delegate authorized to vote at the VACo annual business dinner. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Robertson/Storm

PLANNING REPORT

ATTACHMENTS:

Description	Type	Upload Date
OCTOBER 26, 2021 REGULAR MEETING MINUTES	Cover Memo	1/19/2022

**MINUTES OF THE MEETING OF THE ISLE OF WIGHT COUNTY
PLANNING COMMISSION HELD ON THE TWENTY-SIXTH DAY OF
OCTOBER IN THE YEAR TWO THOUSAND AND TWENTY-ONE**

CALL TO ORDER

Brian Carroll, Chairman, called the Isle of Wight County Planning Commission meeting to order at 6:00 PM on October 26, 2021, in the Board of Supervisors Room at the Isle of Wight County Courthouse, Isle of Wight, Virginia.

INVOCATION

Bobby Bowser delivered the Invocation.

PLEDGE OF ALLEGIANCE

Chairman Carroll invited everyone present to join in the Pledge of Allegiance.

ROLL CALL/DETERMINATION OF A QUORUM

PRESENT

Brian Carroll, Chairman
Bobby Bowser, Vice-Chairman
Cynthia Taylor
Jennifer S. Boykin
George Rawls
Thomas Distefano

A quorum was determined.

ABSENT

James Ford
Thomas Duerig
Glenn Seay

ALSO, IN ATTENDANCE

Robert W. Jones, Jr., County Attorney
Amy Ring, Community Development Director
Trenton Blowe, Planner
Amanda Landrus, Secretary

ACTION ON REQUESTS TO WITHDRAW OR TABLE PENDING AGENDA ITEMS

Chairman Carroll asked if there were any requests to table or withdrawal agenda items. Amy Ring, Community Development Director, stated there were no requests.

APPROVAL OF AGENDA

Chairman Carroll called for a vote to approve the agenda. Bobby Bowser made a motion to approve the agenda. Thomas Distefano seconded the motion. Chairman Carroll asked for all in favor to signify by saying aye. The motion passed unanimously.

APPROVAL OF CONSENT AGENDA

Chairman Carroll called for a vote to approve the consent agenda. Cynthia Taylor made the motion to approve the agenda, and Bobby Bowser seconded the motion. Chairman Carroll asked for all in favor to signify by saying aye. The motion passed unanimously.

CITIZENS' COMMENTS

Chairman Carroll asked if there were any citizen comments. Chairman Carroll noted there were no citizen comments.

PUBLIC HEARINGS

Chairman Carroll called for the public hearing on the following application:

Application of Accelerated Properties, LLC, property owner, for an amendment to a conditional rezoning to change the permitted uses to allow for a laboratory. The property is located at 1 Monette Parkway with tax parcel number 14-02-037B and is zoned Conditional Limited Industrial (C-LI)

Trenton Blowe, Planner, gave an overview of the application by giving the following PowerPoint presentation.

Accelerated Properties Proposed Laboratory

ZA-07-21 AMENDMENT TO CONDITIONAL ZONING

TRENTON BLOWE- PLANNER 1
PLANNING COMMISSION OCTOBER 26, 2021

DETAILS

Location: 1 Monette Parkway

Zoning: Conditional Limited Industrial (C-LI)

Election

District: Smithfield

Purpose: To amend conditional zoning to allow for a Laboratory

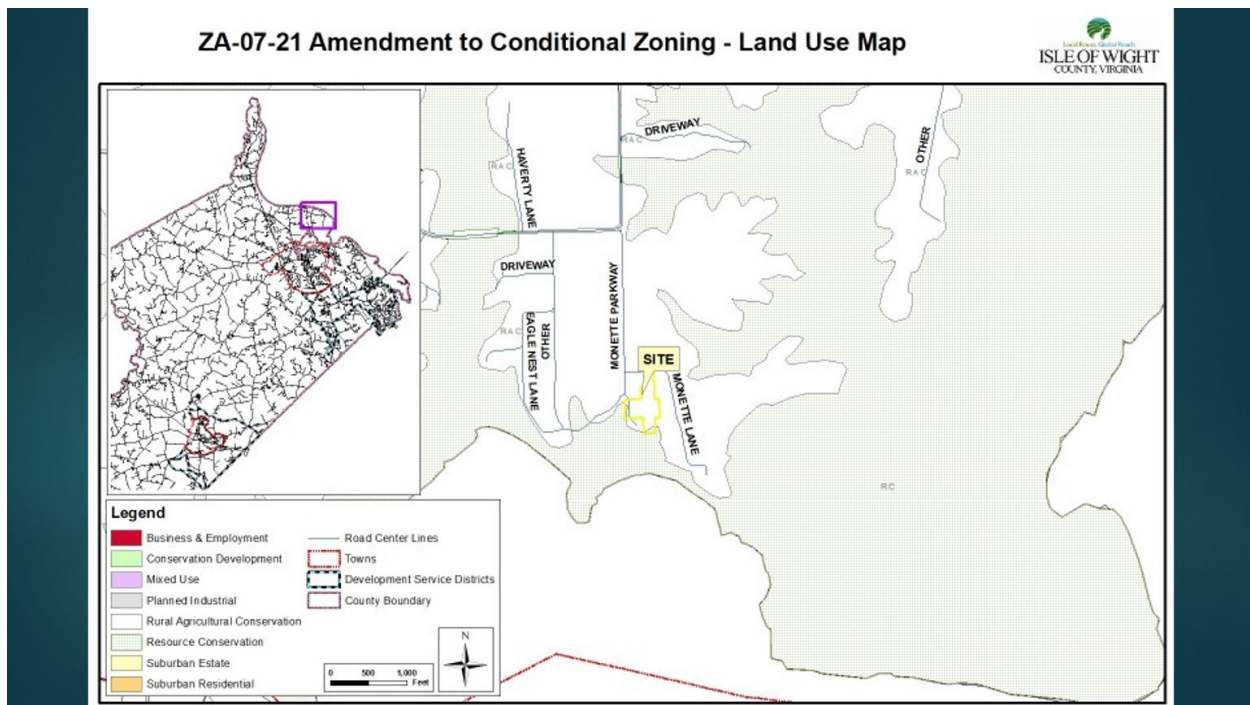


Local Roots. Global Reach.
ISLE OF WIGHT
COUNTY, VIRGINIA

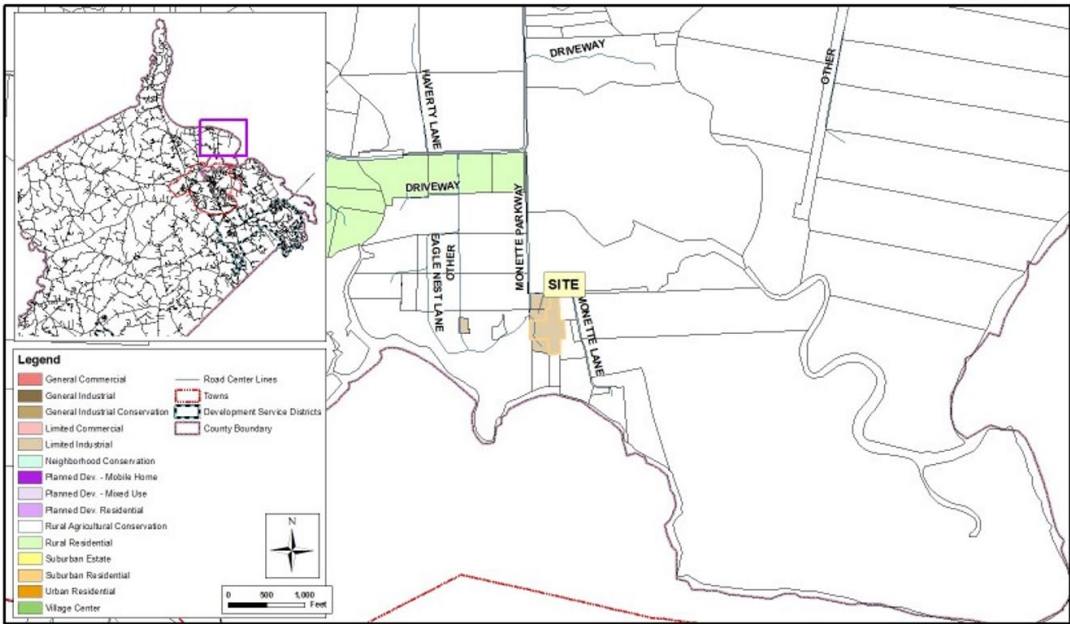
ZA-07-21 Amendment to Conditional Zoning - Location Closeup



ZA-07-21 Amendment to Conditional Zoning - Land Use Map



ZA-07-21 Amendment to Conditional Zoning- Zoning Map



Entrance
to
Monette
Parkway





Monette Parkway



Existing Building



Looking South towards
the Pagan River

Looking
West From
Monette
parkway



Proposed use

- ▶ Applicant requesting to amend the approved GLI zoning for one parcel to add a Laboratory as a permitted use.
- ▶ Proposed tenant will have 4 employees. The proposed tenant can provide analysis to ensure the absence of prohibited or regulated material and may also provide the client with a list for labeling if requested.
- ▶ Applicant provides testing for producers of vitamins, protein bars, protein shakes, pre-workout pills/drinks, and human consumption items. Mass production of items is prohibited with this use and is not proposed by the applicant.

Agency Review

- ▶ IOW Economic Development – No Concerns
- ▶ IOW General Services– No Concerns
- ▶ IOW County Attorney – No Concerns
- ▶ Health Department- Reviewed documentation from engineer which indicates the system currently installed will accommodate the proposed change of use.
- ▶ VDOT - There does not appear to be any new or additional impacts to state maintained right of way with this amendment.

STRENGTHS AND WEAKNESSES

► Strengths:

1. Allows reuse of an existing building, bringing an additional business into the county.
2. The proposed use is consistent with permitted uses in the LI zoning district.

► Weaknesses:

1. The proposed use is not generally consistent with the future recommended land use of RAC

RECOMMENDATION

Due to the low impact nature of the proposed use and the utilization of an existing building for a use otherwise permitted in the zoning district, staff recommends approval of the application.

Following the presentation, Chairman Carroll opened the public hearing and invited the applicant to speak.

William Riddick, Lawyer representing the applicant, stated Mr. Tawes spoke with Mr. Monette, the original owner of this property and lives next door who stated he has no objections to this application. Mr. Riddick stated there is no discharge or animal testing. Mr. Riddick stated the

Monette facility has been there since World War II, and the applicant is putting the building to good and appropriate use.

There being no further public comments, Chairman Carroll closed the public hearing and called for discussion from the Commission.

Jennifer Boykin asked if this business had any relation to the last business Mr. Tawes applied for in the spring.

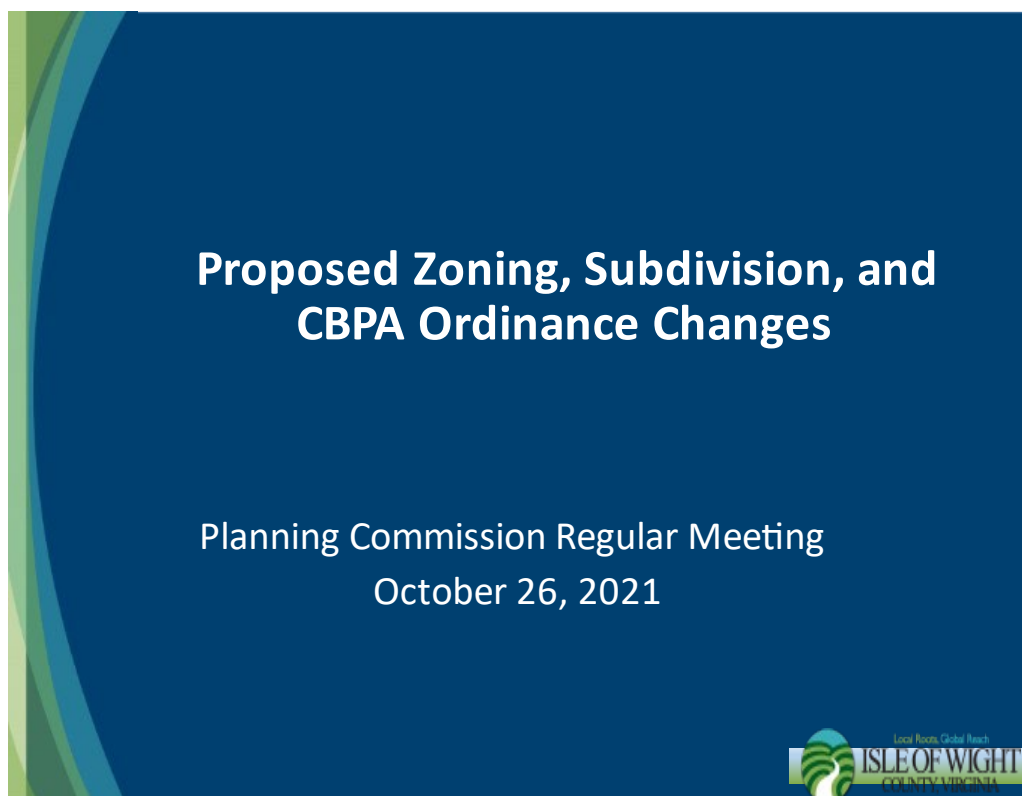
Trenton Blowe stated there was no relationship and the previous business that was applied was on a different parcel. He added that there are currently two other businesses on this parcel.

Commissioner Distefano moved to recommend to the Board of Supervisors approval of the amendment to the conditional zoning as recommended by staff. Commissioner Taylor seconded the motion, which was adopted with Commissioners Bowser, Boykin, Distefano, Rawls, Taylor, and Carroll voting in favor of the motion, and no Commissioners voting against the motion. (6-0)

Chairman Carroll called for the public hearing on the following application

Proposed Revisions to the Isle of Wight County Zoning, Subdivision, and Chesapeake Bay Preservation Area (CBPA) Ordinances

Amy Ring, Community Development Director, gave an overview of the application by giving the following PowerPoint presentation.



Background

Proposed changes are suggested by Planning and Zoning staff as a result of their annual review and daily administration of County Ordinances.



Article I – General Provisions

Add clarification that an environmental and historical resources impact analysis may be required for rezoning requests.

Section 1-1015.F. Community impact statement.

5. An assessment of the proposed development's impact on any of the County's environmental and historical resources on the site. A Phase I cultural resources survey may be required at the request of the zoning administrator, if the development will impact high or moderate sensitivity areas as shown in the County's archeological and architectural surveys.



Article IV – Zoning District Regulations

Change Table of Permissible Uses in Article IV, “Zoning Districts:”

Changes to Section 4-1005:

- Add reptile breeding as a conditional use in the General Commercial district
- Add peddlers and itinerant merchants as permitted in the Village Center district unintentionally omitted during a previous update.



Article IV – Zoning District Regulations

Sec. 4-2006, “Bulk Regulations,” Rural Agricultural Conservation (RAC) Zoning District

Make the side yard setback requirement fifteen (15) feet for both sides to add flexibility, consistency and reduce confusion.

Sec. 4-5005. – “Bulk regulations,” Neighborhood Conservation (NC) Zoning District

Remove the different front yard setbacks for lots of different widths.



Article IV – Zoning District Regulations

- Make both side yard setbacks 10 feet in the SR District
- Eliminate minimum requirements for lots in the UR with no water and sewer, because this zoning designation is not used outside DSDs.

Sec. 4-8004.- Lot size requirements for single family detached residential, Urban Residential (UR) Zoning District

A. Minimum lot area:

3. With public sewer and water: ~~Twelve thousand (12,000)~~ Eight thousand five hundred (8,500) square feet.

B. Minimum lot width:

3. With public sewer and water: ~~Eighty (80)~~ sixty (60) feet.

C. Minimum lot frontage:

3. With public sewer and water: ~~Fiftysix (56)~~ feet.

4. Minimum frontage on a cul-de-sac: No less than fifty percent (50%) of minimum lot width of district.



Article V – Supplemental Use Regulations

Add a time limit for construction dumpsters.

Sec. 5-1004. - Accessory uses.

C. Portable on demand storage (POD) units or dumpsters used for renovation or construction work shall be considered temporary structures. They are permitted for use for a total of sixty (60) days, after which a zoning permit must be obtained through the planning and zoning department for a period not to exceed six months.



Article V – Supplemental Use Regulations

- In item G, “Reptile Breeding,” remove the requirement for use of glass cages for reptile breeding facilities.
- In item H, “Private Sawmills,” replace “permanent or temporary” with “private” (as opposed to commercial elsewhere defined), eliminate the duplicative setback requirement, eliminate the one year time limit, and allow processing of timber from offsite for personal lumber use.



Article V – Supplemental Use Regulations

Add two new location requirements for utility scale solar facilities:

- Facilities shall not be located within the limits of the County’s Development Service Districts.
- Facilities must be within a two mile radius of existing substations and/or high voltage transmission lines.



Article VI – Overlay Districts

- Increase limit from 5 to 20 parking spaces in HCO and NDSO districts which need to be paved with concrete, asphalt, or other similar material.
- Vehicular movement and parking areas requiring less than 20 spaces may be surfaced with gravel, slag, or other similar material
- Off street parking areas shall be clearly designated by the use of borders around the perimeter of these areas using fences, walls, wooden timbers, brickwork, or other similar treatment rather than curb and gutter.



Subdivision Ordinance

- Revise definition of “street” to match the definition in the Zoning Ordinance.
- Eliminate definition of “private street.”
- Reduce the number of family member subdivisions lots that can be served by a private easement from four to one.
- Eliminate private street standards, since they will no longer be permitted.
- Reduce the total number of hard copy application documents from ten copies to eight.



Chesapeake Bay Preservation Area (CBPA) Ordinance

- Editorial changes, such as consistent use of acronyms
- Specified County mapping resources as a guide
- Includes reference to minor water quality impact assessment
- Makes installation and bonding requirements for landscaping consistent with Zoning Ordinance
- Creates a separate section for appeals rather than lumping it under enforcement
- Eliminates duplicative Section 6007, Administration for the Septic Pump Out program



Following the presentation, Chairman Carroll opened the public hearing.

There being no public comments, Chairman Carroll closed the public hearing and called for discussion from the Commission.

Thomas Distefano, referencing location requirements for utility scale solar facilities, asked how the measurement from the nearest substation would be measured or how would it be determined what the two-mile radius would be.

Amy Ring responded that more specific wording can be used in the ordinance to establish that criteria. She stated typically she would measure from the edge of the facility or the right-away for the high transmission lines.

Thomas Distefano asked for that to be clarified in the ordinance. He added that current reading of the proposed ordinance would mean that the entire facility had to be within that two-mile radius and would limit the size of the facility and he believes that is not the intent of this ordinance.

Amy Ring stated for clarification, the two-mile radius should start where the existing lines are physically located or where the sub-station is physically located.

Thomas Distefano stated it should not be interpreted that the entire facility must be located within that two-mile radius.

Amy Ring added the term “facility should be partially or wholly located”

Thomas Distefano agreed that would be an improvement.

Jennifer Boykin stated solar facilities would not be allowed in the DSD’s and asked if there has been any thought on limiting these facilities in Village Centers.

Amy Ring responded that properties located in Village Centers typically have Village Center as the zoning district which does not allow solar facilities.

Thomas Distefano asked at what size is a solar facility become utility scale.

Amy Ring stated that the ordinance defines a utility scale facility if the use is for a regional transmission or energy production on a regional level, not a local level or onsite for a home or business.

Thomas Distefano asked if the solar equipment on top of Smithfield High School is considered utility scale.

Amy Ring responded that they are primarily used for the school use and any excess gets sold to the utility line.

Chairman Carroll asked if the equipment on top of the school is required to get county approval.

Amy Ring stated they are permitted by right however require a building inspection review and permit to verify the loads are appropriate for the roof.

Commissioner Distefano moved to recommend to the Board of Supervisors approval of the proposed ordinance revisions with the clarification to the location requirements regarding solar facilities. Commissioner Taylor seconded the motion, which was adopted with Commissioners Bowser, Boykin, Distefano, Rawls, Taylor, and Carroll voting in favor of the motion, and no Commissioners voting against the motion. (6-0)

OLD BUSINESS

Ms. Ring confirmed there were no old business items.

COUNTY ATTORNEY’S REPORT

Mr. Jones confirmed there was no county attorney’s report.

PLANNING DIRECTOR'S REPORT

Amy Ring stated two Resolutions of Appreciation were prepared for the Planning Commission's consideration for Ed Hulick and Bobbie Varner, former representatives for the Newport District that recently resigned recently. Mrs. Ring asked the Planning Commission if they would like to recognize them in their absence and have their Resolutions mailed to them or postpone for another date.

Bobby Bowser suggested to postpone until they can be there in person to receive their Resolution.

Amy Ring stated she would continue to try to contact them to see if they are able to attend the November or December meeting.

Cynthia Taylor stated if they are not able to be reached, the Resolutions can be mailed.

Ms. Ring gave an overview of the proposed changes to the Zoning Ordinance regarding Short-Term Rental and Lot Shape Ordinance.

Cynthia Taylor asked if it was correct that the owner did not physically have to be there but is responsible for the operation of the rental.

Amy Ring stated that was correct.

Cynthia Taylor asked how an event would be defined.

Amy Ring responded that weddings and similar events would be considered a commercial use. She added that a house being advertised to be rented out for a wedding, family reunion or a large birthday party would be an event center, not a short-term rental.

Bobby Bowser asked if the ten-person limit is feasible.

Amy Ring stated the threshold for occupancy is regulated through the building code.

Brian Carroll clarified that ten or more people may be permitted; they would just fall under more building code regulations.

Amy Ring stated this regulation would not be in the zoning ordinance because it is already in the building code. She added that we can ask this question during the application process or during initial or yearly safety inspections.

George Rawls stated he believes an inspection needs to be required before the rental is allowed.

Amy Ring stated that a special event center is defined in the zoning ordinance under commercial use.

A multipurpose facility with flexible indoor/outdoor space, typically used for activities such as weddings, conventions, meetings, job fairs, and trade shows.

Bobby Jones added that a short-term rental is defined as a residential stay, not a residential stay plus an event.

Amy Ring stated that the criteria recommendations will be added to the draft ordinance for short term rentals and asked Planning Commission members if they would like to review them again or advertise it for their next regular meeting.

Cynthia Taylor stated she would like to review it again before going for public hearing.

George Rawls asked to also know what the building inspections department will be looking for at their inspection.

Amy Ring concluded the overview of proposed ordinance changes.

CLOSED MEETING

Chairman Carroll confirmed there were no items to discuss in closed meeting.

ADJOURNMENT

There being no further information to discuss, Chairman Carroll adjourned the meeting at 6:54 PM.

Adopted this _____ day of _____, 2021.

Chairman, Isle of Wight County Planning Commission

Attest: _____
Secretary

PLANNING REPORT

ATTACHMENTS:

Description	Type	Upload Date
November 18, 2021 Action List Board of Supervisors	Cover Memo	1/19/2022

Action List
Board of Supervisors
November 18, 2021

1. APPROVAL OF AGENDA: Supervisor Jefferson moved that the agenda be adopted as presented. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

2. CLOSED MEETING: There was no action taken following the closed meeting.

3. CITIZENS' COMMENTS

No one signed up to speak.

4. CONSENT AGENDA: Supervisor McCarty moved that the following Consent Agenda be adopted which carried unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisor voting against the motion:

A. Resolution of Commitment to the Nike Park Road Extended Project (\$2.2 million)

B. Resolution to Amend the Budget and Appropriate Funding for a One-time Hazard Pay Bonus for Sworn Sheriffs and Sheriffs' Deputies (\$185,696)

C. Resolution to Commit Fund Balance for Future Debt Service (\$2,645,925)

D. Request for the Virginia Department of Transportation to Accept Certain Streets of the Batiste Estates Subdivision into the Secondary System of State Highways

E. Minutes

. September 16, 2021 Regular Meeting Minutes

. September 21, 2021 Special Called Meeting Minutes

5. REGIONAL AND INTER-GOVERNMENTAL REPORTS

Hampton Roads Transportation Planning Organization: Supervisor McCarty reported that the Port of Hampton Roads is the fastest growing port on the East Coast and has no back

log. He advised that four to five new developers are showing interest in the Hampton Roads region for expansion.

6. APPOINTMENTS

- A. Southeastern Public Service Authority: Supervisor McCarty moved that Randy Keaton be reappointed. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Storm

- B. Southeastern Public Service Authority: Supervisor McCarty moved that Michael Etheridge be reappointed. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Storm

7. SPECIAL PRESENTATIONS/APPEARANCES

- A. Hardy Elementary School/Capital Projects Financing Options: The consensus of the Board was for County Administrator Keaton to proceed with finalizing the amount; return to the Board at its December 9, 2021 meeting with a recommendation; and request the Board's authorization for staff to advertise a public hearing.

Assignment: Keaton

- B. COVID-19 Vaccine Update: Will Drewery, Emergency Management Coordinator, updated the Board regarding vaccination efforts.

- C. County Fair Committee Report on the 2021 County Fair: Danny Byrum, Chairman, Isle of Wight County Fair Committee, provided a follow-up report on the 2021 County Fair and future plans.

Chairman Grice asked that staff provide a recommendation on citations that can be awarded to volunteers; Supervisor McCarty requested an aggressive plan for restrooms and some type of brochure for corporate partners to conduct retreats; and Supervisor Rosie requested staff to research impervious stones for water distribution.

Assignment: Smith

- D. Recruitment and Retention Challenges in Law Enforcement: Sheriff Clarke provided an update relative to recruitment and retention challenges currently facing the County's law enforcement operations. He extended an invitation to the Board to attend the Top Cop luncheon on Saturday, November 20, 2021. Chairman Grice extended an invitation to Sheriff Clarke to join the Board at its December 9, 2021 work session and share his recruitment plan.

Assignment: Robertson

8. COUNTY ATTORNEY'S REPORT

Isle of Wight County Board of Supervisors' By-laws and Rules of Procedure: County Attorney Jones requested the Board to send any recommended changes to him prior to the Board's organizational meeting.

Assignment: Jones

9. PUBLIC HEARINGS

- A. Proposed Redistricting Map: Following the Board's conduction of a public hearing, it was noted that the Board will be conducting a special joint meeting with the Board's Redistricting Task Force on Monday, November 22, 2021 at 6:00 p.m. in the Board Room. The meeting is to be recorded.

Assignment: Gray

B. Resolutions

- . Resolution to Amend the FY2021-2022 Budget and Appropriate Additional Funding for the Hardy Elementary School Replacement (\$9,868,639): Supervisor Jefferson moved that the Resolution be adopted. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: S. Humphries

- . Resolution of Official Intent to Reimburse Expenditures with Proceeds of a Borrowing (\$9,868,639): Supervisor Jefferson moved that the Resolution be adopted. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: S. Humphries

- C. Application of Accelerated Properties, LLC, Property Owner, for an amendment to a Conditional Rezoning to change the permitted uses to allow a laboratory on property zoned Conditional Limited Industrial located at 1 Monette Parkway: Supervisor McCarty moved that the application be approved. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Ring

- D. Proposed Revisions to the Isle of Wight County Zoning, Subdivision, and Chesapeake Bay Preservation Area Ordinances: Supervisor McCarty moved that the proposed revisions to the Isle of Wight County Subdivision Ordinance and Chesapeake Bay Preservation Area Ordinance be adopted and that the proposed revisions to the Zoning Ordinance be tabled. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Ring

10. COUNTY ADMINISTRATOR'S REPORT

No report was offered.

11. UNFINISHED/OLD BUSINESS

COVID-19 Testing Policy: Michelle Clark, Director of Human Resources, reported that OSHA has temporarily halted the vaccine mandate based upon legal proceedings. Staff will monitor the legal proceedings and bring any drafted policies and procedures to the Board at a later date for its consideration. She advised that staff is now working with the

compensation study consultants and following an overview to the Board's Personnel Committee, staff will return to the full Board.

Assignment: Clark

12. NEW BUSINESS

Resolution to Amend the Budget and Appropriate Funding from the American Rescue Plan Act to the Isle of Wight County Schools (\$1,101,158): Supervisor McCarty moved that the Resolution be adopted. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: S. Humphries

PLANNING REPORT

ATTACHMENTS:

Description	Type	Upload Date
DECEMBER 9, 2021 BOARD OF SUPERVISORS WORK SESSION & REGULAR MEETING ACTION LIST	Cover Memo	1/19/2022

Action List
Board of Supervisors
Work Session & Regular Meeting
December 9, 2021

WORK SESSION

1. APPROVAL OF AGENDA: Supervisor Rosie moved that the agenda be adopted as presented. The motion was adopted (4-0) with Supervisors Grice, Rosie, McCarty and Jefferson voting in favor; no Supervisors voting against the motion; and Supervisor Acree absent for the vote.

2. COUNTY ADMINISTRATOR'S REPORT:

A. Strategically Targeted Affordable Roadway Solutions Report: Tommy Catlett, VDOT Resident Engineer for the Franklin Residency, provided several construction updates and provided information regarding VDOT's recently completed Strategically Targeted Affordable Roadway Solutions (STARS) Report for Route 17.

Jamie Oliver, Transportation Planner, advised that the Commonwealth Transportation Board on December 8, 2021 approved adding an additional \$295M Round 4 projects and the County was awarded \$8.5M for Route 10 Bypass/Route 258 Main Street intersection project.

B. Deer/Bear Hunting with Rifles: County Attorney Jones will return at the Board's organizational meeting with a draft ordinance for the Board's review that allows for hunting of large game with a rifle. He is to request feedback from the Sheriff and the Division of Hunting & Fishing and consider public versus private.

Assignment: Jones

C. Recruitment and Retention Challenges/Law Enforcement: Chairman Grice remarked that the budget process is nearing and an ongoing compensation study. He recommended that the Sheriff offer relocation and education compensation, in addition to signing bonuses.

REGULAR MEETING

1. APPROVAL OF AGENDA: Supervisor McCarty moved that the agenda be adopted as presented. The motion was adopted (4-0) with Supervisors Grice, Rosie, McCarty and

Jefferson voting in favor; no Supervisors voting against the motion; and Supervisor Acree absent from the meeting.

2. Christmas Tree Lighting: The Board attended the lighting of the Christmas tree.
3. CLOSED MEETING: There was no action taken following the closed meeting.

At 6:10 p.m., Supervisor Acree arrived at the meeting.

4. CITIZENS' COMMENTS

- A. Steven Kirkpatrick, Western Tidewater Free Clinic, thanked the Board for its past financial contributions and reported on services received by County residents.
 - B. Matthew O'Brien spoke in favor of rifles being allowed for big game hunting in the County. Chairman Grice advised Mr. O'Brien that the Board had directed the County Attorney during its earlier work session to return to the Board at its next work session with a draft proposal to allow hunters to use rifles to hunt big game in the County.
5. CONSENT AGENDA: Supervisor McCarty moved that the following Consent Agenda be adopted which carried unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisor voting against the motion:

- A. Resolution to Re-appropriate Funds from the FY2021 General Fund Fund Balance to the FY2022 General Fund for School Encumbrances (\$666,817)
- B. Employment Agreement: County Administrator (Keaton)
- C. Resolution to Amend the FY2021-2 Operating Budget and Appropriate Funding for a Virginia Department of Environmental Quality Litter Prevention & Recycling Grant (\$12,519)
- D. Minutes of October 7, 2021 and October 21, 2021

6. REGIONAL AND INTER-GOVERNMENTAL REPORTS

- A. Southeastern Public Service Authority: County Administrator Keaton informed the Board that the Authority is in the process of seeking a new Executive Director to

replace Liesl DeVary. In the meantime, Dennis Bagley will serve as the Interim Executive Director.

- B. Hampton Roads Military & Federal Facilities Alliance: Supervisor Rosie advised that the total payroll of that organization is \$19.4 billion, and he believes it is worth noting how significant they are to the community.
- C. Supervisor McCarty advised that there will be an arrival ceremony for the tunnel boring machine on December 14, 2021.

7. APPOINTMENTS

Senior Services of Southeastern Virginia: Supervisor McCarty moved that Pam Barton be appointed. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisor voting against the motion:

8. SPECIAL PRESENTATIONS/APPEARANCES

COVID-19 Update: The Board received an update by staff regarding COVID-19 vaccine rollout in Western Tidewater.

9. COUNTY ATTORNEY'S REPORT

- A. Isle of Wight County Board of Supervisors' By-laws and Rules of Procedure: County Attorney Jones asked the Board to provide any suggestions or comments to him in preparation of adoption at the Board's organizational meeting in January 2022.

Assignment: Jones

- B. Board of Supervisors' Meeting Schedule for 2022: The Board was requested to review and consider its meeting schedule for regular and work sessions for calendar year 2022.

Assignment: Jones

- C. Real Estate Contract/JWL LLC: Supervisor McCarty moved to authorize County Administrator Keaton to execute the contract on behalf of the County. The motion

was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones/Keaton

- D. Appointment of Interim School Board Members: County Attorney Jones advised that the Board does not have the authority to make interim appointments to the School Board or any other agency or authority that is not directly under it.
- E. Supervisor Acree spoke in favor of creating opportunities to educate, inform and listen to the community. He suggested every other month holding a town hall meeting along with a work session which can be moved throughout the county to ensure that the correct information gets out to the public.

10. PUBLIC HEARINGS

- A. Lease of the Circuit Court Clerk's Office: Supervisor McCarty moved that execution of the lease agreement with the Isle of Wight Historical Society be authorized. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones

- B. Lease on Great Springs Road: Supervisor Acree moved that execution of the lease agreement with Oliver Farms LLC be authorized. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones

11. COUNTY ADMINISTRATOR'S REPORT

- A. Hardy Elementary School Water Tank Bids: Supervisor Rosie moved to approve the contract with M. B. Kahn. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.
- B. County Administrator Keaton advised that the garage on the Stoup property is being removed today.

- C. County Administrator Keaton advised that employees raised and donated \$10,281 for the United Way campaign.
- D. State and Local Fiscal Recovery Funds through the American Recovery Plan Act: The Board was advised of the anticipated receipt of an additional \$52,873 in Federal State and Local Fiscal Recovery funds through the American Recovery Plan Act for the COVID-19 ARPA SLFRF Municipal Utility Assistance Program. The Towns of Smithfield and Windsor additionally received utility assistance funds and are required to work in cooperation with the County to disperse the funds.
- E. Matters for the Board's information were highlighted.

11. UNFINISHED/OLD BUSINESS

- A. Proposed Redistricting Map: Supervisor McCarty moved to adopt the Ordinance and the map labeled as the Board of Supervisors' proposed map. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Jones

- B. Capital Project Financing Options: County Administrator Keaton commented that staff will proceed with \$18.5 and advertise for public hearing.
- C. Strategic Planning Retreat/Tour: January 10, 2021 at 9:00 a.m. was selected. Assistant County Administrator Robertson is to advise the location and send out a proposed agenda.

12. NEW BUSINESS

Benns Grant Apartments Proposed Proffer Amendment: Supervisor Jefferson moved that the revised proffer conditions be approved. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Supervisor Mccarty moved to waive the public hearing requirements. The motion was adopted unanimously (5-0) with Supervisors Grice, Rosie, Acree, McCarty and Jefferson voting in favor and no Supervisors voting against the motion.

Assignment: Ring

PLANNING REPORT

APPLICATION:

Request of Nuby Run Solar, LLC, applicant, on behalf of Robert Benjamin Stagg, property owner, for a conditional use permit (CUP) to establish a major utility service, specifically a utility scale solar energy facility, on property located on Orbit Road with tax parcel number 39-01-038, and zoned RAC, Rural Agricultural Conservation. The application includes a request to withdraw twenty acres of the property from the Courthouse Agricultural/Forestal District.

ELECTION DISTRICT:

Windsor

LOCATION:

The subject parcel consists of approximately 117 acres located on the south side of Orbit Road (Rte. 637) in central Isle of Wight County. The property is bounded by Nuby Run to the south and contains primarily forested land along with approximately 20 acres of cultivated farmland along the road frontage. It is not part of any designated Development Service District (DSD) and is surrounded by other agricultural and forestal land that is zoned RAC. There are also several single-family residential homes located immediately to the north along Orbit Road.

BACKGROUND:

Tax Parcel 39-01-038 is located three miles south of Isle of Wight Courthouse and is currently part of the Courthouse Agricultural/Forestal District. Before development of any more intensive use on the property, the parcel will have to be removed from the District. This may be accomplished by written request of the property owner, Robert William Stagg, who submitted his request for consideration by the Agricultural/Forestal District Advisory Committee at their meeting on November 3, 2021. Based on their review, the Committee recommended approving the removal of the 20 acres proposed to be developed for the solar facility from the District. The land on which the solar facility is located would also be subject to changes in real estate tax value and back taxes, if removal is approved.

DESCRIPTION:

The applicant proposes to establish a 2MW solar energy facility on approximately

twenty acres of the 117-acre property, in an area that is already cleared and currently used for farming. A limited amount of tree clearing is proposed in the adjacent forested area to reduce potential shading of the solar facility, but no panels are proposed to occupy the cleared area. A driveway access and small parking area are to be located on the northwest corner of the site, along with customer switchgear and the point of connection to existing transmission lines. The proposed access point to the parcel is about 400 feet east of the neighboring property line and is separated from the residence on the property by existing forest land.

If the CUP is granted, the applicant will be required to meet all supplementary use regulations and must also follow the appropriate site plan review process to facilitate development of the site.

COMPREHENSIVE LAND USE PLAN:

The future recommended land use designation for these properties is Rural Agricultural Conservation (RAC) and Resource Conservation (RC) under the adopted Comprehensive Plan. Appropriate uses for the RAC land use designation include agriculture, horticulture, forest lands, and scattered low-density residential uses. Other uses such as resource extraction and utility-scale solar facilities are also permitted when appropriately sited. Appropriate uses for the RC land use designation include wetlands, farms, forest uses, open space, and limited park facilities.

Solar energy facilities are considered compatible with the RAC land use when properly sited and with the application of appropriate development criteria. The areas designated as RC should be preserved due to environmental constraints, unless site-specific analysis demonstrates there are no environmental concerns in a specific area. The proposed use in this case is restricted to the existing agricultural land along the road and will be required to use screening landscaping and appropriate fencing to minimize its visual impacts to the surrounding area.

ORDINANCE REVIEW:

The zoning district classification for this property is RAC. The RAC zoning district is intended to preserve and protect areas of the County that are predominantly in agricultural and forestal use and to maintain the existing land base to support those activities. The applicant proposes to establish a 2MW solar energy facility which is classified as a major utility service use type in the zoning ordinance. These facilities are permitted as conditional uses in the RAC district

and may be considered compatible with appropriate conditions to mitigate any potential negative impacts on the surrounding community.

Section 1-1017 of the Zoning Ordinance provides standards for review of a conditional use application that the Planning Commission and Board of Supervisors shall consider before granting a conditional use permit. They are as follows:

1. That the establishment, maintenance, and operation of the conditional use will not be detrimental to or endanger the public health, safety, and general welfare;
2. That the conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially impair the use of other property within the immediate proximity;
3. That adequate utilities, water, sewer or septic system, access roads, storm drainage and/or other necessary public facilities and improvements have been or will be provided;
4. That adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion on the public streets;
5. That the proposed conditional use is not contrary to the goals and objectives of the Isle of Wight County Comprehensive Plan;
6. That the conditional use shall, in all other respects, conform to the applicable regulations of the zoning district classification in which it is located and to the special requirements established for the specific use; and
7. That the use(s) at the location proposed will not result in a multiplicity or saturation of similar uses in the same general neighborhood of the proposed use.

In addition to the standards and other guidelines described in the Zoning Ordinance, the Board may impose conditions or limitations on any approval, including the posting of performance guarantees. Such conditions may include, but are not necessarily limited to:

1. The number of persons living or working in the immediate area and the proposed hours of operation, as may applicable;
2. Traffic conditions, including facilities for pedestrians, such as sidewalks and parking facilities; the access of vehicles to roads; peak periods of traffic; and proposed roads, but only if construction of such roads will commence within the reasonably foreseeable future;
3. The orderly growth of the neighborhood and community and the fiscal impact

on the County;

4. The effect of odors, dust, gas, smoke, fumes, vibration, glare, and noise upon the use of surrounding properties;
5. Facilities for police, fire protection, sewerage, water, trash and garbage collection and disposal, and the ability of the County or persons to supply such services;
6. The degree to which the development is consistent with generally accepted engineering and planning principles and practices;
7. The structures in the vicinity such as schools, houses of worship, theaters, hospitals, and similar places of public use;
8. The purposes set forth in this ordinance, the County's Comprehensive Plan, and related studies for land use, roads, parks, schools, sewers, water, population, recreation, and the like;
9. The environmental impact, the effect on sensitive natural features, and opportunities for recreation and open space; and
10. The preservation of cultural and historic resources of landmarks.

The impacts of the proposed facility on public infrastructure will occur primarily during construction and will be minimal once established. In establishing the use, the enjoyment of neighboring properties may also be temporarily impacted by construction traffic and noise generation.

The subject parcel is located within the Chesapeake Bay watershed and is subject to Chesapeake Bay regulations. A wetlands delineation and perennial stream/RPA determination has been performed on the 40-acre portion of the parcel that includes the 20 acres proposed for development of the solar farm and the area surrounding it where clearing or other impacts may occur. The boundaries of each feature were confirmed by a site visit with the Virginia Department of Environmental Quality and a preliminary jurisdictional determination from the Army Corps of Engineers. The proposed conceptual plan shows that all development activities will be located outside of delineated environmental features and the applicant indicates that tree clearing will be limited to the minimum amount necessary to avoid excessive shading of panels. Any modifications to identified environmental features would require additional approvals from the County or the Army Corps prior to disturbance.

A Phase I archaeological study and architectural reconnaissance study were conducted in the Area of Potential Effects (APE). Three archaeological sites identified within the APE were found to have little research potential because of the lack of discernible features and relatively low artifact densities. No further work was recommended within the APE. Two houses within .5 miles of the site

were also evaluated and were recommended as individually ineligible for the National Register of Historic Places.

The primary long-term impact of the project on surrounding properties would be visual which will be addressed by the supplementary standards in section 5-5003 of the Zoning Ordinance and by the conditions proposed below. Finally, the project is located less than a mile from the Solidago solar project but will not be visible from that site. With the conditions noted, the proposed facility is consistent with the provisions of the Comprehensive Plan and can conform to all applicable regulations.

AGENCY REVIEW:

The application was forwarded to the following departments for their review:

- County Attorney: The conditions offered are acceptable and enforceable as presented.
- Economic Development: The applicant's offer to work with SHINE and Paul D. Camp Community College for workforce training is encouraging.
- Emergency Services: Fire-Rescue has no concerns at this time.
- General Services (Stormwater and Utilities): This project is subject to Construction General Permit Coverage, which will require preparation of a Stormwater Pollution Prevention Plan (SWPPP). SWPPP compliance will be verified during the site plan review process.
- Sheriff's Office: No comments at this time.
- Virginia Department of Conservation and Recreation: Natural heritage resources have not been identified within the project boundary, but potential habitat for natural heritage resources intersects the project boundary and the project will also fragment an Ecological Core C4 as identified in the Virginia Natural Landscape Assessment. Cores are areas of unfragmented habitat with at least 100 acres of interior and are ranked from C1 to C5 (most to least ecologically relevant). DCR recommends preparation of an invasive species management plan, minimizing fragmentation of the Ecological Core, minimizing edge in remaining fragments, and designing intervening landscape for native wildlife.
- VDOT: No issues identified. Compliance with VDOT requirements will be verified during site plan review.

Please note that, should this project be approved, it will be subject to review and approval from all associated agencies.

STAFF CONCLUSIONS:

Strengths:

1. The application is consistent with the Comprehensive Plan and can meet all ordinance requirements.
2. The proposed use will have minimal impact on community facilities and resources with the conditions presented.
3. The project is not visible from other approved or proposed solar projects in the County.

Weaknesses:

1. The proposed use would remove agricultural land from production.
2. Some impact to residential development in the area is expected during the construction phase.

STAFF RECOMMENDATION:

Staff recommends approval of the CUP with the following: 1. The subject property shall be developed in general conformity with the Concept Plan included in the Nuby Run Solar application. 2. The portion of the subject property supporting solar panels shall be enclosed by security fencing of a type which is harmonious with the rural, agricultural, and historical character of the County while meeting federal and state regulations for solar electric generating facility fencing as determined by the Zoning Administrator while upon approval of the site plan for the project. 3. The applicant shall preserve and maintain both existing forest and vegetation as well as planted landscape buffering and shall not clear or cut live trees within required setbacks or buffer yards except as necessary to avoid shading of solar panels as approved by the Zoning Administrator. 4. The applicant shall submit an Emergency Response Plan with the first submission of the site plan, which shall detail fire suppression methods that will be immediately deployed during both construction and operation of the facility. The plan shall include a training program to be provided, at the discretion of the County, to County emergency response staff with regards to safety for on-site emergency response. The applicant shall install a Knox Box at the facility to ensure emergency responders have access to the facility should the need arise and include plans for the same on the project site plan. 5. The applicant shall conserve topsoil on the site to the maximum extent feasible. Topsoil stockpiled on the site shall be stored out of view from adjacent properties and public roads. 6. Hours of operation for construction activities to be limited to 7:00am to 6:00pm Monday through Friday

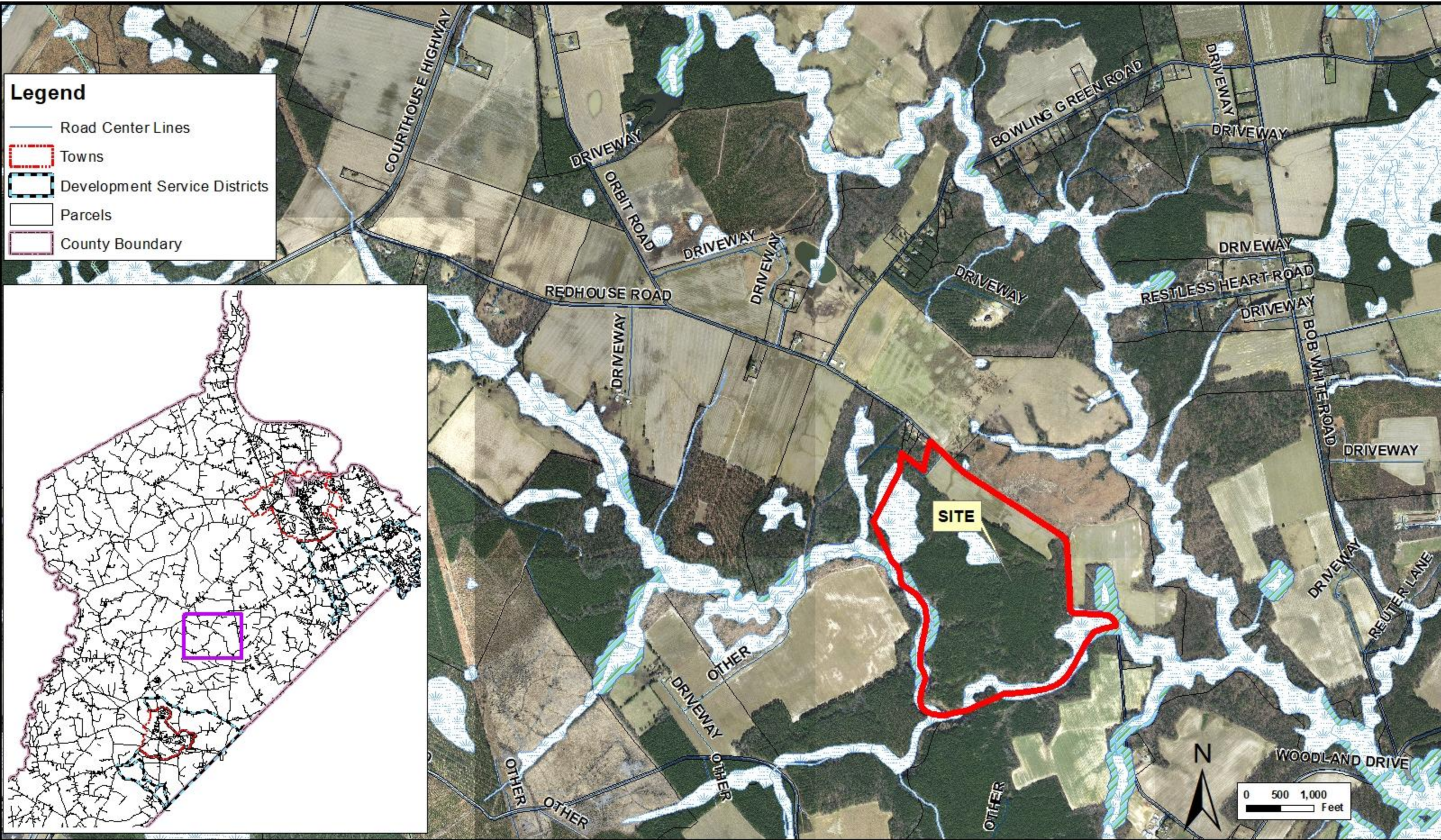
and 9:00am to 5:00pm on Saturdays. No construction to occur on Sundays. 7. The applicant shall submit a Stormwater Management Plan and an Erosion and Sediment Control Plan with the submission of the final site plan. The applicant shall reimburse the County for reasonable costs related to retaining such third-party inspectors as deemed necessary for project inspections. 8. Prior to issuance of any construction permit, the applicant shall submit the concurrence of the completed and provided Phase 1 Cultural Resource Assessment from the Virginia Department of Historical Resources. 9. The applicant shall submit an invasive species management plan as recommended by DCR with the submission of the final site plan. 10. The applicant shall host at least two separate job fairs within Isle of Wight County to hire for the created jobs referenced in the applicant's permit narrative. These job fairs will be planned, located, and scheduled in consultation with county staff. 11. The applicant shall submit a seed mix for site groundcover that includes native pollinators blooming in spring/summer as recommended by DCR with the submission of the final site plan.

ATTACHMENTS:

Description	Type	Upload Date
Location Map	Exhibit	1/13/2022
Close Up Map	Exhibit	1/13/2022
Land Use Map	Exhibit	1/13/2022
Zoning Map	Exhibit	1/13/2022
Conceptual Plan	Backup Material	1/13/2022
Project Narrative	Backup Material	1/14/2022
Updated Economic Impact Memo	Backup Material	1/14/2022
PC Resolution	Resolution	1/13/2022
Appendix A Nuby Run Viewshed Analysis	Cover Memo	1/24/2022
Appendix B - NC State Health Study	Cover Memo	1/24/2022
Appendix C - FAA Notice Criteria Result	Cover Memo	1/24/2022
Appendix D - Wetlands Delineation Map	Cover Memo	1/24/2022
Appendix E - Phase 1 ESA Executive Summary	Cover Memo	1/24/2022
Appendix F - USFWS Official Species List	Cover Memo	1/24/2022
Appendix G - VADCR Natural Heritage Project Review Report	Cover Memo	1/24/2022
Appendix H - VCRIS Map	Cover Memo	1/24/2022
Appendix I - Nuby Run Decommissioning Letter	Cover Memo	1/24/2022
Appendix J - Economic Impacts Memo	Cover Memo	1/24/2022
Appendix K - Nuby Run Proposed CUP Conditions	Cover Memo	1/24/2022
Appendix L - Nuby Run Solar Transportation Plan	Cover Memo	1/24/2022
Appendix M - Nuby Run Solar Desktop Cultural Resources Assessment	Cover Memo	1/24/2022

Appendix N - Nuby Run AFD Withdrawal Letter and Committee Recommendation	Cover Memo	1/24/2022
Appendix O - Nuby Run Solar Interconnection Request	Cover Memo	1/24/2022
Appendix P - Phase 1 Archaeological Survey and Reconnaissance Architectural Survey	Cover Memo	1/24/2022
Appendix Q - Nuby Run WQIA Report	Cover Memo	1/24/2022
Appendix R - Existing Vegetation Shading Description	Cover Memo	1/24/2022

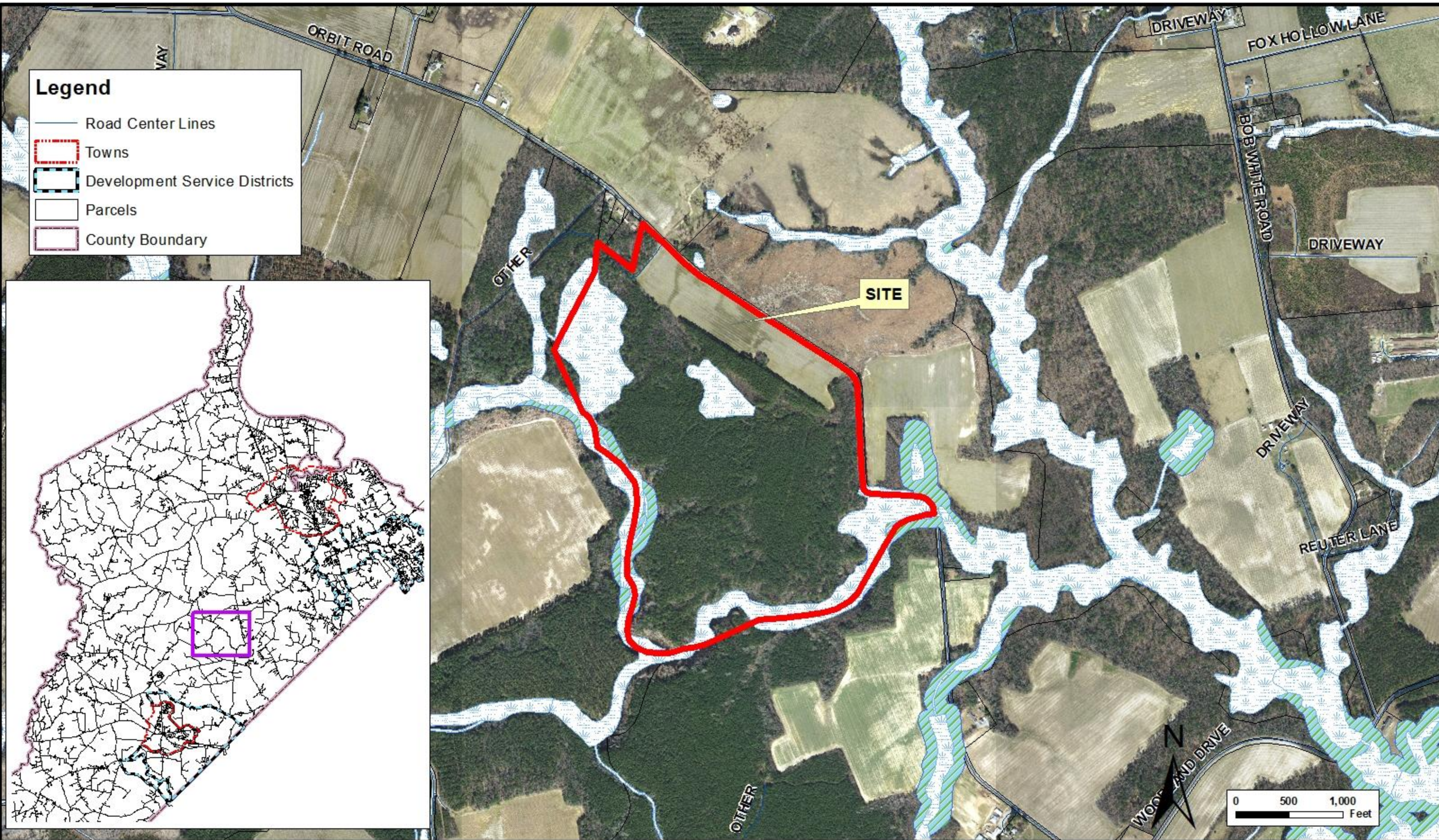
CUP-05-21 Nuby Run Solar - Location Map



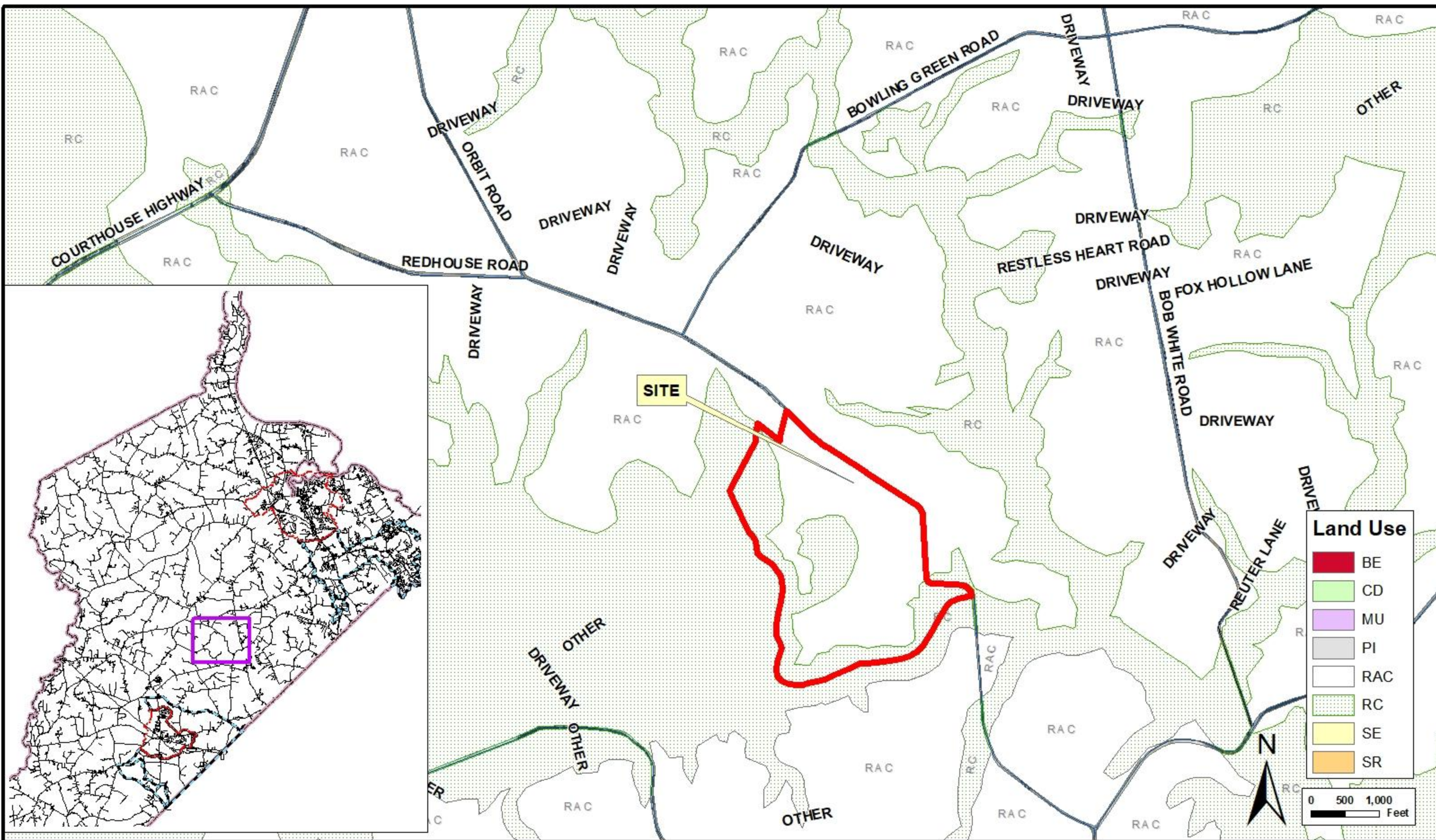
CUP-05-21 Nuby Run Solar - Location Closeup Map

Legend

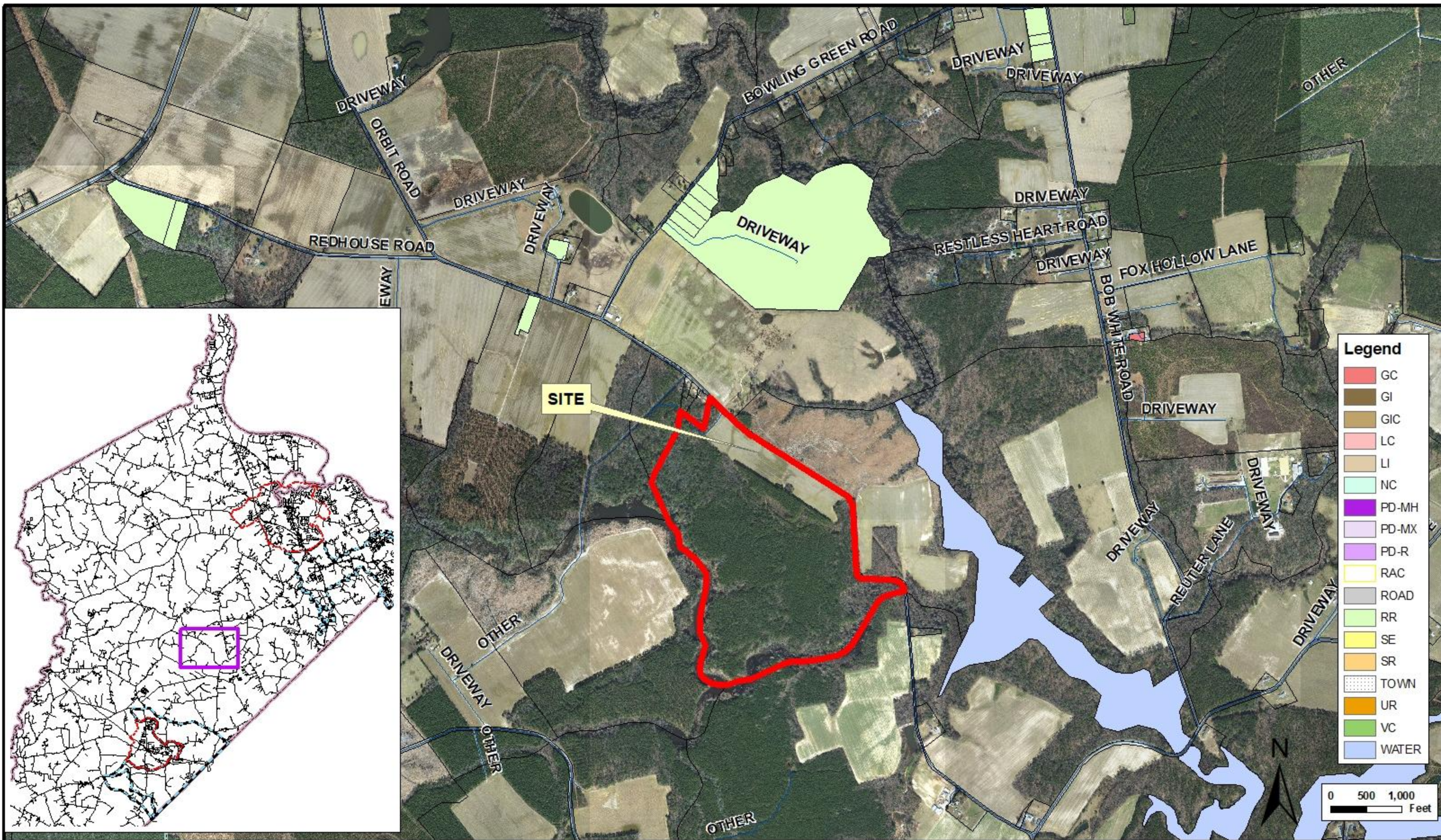
- Road Center Lines
- ▭ Towns
- ▭ Development Service Districts
- ▭ Parcels
- ▭ County Boundary

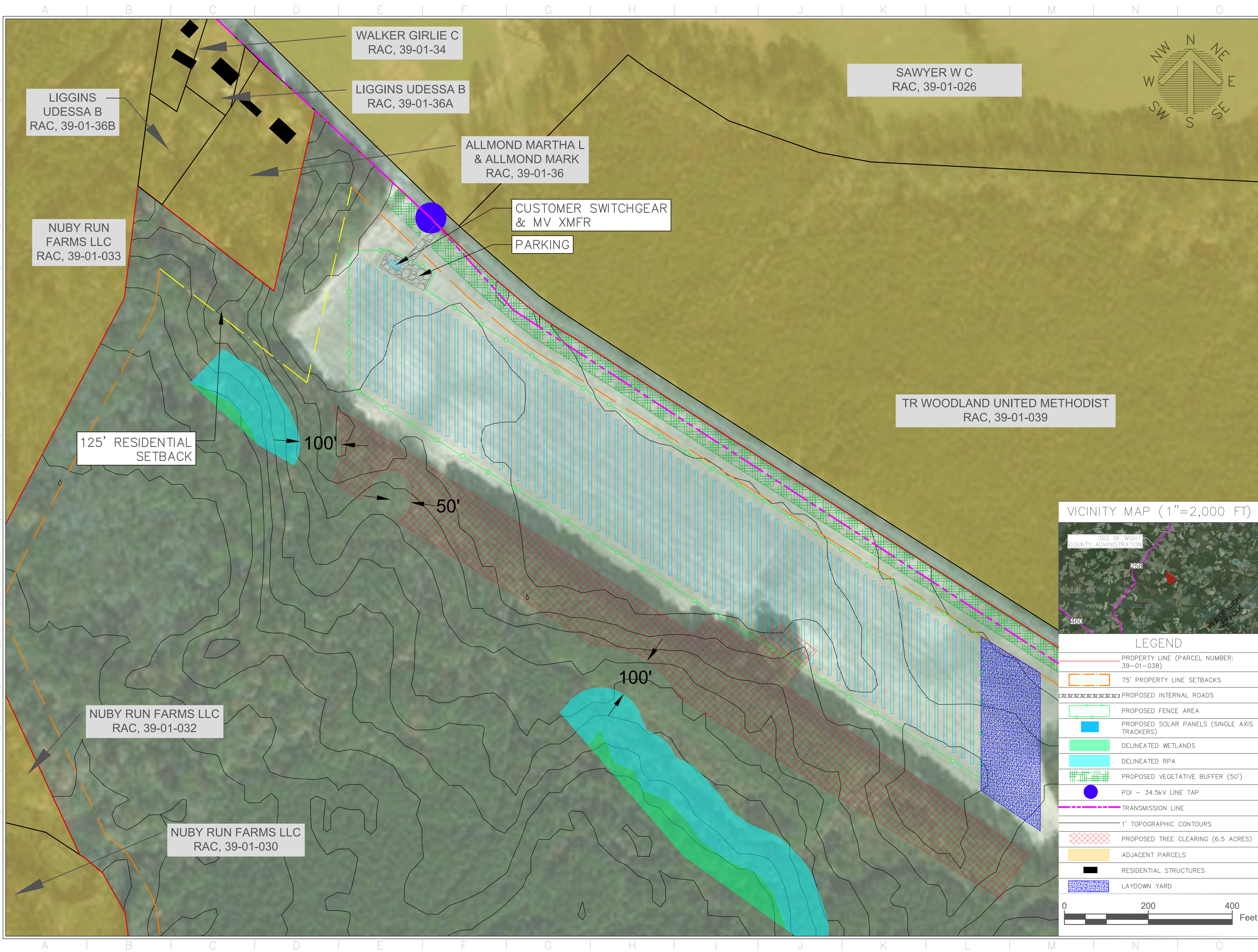


CUP-05-21 Nuby Run Solar - Land Use Map



CUP-05-21 Nuby Run Solar - Zoning Map





HEXAGON
ENERGY

HEXAGON ENERGY, LLC
321 E. Main St, Suite 500
Charlottesville, VA 22902
Phone: 434.227.5090
Website: www.hexagon-energy.com

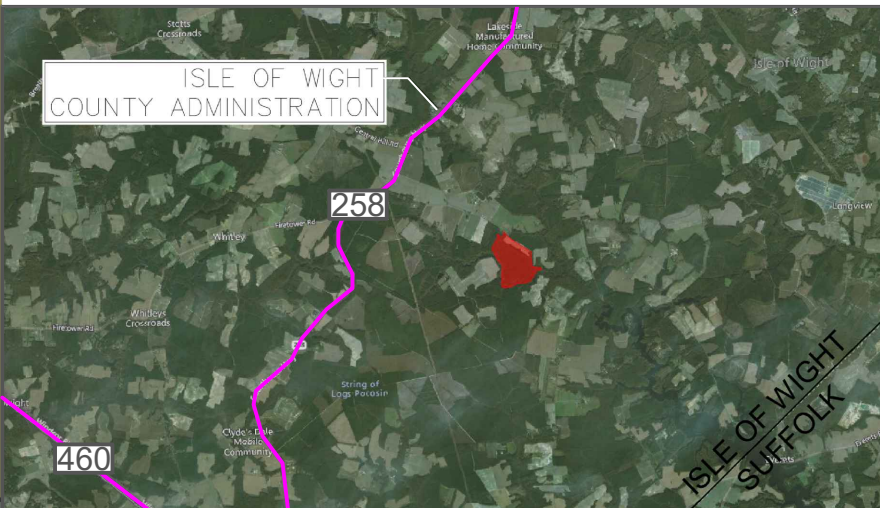
Professional Engineer:

PE Seal:

DRAWING TYPE
☒ Preliminary ☐ Construction
☐ Customer Approval ☐ As-built
☐ Permitting ☐ Other

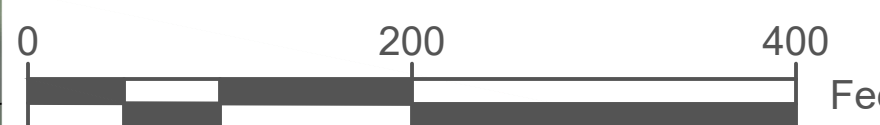
REVISIONS			
Rev	By	Description	Date
0	EO	RFP PLAN	3/30/2021
1	EO	PERMIT PLAN	4/15/2021
2	EO	RFP PLAN	7/30/2021
3	EO	COUNTY SITE PLAN	9/28/2021
4	EO	REVISE TREE CLEARING AND VICINITY MAP	12/15/2021

VICINITY MAP (1"=2,000 FT)



LEGEND

- PROPERTY LINE (PARCEL NUMBER: 39-01-038)
- 75' PROPERTY LINE SETBACKS
- PROPOSED INTERNAL ROADS
- PROPOSED FENCE AREA
- PROPOSED SOLAR PANELS (SINGLE AXIS TRACKERS)
- DELINEATED WETLANDS
- DELINEATED RPA
- PROPOSED VEGETATIVE BUFFER (50')
- POI - 34.5kV LINE TAP
- TRANSMISSION LINE
- 1' TOPOGRAPHIC CONTOURS
- PROPOSED TREE CLEARING (6.5 ACRES)
- ADJACENT PARCELS
- RESIDENTIAL STRUCTURES
- LAYDOWN YARD



Project Name:
NUBY RUN SOLAR, LLC

Site Address:
ORBIT RD
WINDSOR, VA 23487
36.882° N, -76.689° W

Sheet Name:
SITE PLAN

Scale: 1"=100FT | Project ID: TBD

Sheet No:
L1.1



APPLICATION FOR
NUBY RUN SOLAR
CONDITIONAL USE PERMIT

PURSUANT TO

CODE OF THE COUNTY OF
ISLE OF WIGHT, VIRGINIA

SUBMITTED JUNE 16, 2021
REVISED SEPTEMBER 30, 2021
ADDITIONALLY REVISED DECEMBER 17, 2021

Prepared for:
Isle of Wight County
Planning Commission
220 N. Church Street
Smithfield, Virginia 23430

Prepared by:
Hexagon Energy, LLC
321 E Main St. | Suite 500 | Charlottesville, VA 22902
Tel: 434-227-5090 | hexagon-energy.com

NOTICE OF RESTRICTIONS

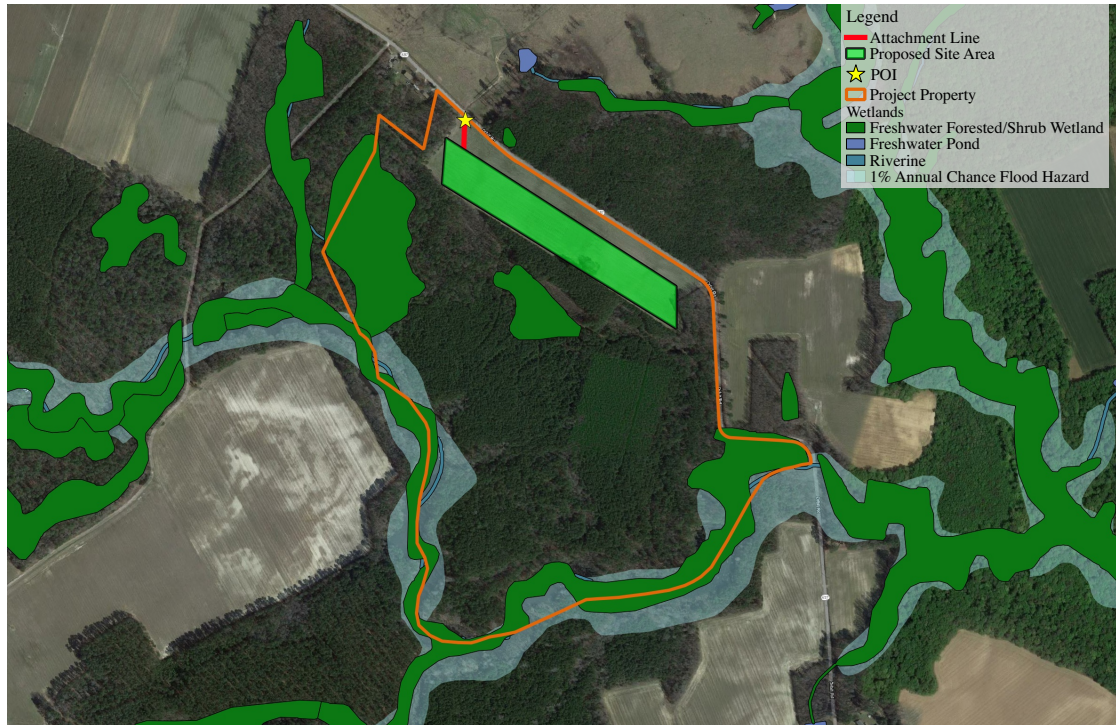
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PROJECT NARRATIVE

NUBY RUN SOLAR – 2MW_{AC}

WINSOR, VA

ISLE OF WIGHT COUNTY



✓ WELL-SITED

As a less intense land use, the project is appropriately located away from DSDs. Site design mitigates adverse impacts to natural, scenic, and cultural resources.

✓ LOW IMPACT

Low profile, low traffic, low sound-levels. No odor, hazardous materials, nor light pollution. No permanent structures.

✓ PROVEN DESIGN & EQUIPMENT

Fully meets Dominion's equipment and design requirements, including industry standard Tier 1 components backed by bankable warranties.

✓ ECONOMIC DEVELOPMENT

Local labor and materials will be used to the extent they are available. Virginia has over 4,400 solar jobs and the industry continues to grow faster than the overall economy (up 15.4% in 2019)

✓ BASED IN VIRGINIA

We are a locally-owned Virginia company based in Charlottesville and have partnered with Virginia community colleges to create a solar jobs training program, SHINE.



OVERVIEW

Hexagon Energy is pleased to apply for a Conditional Use Permit for Nuby Run Solar (the Project), a small, solar photovoltaic (PV) facility of two (2) megawatts (MW) in capacity, measured in alternating-current (AC). The Project will be located at Parcel ID 39-01-038 (the Property), to the south of Orbit Road and approximately 2 miles southeast of Hwy 258. The Project will encompass up to approximately 20 acres of pastureland (the Site) on a larger, 117-acre property, located in the Rural Agricultural Conservation (RAC) zoning district. The project has been designed in full compliance with Isle of Wight County and Virginia permitting and approval requirements.

APPLICANT & FACILITY OWNER

Nuby Run Solar, LLC is both the applicant and facility owner for the Project. Nuby Run Solar, LLC is a wholly-owned subsidiary of Hexagon Energy, LLC (Hexagon Energy), a Virginia Limited Liability Company. Hexagon Energy is located in Charlottesville, Virginia—with our owners and all but two of our employees residing in Virginia.

Hexagon Energy is an independent, privately owned energy development firm that believes the path to a clean energy future requires a range of new sources and technologies. We develop projects across six diverse energy solutions with one common goal—powering a clean future.

Over the past 19 years, Hexagon Energy's principals have played a central role in building the renewable energy industry in Virginia and bringing renewable energy jobs to the Commonwealth. Our principals have advised Dominion on 232 MW of renewable energy purchases and developed nearly 600 MW of operating solar projects across the U.S., including some of the first utility-scale projects in Virginia. We are excited to work with Isle of Wight County to develop a locally-based solar project that benefits Virginia communities, rate payers, and land owners.

AT A GLANCE

- Established in 2015
- Developing energy projects since the early 1990s
- 2,875 MW of energy development experience across 17 states
- Representing over \$1.5 Billion USD in invested capital

LOCATION & CONTACT INFO

321 E Main St | Suite 500
Charlottesville, VA 22902
info@hexagon-energy.com

ENERGY DEVELOPMENT EXPERIENCE

Hexagon Energy's principals have been developing energy projects since the 2000s and have a wide range of experience that guides our work. Over the past 20 years, Hexagon Energy's principals have developed and financed nearly 3,000 MW of operating energy projects in 17 U.S. states, representing over \$1.5 billion in invested capital. The projects include utility scale wind and solar projects ranging from a few megawatts to over a gigawatt. The following table summarizes the energy development experience of Hexagon Energy's principals, both at Hexagon and prior companies.



TYPE	SINCE	ADVISORY	OPERATING	UNDER DEVELOPMENT
Solar PV	2008	232 MW	597 MWac	2,317 MWac
Wind	2000	400 MW	2,278 MWac	550 MWac
Energy Storage	2013	20 MW	--	44 MWac
TOTAL		652 MW	2,875 MWac	2,576 MWac

Table 1: Hexagon Energy's Project Development Experience



PROJECT DESIGN

Hexagon Energy proposes to develop and construct Nuby Run Solar, with a nameplate capacity of up to 2MWac. All of the clean energy generated by the facility will be delivered to the Dominion power grid (the Grid) at the existing 34.5 kilovolt (kV) distribution line running along Orbit Rd. The Project has a pending proposal to sell power to Dominion Energy.

Nuby Run Solar will consist of up to approximately 7,450 crystalline silicon solar PV panels sourced from Tier 1 manufacturers. Additional equipment will include single axis tracker components, DC to AC string inverters, a medium voltage transformer and a control cabinet, project switch gear, a meter, and the interconnection to the existing distribution system.

To support the PV panels, the Project will utilize a single-axis tracking system designed to optimize power production of the panels by rotating them to follow the path of the sun. The single-axis tracker design consists of a series of mechanically linked horizontal steel support beams known as torque tubes, with a drive train system usually located in the center of the rows. The rows will be placed 21.2 feet apart (center to center) and the panels will cover approximately 68% of the Project area. The racking system will be supported by metal piles driven or screwed into the ground by a pile-driving machine to a depth of approximately 10 feet. The maximum height of the solar PV panels at full tilt is twelve feet (12').

The PV panels in each row will be wired together into a circuit (string). There will be a DC to AC string inverter for approximately every 3 rows, typically mounted on a piling adjacent to the tracker structure. AC Power will be transmitted from the string inverters via three-phase direct-buried cables, buried at a depth of approximately 36 to 48 inches, and aggregated at the AC collection switch gear and then on to the medium voltage transformer. The transformer will be mounted on a concrete slab with the project switchgear and control cabinet. The transformer steps up the voltage of the electrical power to 34.5kV to match the Grid. The power is transmitted from the transformer to the Project's protective recloser and metering equipment before interconnecting with Dominion's existing infrastructure on the Property.

An internal access drive, consisting of an all-weather aggregate base, will allow access to the PV panels. Site access will be restricted by a security fence installed around the perimeter of the solar panel array in compliance with Federal and State regulations and with a design approved by the Zoning Administrator consistent with proposed CUP Condition #2. Manual swing gates will be constructed at the main entrance and in strategic areas, as required for access by maintenance crews. National Electric Code standards for safety and signage will be met or exceeded.

The project will be screened from view with a planted vegetative bufferyard, further detailed in the landscaping plan in **Appendix A**. This landscaping plan complies with Isle of Wight's solar ordinance requirement to exceed the twenty-five (25) landscaping points per one hundred (100) linear feet.

HEALTH & SAFETY

The project will utilize passive photovoltaic (PV) cells to generate electricity and inverters to change the direct current into alternating current. They consist of common materials including glass, polymer, aluminum, copper, and silicon semi-conductor material. Solar PV panels function



as a solid state, inert crystal composed of non-toxic materials and are most similar to a pane of solid glass. There are no chemicals, fluids, or materials that are capable of entering the environment. The PV and inverter technology have been utilized and studied for over 30 years and are not known to pose any significant health dangers to neighbors. Instead, the reduction in pollution from fossil-fuel-fired electric generators make solar farms a positive impact on human health.

In May 2017, researchers at NC State University published a detailed review of the Health and Safety Impacts of Solar Photovoltaics that utilizes the latest scientific literature and knowledge of solar practices in N.C. to address the health and safety risks associated with solar PV technology. "These risks are extremely small, far less than those associated with common activities such as driving a car, and vastly outweighed by health benefits of the generation of clean electricity." The full report can be found in **Appendix B**, attached.

SITE LOCATION AND CHARACTERISTICS

Nuby Run Solar will encompass up to approximately 20 acres across the 117-acre property. The Property is located in the Rural Agricultural Conservation (RAC)-zoned district and has historically been used crop farming such as corn or soybeans. The topography of the site area is flat, cleared land. We do not anticipate any site grading at this time and will pay particularly close attention to storm water management improvements given the wetlands on the property that have been identified through a field delineation.

ENVIRONMENTAL AND CULTURAL IMPACT

WETLANDS

The Site is located north of its namesake, Nuby Run. Hexagon Energy has engaged the Timmons Group to perform a wetlands delineation and field assessment. We have also performed preliminary desktop analysis using the U.S. Fish and Wildlife Service National Wetlands Inventory and FEMA flood zones. The wetlands delineation can be found in **Appendix D** and will be verified by the US Army Corps of Engineers prior to site plan review. The Project will be designed and constructed to setback from, and not impact, delineated wetlands.

WILDLIFE HABITATS

The Property has been screened, via the U.S. Fish and Wildlife Service Information, Planning, and Consultation System (IPAC System), for known critical habitats for threatened and endangered species, and none are known to be present on the Property. We will engage US Fish and Wildlife Service in a critical habitat field assessment to ensure our site has no impact to threatened and endangered species. An official species list, generated using USFWS's tool, can be found in **Appendix F**, attached.

CULTURALLY AND HISTORICALLY SIGNIFICANT RESOURCES

The Property has been screened for cultural and architectural sites via the Virginia Cultural Resource Information System (V-CRIS) and the National Register of Historic Places. We have identified one archaeological resource within 0.5 miles of the project area, "Bridge #6045". This resource has been determined as ineligible for the National Register of Historic Places by the



Virginia Department of Historical Resources and is designated as unrestricted. Nuby Run Solar shall be visually screened from this nearby resource via the existing vegetative buffer along the eastern perimeter of the property. The V-CRIS report map showing this resource can be found in **Appendix H**. Further field survey for archaeological and architectural resources have been completed to ensure no eligible cultural or historical resources exist with the area of potential effects. These reports can be found in **Appendix P**.

ENVIRONMENTALLY SENSITIVE AREAS

Nuby Run Solar has been reviewed by the Virginia Department of Conservation and Recreation (VADCR) for environmentally sensitive areas. VADCR initially identified that the Property boundary intersected with their Predictive Models for possible Natural Heritage Resources. Upon discovery of this information, VADCR searched its Biotics Data System for occurrences of natural heritage resources. In its report, VADCR confirmed that no natural heritage resources have been documented within a 100 ft. buffer of the property boundary. VADCR's biologist review of the project indicated that a DCR field survey is not recommended. These findings from VADCR can be found in **Appendix G**.

We have completed a Phase I Environmental Site Assessment for the Property. There were no identified Recognized Environmental Conditions (RECs) on the Property or adjoining properties. The Timmons Group recommends no further action to meet due diligence requirements. A draft of this report summary can be found in **Appendix E**.

To ensure that the conceptual design of Nuby Run Solar will have minimal impact on the surrounding environment, Timmons Group conducted a Water Quality Impact Assessment that can be found in **Appendix Q**. The minimal clearing along the edge of the forested area—in addition to revegetating with native pollinators and an additional 100ft setback from the 100ft RPA buffer—help safeguard natural resources with this project's low intensity use.



CONSTRUCTION

Based on the current project schedule, construction is forecasted to begin in the Summer of 2022. Construction is estimated to take two to three months, dependent on weather. Nuby Run Solar proposes hours of operation for construction activities to be limited to 7:00am to 6:00pm Monday through Friday and 9:00am to 5:00pm on Saturdays. No construction to occur on Sundays. See proposed CUP Condition #7.

Following construction, the Project will undergo testing and commissioning in coordination with Dominion Energy. The Project is estimated to commence operations in the fourth quarter of 2022.

Construction will involve minimal ground disturbance, and ingress and egress of heavy equipment and traffic will be restricted to access from Orbit Road. See **Appendix L** "Transportation Plan" for details regarding access, construction and traffic routes. Parking areas and laydown yards can be seen in the provided conceptual plans. Additionally, see proposed CUP Condition #10 addressing VDOT required improvements.

A detailed erosion and sediment control plan will be developed as a part of the final site plan and implemented to prevent runoff from entering the surrounding environment. Erosion and sediment control measures may include straw bales, hay coil logs, run-off channels, silt fencing, and sediment basins.

Natural vegetative ground cover will be established across the Site upon construction completion. The vegetative ground cover will include native grasses and pollinator mix to help ensure erosion and sediment control throughout the life of the Project.

OPERATIONS AND MAINTENANCE

Once constructed, the Project will require very little maintenance and therefore traffic to the Site. Electrical engineers will service the inverters and transformers on average once per quarter. The solar panels have very low failure rates of approximately 1 in 10,000 per year. The Project output is monitored remotely and defective panels are easily replaced from inventory stores. The Project does not require on-site water or chemicals to keep the panels clean. Rain occurs with sufficient frequency and quantity in Isle of Wight County to naturally keep the panels clean. Native vegetation will be maintained under and between the panels with periodic mowing during the growing season. The Site maintenance is typically contracted and performed by local companies.

COUNTY IMPACT

WATER

An on-site source of potable water will not be required during construction or operation of Nuby Run Solar. Any on-site water required during construction or operation will be supplied by Nuby Run Solar, LLC. No well-digging will be required.



SOUND

Construction:

During the 2-3 months of construction, we anticipate an increase in construction noise primarily from delivery of materials and installation of support beams on which the solar panels will be fixed. These impacts are mitigated by selecting site area that will require little to no groundwork, establishing limits of construction operation hours as proposed in CUP condition #7. Additionally, the nearest residence is approximately 390' from the project and separated by 270' of mature forest, mitigating the sound heard at neighboring properties.

Operations:

From Orbit Road and nearby residences, the array will be virtually inaudible. The Project is planned to feature Sungrow model SG125Hv (125kWac) inverters and DuraTrack HZ v3 racking equipment that will produce a small amount of sound (<60dBA at 1 meter away) within the Site. At just one meter away, the sound ratings of the inverters are less than outdoor air conditioning units, which are rated at over 60dB. Inverter sound ratings fall to less than 30dB at a distance of 50 feet, which is the background noise level in a rural area. The nearest residence is approximately 390' from the project fenceline and will not be able to hear any equipment.

GLARE

Construction:

No glare hazard is anticipated during construction.

Operations:

In addition to being visually screened from nearby residences and Orbit Road, the panels are designed to absorb as much sunlight as possible and are treated with an anti-glare coating.

Hexagon has utilized the Federal Aviation Administration's online Notice Criteria Tool to determine that Nuby Run Solar does not exceed the notice criteria required by the FAA for the Project. An FAA Hazard analysis is not required. Confirmation of this result is available for review in **Appendix C**.

ODOR

Construction:

During construction, the EPC contractor will store, collect, and dispose of solid construction material waste such to prevent any hazards—including odors. This will mitigate any possible impact odors from the project could have on neighboring property use.

Operations:

During operations, no perceivable odors will come from the solar array. Given this, no impact mitigation is necessary for neighboring property use.

DUST

Construction:

During construction, trucks and construction machinery may kick up existing dirt particles within the site. Dust will be mitigated by spraying water on dry dirt and by instituting a 5 MPH speed limit within the construction zone.



Operations:

Vegetative ground cover will be planted and maintained during operations, preventing dust.

FUEL

Construction

Any fuels stored on-site during construction, will be safely stored to follow all OSHA and environmental regulation to ensure no impact to site or neighboring properties.

Operations:

No fuels are present within the site area after construction.

SMOKE

There is no portion of the development, construction, or operations process where we anticipate smoke emanating from the site area. Any trees cut to prevent shading will not be burned on site. We have addressed coordination with local emergency services elsewhere in our application that apply to the scenario of a potential fire on the property or surrounding neighbors.

FUMES

Construction:

During construction, exhaust from trucks or construction machinery may occur near the site and along the haul route leading to the property. Contractors will be required to meet or exceed all existing emission standards for equipment used for construction operations.

Operations:

There are no fumes produced by an operating solar array once placed into service.

VIBRATION

Construction:

The only tangible source of vibration will occur during construction from the piledriving. Vibration is mitigated by only taking place during the county approved hours of construction operation and pile driving activity only occurs for a small fraction of the overall construction period. Additionally, the proposed site area locates potential pile placement over 390' of feet from the nearest residence and no vibration is anticipated on neighboring properties.

Operations:

No vibration is generated from equipment during operations.

SECURITY & ACCESS

The Site will be fenced in by an opaque, agricultural-style fence that is harmonious with the rural, agricultural, and historical character of the County, as determined by the Zoning Administrator. This fence will meet federal and state regulations for solar electric generating facility fencing. After construction concludes, the gates will remain locked, and access will be coordinated by authorized operations and maintenance personnel. The Site will also include a "Knox Box" on the



gate to provide 24/7 emergency access for fire and police personnel. Ingress and egress will be maintained off of Orbit Road and will ensure suitable access for fire and other emergency vehicles.

ECONOMIC DEVELOPMENT

JOBS

Local materials and labor will be used for the construction and maintenance of the Project to the extent that they are available. Nuby Run Solar will create approximately 20 new construction positions. The operations phase of the project will require approximately one to two, full-time positions, once facility construction is complete. This small crew will be responsible for routine upkeep of the facility throughout the project's life. Upkeep of solar facilities generally includes vegetation management, routine single-axis tracker maintenance, and visual inspections and repair of the equipment. Once per quarter, the crew will visit the site in a pickup truck or like vehicle, to perform the upkeep.

The solar industry in Virginia is growing faster than the overall economy and presents new career opportunities throughout the Commonwealth. Hexagon Energy is on the Leadership Council of SHINE, a Virginia Solar Workforce Initiative partnered with Southside Virginia Community College. The program not only trains new workers but pairs the training with an upcoming solar installation job. The program is aligned with upcoming solar projects and the first classes commenced in the fall of 2019. The SHINE program also has a mobile lab that can deploy local training classes. Hexagon Energy will work with the SHINE program and Paul D. Camp College to ensure that training and job opportunities are created for interested Isle of Wight residents.

INVESTMENT

Nuby Run Solar will also make roughly \$3,306,000 in total capital investment for construction, material, labor, and professional services. The capital expenditures breakdown as follows:

Expense	Amount
Solar PV Panels	\$1,102,000
Inverters	\$179,075
Mounting/Racking System	\$551,000
Transformers	\$192,850
Electrical Components	\$261,725
Site Management (fencing, vegetation, etc.)	\$55,100
Labor	\$964,250

The Department of Energy's JEDI model predicts that Nuby Run Solar construction will contribute over \$745,000 in direct spending in the local economy on labor, local contractors, and locally sourced materials. The array will produce enough energy to power roughly 176 homes after it is completed.



INCREASED COUNTY REVENUE

Increased Real Property Assessment & Tax Revenue

The 20 acre portion of land used for Nuby Run Solar will increase in assessment from \$1,238/acre (Agricultural) to \$15,000/acre (Solar). The Isle of Wight tax rate for Real Property is \$0.85/\$100 assessed.

	Assessment Rate	Assessed Value (Acres x Assessment Rate)	Real Property Tax Rate	Annual Real Property Tax (Assessed Value x Real Property Tax Rate)	30 Year Revenue
Current	\$1,238 / acre	\$24,760	\$0.85 / \$100 assessed value	\$210.46 / year	\$6,314
Nuby Run	\$15,000 / acre	\$300,000	\$0.85 / \$100 assessed value	\$2,550 / year	\$76,500

Total Revenue

Real estate tax under the new use would contribute \$2,550 annually and \$76,500 over the projected 30 year lifetime of the project, offering a 12x increase over the current land use.

Agricultural Land Impact

Nuby Run Solar is proposed to be located on the cleared section of approximately 20 acres of the 117 acre Nuby Run Farms LLC property. The most recently harvested crop on this site was corn. Utilizing the Isle of Wight County staff analysis regarding solar and agriculture from February 17, 2021 (provided), Isle of Wight County has 80,672 acres of land on its 237 farms, which average 340 acres each.

Therefore, Nuby Run Farm's 20 acres represent 0.025% of the farm acreage in Isle of Wight County, with the average County farm being 17 times as large. Nuby Run has a small impact on the County's agricultural capacity while providing improved economic opportunities and increased revenue for the County. Given this minimal impact, the County Agricultural and Forrestral District Committee has voted to recommend withdrawal of the site acres from the AFD, as seen in **Appendix N**.



REGULATORY CONFORMANCE

Virginia Code § 15.2-2232 requires that the Planning Commission makes a determination as to whether or not the general location, character, and extent of a proposed solar energy facility is in substantial accord with the locality's adopted comprehensive plan.

CONFORMANCE WITH COMPREHENSIVE PLAN

The character and extent of Nuby Run Solar are substantially in accord with the County's Comprehensive Plan. The Project intends to provide locally generated, clean energy to Dominion customers pursuant to the Virginia Clean Economy Act of 2020, promoting infrastructure service to the County and beyond. The Project will be clean, non-disturbing, and support local job training and educational opportunities through SHINE, the Virginia Solar Workforce Initiative hosted by Southside Virginia Community College. In 2020, the Isle of Wight Board of Supervisors adopted the latest version of the County Comprehensive Plan, entitled *Envisioning the Isle*. This update includes a section of development and location considerations for evaluation potential solar farms in Chapter 4, pages 73-74 (Serving The Isle, Community Energy). Nuby Run Solar has been developed with these policies in mind:

"Require facilities to be located adjacent or close to existing electric transmission lines."

Nuby Run Solar proposes to interconnect to the Dominion three-phase powerlines that run across the property's road frontage along Orbit Rd.

"Require facilities to be located outside of DSDs."

Nuby Run Solar is sited on a property that is approximately 4.5 miles away from the nearest DSD (Windsor).

"Avoid or minimize impact to prime farmland or farmlands of statewide importance as defined by the USDA and Commonwealth of Virginia, respectively."

The farming component of Parcel ID 39-01-038 makes up only 20 acres of the 117 acre property. Additionally, these cleared acres are currently isolated by Orbit Rd and forested wetlands on the property. Given the average farm size of 340 acres and over 80,000 total farm acres in Isle of Wight County, Nuby Run Solar presents a negligible impact on farmlands, which it more than offsets by providing 176 homes with clean, locally generated power.

"Facilities should be located outside of the viewshed of any scenic, cultural, or recreational resources (i.e., solar facilities may not be seen from surrounding points that are in line-of-sight with a resource location) or within the Highway Corridor Overlay district."

The only resource within a half-mile of the proposed Nuby Run Solar site area is "Bridge #6045" as described in the V-CRIS section above. This bridge is over 1,400 feet from the nearest point of the Nuby Run Solar site, most of that distance being vegetative buffer. The natural forested boundaries of the site area combined with the proposed planted vegetative buffer along Orbit Rd make Nuby Run Solar a thoughtfully sited location with respect to viewshed.



The Comprehensive Plan also outlines several Policy themes with Action Items associated toward those ends. Below are some of the more applicable selections regarding solar projects and our determination of how Nuby Run Solar would fit.

Preserve: Protect water quality from sedimentation and pollutants carried by runoff through the continued enforcement of the local stormwater management program.

Before final site plan approval, Nuby Run Solar must secure confirmation from the Virginia Department of Environmental Quality that the designed stormwater management features will meet or exceed the rates of current property use. Verification of this confirmation will safeguard against any degradation of local stormwater management as a result of the project.

Shape: Protect rural historic landscapes by ensuring development is consistent with existing community character through performance criteria for new development.

The vegetative screening plans provided by Nuby Run Solar offer planted bufferings between 600-880% the required landscaping points required by the solar ordinance. Exceeding the vegetative screening standard by this degree shows the specific focus on existing community character and ensuring Nuby Run Solar is a mindful neighbor.

Serve: Encourage collaboration with the private sector to provide integrated infrastructure in the most efficient way possible.

Serve: Design and develop public facilities, wherever possible, that take advantage of alternative energy sources and conserve energy in operations.

Serve: Ensure all major utility service use types mitigate any potential negative impacts to the character and future viability of surrounding land uses.

Nuby Run Solar offers alternative energy sourced power generation for the local community, financed by private investment, to the net fiscal benefit for the county. By designing vegetative buffering that exceeds the county requirement for solar projects in its particular location, Nuby Run Solar is sited respectfully to local character and land uses while allowing the site landowner to exercise his property rights.

Educate: Continue to grow programs that enhance job skills of County residents needed by employers.

Upon completion of the pilot programs at SVCC, SHINE plans to expand to other community colleges and academic institutions across Virginia so we can increase access to solar training programs across the state. Nuby Run Solar can begin that facilitation between SHINE and Paul D. Camp College.



PLANNING COMMISSION DETERMINATION REQUEST

Nuby Run Solar has been designed to be in substantial accord with the Comprehensive Plan and conform with all requirements set forth in the County's Zoning Ordinance. The Applicant, Nuby Run Solar, LLC, requests that the Planning Commission makes this determination pursuant to VA Code § 15.2-2232 in one of three ways:

TO RECCOMEND APPROVAL AS IS (please say the following):

"I move that the Planning Commission adopt to forward the application for Nuby Run Solar to the Isle of Wight County Board of Supervisors with a favorable recommendation, as it complies with the requirements of the Zoning Ordinance and is substantially in accord with the Comprehensive Plan."

TO RECCOMEND APPROVAL WITH CHANGES (please say the following):

"I move that the Planning Commission adopt to forward the application for Nuby Run Solar with the following changes: _____ to the Isle of Wight County Board of Supervisors with a favorable recommendation, as it complies with the requirements of the Zoning Ordinance and is substantially in accord with the Comprehensive Plan."

TO RECOMMEND DENIAL (please say the following):

"I move that the Planning Commission adopt to forward the application for Nuby Run Solar to the Isle of Wight County Board of Supervisors with an unfavorable recommendation for the following reasons:



AGRICULTURAL FORESTAL DISTRICT WITHDRAWAL REQUEST

Tax map parcel 39-01-038 is part of the Courthouse Agricultural Forestal District, which was established by the Board of Supervisor on September 15, 1988, for the purposed of conserving and protecting agricultural and forestal lands. The district was last renewed on September 15, 2016, for a period of ten (10) years set to expire on September 15, 2026. Appendix D, Section D-6 of the County Code states that parcels included in this district cannot be developed for a more intensive use than the one existing at the time of inclusion while the parcel remains in the district; therefore, withdrawal of the parcel will be necessary to allow for the proposed use. Please see **Appendix N** - AFD Withdrawal Letter and Committee Recommendation which includes a request from the parcel landowner to remove a portion of the property from the Courthouse District to allow for the development of the Nuby Run Solar project and confirmation of the AFD's positive recommendation for this withdrawal. We request that the Planning Commission vote to recommend to the Board of Supervisors removal from the Courthouse District, and the Board of Supervisors vote to approve withdrawal from the Courthouse District.



APPENDIX A: CONCEPTUAL SITE AND LANDSCAPING DIGITAL RENDERING

Enclosed.



APPENDIX B: NC STATE: HEALTH AND SAFETY IMPACTS OF SOLAR PHOTOVOLTAICS.

Enclosed.



APPENDIX C: FAA NOTICE CRITERIA RESULT

Enclosed.



APPENDIX D: WETLANDS DELINEATION MAP

Enclosed.



APPENDIX E: PHASE I ESA EXECUTIVE SUMMARY

Enclosed.



APPENDIX F: USFWS OFFICIAL SPECIES LIST

Enclosed.



APPENDIX G: VADCR NATURAL HERITAGE PROJECT REVIEW REPORT

Enclosed.



APPENDIX H: V-CRIS MAP

Enclosed.



APPENDIX I: DECOMMISSIONING COST ESTIMATE

Enclosed.



APPENDIX J: ECONOMIC IMPACTS MEMO

Enclosed.



APPENDIX K: PROPOSED CUP CONDITIONS

Enclosed.



APPENDIX L: TRANSPORTATION PLAN

Enclosed.



APPENDIX M: CULTURAL RESOURCES ASSESSMENT

Enclosed.



APPENDIX N: AFD WITHDRAWAL LETTER AND COMMITTEE RECOMMENDATION

Enclosed.



APPENDIX O: INTERCONNECTION REQUEST

Enclosed.



APPENDIX P: PHASE 1 ARCHAEOLOGICAL SURVEY AND RECONNAISSANCE ARCHITECTURAL SURVEY

Enclosed.



APPENDIX Q: WATER QUALITY IMPACT ASSESSMENT

Enclosed.



APPENDIX R: EXISTING VEGETATION SHADING DEPICTION

Enclosed.





MEMORANDUM

January 14, 2022

TO: Members, Isle of Wight County Planning Commission

FROM: Chris Morello, Economic Development Director
Amy Ring, Planning and Zoning Director

SUBJECT: Economic Impacts – Nuby Run Proposed Solar Energy Facility

This memorandum responds to a request by the Planning Commission for County Staff to provide economic impact information associated with Utility Scale Solar Energy Generation Facility applications. More particularly, the request is related to the desire to understand the impacts of potential conversion of agricultural and silviculture land uses to solar farm land use beyond tax revenue benefits to the County. It should be noted that staff has prepared this limited analysis based on readily-available data and information provided by the land owners, and that an extensive econometric analysis would require the assistance of an external consultant.

Impacts associated with conversions to solar certainly do exist and should be understood to the extent possible. Staff has investigated these potential impacts with the assistance of Federal, state and local resources, including USDA, Farm Service Agency, Virginia Cooperative Extension and the Isle of Wight Commissioner of Revenue, to name a few.

Nuby Run is the sixth solar project proposed in the County. Below is a table with a summary of the County's existing solar projects, with "Land in Farms" representing the USDA's definition, which includes cropland, pastureland, wood lots and timber tracts.

PROJECT	ACRES IN PANELS	LOCATION	% OF TOTAL FARMLAND
Woodland	180 +/-	Longview	0.2%
Solidago	170 +/-	Redhouse	0.2%
Ho-Fel	330 +/-	Lees Mill	0.4%
Windsor PV1	630 +/-	Windsor	0.8%
Cavalier	450	Hardy	0.6%
Nuby Run	20	Orbit	0.02%
TOTAL	1,780 +/-		2.2%

According to the 2017 Census of Agriculture (USDA-NASS), Isle of Wight County has 237 farms totaling 80,672 acres of land. The average farm size is 340 acres. The average annual market value of agriculture products sold per farm is \$270,985, or \$797 average market value per acre.

Using the average market value per acre for crops cultivated from twenty acres of farmland on the subject farm generates an estimated \$15,940 in market value. Additional property includes 97 acres in active timber. The current market rate for timber ranges from \$1,000 to \$3,000 per acre depending on size of trees, species composition and the land itself. For loblolly pine, the current industry standard is to clear cut and replant at 18-20 years.

Land and Equipment Valuation

The Office of the Commissioner of Revenue values various land uses differently based on the following categories:

- Agriculture/Horticulture - \$1,238
- Pasture - \$334
- Non-productive - \$240
- Forest - \$641
- Non-productive (swamp/marsh) - \$100

Parcels hosting a solar farm are currently assessed at \$15,000 per acre. The final assessment and tax revenue generated by a parcel's conversion to solar facility usage depends on the proportion of each of the uses after the conversion. In other words, the Commissioner of Revenue derives a tax levy composed of assessments on the differing uses allowed by the conditional use permit. In the case of Nuby Run, other uses will include some silvicultural use after the conversion to solar. The rate of \$15,000 per acre would apply only to 20 out of 117 acres.

As for tax revenues derived from solar facilities and equipment, because the proposed project will generate 2 MW of output, the property will receive a full exemption from machinery and tools tax. Under the current land use program, the farm generates approximately \$210.46 per year for the twenty acres of cropland proposed for the solar facility. If the CUP is approved for the solar energy generation facility, the total projected real estate revenue per year is \$2,550.

Long Term Economic Impacts

When assessing conversion of agricultural land to solar facility usage, the following potential direct and indirect impacts to the agriculture and silviculture industries can occur:

- The current 100 percent machinery and tools tax exemption for facilities generating less than 5 MW will continue to create demand in rural communities for large tracts of land to be converted to solar use. This engenders natural competition between green energy and food and fiber production in the marketplace.
- Currently, agriculture and silviculture are two of the County's top industries. The Nuby Run Solar Facility represents a subtraction of approximately 0.02 percent of the County's cultivated land (USDA-NASS, 2017). While this project represents a relatively small

impact, longer-term cumulative land conversions could create adverse effects on the local agricultural industry.

- To the extent that farmers purchase goods and services locally, associated direct and indirect adverse impacts would be realized. While it is not possible at this time to derive which goods and services are being purchased locally, Nuby Run property owners have indicated to staff that a very small proportion are purchased within the County.
- Irrespective of the origin of purchase, data provided by the Virginia Cooperative Extension is useful for understanding a farmer's costs per acre for different crops:
 - Corn = \$395.47
 - Soybeans = \$271.65
 - Cotton = \$839.57
- Examples of goods and services purchased:
 - Seed
 - Fertilizers
 - Herbicides/Insecticides
 - Fuel/Oil/Lube
 - Repairs
 - Labor
 - Insurance
- The construction of solar projects creates temporary demand for skilled and unskilled labor, some of which could be sourced locally or regionally, bringing new economic benefits to the community's ancillary sectors, such as temporary housing, food service, and entertainment.
- Property owners who lease their land to solar energy developers, such as those associated with the Nuby Run facility, can realize a reliable, long-term income stream for their land, with the potential to return to agriculture or silviculture use at the end of the lease period.

Rural localities will continue to grapple with the apparent high demand for utility-scale solar conversions if upward pressure to supply the grid with solar-derived energy does not wane. It is difficult to predict the future at this stage; however, staff is hopeful that this limited analysis is useful to understanding the broader economic picture and informs future policy discussions connected with this matter.

**ISLE OF WIGHT COUNTY PLANNING COMMISSION
A RESOLUTION TO PRESENT A REPORT AND RECOMMENDATION
TO THE BOARD OF SUPERVISORS RELATING TO CONDITIONAL USE PERMIT
REQUEST CUP-05-21 TO ALLOW A MAJOR UTILITY SERVICE, SPECIFICALLY A
UTILITY SCALE SOLAR ENERGY FACILITY, ON 20 ACRES OF PROPERTY WITH TAX
MAP PARCEL 39-01-038**

WHEREAS, Nuby Run Solar, LLC, applicant, on behalf of Robert Benjamin Stagg, property owner, has requested issuance of a conditional use permit for a portion of a certain tract of land with tax parcel number 39-01-038 situated in Isle of Wight County; and

WHEREAS, the specific request is to permit a major utility service, specifically a utility scale solar energy facility, in accordance with sections 1-1017 and 5-5003 of the Zoning Ordinance;

WHEREAS the procedural requirements for the consideration of this request by the Planning Commission have been met.

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of Isle of Wight County, that:

Section 1. Findings.

- _____ A. The Isle of Wight County Planning Commission finds that the proposed amendment to conditional zoning is reasonable and warranted due to a change in circumstances affecting the property and has considered the following factors and finds that the proposed rezoning does not conflict with:
1. the existing use and character of property within the County;
 2. the Comprehensive Plan;
 3. the suitability of the property for various uses;
 4. the trends of growth or change;
 5. the current or future requirements of the community as to land for various purposes as determined by population and economic studies and other studies;
 6. the transportation requirements of the community;
 7. the requirements for airports, housing, schools, parks, playgrounds, recreation areas and other public services;
 8. the conservation of natural resources;
 9. the preservation of floodplains;

- 10. the preservation of agricultural and forestal land;
- 11. the conservation of properties and their values; and
- 12. the encouragement of the most appropriate use of land throughout the County.

_____ B. The Isle of Wight County Planning Commission does not find that the proposed zoning map amendment is reasonable based on the consideration of the factors listed herein.

Section 2. Recommendation to Board of Supervisors.

The Planning Commission recommends to the Board of Supervisors that the request, CUP-05-21, be:

- ___ a. Granted as submitted, and that the Board of Supervisors adopt the proposed Ordinance without modification.
- ___ b. Denied, and that Board of Supervisors not adopt the proposed Ordinance.
- ___ c. Granted with the modifications set forth on the attached listing of specific recommendations, and that the Board of Supervisors adopt the proposed Ordinance with such modifications.

DATE: _____

READ AND PASSED: _____
Chairman, Isle of Wight County Planning Commission

TESTE: _____
Secretary, Isle of Wight County Planning Commission

Approved as to Form:

Robert W. Jones, Jr., County Attorney

Viewshed Analysis

This appendix is a brief description and digital rendering of the vegetative screening plan as well as some viewshed analysis for our proposed solar photovoltaic project, Nuby Run Solar. In accordance with Article 8, Section 8-1004/5 from the Isle of Wight County Zoning Ordinance, Nuby Run Solar is designed to exceed the rural frontage zone standard. Our proposed buffering includes:

- 1) A single row of evergreen trees (eastern red cedar, depicted) and a staggered single row of deciduous trees (black gum, depicted), with the trees in each row planted at twenty (20) feet on center. This solution offers plentiful screening and 165 landscaping points across 100 linear feet. According to the Isle of Wight Utility Scale Solar Energy Facilities ordinance, 25 landscaping points per 100 linear feet are required along public roadways with less than 50ft of right-of-way (as is the case with Orbit Rd along the proposed property).

We have included digital rendering that utilizes higher quality site images and depicts an opaque security fence as is anticipated to be later determined by the Zoning Administrator in the relevant CUP condition. Please see below for depictions as described above.

Following the buffer renderings, we have field photographs showing the robust, existing vegetative screening between the only abutting residence and the proposed site area. You will see in the pictures from both perspectives that the nearly 300ft of vegetation completely obscures one property from the other at ground level. Additionally, we have provided two reference photographs utilizing a midsize SUV as a reference point to highlight the minimal visual inclusion of a new item in the proposed site area from Orbit Rd.





Above, we show the respective vantage points of Pictures A and B to the right from satellite view.

In Picture A, we see from the closest point before existing vegetation (on the only abutting residence to Nuby Run site area) that the depth and thickness of the vegetation completely obscure the Nuby Run field.

In Picture B, we take a similar existing vegetation picture from the Nuby Run property toward the residential abutter. This verifies the robust screening that mitigates any viewed impact of potential development between neighboring properties.





Above, we show the respective vantage points of Pictures C and D to the right from satellite view.

In Picture C, we see how a midsize SUV within the site area appears from Orbit Rd. Even without proposed vegetative screen or opaque fence, similarly sized objects have very little impact on passing driver viewshed

In Picture D, we take a picture from the approximate SUV location of Picture C to show how the proposed setback of the site location dramatically reduces the perceived size of an object, even without vegetative screening and opaque fencing.





NC CLEAN ENERGY
TECHNOLOGY CENTER

Health and Safety Impacts of Solar Photovoltaics

MAY 2017



Health and Safety Impacts of Solar Photovoltaics

The increasing presence of utility-scale solar photovoltaic (PV) systems (sometimes referred to as solar farms) is a rather new development in North Carolina's landscape. Due to the new and unknown nature of this technology, it is natural for communities near such developments to be concerned about health and safety impacts. Unfortunately, the quick emergence of utility-scale solar has cultivated fertile grounds for myths and half-truths about the health impacts of this technology, which can lead to unnecessary fear and conflict.

Photovoltaic (PV) technologies and solar inverters are not known to pose any significant health dangers to their neighbors. The most important dangers posed are increased highway traffic during the relative short construction period and dangers posed to trespassers of contact with high voltage equipment. This latter risk is mitigated by signage and the security measures that industry uses to deter trespassing. As will be discussed in more detail below, risks of site contamination are much less than for most other industrial uses because PV technologies employ few toxic chemicals and those used are used in very small quantities. Due to the reduction in the pollution from fossil-fuel-fired electric generators, the overall impact of solar development on human health is overwhelmingly positive. This pollution reduction results from a partial replacement of fossil-fuel fired generation by emission-free PV-generated electricity, which reduces harmful sulfur dioxide (SO₂), nitrogen oxides (NO_x), and fine particulate matter (PM_{2.5}). Analysis from the National Renewable Energy Laboratory and the Lawrence Berkeley National Laboratory, both affiliates of the U.S. Department of Energy, estimates the health-related air quality benefits to the southeast region from solar PV generators to be worth 8.0 ¢ per kilowatt-hour of solar generation.¹ This is in addition to the value of the electricity and suggests that the air quality benefits of solar are worth more than the electricity itself.

Even though we have only recently seen large-scale installation of PV technologies, the technology and its potential impacts have been studied since the 1950s. A combination of this solar-specific research and general scientific research has led to the scientific community having a good understanding of the science behind potential health and safety impacts of solar energy. This paper utilizes the latest scientific literature and knowledge of solar practices in N.C. to address the health and safety risks associated with solar PV technology. These risks are extremely small, far less than those associated with common activities such as driving a car, and vastly outweighed by health benefits of the generation of clean electricity.

This paper addresses the potential health and safety impacts of solar PV development in North Carolina, organized into the following four categories:

- (1) Hazardous Materials
- (2) Electromagnetic Fields (EMF)
- (3) Electric Shock and Arc Flash
- (4) Fire Safety

1. Hazardous Materials

One of the more common concerns towards solar is that the panels (referred to as “modules” in the solar industry) consist of toxic materials that endanger public health. However, as shown in this section, solar energy systems may contain small amounts of toxic materials, but these materials do not endanger public health. To understand potential toxic hazards coming from a solar project, one must understand system installation, materials used, the panel end-of-life protocols, and system operation. This section will examine these aspects of a solar farm and the potential for toxicity impacts in the following subsections:

(1.2) Project Installation/Construction

(1.2) System Components

1.2.1 Solar Panels: Construction and Durability

1.2.2 Photovoltaic technologies

(a) Crystalline Silicon

(b) Cadmium Telluride (CdTe)

(c) CIS/CIGS

1.2.3 Panel End of Life Management

1.2.4 Non-panel System Components

(1.3) Operations and Maintenance

1.1 Project Installation/Construction

The system installation, or construction, process does not require toxic chemicals or processes. The site is mechanically cleared of large vegetation, fences are constructed, and the land is surveyed to layout exact installation locations. Trenches for underground wiring are dug and support posts are driven into the ground. The solar panels are bolted to steel and aluminum support structures and wired together. Inverter pads are installed, and an inverter and transformer are installed on each pad. Once everything is connected, the system is tested, and only then turned on.



Figure 1: Utility-scale solar facility (5 MW_{AC}) located in Catawba County. Source: Strata Solar

1.2 System Components

1.2.1 Solar Panels: Construction and Durability

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials that can be recovered and recycled at the end of their useful life.² Today there are two PV technologies used in PV panels at utility-scale solar facilities, silicon, and thin film. As of 2016, all thin film used in North Carolina solar facilities are cadmium telluride (CdTe) panels from the US manufacturer First Solar, but there are other thin film PV panels available on the market, such as Solar Frontier's CIGS panels. Crystalline silicon technology consists of silicon wafers which are made into cells and assembled into panels, thin film technologies consist of thin layers of semiconductor material deposited onto glass, polymer or metal substrates. While there are differences in the components and manufacturing processes of these two types of solar technologies, many aspects of their PV panel construction are very similar. Specifics about each type of PV chemistry as it relates to toxicity are covered in subsections a, b, and c in section 1.2.2; on crystalline silicon, cadmium telluride, and CIS/CIGS respectively. The rest of this section applies equally to both silicon and thin film panels.

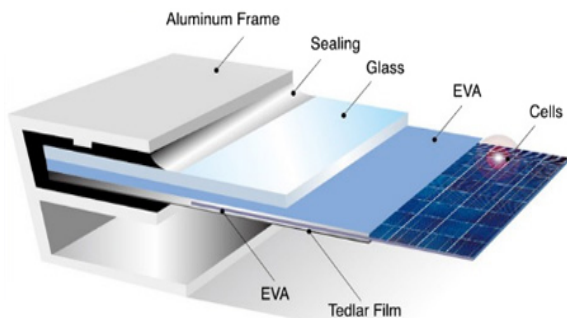


Figure 2: Components of crystalline silicon panels. The vast majority of silicon panels consist of a glass sheet on the topside with an aluminum frame providing structural support. Image Source: www.riteksolar.com.tw

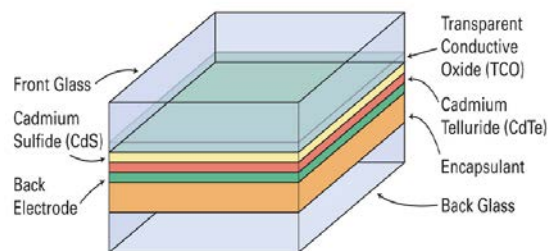


Figure 3: Layers of a common frameless thin-film panel (CdTe). Many thin film panels are frameless, including the most common thin-film panels, First Solar's CdTe. Frameless panels have protective glass on both the front and back of the panel. Layer thicknesses not to scale. Image Source: www.homepower.com

To provide decades of corrosion-free operation, PV cells in PV panels are encapsulated from air and moisture between two layers of plastic. The encapsulation layers are protected on the top with a layer of tempered glass and on the backside with a polymer sheet. Frameless modules include a protective layer of glass on the rear of the panel, which may also be tempered. The plastic ethylene-vinyl acetate (EVA) commonly provides the cell encapsulation. For decades, this same material has been used between layers of tempered glass to give car windshields and hurricane windows their great strength. In the same way that a car windshield cracks but stays intact, the EVA layers in PV panels keep broken panels intact (see Figure 4). Thus, a damaged module does not generally create small pieces of debris; instead, it largely remains together as one piece.



Figure 4: The mangled PV panels in this picture illustrate the nature of broken solar panels; the glass cracks but the panel is still in one piece. Image Source: http://img.alibaba.com/photo/115259576/broken_solar_panel.jpg

PV panels constructed with the same basic components as modern panels have been installed across the globe for well over thirty years.³ The long-term durability and performance demonstrated over these decades, as well as the results of accelerated lifetime testing, helped lead to an industry-standard 25-year power production warranty for PV panels. These power warranties warrant a PV panel to produce at least 80% of their original nameplate production after 25 years of use. A recent SolarCity and DNV GL study reported that today's quality PV panels should be expected to reliably and efficiently produce power for thirty-five years.⁴

Local building codes require all structures, including ground mounted solar arrays, to be engineered to withstand anticipated wind speeds, as defined by the local wind speed requirements. Many racking products are available in versions engineered for wind speeds of up to 150 miles per hour, which is significantly higher than the wind speed requirement anywhere in North Carolina. The strength of PV mounting structures were demonstrated during Hurricane Sandy in 2012 and again during Hurricane Matthew in 2016. During Hurricane Sandy, the many large-scale solar facilities in New Jersey and New York at that time suffered only minor damage.⁵ In the fall of 2016, the US and Caribbean experienced destructive winds and torrential rains from Hurricane Matthew, yet one leading solar tracker manufacturer reported that their numerous systems in the impacted area received zero damage from wind or flooding.⁶

In the event of a catastrophic event capable of damaging solar equipment, such as a tornado, the system will almost certainly have property insurance that will cover the cost to cleanup and repair the project. It is in the best interest of the system owner to protect their investment against such risks. It is also in their interest to get the project repaired and producing full power as soon as possible. Therefore, the investment in adequate insurance is a wise business practice for the system owner. For the same

reasons, adequate insurance coverage is also generally a requirement of the bank or firm providing financing for the project.

1.2.2 Photovoltaic (PV) Technologies

a. Crystalline Silicon

This subsection explores the toxicity of silicon-based PV panels and concludes that they do not pose a material risk of toxicity to public health and safety. Modern crystalline silicon PV panels, which account for over 90% of solar PV panels installed today, are, more or less, a commodity product. The overwhelming majority of panels installed in North Carolina are crystalline silicon panels that are informally classified as Tier I panels. Tier I panels are from well-respected manufacturers that have a good chance of being able to honor warranty claims. Tier I panels are understood to be of high quality, with predictable performance, durability, and content. Well over 80% (by weight) of the content of a PV panel is the tempered glass front and the aluminum frame, both of which are common building materials. Most of the remaining portion are common plastics, including polyethylene terephthalate in the backsheet, EVA encapsulation of the PV cells, polyphenyl ether in the junction box, and polyethylene insulation on the wire leads. The active, working components of the system are the silicon photovoltaic cells, the small electrical leads connecting them together, and to the wires coming out of the back of the panel. The electricity generating and conducting components makeup less than 5% of the weight of most panels. The PV cell itself is nearly 100% silicon, and silicon is the second most common element in the Earth's crust. The silicon for PV cells is obtained by high-temperature processing of quartz sand (SiO_2) that removes its oxygen molecules. The refined silicon is converted to a PV cell by adding extremely small amounts of boron and phosphorus, both of which are common and of very low toxicity.

The other minor components of the PV cell are also generally benign; however, some contain lead, which is a human toxicant that is particularly harmful to young children. The minor components include an extremely thin antireflective coating (silicon nitride or titanium dioxide), a thin layer of aluminum on the rear, and thin strips of silver alloy that are screen-printed on the front and rear of cell.⁷ In order for the front and rear electrodes to make effective electrical contact with the proper layer of the PV cell, other materials (called glass frit) are mixed with the silver alloy and then heated to etch the metals into the cell. This glass frit historically contains a small amount of lead (Pb) in the form of lead oxide. The 60 or 72 PV cells in a PV panel are connected by soldering thin solder-covered copper tabs from the back of one cell to the front of the next cell. Traditionally a tin-based solder containing some lead (Pb) is used, but some manufacturers have switched to lead-free solder. The glass frit and/or the solder may contain trace amounts of other metals, potentially including some with human toxicity such as cadmium. However, testing to simulate the potential for leaching from broken panels, which is discussed in more detail below, did not find a potential toxicity threat from these trace elements. Therefore, the tiny amount of lead in the glass frit and the solder is the only part of silicon PV panels with a potential to create a negative health impact. However, as described below, the very limited amount of lead involved and its strong physical and chemical attachment to other components of the PV panel means that even in worst-case scenarios the health hazard it poses is insignificant.

As with many electronic industries, the solder in silicon PV panels has historically been a lead-based solder, often 36% lead, due to the superior properties of such solder. However, recent advances in lead-free solders have spurred a trend among PV panel manufacturers to reduce or remove the lead in their panels. According to the 2015 Solar Scorecard from the Silicon Valley Toxics Coalition, a group that tracks environmental responsibility of photovoltaic panel manufacturers, fourteen companies (increased from twelve companies in 2014) manufacture PV panels certified to meet the European Restriction of

Hazardous Substances (RoHS) standard. This means that the amount of cadmium and lead in the panels they manufacture fall below the RoHS thresholds, which are set by the European Union and serve as the world's de facto standard for hazardous substances in manufactured goods.⁸ The Restriction of Hazardous Substances (RoHS) standard requires that the maximum concentration found in any homogenous material in a produce is less than 0.01% cadmium and less than 0.10% lead, therefore, any solder can be no more than 0.10% lead.⁹

While some manufacturers are producing PV panels that meet the RoHS standard, there is no requirement that they do so because the RoHS Directive explicitly states that the directive does not apply to photovoltaic panels.¹⁰ The justification for this is provided in item 17 of the current RoHS Directive: "The development of renewable forms of energy is one of the Union's key objectives, and the contribution made by renewable energy sources to environmental and climate objectives is crucial. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources (4) recalls that there should be coherence between those objectives and other Union environmental legislation. Consequently, this Directive should not prevent the development of renewable energy technologies that have no negative impact on health and the environment and that are sustainable and economically viable."

The use of lead is common in our modern economy. However, only about 0.5% of the annual lead consumption in the U.S. is for electronic solder for all uses; PV solder makes up only a tiny portion of this 0.5%. Close to 90% of lead consumption in the US is in batteries, which do not encapsulate the pounds of lead contained in each typical automotive battery. This puts the lead in batteries at great risk of leaching into the environment. Estimates for the lead in a single PV panel with lead-based solder range from 1.6 to 24 grams of lead, with 13g (less than half of an ounce) per panel seen most often in the literature.¹¹ At 13 g/panel¹², each panel contains one-half of the lead in a typical 12-gauge shotgun shell. This amount equates to roughly 1/750th of the lead in a single car battery. In a panel, it is all durably encapsulated from air or water for the full life of the panel.¹⁴

As indicated by their 20 to 30-year power warranty, PV modules are designed for a long service life, generally over 25 years. For a panel to comply with its 25-year power warranty, its internal components, including lead, must be sealed from any moisture. Otherwise, they would corrode and the panel's output would fall below power warranty levels. Thus, the lead in operating PV modules is not at risk of release to the environment during their service lifetime. In extreme experiments, researchers have shown that lead can leach from crushed or pulverized panels.^{15, 16} However, more real-world tests designed to represent typical trash compaction that are used to classify waste as hazardous or non-hazardous show no danger from leaching.^{17, 18} For more information about PV panel end-of-life, see the Panel Disposal section.

As illustrated throughout this section, silicon-based PV panels do not pose a material threat to public health and safety. The only aspect of the panels with potential toxicity concerns is the very small amount of lead in some panels. However, any lead in a panel is well sealed from environmental exposure for the operating lifetime of the solar panel and thus not at risk of release into the environment.

b. Cadmium Telluride (CdTe) PV Panels

This subsection examines the components of a cadmium telluride (CdTe) PV panel. Research demonstrates that they pose negligible toxicity risk to public health and safety while significantly reducing the public's exposure to cadmium by reducing coal emissions. As of mid-2016, a few hundred MWs of

cadmium telluride (CdTe) panels, all manufactured by the U.S. company First Solar, have been installed in North Carolina.

Questions about the potential health and environmental impacts from the use of this PV technology are related to the concern that these panels contain cadmium, a toxic heavy metal. However, scientific studies have shown that cadmium telluride differs from cadmium due to its high chemical and thermal stability.¹⁹ Research has shown that the tiny amount of cadmium in these panels does not pose a health or safety risk.²⁰ Further, there are very compelling reasons to welcome its adoption due to reductions in unhealthy pollution associated with burning coal. Every GWh of electricity generated by burning coal produces about 4 grams of cadmium air emissions.²¹ Even though North Carolina produces a significant fraction of our electricity from coal, electricity from solar offsets much more natural gas than coal due to natural gas plants being able to adjust their rate of production more easily and quickly. If solar electricity offsets 90% natural gas and 10% coal, each 5-megawatt (5 MW_{AC}, which is generally 7 MW_{DC}) CdTe solar facility in North Carolina keeps about 157 grams, or about a third of a pound, of cadmium *out of* our environment.^{22, 23}

Cadmium is toxic, but all the approximately 7 grams of cadmium in one CdTe panel is in the form of a chemical compound cadmium telluride,²⁴ which has 1/100th the toxicity of free cadmium.²⁵ Cadmium telluride is a very stable compound that is non-volatile and non-soluble in water. Even in the case of a fire, research shows that less than 0.1% of the cadmium is released when a CdTe panel is exposed to fire. The fire melts the glass and encapsulates over 99.9% of the cadmium in the molten glass.²⁷

It is important to understand the source of the cadmium used to manufacture CdTe PV panels. The cadmium is a byproduct of zinc and lead refining. The element is collected from emissions and waste streams during the production of these metals and combined with tellurium to create the CdTe used in PV panels. If the cadmium were not collected for use in the PV panels or other products, it would otherwise either be stockpiled for future use, cemented and buried, or disposed of.²⁸ Nearly all the cadmium in old or broken panels can be recycled which can eventually serve as the primary source of cadmium for new PV panels.²⁹

Similar to silicon-based PV panels, CdTe panels are constructed of a tempered glass front, one instead of two clear plastic encapsulation layers, and a rear heat strengthened glass backing (together >98% by weight). The final product is built to withstand exposure to the elements without significant damage for over 25 years. While not representative of damage that may occur in the field or even at a landfill, laboratory evidence has illustrated that when panels are ground into a fine powder, very acidic water is able to leach portions of the cadmium and tellurium,³⁰ similar to the process used to recycle CdTe panels. Like many silicon-based panels, CdTe panels are reported (as far back as 1998³¹) to pass the EPA's Toxic Characteristic Leaching Procedure (TCLP) test, which tests the potential for crushed panels in a landfill to leach hazardous substances into groundwater.³² Passing this test means that they are classified as non-hazardous waste and can be deposited in landfills.^{33,34} For more information about PV panel end-of-life, see the Panel Disposal section.

There is also concern of environmental impact resulting from potential catastrophic events involving CdTe PV panels. An analysis of worst-case scenarios for environmental impact from CdTe PV panels, including earthquakes, fires, and floods, was conducted by the University of Tokyo in 2013. After reviewing the extensive international body of research on CdTe PV technology, their report concluded, "Even in the worst-case scenarios, it is unlikely that the Cd concentrations in air and sea water will exceed the environmental regulation values."³⁵ In a worst-case scenario of damaged panels abandoned on the ground, insignificant amounts of cadmium will leach from the panels. This is because this scenario is

much less conducive (larger module pieces, less acidity) to leaching than the conditions of the EPA's TCLP test used to simulate landfill conditions, which CdTe panels pass.³⁶

First Solar, a U.S. company, and the only significant supplier of CdTe panels, has a robust panel take-back and recycling program that has been operating commercially since 2005.³⁷ The company states that it is “committed to providing a commercially attractive recycling solution for photovoltaic (PV) power plant and module owners to help them meet their module (end of life) EOL obligation simply, cost-effectively and responsibly.” First Solar global recycling services to their customers to collect and recycle panels once they reach the end of productive life whether due to age or damage. These recycling service agreements are structured to be financially attractive to both First Solar and the solar panel owner. For First Solar, the contract provides the company with an affordable source of raw materials needed for new panels and presumably a diminished risk of undesired release of Cd. The contract also benefits the solar panel owner by allowing them to avoid tipping fees at a waste disposal site. The legal contract helps provide peace of mind by ensuring compliance by both parties when considering the continuing trend of rising disposal costs and increasing regulatory requirements.

c. CIS/CIGS and other PV technologies

Copper indium gallium selenide PV technology, often referred to as CIGS, is the second most common type of thin-film PV panel but a distant second behind CdTe. CIGS cells are composed of a thin layer of copper, indium, gallium, and selenium on a glass or plastic backing. None of these elements are very toxic, although selenium is a regulated metal under the Federal Resource Conservation and Recovery Act (RCRA).³⁸ The cells often also have an extremely thin layer of cadmium sulfide that contains a tiny amount of cadmium, which is toxic. The promise of high efficiency CIGS panels drove heavy investment in this technology in the past. However, researchers have struggled to transfer high efficiency success in the lab to low-cost full-scale panels in the field.³⁹ Recently, a CIGS manufacturer based in Japan, Solar Frontier, has achieved some market success with a rigid, glass-faced CIGS module that competes with silicon panels. Solar Frontier produces the majority of CIS panels on the market today.⁴⁰ Notably, these panels are RoHS compliant,⁴¹ thus meeting the rigorous toxicity standard adopted by the European Union even though this directive exempts PV panels. The authors are unaware of any completed or proposed utility-scale system in North Carolina using CIS/CIGS panels.

1.2.3 Panel End-of-Life Management

Concerns about the volume, disposal, toxicity, and recycling of PV panels are addressed in this subsection. To put the volume of PV waste into perspective, consider that by 2050, when PV systems installed in 2020 will reach the end of their lives, it is estimated that the global annual PV panel waste tonnage will be 10% of the 2014 global e-waste tonnage.⁴² In the U.S., end-of-life disposal of solar products is governed by the Federal Resource Conservation and Recovery Act (RCRA), as well as state policies in some situations. RCRA separates waste into hazardous (not accepted at ordinary landfill) and solid waste (generally accepted at ordinary landfill) based on a series of rules. According to RCRA, the way to determine if a PV panel is classified as hazardous waste is the Toxic Characteristic Leaching Procedure (TCLP) test. This EPA test is designed to simulate landfill disposal and determine the risk of hazardous substances leaching out of the landfill.^{43,44,45} Multiple sources report that most modern PV panels (both crystalline silicon and cadmium telluride) pass the TCLP test.^{46,47} Some studies found that some older (1990s) crystalline silicon panels, and perhaps some newer crystalline silicon panels (specifics are not given about vintage of panels tested), do not pass the lead (Pb) leachate limits in the TCLP test.^{48,}

⁴⁹

The test begins with the crushing of a panel into centimeter-sized pieces. The pieces are then mixed in an acid bath. After tumbling for eighteen hours, the fluid is tested for forty hazardous substances that all must be below specific threshold levels to pass the test. Research comparing TCLP conditions to conditions of damaged panels in the field found that simulated landfill conditions provide overly conservative estimates of leaching for field-damaged panels.⁵⁰ Additionally, research in Japan has found no detectable Cd leaching from cracked CdTe panels when exposed to simulated acid rain.⁵¹

Although modern panels can generally be landfilled, they can also be recycled. Even though recent waste volume has not been adequate to support significant PV-specific recycling infrastructure, the existing recycling industry in North Carolina reports that it recycles much of the current small volume of broken PV panels. In an informal survey conducted by the NC Clean Energy Technology Center survey in early 2016, seven of the eight large active North Carolina utility-scale solar developers surveyed reported that they send damaged panels back to the manufacturer and/or to a local recycler. Only one developer reported sending damaged panels to the landfill.

The developers reported at that time that they are usually paid a small amount per panel by local recycling firms. In early 2017, a PV developer reported that a local recycler was charging a small fee per panel to recycle damaged PV panels. The local recycling firm known to authors to accept PV panels described their current PV panel recycling practice as of early 2016 as removing the aluminum frame for local recycling and removing the wire leads for local copper recycling. The remainder of the panel is sent to a facility for processing the non-metallic portions of crushed vehicles, referred to as “fluff” in the recycling industry.⁵² This processing within existing general recycling plants allows for significant material recovery of major components, including glass which is 80% of the module weight, but at lower yields than PV-specific recycling plants. Notably almost half of the material value in a PV panel is in the few grams of silver contained in almost every PV panel produced today. In the long-term, dedicated PV panel recycling plants can increase treatment capacities and maximize revenues resulting in better output quality and the ability to recover a greater fraction of the useful materials.⁵³ PV-specific panel recycling technologies have been researched and implemented to some extent for the past decade, and have been shown to be able to recover over 95% of PV material (semiconductor) and over 90% of the glass in a PV panel.⁵⁴

A look at global PV recycling trends hints at the future possibilities of the practice in our country. Europe installed MW-scale volumes of PV years before the U.S. In 2007, a public-private partnership between the European Union and the solar industry set up a voluntary collection and recycling system called PV CYCLE. This arrangement was later made mandatory under the EU’s WEEE directive, a program for waste electrical and electronic equipment.⁵⁵ Its member companies (PV panel producers) fully finance the association. This makes it possible for end-users to return the member companies’ defective panels for recycling at any of the over 300 collection points around Europe without added costs. Additionally, PV CYCLE will pick up batches of 40 or more used panels at no cost to the user. This arrangement has been very successful, collecting and recycling over 13,000 tons by the end of 2015.⁵⁶

In 2012, the WEEE Directive added the end-of-life collection and recycling of PV panels to its scope.⁵⁷ This directive is based on the principle of extended-producer-responsibility. It has a global impact because producers that want to sell into the EU market are legally responsible for end-of-life management. Starting in 2018, this directive targets that 85% of PV products “put in the market” in Europe are recovered and 80% is prepared for reuse and recycling.

The success of the PV panel collection and recycling practices in Europe provides promise for the future of recycling in the U.S. In mid-2016, the US Solar Energy Industry Association (SEIA) announced that they are starting a national solar panel recycling program with the guidance and support of many

leading PV panel producers.⁵⁸ The program will aggregate the services offered by recycling vendors and PV manufacturers, which will make it easier for consumers to select a cost-effective and environmentally responsible end-of-life management solution for their PV products. According to SEIA, they are planning the program in an effort to make the entire industry landfill-free. In addition to the national recycling network program, the program will provide a portal for system owners and consumers with information on how to responsibly recycle their PV systems.

While a cautious approach toward the potential for negative environmental and/or health impacts from retired PV panels is fully warranted, this section has shown that the positive health impacts of reduced emissions from fossil fuel combustion from PV systems more than outweighs any potential risk. Testing shows that silicon and CdTe panels are both safe to dispose of in landfills, and are also safe in worst case conditions of abandonment or damage in a disaster. Additionally, analysis by local engineers has found that the current salvage value of the equipment in a utility scale PV facility generally exceeds general contractor estimates for the cost to remove the entire PV system.^{59, 60, 61}

1.2.4 Non-Panel System Components (racking, wiring, inverter, transformer)

While previous toxicity subsections discussed PV panels, this subsection describes the non-panel components of utility-scale PV systems and investigates any potential public health and safety concerns. The most significant non-panel component of a ground-mounted PV system is the mounting structure of the rows of panels, commonly referred to as “racking”. The vertical post portion of the racking is galvanized steel and the remaining above-ground racking components are either galvanized steel or aluminum, which are both extremely common and benign building materials. The inverters that make the solar generated electricity ready to send to the grid have weather-proof steel enclosures that protect the working components from the elements. The only fluids that they might contain are associated with their cooling systems, which are not unlike the cooling system in a computer. Many inverters today are RoHS compliant.

The electrical transformers (to boost the inverter output voltage to the voltage of the utility connection point) do contain a liquid cooling oil. However, the fluid used for that function is either a non-toxic mineral oil or a biodegradable non-toxic vegetable oil, such as BIOTEMP from ABB. These vegetable transformer oils have the additional advantage of being much less flammable than traditional mineral oils. Significant health hazards are associated with old transformers containing cooling oil with toxic PCBs. Transformers with PCB-containing oil were common before PCBs were outlawed in the U.S. in 1979. PCBs still exist in older transformers in the field across the country.

Other than a few utility research sites, there are no batteries on- or off-site associated with utility-scale solar energy facilities in North Carolina, avoiding any potential health or safety concerns related to battery technologies. However, as battery technologies continue to improve and prices continue to decline we are likely to start seeing some batteries at solar facilities. Lithium ion batteries currently dominate the world utility-scale battery market, which are not very toxic. No non-panel system components were found to pose any health or environmental dangers.

1.4 Operations and Maintenance – Panel Washing and Vegetation Control

Throughout the eastern U.S., the climate provides frequent and heavy enough rain to keep panels adequately clean. This dependable weather pattern eliminates the need to wash the panels on a regular basis. Some system owners may choose to wash panels as often as once a year to increase production, but most in N.C. do not regularly wash any PV panels. Dirt build up over time may justify panel washing a few times over the panels' lifetime; however, nothing more than soap and water are required for this activity.

The maintenance of ground-mounted PV facilities requires that vegetation be kept low, both for aesthetics and to avoid shading of the PV panels. Several approaches are used to maintain vegetation at NC solar facilities, including planting of limited-height species, mowing, weed-eating, herbicides, and grazing livestock (sheep). The following descriptions of vegetation maintenance practices are based on interviews with several solar developers as well as with three maintenance firms that together are contracted to maintain well over 100 of the solar facilities in N.C. The majority of solar facilities in North Carolina maintain vegetation primarily by mowing. Each row of panels has a single row of supports, allowing sickle mowers to mow under the panels. The sites usually require mowing about once a month during the growing season. Some sites employ sheep to graze the site, which greatly reduces the human effort required to maintain the vegetation and produces high quality lamb meat.⁶²

In addition to mowing and weed eating, solar facilities often use some herbicides. Solar facilities generally do not spray herbicides over the entire acreage; rather they apply them only in strategic locations such as at the base of the perimeter fence, around exterior vegetative buffer, on interior dirt roads, and near the panel support posts. Also unlike many row crop operations, solar facilities generally use only general use herbicides, which are available over the counter, as opposed to restricted use herbicides commonly used in commercial agriculture that require a special restricted use license. The herbicides used at solar facilities are primarily 2-4-D and glyphosate (Round-up®), which are two of the most common herbicides used in lawns, parks, and agriculture across the country. One maintenance firm that was interviewed sprays the grass with a class of herbicide known as a growth regulator in order to slow the growth of grass so that mowing is only required twice a year. Growth regulators are commonly used on highway roadsides and golf courses for the same purpose. A commercial pesticide applicator license is required for anyone other than the landowner to apply herbicides, which helps ensure that all applicators are adequately educated about proper herbicide use and application. The license must be renewed annually and requires passing of a certification exam appropriate to the area in which the applicator wishes to work. Based on the limited data available, it appears that solar facilities in N.C. generally use significantly less herbicides per acre than most commercial agriculture or lawn maintenance services.

2. Electromagnetic Fields (EMF)

PV systems do not emit any material during their operation; however, they do generate electromagnetic fields (EMF), sometimes referred to as radiation. EMF produced by electricity is non-ionizing radiation, meaning the radiation has enough energy to move atoms in a molecule around (experienced as heat), but not enough energy to remove electrons from an atom or molecule (ionize) or to damage DNA. As shown below, modern humans are all exposed to EMF throughout our daily lives without negative health impact. Someone outside of the fenced perimeter of a solar facility is not exposed to significant EMF from the solar facility. Therefore, there is no negative health impact from the EMF

produced in a solar farm. The following paragraphs provide some additional background and detail to support this conclusion.

Since the 1970s, some have expressed concern over potential health consequences of EMF from electricity, but no studies have ever shown this EMF to cause health problems.⁶³ These concerns are based on some epidemiological studies that found a slight increase in childhood leukemia associated with average exposure to residential power-frequency magnetic fields above 0.3 to 0.4 μT (microteslas) (equal to 3.0 to 4.0 mG (milligauss)). μT and mG are both units used to measure magnetic field strength. For comparison, the average exposure for people in the U.S. is one mG or 0.1 μT , with about 1% of the population with an average exposure in excess of 0.4 μT (or 4 mG).⁶⁴ These epidemiological studies, which found an association but not a causal relationship, led the World Health Organization's International Agency for Research on Cancer (IARC) to classify ELF magnetic fields as "possibly carcinogenic to humans". Coffee also has this classification. This classification means there is limited evidence but not enough evidence to designate as either a "probable carcinogen" or "human carcinogen". Overall, there is very little concern that ELF EMF damages public health. The only concern that does exist is for long-term exposure above 0.4 μT (4 mG) that may have some connection to increased cases of childhood leukemia. In 1997, the National Academies of Science were directed by Congress to examine this concern and concluded:

"Based on a comprehensive evaluation of published studies relating to the effects of power-frequency electric and magnetic fields on cells, tissues, and organisms (including humans), the conclusion of the committee is that the current body of evidence does not show that exposure to these fields presents a human-health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential electric and magnetic fields produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects."⁶⁵

There are two aspects to electromagnetic fields, an electric field and a magnetic field. The electric field is generated by voltage and the magnetic field is generated by electric current, i.e., moving electrons. A task group of scientific experts convened by the World Health Organization (WHO) in 2005 concluded that there were no substantive health issues related to *electric* fields (0 to 100,000 Hz) at levels generally encountered by members of the public.⁶⁶ The relatively low voltages in a solar facility and the fact that electric fields are easily shielded (i.e., blocked) by common materials, such as plastic, metal, or soil means that there is no concern of negative health impacts from the electric fields generated by a solar facility. Thus, the remainder of this section addresses magnetic fields. Magnetic fields are not shielded by most common materials and thus can easily pass through them. Both types of fields are strongest close to the source of electric generation and weaken quickly with distance from the source.

The direct current (DC) electricity produced by PV panels produce stationary (0 Hz) electric and magnetic fields. Because of minimal concern about potential risks of stationary fields, little scientific research has examined stationary fields' impact on human health.⁶⁷ In even the largest PV facilities, the DC voltages and currents are not very high. One can illustrate the weakness of the EMF generated by a PV panel by placing a compass on an operating solar panel and observing that the needle still points north.

While the electricity throughout the majority of a solar site is DC electricity, the inverters convert this DC electricity to alternating current (AC) electricity matching the 60 Hz frequency of the grid. Therefore, the inverters and the wires delivering this power to the grid are producing non-stationary EMF, known as extremely low frequency (ELF) EMF, normally oscillating with a frequency of 60 Hz. This frequency is at the low-energy end of the electromagnetic spectrum. Therefore, it has less energy than

other commonly encountered types of non-ionizing radiation like radio waves, infrared radiation, and visible light.

The wide use of electricity results in background levels of ELF EMFs in nearly all locations where people spend time – homes, workplaces, schools, cars, the supermarket, etc. A person's average exposure depends upon the sources they encounter, how close they are to them, and the amount of time they spend there.⁶⁸ As stated above, the average exposure to magnetic fields in the U.S. is estimated to be around one mG or 0.1 μ T, but can vary considerably depending on a person's exposure to EMF from electrical devices and wiring.⁶⁹ At times we are often exposed to much higher ELF magnetic fields, for example when standing three feet from a refrigerator the ELF magnetic field is 6 mG and when standing three feet from a microwave oven the field is about 50 mG.⁷⁰ The strength of these fields diminish quickly with distance from the source, but when surrounded by electricity in our homes and other buildings moving away from one source moves you closer to another. However, unless you are inside of the fence at a utility-scale solar facility or electrical substation it is impossible to get very close to the EMF sources. Because of this, EMF levels at the fence of electrical substations containing high voltages and currents are considered "generally negligible".^{71, 72}

The strength of ELF-EMF present at the perimeter of a solar facility or near a PV system in a commercial or residential building is significantly lower than the typical American's average EMF exposure.^{73,74} Researchers in Massachusetts measured magnetic fields at PV projects and found the magnetic fields dropped to very low levels of 0.5 mG or less, and in many cases to less than background levels (0.2 mG), at distances of no more than nine feet from the residential inverters and 150 feet from the utility-scale inverters.⁷⁵ Even when measured within a few feet of the utility-scale inverter, the ELF magnetic fields were well below the International Commission on Non-Ionizing Radiation Protection's recommended magnetic field level exposure limit for the general public of 2,000 mG.⁷⁶ It is typical that utility scale designs locate large inverters central to the PV panels that feed them because this minimizes the length of wire required and shields neighbors from the sound of the inverter's cooling fans. Thus, it is rare for a large PV inverter to be within 150 feet of the project's security fence.

Anyone relying on a medical device such as pacemaker or other implanted device to maintain proper heart rhythm may have concern about the potential for a solar project to interfere with the operation of his or her device. However, there is no reason for concern because the EMF outside of the solar facility's fence is less than 1/1000 of the level at which manufacturers test for ELF EMF interference, which is 1,000 mG.⁷⁷ Manufacturers of potentially affected implanted devices often provide advice on electromagnetic interference that includes avoiding letting the implanted device get too close to certain sources of fields such as some household appliances, some walkie-talkies, and similar transmitting devices. Some manufacturers' literature does not mention high-voltage power lines, some say that exposure in public areas should not give interference, and some advise not spending extended periods of time close to power lines.⁷⁸

3. Electric Shock and Arc Flash Hazards

There is a real danger of electric shock to anyone entering any of the electrical cabinets such as combiner boxes, disconnect switches, inverters, or transformers; or otherwise coming in contact with voltages over 50 Volts.⁷⁹ Another electrical hazard is an arc flash, which is an explosion of energy that can occur in a short circuit situation. This explosive release of energy causes a flash of heat and a shockwave, both of which can cause serious injury or death. Properly trained and equipped technicians and electricians know how to safely install, test, and repair PV systems, but there is always some risk of

injury when hazardous voltages and/or currents are present. Untrained individuals should not attempt to inspect, test, or repair any aspect of a PV system due to the potential for injury or death due to electric shock and arc flash, The National Electric Code (NEC) requires appropriate levels of warning signs on all electrical components based on the level of danger determined by the voltages and current potentials. The national electric code also requires the site to be secured from unauthorized visitors with either a six-foot chain link fence with three strands of barbed wire or an eight-foot fence, both with adequate hazard warning signs.

4. Fire Safety

The possibility of fires resulting from or intensified by PV systems may trigger concern among the general public as well as among firefighters. However, concern over solar fire hazards should be limited because only a small portion of materials in the panels are flammable, and those components cannot self-support a significant fire. Flammable components of PV panels include the thin layers of polymer encapsulates surrounding the PV cells, polymer backsheets (framed panels only), plastic junction boxes on rear of panel, and insulation on wiring. The rest of the panel is composed of non-flammable components, notably including one or two layers of protective glass that make up over three quarters of the panel's weight.

Heat from a small flame is not adequate to ignite a PV panel, but heat from a more intense fire or energy from an electrical fault can ignite a PV panel.⁸⁰ One real-world example of this occurred during July 2015 in an arid area of California. Three acres of grass under a thin film PV facility burned without igniting the panels mounted on fixed-tilt racks just above the grass.⁸¹ While it is possible for electrical faults in PV systems on homes or commercial buildings to start a fire, this is extremely rare.⁸² Improving understanding of the PV-specific risks, safer system designs, and updated fire-related codes and standards will continue to reduce the risk of fire caused by PV systems.

PV systems on buildings can affect firefighters in two primary ways, 1) impact their methods of fighting the fire, and 2) pose safety hazard to the firefighters. One of the most important techniques that firefighters use to suppress fire is ventilation of a building's roof. This technique allows superheated toxic gases to quickly exit the building. By doing so, the firefighters gain easier and safer access to the building, Ventilation of the roof also makes the challenge of putting out the fire easier. However, the placement of rooftop PV panels may interfere with ventilating the roof by limiting access to desired venting locations.

New solar-specific building code requirements are working to minimize these concerns. Also, the latest National Electric Code has added requirements that make it easier for first responders to safely and effectively turn off a PV system. Concern for firefighting a building with PV can be reduced with proper fire fighter training, system design, and installation. Numerous organizations have studied fire fighter safety related to PV. Many organizations have published valuable guides and training programs. Some notable examples are listed below.

- The International Association of Fire Fighters (IAFF) and International Renewable Energy Council (IREC) partnered to create an online training course that is far beyond the PowerPoint click-and-view model. The self-paced online course, "Solar PV Safety for Fire Fighters," features rich video content and simulated environments so fire fighters can practice the knowledge they've learned. www.iaff.org/pvsafetytraining
- [Photovoltaic Systems and the Fire Code](#): Office of NC Fire Marshal
- [Fire Service Training](#), Underwriter's Laboratory

- Firefighter Safety and Response for Solar Power Systems, National Fire Protection Research Foundation
- Bridging the Gap: Fire Safety & Green Buildings, National Association of State Fire Marshalls
- Guidelines for Fire Safety Elements of Solar Photovoltaic Systems, Orange County Fire Chiefs Association
- Solar Photovoltaic Installation Guidelines, California Department of Forestry & Fire Protection, Office of the State Fire Marshall
- PV Safety & Firefighting, Matthew Paiss, Homepower Magazine
- PV Safety and Code Development: Matthew Paiss, Cooperative Research Network

Summary

The purpose of this paper is to address and alleviate concerns of public health and safety for utility-scale solar PV projects. Concerns of public health and safety were divided and discussed in the four following sections: (1) Toxicity, (2) Electromagnetic Fields, (3) Electric Shock and Arc Flash, and (4) Fire. In each of these sections, the negative health and safety impacts of utility-scale PV development were shown to be negligible, while the public health and safety benefits of installing these facilities are significant and far outweigh any negative impacts.

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Published by the N.C. Clean Energy Technology Center at N.C. State University





Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference [CFR Title 14 Part 77.9](#).

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the [FAA Co-location Policy](#)
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

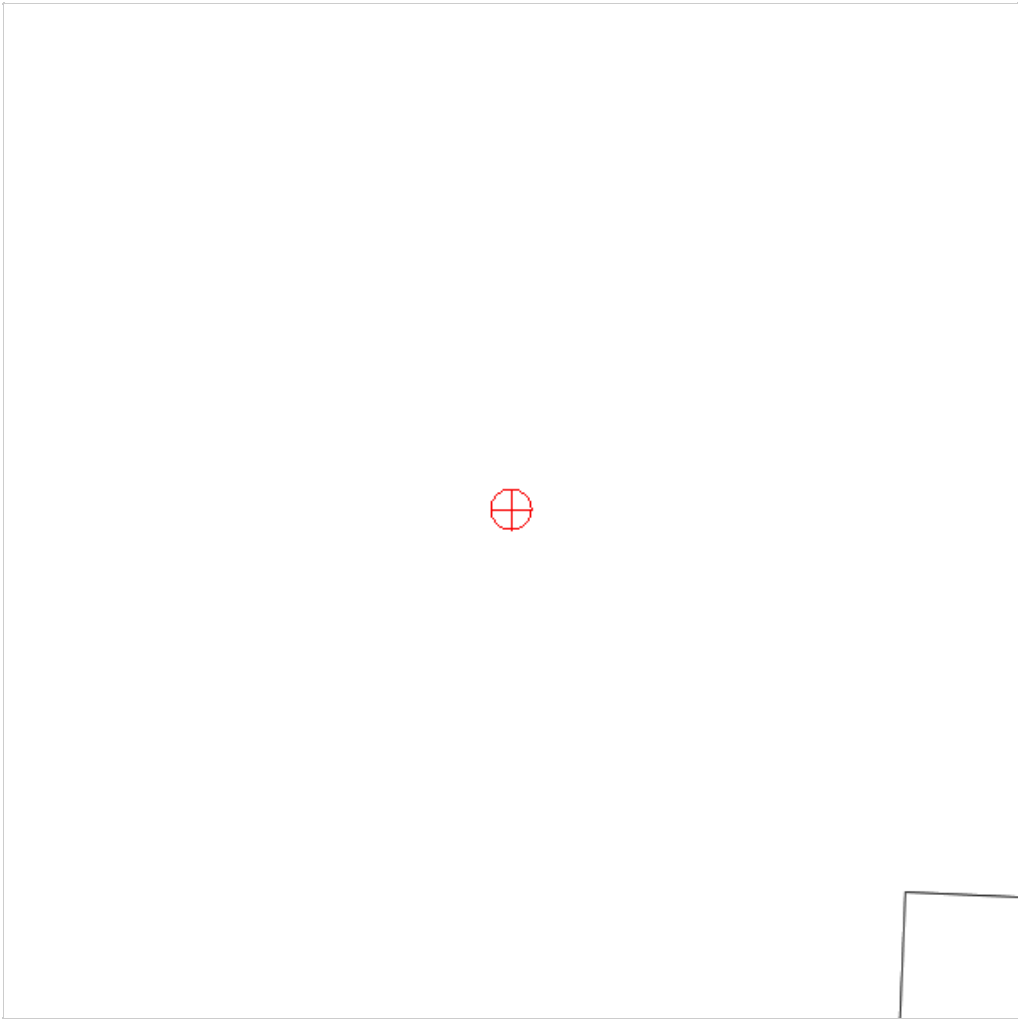
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the [Air Traffic Areas of Responsibility map](#) for Off Airport construction, or contact the [FAA Airports Region / District Office](#) for On Airport construction.

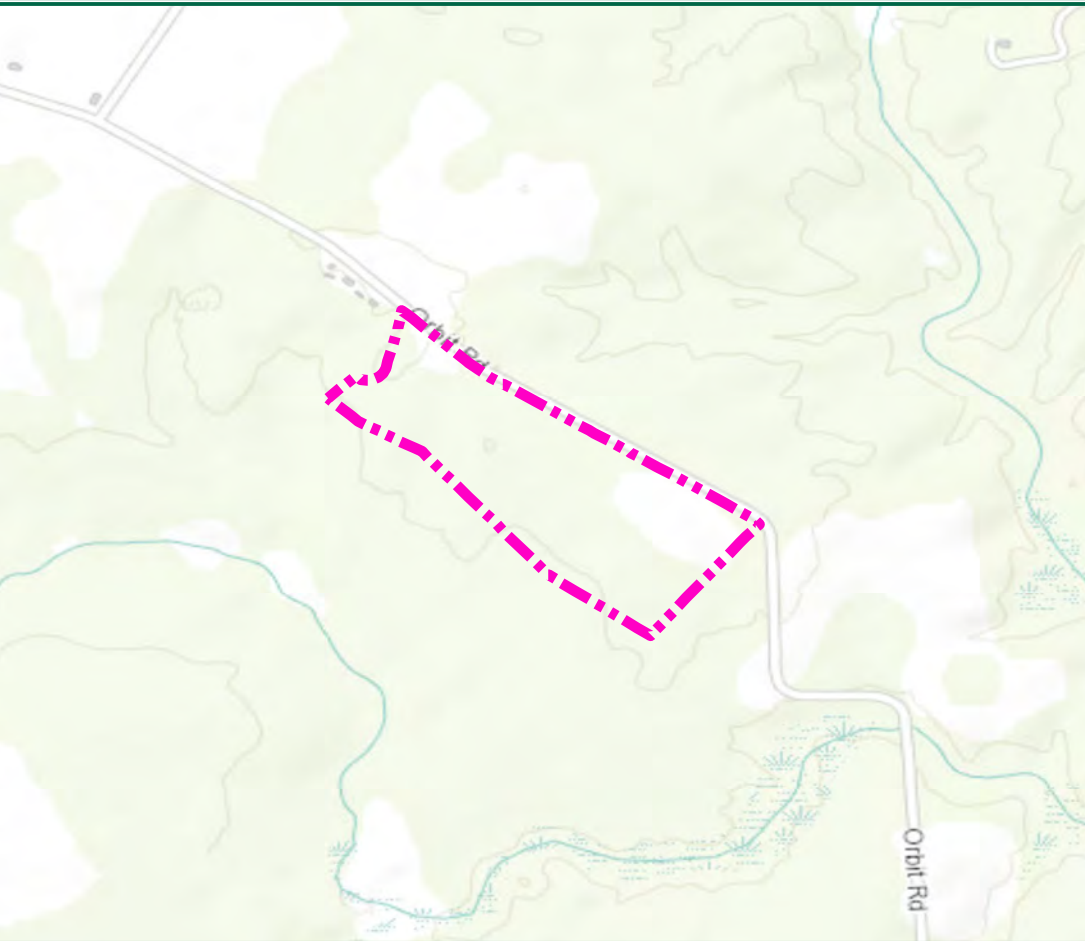
The tool below will assist in applying Part 77 Notice Criteria.

Latitude:	36 Deg 52 M 56 S N
Longitude:	76 Deg 41 M 21 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	24 (nearest foot)
Structure Height :	12 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.9(c) User can increase the default height adjustment for Traverseway, Private Roadway and Waterway
Is structure on airport:	☒ No ☐ Yes

Results

You do not exceed Notice Criteria.





Resource Identification	Confirmation						Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	WOUS (sq ft)	WOUS (lf)	
A	4,139						NT/V
B	30,640						NT/V
C					50	50	NT/NV
Total	34,779	0	0	0	50	50	
Total Stream Length =				50 sq ft	0.00 ac	50 lf	
Total Wetland Area =				34,779 sq ft	0.80 ac		
* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; WOUS = Water of the U.S.							

Legend

Project Study Limits- 39.7 Acres

Stream Identifier

Wetland Identifier

Wetland Flag

Field Data Station

Resource Protection Area

WOUS

Palustrine Forested (PFO) Wetlands

Topographic Contours

Major- 10 Foot

Minor- 1 Foot

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

1001 Boulders Parkway, Suite 300

Richmond, VA 23225

TEL 804.200.6500

www.timmons.com

PROJECT NAME & LOCATION

VIRGINIA DG PORTFOLIO SOLAR -

NUBY RUN

ISLE OF WIGHT COUNTY,

VIRGINIA

DATE

12/16/2020

PROJECT NUMBER

47276

PROJECT NAME

NUBY RUN

DESIGNED BY / DRAWN BY

M. COOLEY

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.

2. Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.

3. Project limits are approximate.

4. Topography based on USGS LIDAR.

5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

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REVISIONS

1	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 4:

WETLANDS AND

WATERS

DELINEATION MAP

SCALE (FEET)

0

110

220

PLANS PRINTED AS 11X17 ARE HALF SCALE

SHEET NUMBER

H:1" = 110'

1

Y:\804\47276-Virginia_DG_Portfolio_Solar (Hexagon Energy)\GIS\Nuby Run WTD\47276-WTDM.mxd

PHASE I ENVIRONMENTAL SITE ASSESSMENT

**NUBY RUN
APPROXIMATELY 117 ACRES
ISLE OF WIGHT COUNTY, VIRGINIA**

**PREPARED FOR:
HEXAGON ENERGY**

**PREPARED BY:
TIMMONS GROUP
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VIRGINIA 23225**

Inspection Date: December 15, 2020
Report Publication Date: December 30, 2020



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YOUR VISION ACHIEVED THROUGH OURS.

CIVIL ENGINEERING | ENVIRONMENTAL | SURVEYING | GIS | LANDSCAPE ARCHITECTURE | CONSTRUCTION SERVICES

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STATEMENT OF QUALIFICATIONS

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and have the specific qualifications based on education, training, and experience to assess the nature, history, and setting of real property. We have developed and performed “all appropriate inquiries” in conformance with the standards and practices set forth in 40 CFR Part 312.

1.0 EXECUTIVE SUMMARY

At the request of Hexagon Energy (hereafter the “User”), and in accordance with 40 CFR Part 312 and ASTM Standard E 2247-16 (*Standard Practice for Phase I Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property*), Timmons Group conducted a Phase I Environmental Site Assessment (ESA) of approximately 117 acres located along Orbit Road in Isle of Wight County, Virginia (hereafter the “Subject Property” or “Site”). Based on our understanding, the Site is being evaluated for the construction of a solar farm.

The assessment was performed to identify Recognized Environmental Conditions (RECs) on the Subject Property or adjoining properties based on a review of reasonably available environmental resource information and/or site observations. The assessment was also performed to allow the User to qualify for landowner liability protections, including the Bona Fide Prospective Purchaser (BFPP) liability protection, available under federal and state law. RECs are defined by ASTM standards as “*the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to release to the environment; under conditions indicative of a release to the environment or under conditions that pose a material threat of future release.*”

Site Description

The Subject Property is comprised of approximately 117 acres located along Orbit Road in Isle of Wight County, Virginia. The Site consists of undeveloped woodlands and agricultural land.

Environmental Conditions on the Subject Property

The results of the Phase I ESA did not identify any RECs in connection with the Subject Property, as defined by ASTM Standard E 2247-16.

Environmental Conditions on Adjoining Properties

The Subject Property is generally bordered to the north by Orbit Road, undeveloped woodlands, and open fields; to the east by Orbit Road, agricultural land, and undeveloped woodlands; to the south by silvicultural forest, undeveloped woodlands, and agricultural land; and to the west by silvicultural forest, undeveloped woodlands, agricultural land, and a private residence. As a result of site inspection and a review of resource data, RECs were not identified for the adjoining properties as defined by ASTM Standard E 2247-16.

Data Gaps

No significant data gaps were encountered during the completion of this Phase I ESA.

Conclusions and Recommended Response Actions

Timmons Group completed a Phase I ESA of approximately 117 acres located along Orbit Road in Isle of Wight County, Virginia. Based on the results, RECs were not identified for the Subject Property or adjoining properties as defined by ASTM Standard E 2247-16. Therefore, Timmons Group recommends no further action to meet due diligence requirements.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:

November 23, 2020

Consultation Code: 05E2VA00-2021-SLI-0839

Event Code: 05E2VA00-2021-E-02357

Project Name: Stagg Nuby Farms

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2021-SLI-0839

Event Code: 05E2VA00-2021-E-02357

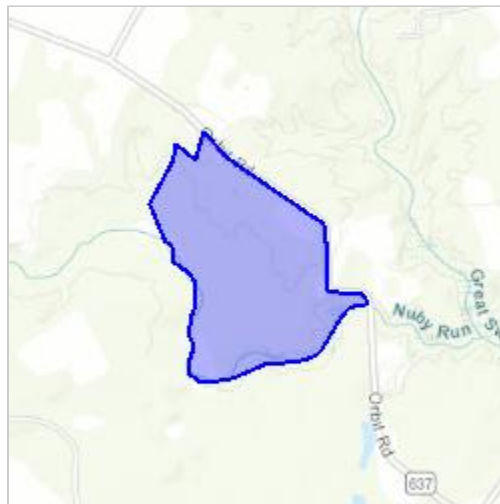
Project Name: Stagg Nuby Farms

Project Type: POWER GENERATION

Project Description: Stagg Nuby Farms is a 1MWac photovoltaic solar facility located on 178 acres. The project is projected to commence operations by the end of 2022. Property is located in Smithfield, Virginia outside the town of Isle of Wight. The northern portion of the site is cleared and used as farmland. There may be 1-2 acres of trees that need to be cleared. Wetlands have been identified to the south of site area, but not on the site area.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.87937700736151N76.68931636392058W>



Counties: Isle of Wight, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

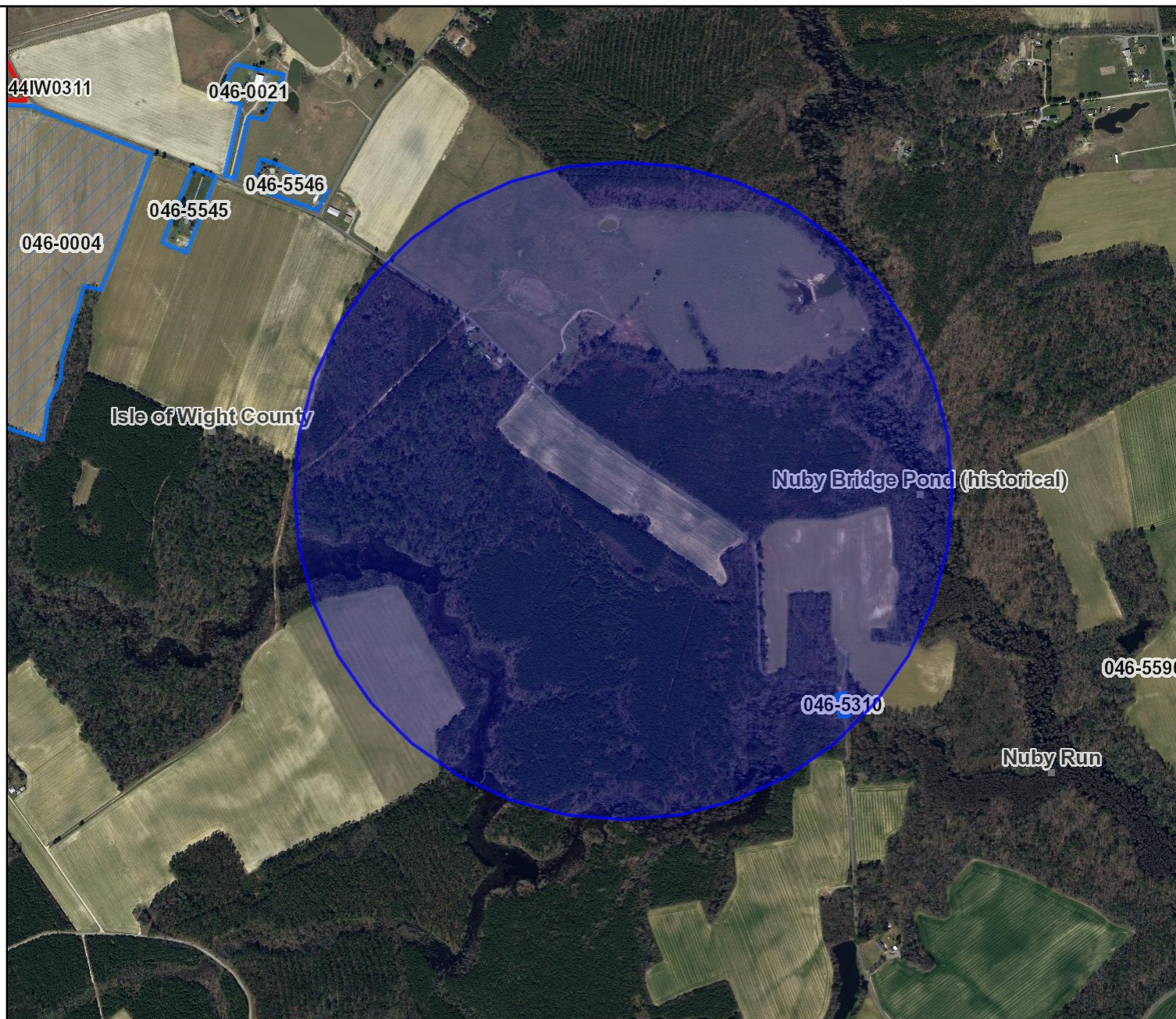
Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.



Legend

- Architecture Resources
- Architecture Labels
- Individual Historic District Properties
- Archaeological Resources
- Archaeology Labels
- DHR Easements
- USGS GIS Place names
- County Boundaries



Feet

0 500 1000 1500 2000
1:18,056 / 1"=1,505 Feet

Title: Nuby Run Solar 0.5 Mile VCRIS Map

Date: 12/15/2020

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

June 16, 2021

Amy Ring
Director of Community Development, Isle of Wight County
220 N. Church Street
Smithfield, Virginia 23430

Re: Nuby Run Solar, Decommissioning Cost Estimate

Dear Ms. Ring and the Community Development Department,

Please accept this letter as the decommissioning cost estimate and methodology for our proposed solar photovoltaic project, Nuby Run Solar. Please note that the items listed and described below represent estimates, and are subject to change. Prior to issuance of a building permit, we will engage a 3rd party engineer to review the decommissioning cost estimate, and will post a surety bond in the amount of the updated cost estimate. In the interest of conservative financial planning, this estimate is not inclusive of salvage value. This bond will cover the cost of removing the system and restoring the site to as close to its original condition to the extent reasonably possible, and will include a mechanism for a cost of Living Adjustment after ten (10) and fifteen (15) years. Nuby Run Solar proposes to ensure the funds are kept current by re-evaluating the cost of facility decommissioning every five (5) years. We estimate the lifespan of this project to be approximately 35 years in length.

Based on the estimates provided below, the cost of decommissioning for the facility, including equipment removal and site restoration, is approximately \$331,725

Should you have any questions, please don't hesitate to contact me

Sincerely,



Buzz Becker
Development Manager
Hexagon Energy, LLC

(Decommissioning Schedule and Cost Estimate on the following pages)



DECOMMISSIONING SCHEDULE

Facility decommissioning is generally described as the removal of all system components and the rehabilitation of the site to pre-construction conditions. The goal of project decommissioning and reclamation is to remove the installed power generation equipment and return the site to a condition as close to a pre-construction state as feasible. A detailed cost estimate of decommissioning the Project can be found in Appendix I.

The decommissioning of Nuby Run Solar will proceed in reverse order of the installation within 365 days of the date of abandonment or discontinuation.

1. The PV facility shall be disconnected from the utility power grid.
2. PV modules shall be disconnected, collected, and recycled off-site by an approved recycling facility. If no recycling facility is available, PV modules are deemed non-hazardous waste by EPA guidelines and can be landfilled.
3. Above ground and underground electrical interconnection and distribution cables shall be removed and salvaged or recycled off-site by an approved facility.
4. PV module support aluminum racking shall be removed and recycled off-site by an approved recycler.
5. PV module support steel and support posts shall be removed and recycled off-site by an approved metals recycler.
6. Electrical and electronic devices, including transformers and inverters shall be removed and recycled off-site by an approved recycler.
7. Concrete foundations shall be removed and recycled off-site by a concrete recycler.
8. Fencing shall be removed and will be recycled off-site by an approved recycler.
9. The interior roads can remain onsite should the landowner choose to retain them or be removed, and the gravel repurposed either on or off-site.
10. The Project Site may be converted to other uses in accordance with applicable land use regulations in effect at that time of decommissioning. There are no permanent changes to the site, and it can be restored to its original condition including re-vegetation. Any soil removed for construction purposes will be relocated on the site or used for landscaping after construction is complete.



DECOMMISSIONING COST ESTIMATE

Item	Quantity	Unit	Unit Removal Price	Total Removal Price
345W Solar Modules	7,616	Each	\$ 5.00	\$ 38,080
Solar Panel Support Steel Piles	4,040	Each	\$ 15.00	\$ 60,600
Solar Panel Racks	311	Each	\$ 50.00	\$ 15,550
125kW Inverters	16	Each	\$ 100.00	\$ 1,600
1.5 kVA Transformers	2	Each	\$ 3,000.00	\$ 6,000
Conductor Removal (LV/DC)	18,278	Ft	\$ 0.50	\$ 9,139
Conductor Removal (MV)	1066	Each	\$ 5.00	\$ 5,330
Fence Removal	4,081	Linear Ft.	\$ 1.00	\$ 4,081
Land Restoration	50	Acres	\$ 500.00	\$ 25,000
Erosion Control	50	Acres	\$ 2,000.00	\$ 100,000
Subtotal Removal Cost				\$ 265,380
Additional Allowances (25%)				\$ 66,345
Total Cost				\$ 331,725





MEMORANDUM

August 19, 2019

TO: Members, Isle of Wight County Planning Commission

FROM: Chris Morello, Economic Development Director
Amy Ring, Planning and Zoning Director

SUBJECT: Economic Impacts – Conversion of Agriculture to Solar Facilities

This memorandum responds to a request by the Planning Commission at its regular meeting on July 23, 2019, for County Staff to provide additional economic impact information associated with the Windsor PV1 Solar Farm Conditional Use Permit (CUP) application. More particularly, the request is related to the desire to understand the impacts of potential conversion of agricultural and silviculture land uses to solar farm land use beyond tax revenue benefits to the County. It should be noted that staff has prepared this limited analysis based on readily-available data and information provided by the land owners, and that an extensive econometric analysis would require the assistance of an external consultant.

Impacts associated with conversions to solar certainly do exist and should be understood to the extent possible. Staff has investigated these potential impacts with the assistance of Federal, state and local resources, including USDA, Farm Service Agency, Virginia Cooperative Extension and the Isle of Wight Commissioner of Revenue, to name a few.

Windsor PV1 is the fourth solar project proposed in the County. Below is a table with a summary of the County's existing solar projects.

PROJECT	ACRES IN PANELS	LOCATION	% OF COUNTY AG
Woodland	180 +/-	Longview	0.2%
Solidago	170 +/-	Redhouse	0.2%
Ho-Fel	330 +/-	Lees Mill	0.4%
Windsor PV1	630 +/-	Windsor	0.8%
TOTAL	1,310 +/-		1.6%

According to the 2017 Census of Agriculture (USDA-NASS), Isle of Wight County has 237 farms totaling 80,672 acres of land. The average farm size is 340 acres. The average annual market value of agriculture products sold per farm is \$270,985.

Using the same data to derive market values for crops cultivated from 268 acres of farmland on the subject farms generates an estimated \$214,078 in market value. Additional property includes 790 acres in active timber. The current market rate for timber ranges from \$1,000 to \$3,000 per acre depending on size of trees, species composition and the land itself. For loblolly pine, the current industry standard is to clear cut and replant at 18-20 years.

According to the USDA – NASS, 2017, the average rental rate for County cropland in tax year 2018 was \$69.00 per acre. One of the subject farms is currently generating \$110 per acre, and the other \$100 per acre. By contrast, market rates for solar leases in the region are between \$600 and \$1,000 per acre.

Land and Equipment Valuation

The Office of the Commissioner of Revenue values various land uses differently based on the following categories:

- Agriculture/Horticulture - \$1,238
- Pasture - \$334
- Non-productive - \$240
- Forest - \$641
- Non-productive (swamp/marsh) - \$100

Parcels hosting a solar farm are currently assessed at \$15,000 per acre. The final assessment and tax revenue generated by a parcel's conversion to solar facility usage depends on the proportion of each of the uses after the conversion. In other words, the Commissioner of Revenue derives a tax levy composed of assessments on the differing uses allowed by the conditional use permit. In the case of Windsor PV1, uses will include some agricultural and silvicultural use after the conversion to solar. The rate of \$15,000 per acre would apply only to 630 out of 1,080 acres.

As for tax revenues derived from solar facilities and equipment, because the proposed project will exceed 20 MW of output, that type of property receives an 80 percent exemption on initial and depreciated values as per State law. In addition, because the proposed project exceeds 25 MW, the facility and equipment will be assessed by the State Corporation Commission (SCC) using a sliding scale depreciation method. The SCC then applies the County's real estate sales ratio to the assessed value to determine the final assessment. The sales ratio is determined annually by the Department of Taxation based on the sales price compared to the assessment for each real estate sale in Isle of Wight County. The final assessment is sent to the Commissioner's office in September, and the real estate tax rate is applied to the assessment to determine the actual tax for the following year. Therefore, precise revenue predictions are not available until both the sales ratio factor and the per acre tax rate are both known.

Real Estate Tax Revenue – Current Land Use Program

Parcel	Annual RE Tax	30 Yr. Revenue (PV)
52-01-046	\$4,160	\$124,797
Parcel	Annual RE Tax	30 Yr. Revenue (PV)
53-01-007	\$6,443	\$193,290

Total Annual Tax Revenue is \$10,603, which over 30 years totals \$318,087.

Real Estate Tax Revenue – Proposed Land Use Program + Solar Facility

Parcel	Annual RE Tax	30 Yr. Revenue (PV)
52-01-046	\$46,536	\$1,396,077
Parcel	Annual RE Tax	30 Yr. Revenue (PV)
53-01-007	\$39,728	\$1,191,831

Total Annual Tax Revenue is \$86,264, which over 30 years totals \$2,587,908. (Please see attachment for detail.)

Economic Impacts

When assessing conversion of agricultural land to solar facility usage, the following potential direct and indirect impacts to the agriculture and silviculture industries can occur:

- The current 80 percent machinery and tools tax exemption for facilities generating 20 MW or greater will continue to create demand in rural communities for large tracts of land to be converted to solar use. This engenders natural competition between green energy and food and fiber production in the marketplace.
- Currently, agriculture and silviculture are two of the County's top industries. The Windsor PV1 Solar Facility represents a subtraction of approximately 0.3 percent of the County's cultivated land (USDA-NASS, 2017). While this project represents a relatively small impact, longer-term cumulative land conversions could create adverse effects on the local agricultural industry.
- To the extent that farmers purchase goods and services locally, associated direct and indirect adverse impacts would be realized. While it is not possible at this time to derive which goods and services are being purchased locally, Windsor PV1 property owners have indicated to staff that a very small proportion are purchased within the County by their tenant farmer.
- Irrespective of the origin of purchase, data provided by the Virginia Cooperative Extension is useful for understanding a farmer's costs per acre for different crops:
 - Corn = \$395.47
 - Soybeans = \$271.65
 - Cotton = \$839.57

- Examples of goods and services purchased:
 - Seed
 - Fertilizers
 - Herbicides/Insecticides
 - Fuel/Oil/Lube
 - Repairs
 - Labor
 - Insurance
- The construction of solar projects creates temporary demand for skilled and unskilled labor, some of which could be sourced locally or regionally, bringing new economic benefits to the community's ancillary sectors, such as temporary housing, food service, and entertainment.
- Property owners who lease their land to solar energy developers, such as those associated with the Windsor PV1 CUP, can realize a reliable, long-term income stream for their land, with the potential to return to agriculture or silviculture use at the end of the lease period.

Rural localities will continue to grapple with the apparent high demand for utility-scale solar conversions if upward pressure to supply the grid with solar-derived energy does not wane. It is difficult to predict the future at this stage; however, staff is hopeful that this limited analysis is useful to understanding the broader economic picture and informs future policy discussions connected with this matter.

**COUNTY OF ISLE OF WIGHT
PROFFER STATEMENT**

Applicant's name(s): Nuby Run Solar LLC_____

Owner's name(s): Robert Benjamin Stagg_____

Project name: Nuby Run Solar_____

Date: December 17, 2021_____

Parcel-Tax Map Numbers and deed book reference: 39-01-038_____

These proffers are made as of the 17th of December, 2021 by Benjamin Stagg (collectively "Owner"), of Tax Map Number 39-01-038, containing approximately 117 acres of land which is referred to herein as the "Property". Owner has filed a Conditional Use Permit (CUP) application with the Isle of Wight County Planning and Zoning Department requesting use approval for a small, solar facility to be developed on the Property. Owner voluntarily proffers that the development of the Property proposed under this application shall be in strict accordance with the conditions set forth below.

These proffered conditions ("Proffers") are the only conditions offered in this CUP application, and any prior proffered conditions on the Property are hereby superseded by these proffers and any and all previous proffers on the Property are hereby void and of no further force and effect.

All improvements, land, easements, dedications, gifts, proffers and other conveyances to the County shall be in fee simple, without cloud of title or encumbrance of any kind.

I. Development of the Property

1. The subject property shall be developed in general conformance with the Concept Plan included in the Nuby Run Solar application.
2. The portion of the subject property supporting solar panels shall be enclosed by security fencing of a type which is harmonious with the rural, agricultural, and historical character of the County while meeting federal and state regulations for solar electric generating facility fencing as determined by the Zoning Administrator while upon approval of the site plan for the project.
3. A continuous screening zone at least seventy-five (75) feet in width shall be established between the project and Orbit Rd, provided that breaks for required access, and for overhead and underground electrical lines, shall be permitted to interrupt the contiguous of the zone with approval by the Zoning Administrator.

4. The applicant shall submit an Emergency Response Plan with the first submission of the site plan, which shall detail fire suppression methods that will be immediately deployed during both construction and operation of the facility. The plan shall include a training program to be provided, at the discretion of the County, to County emergency response staff with regards to safety for on-site emergency response. The applicant shall install a Knox Box at the facility to ensure emergency responders have access to the facility should the need arise and include plans for the same on the project site plan.
5. Hours of operation for construction activities to be limited to 7:00am to 6:00pm Monday through Friday and 9:00am to 5:00pm on Saturdays. No construction to occur on Sundays.
6. The applicant shall submit a Stormwater Management Plan and an Erosion and Sediment Control Plan with the submission of the final site plan. The applicant shall reimburse the County for reasonable costs related to retaining such third-party inspectors as deemed necessary for project inspections.
7. Prior to final site plan approval, the applicant shall submit a plan for decommissioning the project to the County Zoning Administrator. Nuby Run Solar will decommission and remove the system and its components at the end of the life of the project in accordance with Sec. 5-5003(M)(4)(g) of the Ordinance. The project site could then be converted to other uses in accordance with applicable land use regulations in effect at that time. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and the County Zoning Ordinance.

II. Land Use

This section left intentionally empty.

III. Cash Proffers

This section left intentionally empty.

IV. Environmental Protection

1. The applicant shall preserve and maintain both existing forest and vegetation as well as planted landscape buffering within required setback areas and buffer yards and shall not clear or cut live trees within required setbacks or buffer yards without written authorization from the Zoning Administrator.
2. The applicant shall conserve topsoil on the site to the maximum extent feasible. Topsoil stockpiled on the site shall be stored out of view from adjacent properties and public roads.
3. Prior to final site plan review, the applicant shall submit a US Army Corps of Engineers Jurisdictional Determination, Resource Area Protection confirmation review.

4. The applicant shall submit an invasive species management plan as recommended by DCR with the submission of the final site plan.
5. The applicant shall submit a seed mix for site groundcover that includes native pollinators blooming in spring/summer as recommended by DCR with the submission of the final site plan.

V. Archaeology

Prior to issuing building permit, the applicant shall submit the concurrence of the completed and provided Phase 1 Cultural Resource Assessment from the Virginia Department of Historical Resources

VI. Transportation

All 5 requirements as identified by VDOT Land Use Engineer Joshua Norris in his August 9, 2021 letter to Claire Jones will be adhered to, incorporated within, and fulfilled by Nuby Run Solar's final site plan submission.

VII. Water and Sewer Improvements

This section left intentionally empty.

VIII. Easements, Rights-of-Way and Buffers

This section left intentionally empty.

IX. Property Owners' Association and Restrictive Covenants

This section left intentionally empty.

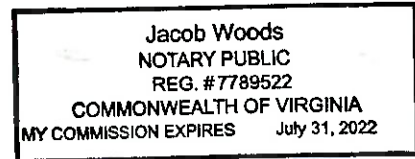
X. General

1. Successors and Assigns - This Proffer Agreement shall be binding upon and shall inure to the benefit of the parties hereto, and their respective heirs, successors and/or assigns. Any obligation(s) of Owner hereunder shall be binding upon and enforceable against any subsequent owner or owners of the Property or any portion thereof.
2. Severability - In the event that any clause, sentence, paragraph, subparagraph, section or subsection of these Proffers shall be judged by any court of competent jurisdiction to be invalid or unenforceable for any reason, including a declaration that it is contrary to the Constitution of the Commonwealth of Virginia or of the United States, or if the application thereof to any owner of any portion of the Property or to any government agency is held invalid, such judgment or holding shall be confined in its operation to the clause, sentence, paragraph, subparagraph, section or subsection hereof, or the specific application thereof directly involved in the controversy in which the judgment or holding shall have been rendered or made, and shall not in any way affect the validity of any other clause, sentence, paragraph, subparagraph, section or provision hereof.

3. Void if Application is not approved - In the event that the Application is not approved by the County, these Proffers shall be null and void.
4. Job Fairs for Created Positions - The applicant shall host at least two separate job fairs within Isle of Wight County to hire for the created jobs referenced in the applicant's permit narrative. These job fairs will be planned, located, and scheduled in consultation with county staff and/or members of the Board of Supervisors.

SIGNATURE PAGE

Applicant: Matthew Hantzmon, Manager
Printed or Typed Name
Applicant: [Signature] Date: 12/28/2021
Signature



Commonwealth of Virginia
~~County of Isle of Wight~~
City Charlottesville
Subscribed and sworn to before me Matthew Hantzmon
A Notary Public in and for the County of Isle of Wight, Commonwealth
of Virginia, this 28th day of December, 2020.
[Signature]
Notary Public
My Commission Expires 7/31/2022

Owner: Robert Benjamin Stapp
Printed or Typed Name
Owner: [Signature] Date: 12-17-21
Signature

Commonwealth of Virginia
County of Isle of Wight
Subscribed and sworn to before me Jessica Story Moore
A Notary Public in and for the County of Isle of Wight, Commonwealth
of Virginia, this 17th day of December, 2021.
Jessica Story Moore
Notary Public
My Commission Expires November 30, 2024



Owner: _____
Printed or Typed Name
Owner: _____ Date: _____
Signature

Commonwealth of Virginia
County of Isle of Wight
Subscribed and sworn to before me _____,
A Notary Public in and for the County of Isle of Wight, Commonwealth
of Virginia, this _____ day of _____, 200____.

Notary Public
My Commission Expires _____

Transportation Plan

This Transportation Plan as a key measure to ensure traffic safety and route navigability for the proposed Nuby Run Solar. This plan outlines multiple strategies for efficient and safe road use during Nuby Run Solar's construction period.

A subsequent road use impact study will follow this plan to refine and document its measures to be implemented during construction within the planned haul routes. Such measures include school bus avoidance, delivery procedures, on-site and off-site parking and ridesharing programs, haul route pavement maintenance, temporary traffic control measures, and overall safety.

Hexagon Energy and the contractor will work closely with Isle of Wight County and VDOT to ensure safe and efficient movement of local traffic throughout the anticipated 2-3 month construction period.

School Bus Avoidance

After confirming the project's construction haul routes, Hexagon Energy will identify all school bus stops that exist along the roads and connecting side streets in the vicinity of the project area. Hexagon Energy will work to minimize interactions between construction traffic and school bus operations to the greatest extent possible. This work will be achieved through multiple methods:

- Wide-load deliveries will be restricted during student pick-up or drop-off times during the school year. Hexagon Energy will ensure delivery drivers are aware of school bus times and stop locations.
- Employees will be encouraged to participate in ridesharing programs to reduce traffic to the site.
- Reduced speed limits during the school year near bus stop locations will be a suggested traffic calming measure to VDOT. Speed limits will be communicated via temporary signage along construction traffic routes and driver education where applicable.
- Possible "high risk" bus stops will be identified in collaboration with Isle of Wight Schools. These locations will be considered for temporary relocation or enhanced safety measure such as signage indicating safe waiting areas and/or heavy truck traffic warnings.

Pavement Maintenance Along Haul Routes

Portions of the public roads identified in the transportation plan will be designated haul routes for deliveries during construction. The following procedures will be set in place for the evaluation and maintenance of haul route pavements before, during, and after construction:

- Before construction, representatives from Isle of Wight County, Hexagon Energy, VDOT, and the contractor will coordinate to drive the designated haul routes to collect observations and video footage of current pavement conditions. The pre-construction pavement conditions will be documented for future reference.
- Upon construction conclusion, previously identified representatives will repeat their observation drives to collect video footage of current pavement conditions. The post-construction pavement conditions will be documented and compared to pre-construction conditions.
- At project's completion, Hexagon Energy will restore road damage determined to be caused by construction vehicle negligence in coordination with Isle of Wight County and to the satisfaction of VDOT as permitted.
- If pavement along a haul route becomes damaged due to construction traffic, and is determined by VDOT to be unsafe, Hexagon Energy will repair the damage at their expense within 48 hours upon notice from the County's transportation planner and/or VDOT.

Temporary Traffic Control Measures

Temporary traffic control measures will be implemented in accordance with the most recent version of the Virginia Work Area Protection Manual. Traffic control for construction activity within the public right-of-way will be implemented in accordance with typical traffic control applications. Necessary construction activity within the public right-of-way will be identified as construction documents are prepared and traffic control plans will be included in the construction documents as necessary.

Traffic control measures will also be installed at active construction entrances. These include but are not limited to:

- Advanced warning signs
- Flaggers at the entrance location to facilitate truck turns for wide-load deliveries
- If sight distance is limited on a construction entrance approach, additional installed warning signs
- Reduced speed limits
- Additional construction traffic warning signage
- Channelizing devices

These VDOT-approved measures may be implemented as needed and will be addressed during the site plan review and VDOT permitting process.

Deliveries

- Delivery instructions shall be provided to all suppliers and contractors.
- Trained employees shall assist when deliveries are accessing the Project Site.
- Banksman shall ensure the safe passage of pedestrians and vehicular traffic when vehicles are being loaded and unloaded.
- Delivery vehicles shall not stack or wait on County roads.
- Contractors and suppliers shall utilize primary delivery routes identified in the transportation plan to the greatest extent possible. In the event delivery routes are not feasible, new routes shall be identified and coordinated with County staff.
- Hexagon Energy and its contractor shall issue strip maps to suppliers identifying primary delivery routes.
- In the event that GPS maps do not accurately direct delivery trucks to the site, flaggers may be stationed at key junction points to ensure trucks are traveling the designated haul route.
- Identification of surrounding truck stops shall be identified prior to construction to ensure that trucks can stage overnight prior to scheduled deliveries.
- Permits for oversized or overweight loads, if any, on primary delivery routes shall be obtained from VDOT and coordinated with the County. Such permit loads shall be subject to the conditions of the permit at the time of the issuance.

Safety

- Where necessary, flagmen with communication devices shall be used to coordinate delivery and hauling activities at the project site.
- General construction signs shall be placed in pre-approved areas along primary delivery routes in the vicinity of the project site to notify residents of construction delivery locations.

Parking

- On-site parking will be provided adjacent to construction entrances within the project where feasible. Parking area size will fluctuate based on the construction phasing and number of workers needed at each entrance.
- If offsite parking is needed, the contractor will utilize multiple seat vehicles to transport employees to and from the site to reduce the number of vehicle trips.



September 30, 2021

Nuby Run Solar, LLC
Drew Price, President and Chief Development Officer
321 E. Main St, Ste 500
Charlottesville, VA 22902

*Re: Desktop Cultural Resources Assessment for Nuby Run Solar Site, Isle of Wight County, VA;
H&P Project #: 20211813*

Dear Mr. Price:

We are pleased to present this desktop Cultural Resources Assessment of the Nuby Run Solar Site. The conclusions in this letter are presented for planning purposes only and do not satisfy local, state and federal regulatory requirements.

The project was completed by or under the direct supervision of professional archaeologists and architectural historians who meet or exceed the qualifications contained in the Secretary of the Interior's Professional Qualifications Standards (48 *Federal Register* 44738-44739).

Site Overview

The proposed Nuby Run Solar Site lies in the central part of Isle of Wight County in Virginia's Hampton Roads region. The project development footprint of approximately 34 acres is situated within a larger parcel (39-01-038) of 117.3 acres bordering the south side of Orbit Road (Rte. 637)(Figures 1 and 2). The parcel is approximately 2 miles southeast of the county seat, also named Isle of Wight. The county had a population of 35,270 according to the 2010 census.

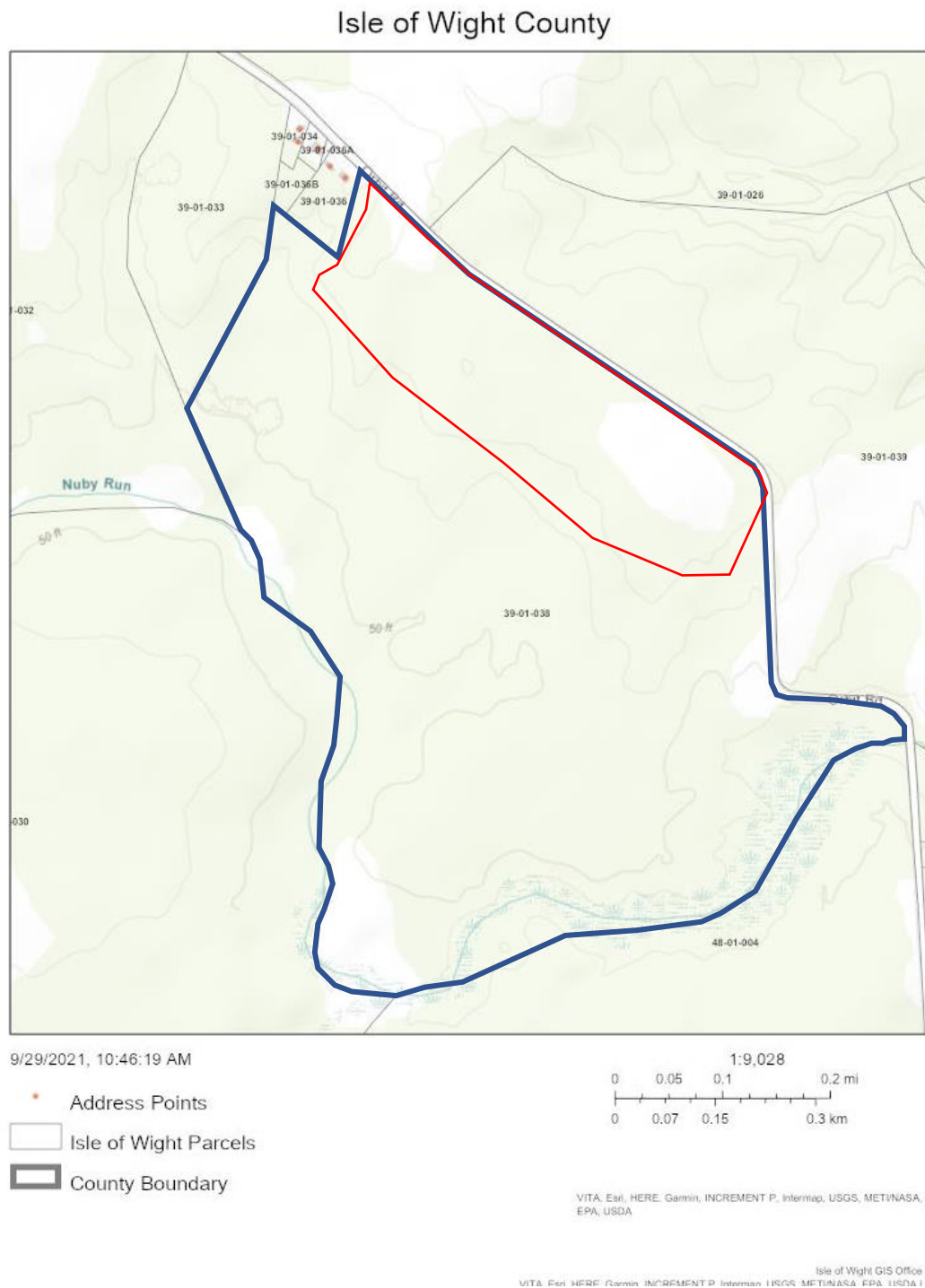


Figure 1. Project parcel (blue line) and development footprint (red line) as depicted in Isle of Wight County GIS (accessed September 2021).

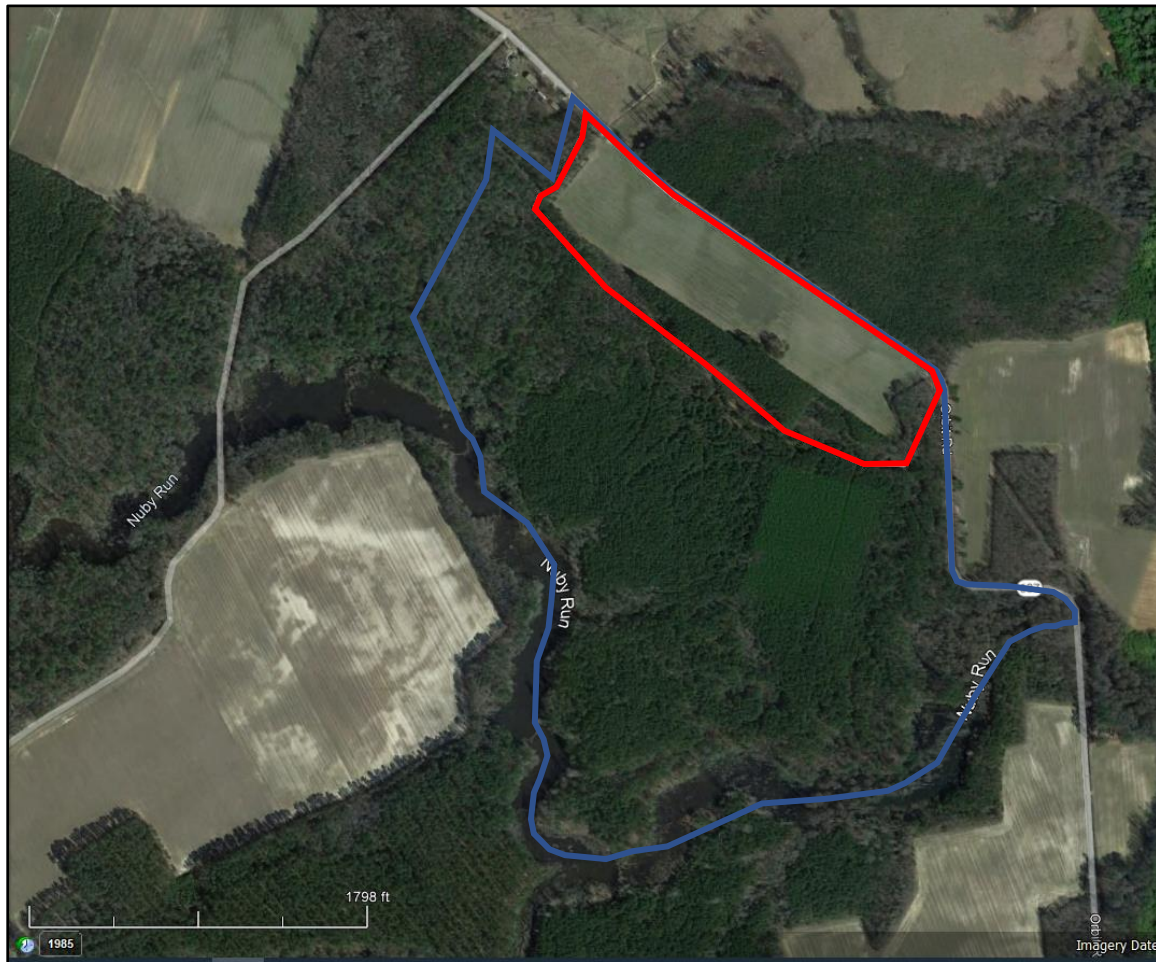


Figure 2. Aerial view of project parcel (Google Earth 2021).

Environmental Setting

The 34 acres proposed for project development consists of a long approximately rectangular block running parallel to the south side of Orbit Road (Rte. 637). Approximately 19 of the 34 acres consists of a relatively flat agricultural field along the road. The east and west ends of the project area are composed of deciduous forest while the south side is a mix of deciduous forest and pine plantation. A clump of trees extending into the field approximately halfway along its south edge is related to a former habitation site with structures still depicted on current topographic maps (Figure 3).

The project area is in Virginia's Coastal Plain geologic province. The Coastal Plain is a narrow strip along Virginia's eastern edge stretching from the Fall Zone to the Atlantic Ocean. It is characterized by younger strata than the adjoining Piedmont province, cut by large tidal rivers that flow into the Chesapeake Bay. The nearest water source to the project area is Nuby Run

which forms the western and southern boundaries of the larger parcel in which the proposed development area sits. Nuby Run is a tributary to Great Swamp which it joins approximately 1800 feet east of Orbit Road. Great Swamp flows southeasterly through a series of reservoirs, eventually emptying into the Nansemond River which flows into the James River several miles to the northeast of the project area. The margins of Nuby Run are depicted as wetlands on topographic maps.

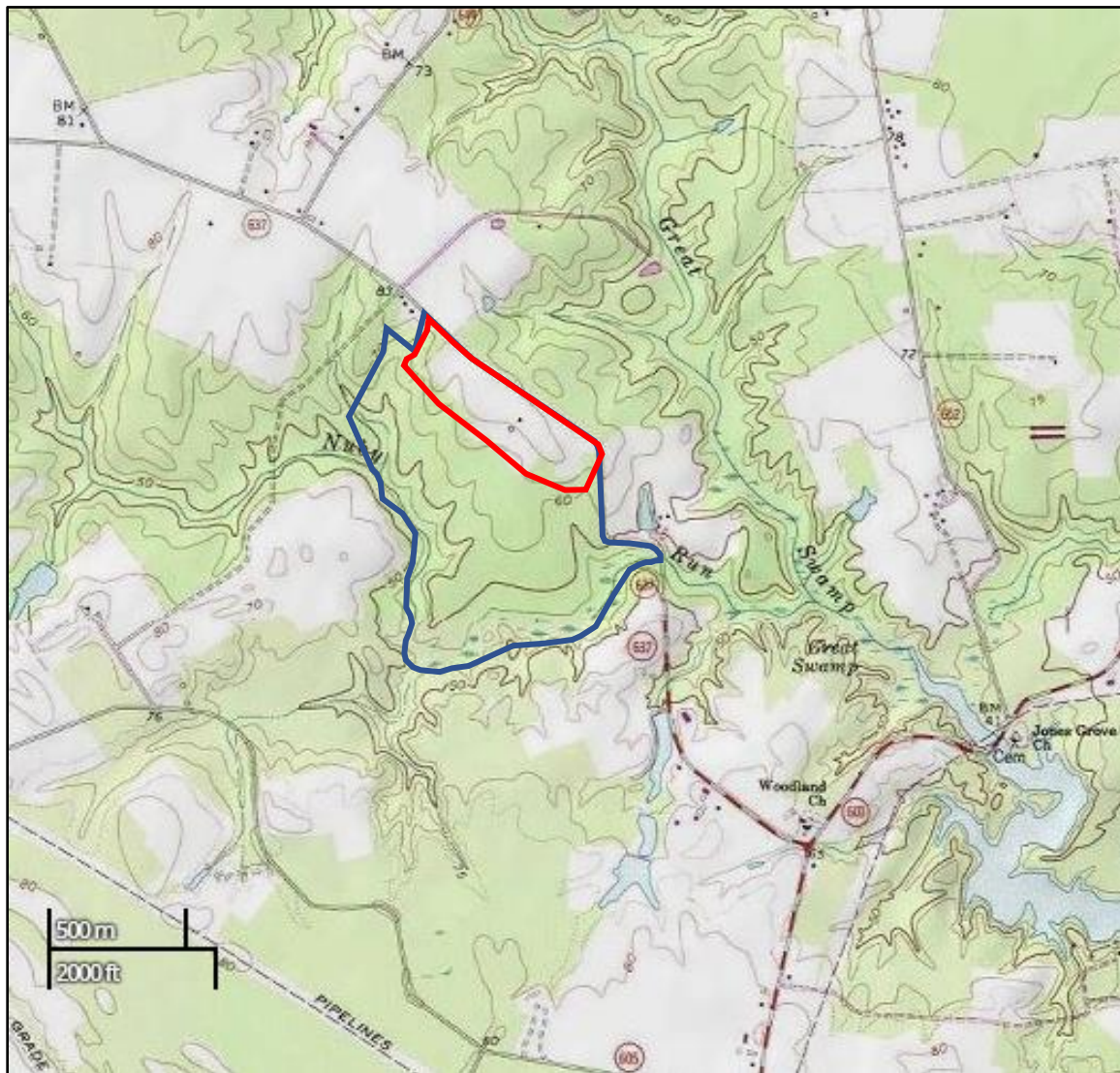


Figure 3. Project area depicted on current topographic map (USGS 2021).

Soils within the plowed part of the development parcel consist of level or gently sloping sandy loams (Table 1). The wooded areas to the south have similar soils that are more sloping toward



Nuby Run (Figure 4). All of the soils are well drained to moderately well drained with low runoff and are considered prime farmland.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5A	Emporia fine sandy loam, 0 to 2 percent slopes	4.0	12.0%
18A	Slagle fine sandy loam, 0 to 2 percent slopes	19.6	58.3%
18B	Slagle fine sandy loam, 2 to 6 percent slopes	10.0	29.8%
Totals for Area of Interest		33.7	100.0%

Table 1. Project area soil map unit legend (NRCS 2021).



Figure 4. Project area soil unit map (NRCS 2021)

Previously Recorded Cultural Resources

H&P reviewed the Virginia Department of Historic Resources' (VDHR) Virginia Cultural Resource Information System (V-CRIS) for previously recorded cultural resources and previously conducted Phase I Archaeological Surveys in the vicinity of the project area.

A review of these resources within 0.5 miles of the project parcel boundaries identified no previously recorded archaeological sites and no previous Phase I Archaeological Surveys. Two architectural resources have been recorded within 0.5 miles (Figure 5)(Table 2).

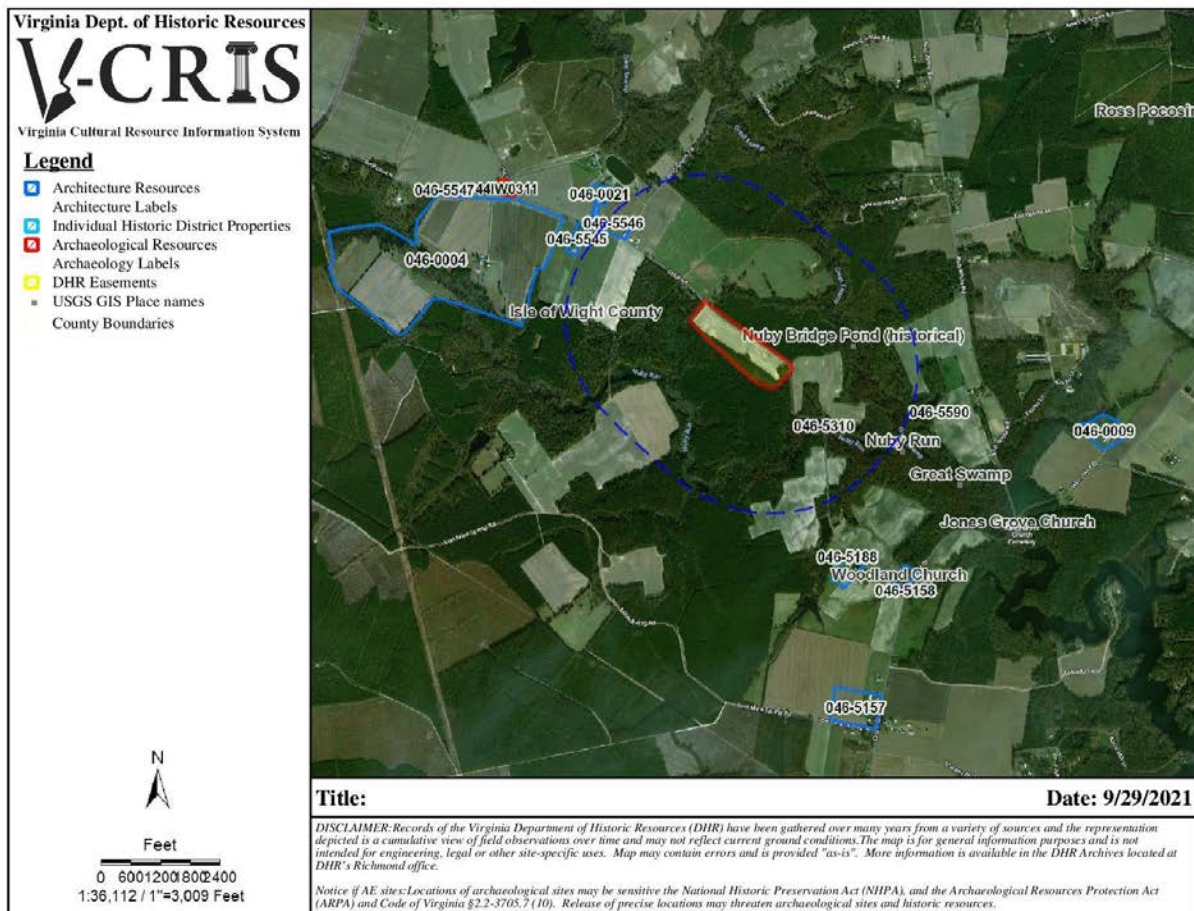


Figure 5. Previously recorded sites within 0.5 miles of the project parcel.



Site/Structure	Name	Type	Temporal Affiliation	NR Eligibility
046-5310	Bridge, #6045 Orbit Road	Steel I-beam, timber deck	c. 1945	Not Eligible
046-5546	Dwelling, 18493 Orbit Road	Colonial Revival	1950	Not Evaluated

Table 2. Architectural resources recorded within 0.5 miles of the project parcel.

Resource 046-5310 is a standard steel I-beam, timber deck bridge located east of the project parcel on Orbit Road at the crossing of Nuby Run. The bridge was surveyed in 2011 and determined not eligible for listing in the National Register of Historic Places.

A 1950 Colonial Revival house at 18493 Orbit Road (046-5546), was recorded in 2019 by Commonwealth Heritage Group, Inc. (CHG). Although the house and outbuildings were not considered by CHG to be individually eligible for the National Register, they recommended further study to determine if the property might be a contributing element to a larger rural agricultural historic district. CHG assumed eligibility of the property strictly for the purposes of environmental review of the solar energy project it was surveyed for at the time. This property is located on the north side of Orbit Road and approximately 2,000 feet to the west of the proposed Nuby Run project development area.

Expanding the V-CRIS search to 1 mile captures one previously recorded archaeological site and six additional architectural resources (Figure 6).

Archaeological Site 44IW0311 is located on the north side of Orbit Road approximately 4,500 feet west of the current project development area. This site consists of the remains of a medical office dating from between 1900 and 1938. The site was recorded by CHG in 2019 and determined not eligible for the National Register. Although the site was recorded as part of a Phase I Archaeological Survey, that survey is not currently mapped in V-CRIS, nor are any additional surveys mapped within a 1-mile radius.

The six additional architectural resources consist of a potentially eligible farm at 12452 Redhouse Road (046-0004), a potentially eligible house and cemetery at 18421 Orbit Road (046-0021), the Woodland United Methodist Church and cemetery (046-5158) which has not been evaluated, the National Register-eligible Julius Caesar Darden House (046-5188) at 19614 Orbit Road, a dwelling at 18402 Orbit Road (046-5545) that was considered eligible for environmental review purposes only, and the unevaluated Gray Cemetery (046-5590).

In addition to the V-CRIS database, Hurt & Proffitt also reviewed Isle of Wight cemetery data available as a separate layer in the county GIS. The cemetery mapping indicates that there are none present in the immediate vicinity of the project parcel

(<https://iowgis.maps.arcgis.com/apps/View/index.html?appid=417a057414a842f891502086a9afdc7f>).

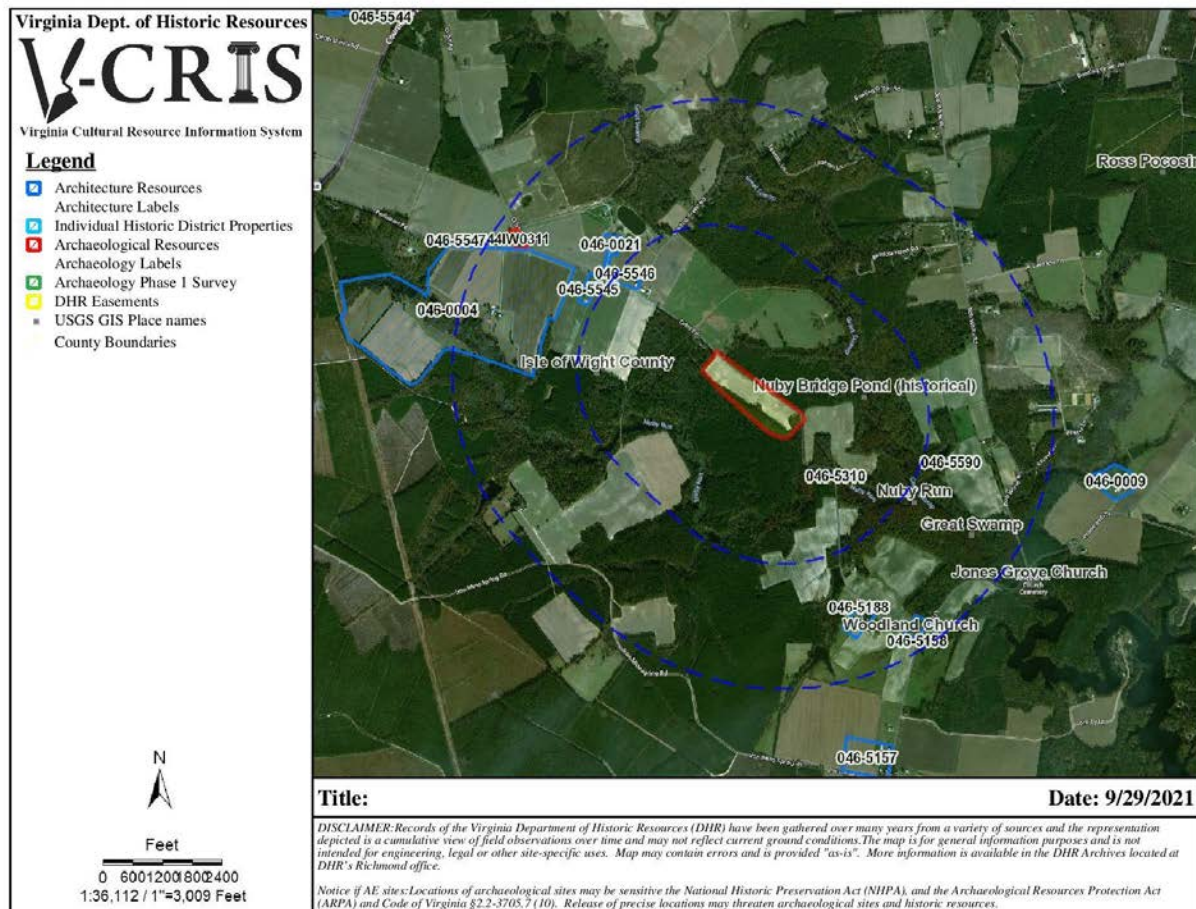


Figure 6. Previously recorded sites within 1 mile of the project parcel.

Historic Aerial Photo and Map Review

A review of aerial photos and historic maps available through online sources reveals that the 34-acre project development area has retained a similar configuration since at least 1919. Likewise, the larger parcel of which it is a part appears to have been wooded from that time to the present day.

The one significant change depicted within the development parcel is the abandonment of an apparent small farmstead located near the center of the agricultural field. The current aerial photo shows a clump of trees extending northward into the field and an associated darker rectangle in the crop just north of the clump (see Figure 2). While no structures are visible, the current topographic map depicts two structures near the center of the field, one of which is



indicated as abandoned at the last mapping update (see Figure 3). These structures, or their ruins, are visible in a 1994 aerial photograph of the property (Figure 7). That photo also shows a driveway extending to the buildings at a right angle from Orbit Road.

The structures are depicted again on a 1968 map of the property (Figure 8). A 1966 aerial photo offers the clearest evidence of the former farmstead. It shows a small complex of buildings, including a house, large barn and several smaller structures arranged within a series of fenced yards and gardens (Figure 9). Four smaller fenced fields extended southward into what is today wooded portions of the development parcel. The 1944 and 1919 topographic maps of the parcel depict what is presumed to be the farmhouse for this complex, but no other buildings (Figures 10 and 11). The 1919 map is interesting in that it depicts a series of farm roads surrounding the development parcel, including showing the driveway to the farmhouse continuing southward to connect with this road network.

Note that at the 1:24000 scale the southern edge of the larger project parcel lies on the Windsor, VA USGS quadrangle. A review of the 1944 and 1965 Windsor maps shows only wetlands indicated along Nuby Run in the project vicinity.

Maps dating before 1919 show little detail in the project vicinity. A Civil War era map indicates that the present Orbit Road was once part of the Court House Road but no structures are indicated on the map in the presumed location of the project parcel. A structure identified as belonging to Turner is shown on the north side of the road not far from the crossing of Nuby Run (Figure 12). Similarly, the Boye map of 1827 depicts the courthouse road but no further details in the project vicinity (Figure 13). The maps available for the period prior to 1827 do not depict the project area in sufficient detail to be useful for this analysis.



Figure 7. March 1994 aerial view of the project parcel (Google Earth).

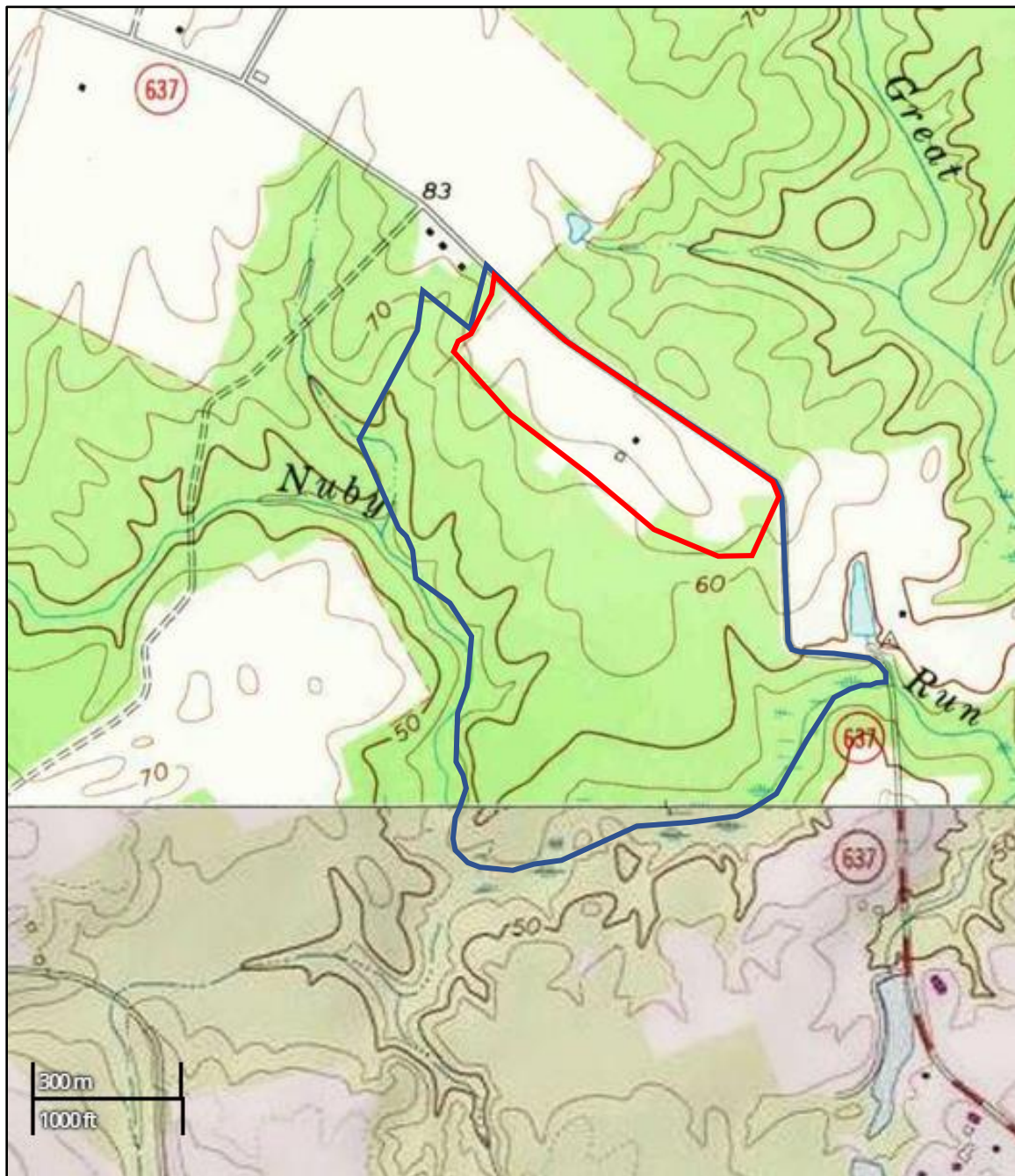


Figure 8. Project area depicted on 1968 Smithfield, VA 1:24000 USGS topographic map (USGS 2021).



Figure 9. Detail of 1966 aerial depicting building complex near center of project parcel.

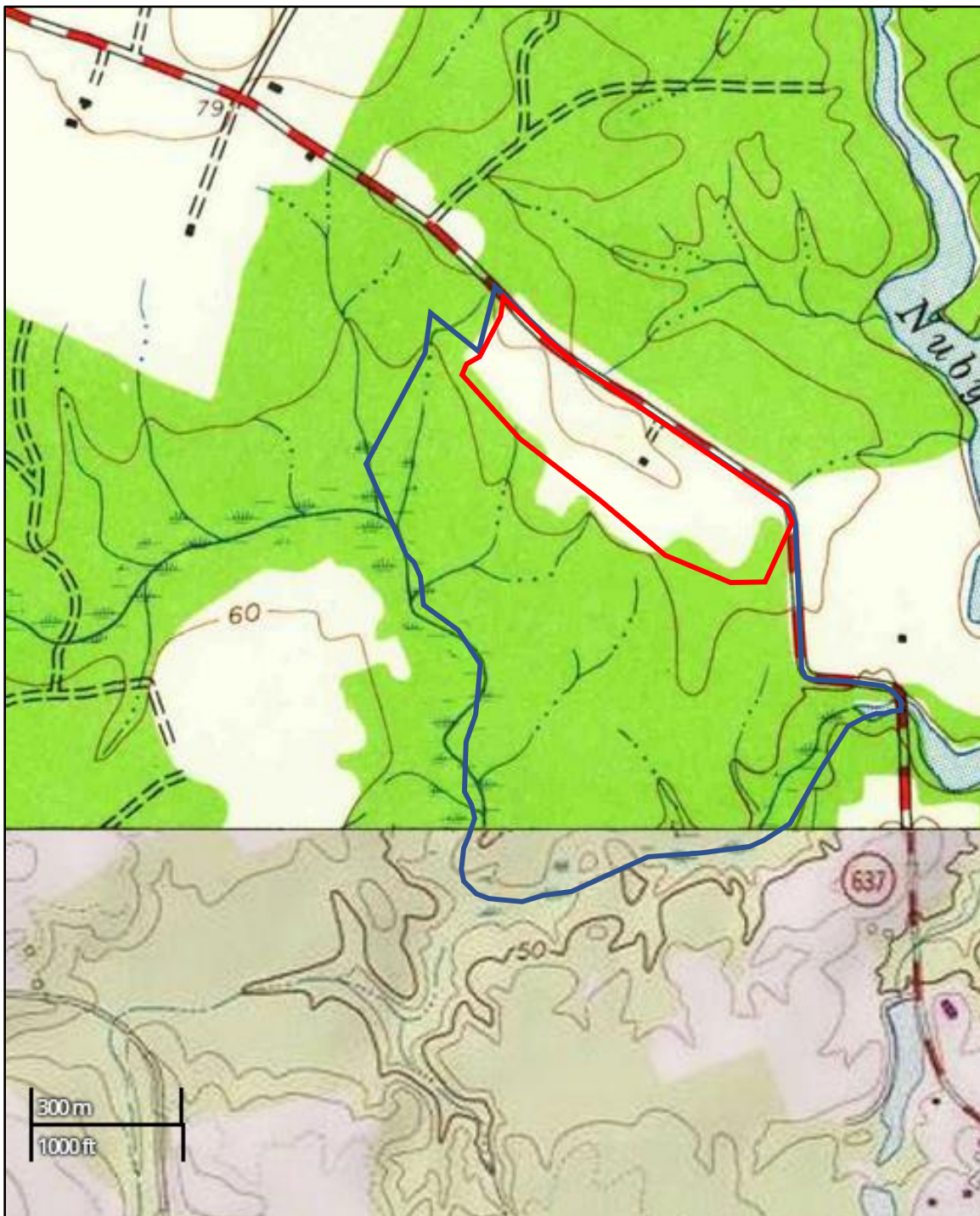


Figure 10. Project area depicted on 1944 Smithfield, VA 1:24000 USGS topographic map (USGS 2021).

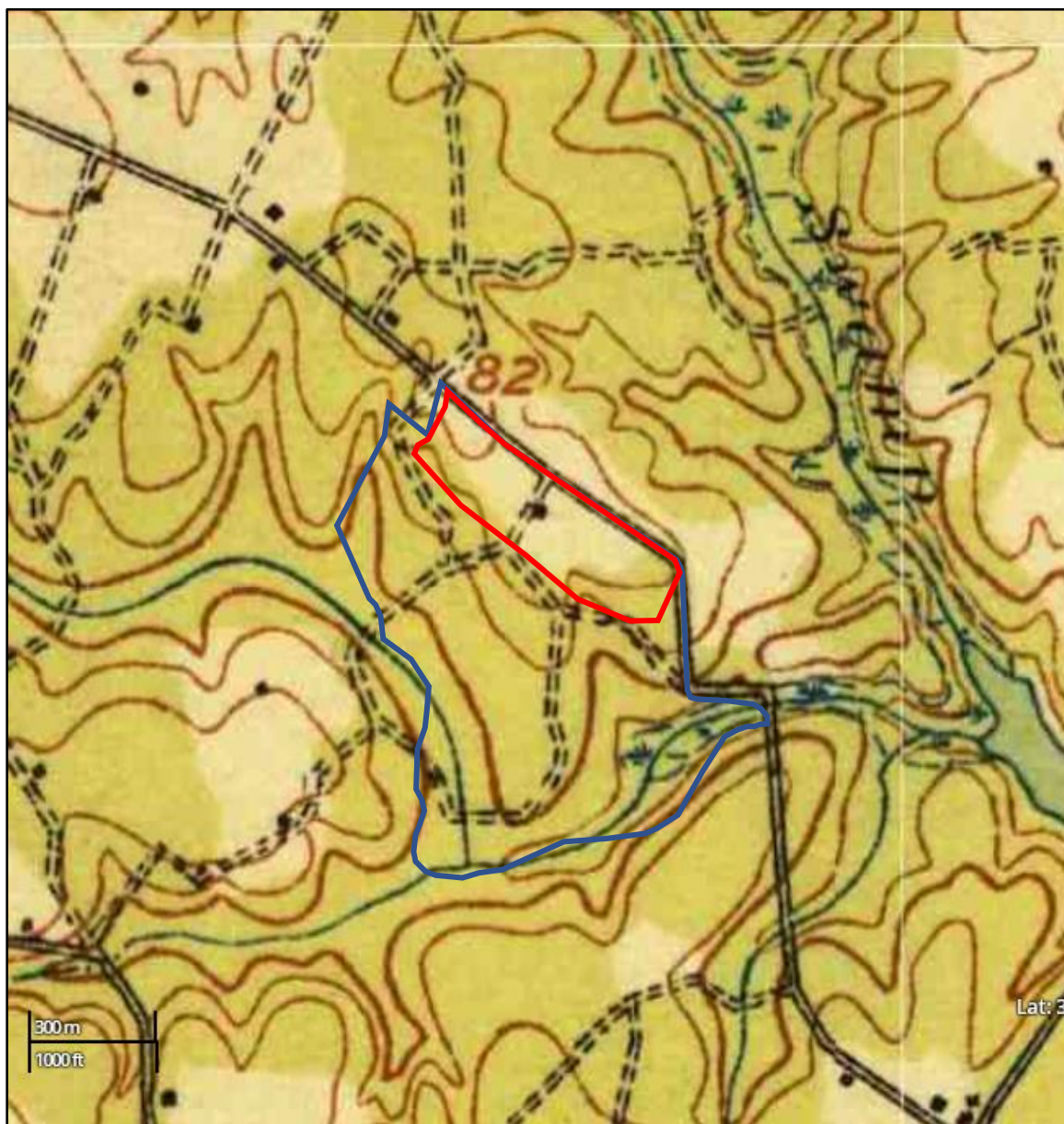


Figure 11. Project area depicted on 1919 Smithfield, VA 1:62500 USGS topographic map (USGS 2021).

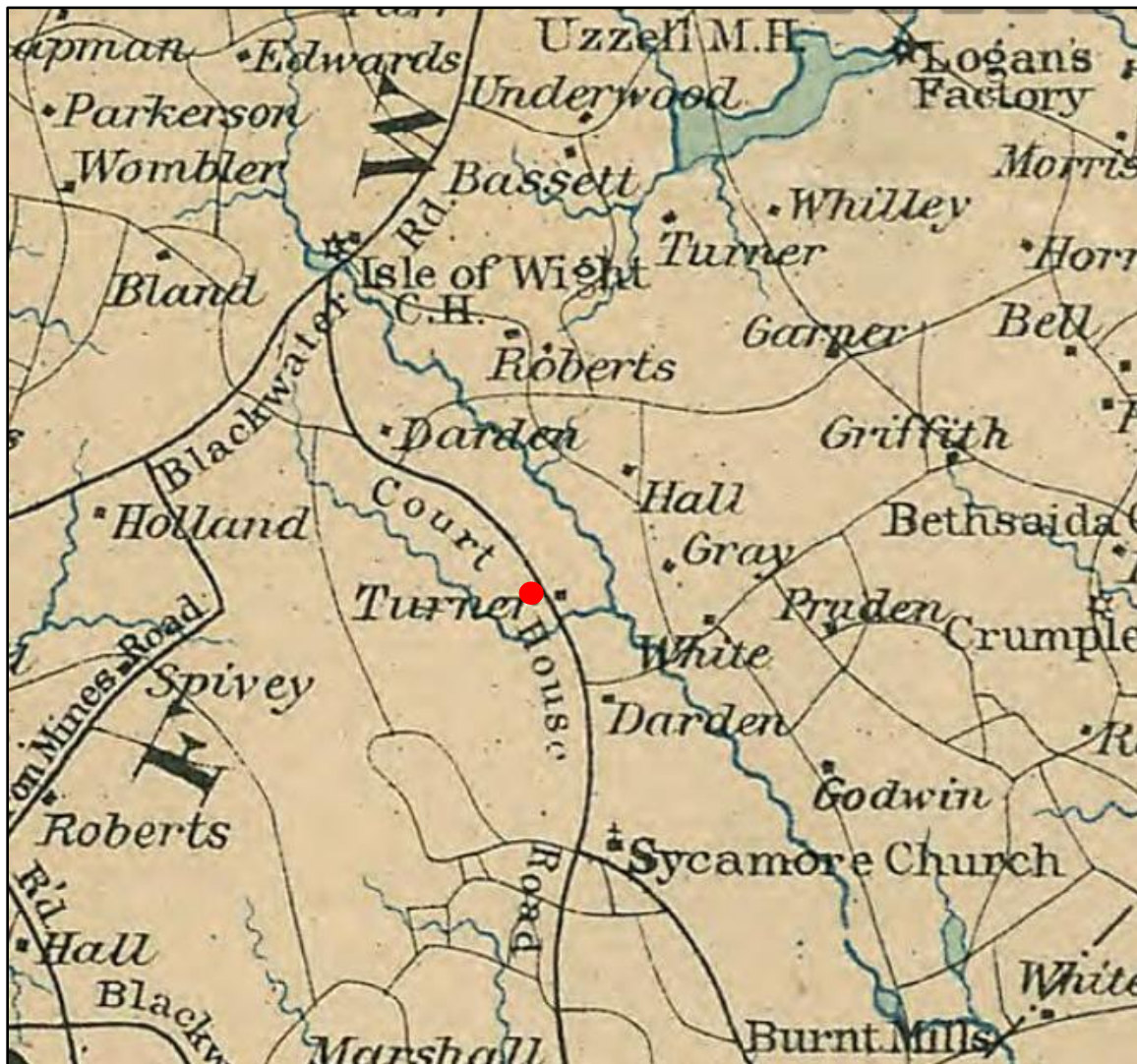


Figure 12. Red dot depicts approximate location of project area on Civil War map
 (Confederate States Of America. Army Of Northern Virginia. Engineer Office, Bien, J.,
 Campbell, A. H. & Patton, J. H. (1891) *Preliminary map of a part of the south side of James
 River, Va.: from surveys and reconnaissances.* [Washington: GPO, between to 1893] [Map]
 Retrieved from the Library of Congress, <https://www.loc.gov/item/lva0000171/>.)



Figure 13. Project vicinity depicted on Böye, Herman, Henry Schenck Tanner, E. B Dawson, and William Branch Giles, 1827 *A map of the state of Virginia: reduced from the nine sheet map of the state in conformity to law*. H.S. Tanner and E.B. Dawson, Philadelphia, Pennsylvania (Library of Congress).

Analysis and Recommendations

H&P reviewed online sources related to the project parcel's environmental setting, previous cultural resources surveys in the vicinity of the parcel, previously recorded cultural resources in the vicinity, historic aerial images and historic maps. These sources allow us to assess the potential for the project parcel and its immediate vicinity to contain historic properties that may be affected by any future project and to make recommendations concerning the need for cultural resources surveys.

The review shows that the project development parcel is composed of a mix of active prime farmland and pockets of deciduous forest located along the course of an early road. It is situated between the waters of Nuby Run to its west and south and Great Swamp to its east. This level to gently sloping swath of arable land close to two waterways would have been attractive to habitation from the prehistoric period through the historic period.

Archaeological data is scarce in the project vicinity as few surveys have been conducted in this part of Isle of Wight County. The lack of previously recorded archaeological sites within 0.5 miles of the parcel and the presence of just one site between 0.5 miles and 1 mile away should be



September 30, 2021

Desktop Cultural Resources Assessment – Isle of Wight County, Virginia

Page 18

attributed to the lack of survey. No architectural resources have been recorded immediately adjacent to the project parcel, but the lot adjoining the west end of the parcel contains a house constructed in 1963 and would require survey for the proposed project (Isle of Wight County GIS).

Historic aerial images and maps reveal that the project development parcel has been in roughly its present configuration since at least the early part of the twentieth century. Significantly, the parcel contains the archaeological remains of a small farmstead that dates at least from that time period. While the farmstead is not denoted on earlier maps, it is unclear when it may have been constructed.

It is our opinion, therefore, that the project parcel has moderate potential to contain prehistoric period archaeological sites and high potential for the presence of historic period archaeological sites. In addition, there is the potential for National Register eligible architectural resources to be located within the project's Area of Potential Effects. We recommend archaeological and architectural surveys be conducted in advance of any development of this property.

Sincerely,
Hurt & Proffitt, Inc.

A handwritten signature in blue ink that reads 'Randy Lichtenberger'. The signature is written in a cursive, flowing style.

Randy Lichtenberger
Director of Cultural Resources

Attachment



September 30, 2021

Desktop Cultural Resources Assessment – Isle of Wight County, Virginia

Page 19

V-CRIS forms for architectural resources recorded within 0.5 miles of the project parcel boundaries:

Property Information

Property Names

Name Explanation	Name
Function/Location	Bridge #6045, Orbit Rd (Rt 637), Nuby Run

Property Evaluation Status

DHR Staff: Not Eligible

Property Addresses

Current - Orbit Road
Alternate - Route 637

County/Independent City(s): Isle of Wight (County)

Incorporated Town(s): No Data

Zip Code(s): No Data

Magisterial District(s): No Data

Tax Parcel(s): No Data

USGS Quad(s): SMITHFIELD

Additional Property Information

Architecture Setting: Rural

Acreage: No Data

Site Description:

6/2011: The bridge is located on a two-lane secondary roadway over a small run. The area surrounding the bridge consists of floodplain trees and understory along side the bridge and to the abutments. At the south end of the bridge, the floodplain trees give way to open field, some of which are under cultivation. At the north end of the bridge, the roadway turns abruptly west to border the floodplain. On the north side of the road is pasture with a low area that used to mark a field pond that stands drained today.

6/2011: None.

Surveyor Assessment:

6/2011 The structure is a steel I-beam, timber deck bridge that is built to a standard plan. Approximately 3,200 similar bridges exist in Virginia and were determined by the Department of Historic Resources to be not individually eligible to the National Register. The resource is not associated with the broad patterns of our history, it is not linked to a specific event or person, it has no stylistic distinction or is the work of a master, and it has no potential to provide important information about history. The location of the bridge is in a rural area that has been populated since the eighteenth century, but today contains little of a historic nature. The area within a mile of the bridge is still lightly settled and the majority of the structures are modern in nature. The land is either cultivated, in pasture, or in forest. This bridge did not exist until 1945, thus it played no role in the settlement and development of the area through history and therefore would not contribute to any potential historic district.

Surveyor Recommendation: No Data

Ownership

Ownership Category	Ownership Entity
State Govt	Virginia Department of Transportation

Primary Resource Information

Resource Category: Transportation

Resource Type: Bridge

NR Resource Type: Structure

Historic District Status: No Data

Date of Construction: Ca 1945

Date Source: Written Data

Historic Time Period: World War I to World War II (1917 - 1945)

Historic Context(s): Transportation/Communication

Other ID Number: No Data

Architectural Style: No Discernable Style

Form: No Data

Number of Stories: No Data

Condition: Fair
Threats to Resource: Transportation Expansion

Architectural Description:

6/2011 The bridge is a standard steel I-beam, timber deck bridge. The abutments are driven wood piles with sawn wood planking. The supports in the water are driven wood piles with a concrete cap. Steel I-beams run the length of the bridge from abutment to abutment as support for the sawn timber deck laid perpendicular to the I-beams. The timbers are secured to the I-beams by large bolts with hex nuts. The deck is finished in asphalt. A slightly raised curb is on the east and west side of the deck made of sawn wood. Four by four square wood posts are bolted to the side of the edge I-beams and support a steel guard rail.

Bridge Information

Structure Number: 6045
VDOT Bridge ID: 10415
Entity Crossed Name: Nuby Run
Entity Crossed Type: Water
Bridge Type: Beam
Current Use: Road
Number of Spans: 1
Number of Lanes: 1

Secondary Resource Information

Historic District Information

Historic District Name: No Data
Local Historic District Name: No Data
Historic District Significance: No Data

CRM Events

Event Type: DHR Staff: Not Eligible

DHR ID: 046-5310
Staff Name: Holma, Marc
Event Date: 7/11/2011
Staff Comment:
No Data

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2011-1067
Investigator: VDOT
Organization/Company: Unknown (DSS)
Photographic Media: No Data
Survey Date: 6/21/2011
Dhr Library Report Number: No Data
Project Staff/Notes:

Reconnaissance level survey conducted by Ken Stuck, Vdot Hampton Roads District for VDOT Project # 0637-046-573, P101, R201, C501.

Project Bibliographic Information:

Name: VDOT
Record Type: Other
Bibliographic Notes: VDOT Bridge Inspection reports

Bibliographic Information

Bibliography:

No Data

Property Notes:

Name: Unknown
Company 1: Virginia Department of Transportation
Phone 1: 000-000-0000
Ext: 0000
Phone 2: 000-000-0000
Ext: 0000
Owner Relationship: Owner of property

Property Information

Property Names

Name Explanation	Name
Function/Location	Dwelling, 18493 Orbit Road

Property Addresses

Current - 18493 Orbit Road

County/Independent City(s): Isle Of Wight (County)

Incorporated Town(s): *No Data*

Zip Code(s): 23487

Magisterial District(s): *No Data*

Tax Parcel(s): *No Data*

USGS Quad(s): SMITHFIELD

Property Evaluation Status

DHR Staff: Considered Eligible for Environmental Review purposes only

Additional Property Information

Architecture Setting: Rural

Acreage: 4

Site Description:

June 2019: This resource is located in a rural area. The property is a 4-acre parcel, surrounded by pasture. The house and domestic outbuildings stand in a cluster north of Orbit Road, with the house facing south. A circular gravel driveway leads to the house. A garage, outbuilding, and gazebo stand northeast of the house. The house has a carport attached to the north elevation of the house. Around the house are scattered mature trees. At the southeast corner of the property, near the northwest corner of the intersection of Orbit Road and Bowling Green Road, stand two other buildings: a pole barn machine shed and prefabricated shed.

Surveyor Assessment:

June 2019: This architectural resource is located within a 1/2 mile of a proposed solar energy farm. The resource is directly visible from the proposed project area. According to Isle of Wight real estate assessment records, this dwelling was built in 1950. The house does not represent an individually significant example of the Colonial Revival style, as it has typical details such as the symmetrical core, stretcher bond brick, and side-gabled roof with gabled dormers. This building is recommended as not eligible under Criterion C of the NRHP/VLR. It is not known to be associated with significant events or persons, and as an architectural resource is not recommended eligible under Criterion D.

This resource is also located in an agricultural area of Isle of Wight County and surrounded by other farms that appear to have a high degree of architectural and landscape integrity. This cluster of farms may be significant in the architectural history, agricultural development, and landscape of Isle of Wight County. Additional investigation is recommended to research the history and development of this cluster of farms to aid in determining its significance and NRHP/VLR eligibility.

Surveyor Recommendation: Recommended for Further Survey

Ownership

Ownership Category	Ownership Entity
Private	<i>No Data</i>

Primary Resource Information

Resource Category: Domestic

Resource Type: Single Dwelling

NR Resource Type: Building

Historic District Status: *No Data*

Date of Construction: 1950

Date Source: Local Records

Historic Time Period: The New Dominion (1946 - 1991)

Historic Context(s): Domestic

Other ID Number: *No Data*

Architectural Style: Colonial Revival

Form: *No Data*

Number of Stories: 1.5

Condition: Excellent
Threats to Resource: Other

Architectural Description:

June 2019: The core of this Colonial Revival, Cape Cod style dwelling measures three bays wide and two bays deep. There are multiple wings and additions to this core. A one-story tall, two-bay wide wing extends from the eastern gable end of the core and a one-and-one-half story tall gabled ell extends from the north (rear elevation). A shed roof addition has been made to the north elevation of the one-story, eastern wing. Also added to this eastern wing and connected with an open hyphen is a two-car carport. The exterior of the house is stretcher bond brick, with vinyl siding cladding the gabled dormers on the front roof slope. The roof is covered with asphalt shingles. An exterior end, stretcher bond chimney rises up the western gable end of the house. A gabled entry porch, with curved underside, square posts, and matchstick railing, shelters the front entry. The front entry is topped with a decorative fanlight and flanked by sidelights. A gabled roof porch, with square wood posts, extends partially across the western gable end. The attached carport features square brick posts. The windows are one-over-one, double-hung sash with faux muntins and rowlock brick sills. The façade of the core features two picture windows.

Exterior Components

Component	Component Type	Material	Material Treatment
Chimneys	Exterior End	Brick	Stretcher Bond
Dormer	Gable	Vinyl	No Data
Porch	Portico/Entry Porch	Wood	Square
Porch	1-Story Partial Width	Wood	Square
Roof	Side Gable	Asphalt	No Data
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource Information

Secondary Resource #1

Resource Category: Domestic
Resource Type: Garage
Date of Construction: 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Architectural Style: No discernible style
Form: No Data
Condition: Good
Threats to Resource: Other

Architectural Description:

June 2019: This two-car garage has a square plan, and it has a stretcher bond brick exterior and the front gabled roof is covered with asphalt shingles. There are two, overhead vehicular doors on the western elevation.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	No Data
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #2

Resource Category: Domestic
Resource Type: Shed
Date of Construction: 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Architectural Style: No discernible style
Form: No Data
Condition: Good
Threats to Resource: Other

Architectural Description:

June 2019: This small shed has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. An entry door is centered on the south elevation.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #3

Resource Category: Domestic
Resource Type: Outbuilding, Domestic
Date of Construction: 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Architectural Style: No discernible style
Form: *No Data*
Condition: Good
Threats to Resource: Other

Architectural Description:

June 2019: This one-story tall outbuilding has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. The windows are one-over-one, double-hung sash with faux muntins and rowlock sills.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #4

Resource Category: Domestic
Resource Type: Outbuilding, Domestic
Date of Construction: 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Architectural Style: No discernible style
Form: *No Data*
Condition: Good
Threats to Resource: Other

Architectural Description:

June 2019: This frame gazebo has an octagonal plan. The roof is covered with asphalt shingles. The supports are square wooden posts.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Complex	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Wood	Other

Secondary Resource #5

Resource Category: Domestic
Resource Type: Shed
Date of Construction: 1980
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic

Architectural Style: No discernible style

Form: *No Data*

Condition: Good

Threats to Resource: Other

Architectural Description:

June 2019: This large pole barn structure has a rectangular plan. The east and west side walls slope slightly outward from the eaves. The exterior and roof are both covered with corrugated metal. Large, sliding, corrugated metal doors are on the south and north elevations.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Metal	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Metal	Panels

Secondary Resource #6

Resource Category: Agriculture/Subsistence

Resource Type: Shed

Date of Construction: 2000

Date Source: Map

Historic Time Period: Post Cold War (1992 - Present)

Historic Context(s): Subsistence/Agriculture

Architectural Style: No discernible style

Form: *No Data*

Condition: Good

Threats to Resource: Other

Architectural Description:

June 2019: This prefabricated frame shed has a T-111 sided exterior. The gambrel roof is covered with asphalt shingles.

Number of Stories: 1

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Side Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Plywood/Particle Board	Panels

Historic District Information

Historic District Name: *No Data*

Local Historic District Name: *No Data*

Historic District Significance: *No Data*

CRM Events

Event Type: DHR Staff: Considered Eligible for Environmental Review purposes only

DHR ID: 046-5546

Staff Name: R.Kirchen

Event Date: 10/29/2019

Staff Comment
2019-0563

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2019-0563

Investigator: Amy Krull and Susan E. Bamann

Organization/Company: Commonwealth Heritage Group, Inc.

Photographic Media: Digital
Survey Date: 3/14/2019
Dhr Library Report Number: IW-089

Project Staff/Notes:

Commonwealth Heritage Group, Inc. Project staff included Amy Krull, M.A., RPA, Sarah G. Traum, M.A., Susan E. Bamann, Ph.D., RPA, B. Scott Rose, M.A., RPA, and D. Allen Poyner. Cultural resource survey conducted in March, May, and June 2019 for a proposed 146.30-acre solar farm in Isle of Wight County.

Project Bibliographic Information:

2019, Amy Krull, Sarah G. Traum, and Susan E. Bamann, Cultural Resources Survey, Proposed Solidago Solar Farm, Isle of Wight, Virginia.
Commonwealth Heritage Group, Inc.
DHR Report No. IW-089

Bibliographic Information

Bibliography:

No Data

Property Notes:

No Data

September 27, 2021

Central Permitting

17140 Monument Circle, Suite 101, Isle of Wight VA 23397

Attn: Agricultural/Forestral District Advisory Committee

Re: Request to withdraw parcel

Dear Committee Members:

I am hereby requesting from the committee a recommendation of approval to remove a portion of a parcel of land I own along Orbit Road, from the Courthouse District, as allowed by the Code of Virginia, Title 15.2 Chapter 43 (15.2-1314), being a portion of tax map parcel 39-01-038. My request is contingent upon county approval of a proposed small solar field project (Nuby Run Solar) on the tax map parcel referenced above, which, if approved will encumber a portion of this parcel with an easement, only for area required for the project. The remainder of the parcel outside the easement will remain in timber production for the foreseeable future and I would like to keep that portion within the district, if that is possible. The approximate area of easement is 20 acres and is subject to a survey to create the final easement area. Hexagon Energy, with my concurrence, has submitted a CUP application (#24505) for this project.

I understand that withdrawal, if approved, may result in back taxes being owed, due to the change in use of the leased portion of the property. I am requesting the removal request be considered at the next scheduled Agricultural/Forestral District Advisory Committee meeting date.

Sincerely,

Robert B. (Ben) Stagg, LS

15298 Gayle Way (P.O. Box 497)

Carrollton, VA 23314



November 4, 2021

Mr. Ben Stagg
15298 Gayle Way
Carrollton, Va. 2314

Dear Ben:

Your request to withdraw approximately twenty (20) acres of land from the Courthouse Agricultural District was considered by the Ag/Forestral District Advisory Committee on November 3, 2021.

The Committee voted to recommend approval of the request to the Isle of Wight County Planning Commission contingent on approval of the Conditional Use Permit application (CUP-5-21) being approved by the Board of Supervisors.

If you have any questions concerning this matter, please give me a call.

Sincerely,

Swr

Sandy W. Robinson
Zoning Coordinator

cc: bbecker@hexagon-energy.com

**LEVELS 2 AND 3 INTERCONNECTION REQUEST FORM SMALL GENERATING
FACILITY LESS THAN 20 MW**

Section 1. Interconnection Customer Information

Name: Nuby Run Solar, LLC
Contact person: Nicholas Ford
Mailing address: 722 Preston Ave Suite 102
City: State: Zip: Charlottesville, VA 22903
Utility and account number: _____
Energy Service Provider and account number: _____
Facility address: Orbit Rd Windsor, VA 23487 (36.882° N, -76.689° W)
Telephone (Day): 434-987-5452 (Evening): _____
Fax: _____ E-Mail: nford@hexagon-energy.com

Alternative contact information

Contact Name: Drew Price
Title: Managing Director
Mailing Address: Same as Above
City: State: Zip: _____
Telephone (Day): 434-227-5090 (Evening): _____
Fax: _____ E-Mail: dprice@hexagon-energy.com

Application is for: New Small Generating Facility X Capacity addition ____
If capacity addition to existing facility, please describe:

The Small Generating Facility will supply: Interconnection Customer __ others __
Point of Interconnection: 36.884285°N, -76.691254°W Distribution Line Tap
Interconnection Customer's requested in-service date: 6/30/2021

Section 2. Processing Fee or Deposit

If the Interconnection Request is submitted as Level 2, the nonrefundable processing fee payable to the utility is \$500.

If the Interconnection Request is submitted as Level 3, the Interconnection Customer shall submit to the Utility the deposit is \$1,000, or 50% of the estimated cost of the Feasibility Study, whichever is less.

Section 3. Small Generating Facility Information

Data apply only to the small generating facility, not the interconnection facilities.

Energy Source: Solar ☒ Wind ☐ Hydro ☐ Hydro Type: _____

Diesel ☐ Natural Gas ☐ Fuel Oil ☐ Other (describe): _____

Prime Mover: Fuel Cell ☐ Recip Engine ☐ Gas Turb ☐ Steam Turb ☐ Microturbine ☐ PV ☒
Other (describe) _____

Type of Generator: Synchronous ☐ Induction ☐ Inverter ☒

Generator Nameplate Rating: 2,000 kW Generator Nameplate kVAR: _____

Interconnection customer or customer-site load: _____ NA _____ kW

Typical reactive load: _____ NA _____

Maximum physical export capability requested: 2,000 kW

List components of the small generating facility equipment package that are currently certified:

Equipment	Certifying Entity
1. <u>Module</u>	1. <u>UL, IEC</u>
2. <u>Inverter</u>	2. <u>UL</u>
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

Is the prime mover compatible with the certified protective relay package? Yes ☒ No ☐

Generator (or solar collector)

Manufacturer, model name & number: Hanwha QCells Q.Plus L-G4.2 345

Version Number: _____

Nameplate Output Power Rating in kW: (Summer) 0.345 (Winter) _____

Nameplate Output Power Rating in kVA: (Summer) _____ (Winter) _____

Individual Generator Power Factor

Rated Power Factor: Leading: 0.8 Lagging: 0.8

Total number of generators in wind farm to be interconnected pursuant to this

Interconnection Request: Elevation: _____ Single phase ☐ Three phase ☐

Inverter manufacturer, model name & number: Sungrow SG125HV

List of adjustable set points for the protective equipment or software:_____

Note: A completed power systems load flow data sheet must be supplied with the Interconnection Request.

Small Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current:_____ Instantaneous_____ or RMS _____

Harmonics characteristics:_____

Start-up requirements:_____

Small Generating Facility Characteristic Data (for rotating machines)

RPM Frequency:_____

Neutral Grounding Resistor (If Applicable):_____

Synchronous Generators:

Direct Axis Synchronous Reactance, X_d :_____ P.U.

Direct Axis Transient Reactance, X'_d :_____ P.U.

Direct Axis Subtransient Reactance, X''_d :_____ P.U.

Negative Sequence Reactance, X_2 :_____ P.U.

Zero Sequence Reactance, X_0 :_____ P.U.

KVA Base:_____

Field Volts:_____

Field Amperes:_____

Induction Generators:

Motoring Power (kW):_____

I^2t or K (Heating Time Constant):_____

Rotor Resistance, R_r :_____

Stator Resistance, R_s :_____

Stator Reactance, X_s :_____

Rotor Reactance, X_r :_____

Magnetizing Reactance, X_m :_____

Short Circuit Reactance, $X_{d''}$:_____

Exciting Current:_____

Temperature Rise:_____

Frame Size:_____

Design Letter:_____

Reactive Power Required In Vars (No Load):_____

Reactive Power Required In Vars (Full Load):_____

Total Rotating Inertia, H: _____ Per Unit on kVA base

Excitation and Governor System Data for Synchronous Generators Only:

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

Section 4. Customer's Interconnection Facilities Information

Will a transformer be used between the generator and the point of interconnection? Yes

 X No

Will the transformer be provided by the interconnection customer? Yes No

Transformer Data (If applicable, for interconnection customer-owned transformer):

Is the transformer: single phase three phase X Size: kVA 2000

Transformer Impedance: 5.75 % on 2000 kVA base

If Three Phase:

Transformer Primary: 34,500 Volts Delta Wye X Wye Grounded

Transformer Secondary: 600 Volts Delta Wye X Wye Grounded

Transformer Tertiary: Volts Delta Wye Wye Grounded

Transformer Fuse Data (If applicable, for interconnection customer-owned fuse):

(Attach copy of fuse manufacturer's minimum melt and total clearing time-current curves)

Manufacturer: Type: Size: Speed:

Interconnecting Circuit Breaker (if applicable):

Manufacturer: Type:

Load Rating (Amps): Interrupting Rating (Amps): Trip Speed (Cycles):

Interconnection Protective Relays (If Applicable):

If microprocessor-controlled:

Manufacturer: Type: Model No.

 Firmware ID:

Instruction Book No.

List of functions and adjustable setpoints for the protective equipment or software:

Setpoint Function	Minimum	Maximum
-------------------	---------	---------

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

If Discrete Components:

(Enclose copy of any proposed time-overcurrent coordination curves)

Manufacturer: _____ Type: _____ Style/Catalog No.: _____
 Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____
 Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____
 Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____
 Proposed Setting: _____

Manufacturer: _____ Type: _____
 Style/Catalog No.: _____ Proposed Setting: _____

Current Transformer Data (If applicable):

(Enclose copy of manufacturer's excitation and ratio correction curves)

Manufacturer: _____

Type: _____ Accuracy Class: _____

Proposed Ratio Connection: _____

Manufacturer: _____

Type: _____ Accuracy Class: _____

Proposed Ratio Connection: _____

Potential Transformer Data (If applicable):

Manufacturer: _____

Type: _____ Accuracy Class: _____

Proposed Ratio Connection: _____

Manufacturer: _____

Type: _____ Accuracy Class: _____

Proposed Ratio Connection: _____

Section 5. General Information

Enclose a copy of the site electrical one-line diagram showing the configuration of the small generating facility equipment, current and potential circuits, and protection and control schemes.

Enclose a copy of any site documentation that indicates the precise physical location of the proposed SGF (e.g., United States Geological Survey topographic map or other diagram or documentation).

Describe the proposed location of the protective interface equipment on the property:____

Enclose a copy of any site documentation that describes and details the operation of the protection and control schemes. Is available documentation enclosed?

Yes ____ No ☒ ____

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

Are schematic drawings enclosed?

Yes ☒ ____ No ____

Section 6. Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Request is true and correct.

Signature:  Date: 6/8/2020

Section 7. Utility Acknowledgement of Receipt

Signed: _____

Title: _____

Utility: _____

Date: _____

Utility signature signifies only receipt of this form, in compliance with 20VAC5-314-50 of the State Corporation Commission's Regulations Governing Interconnection of Small Electrical Generators.

PHASE I ARCHAEOLOGICAL SURVEY

PROPOSED NUBY RUN SOLAR SITE

Isle of Wight County, Virginia

November 16, 2021



H&P PROJECT NO.

2021813

CONTACT:

Dwayne Pickett
Principal Investigator

SUBMITTED TO:

Mr. Drew Price, President
Nuby Run Solar, LLC
321 E. Main Street, Suite 500
Charlottesville, VA 22902

2524 Langhorne Road | Lynchburg, VA 24501
(434) 847-7796 | www.HandP.com



Table of Contents

Executive Summary.....	1
1. Introduction.....	3
2. Setting.....	5
3. History.....	8
4. Field and Laboratory Methods.....	23
5. Results.....	24
6. Conclusions and Recommendations.....	36
References Cited.....	37
Artifact Inventory.....	44
Investigator Qualifications.....	47
Site Forms.....	59

Figures

1. Project location.....	3
2. Project area map showing areas of potential ground disturbance.....	4
3. Project area depicted within larger parcel.....	6
4. Project area depicted on USGS Isle of Wight 7.5-minute quadrangle.....	6
5. Limits of proposed ground disturbance depicted on Isle of Wight County Soil Map (NRCS 2021).....	7
6. Project vicinity depicted on “A map of the state of Virginia”, by Böye 1827.....	16
7. Project vicinity depicted on Civil War map.....	18
8. Project area depicted on 1919 Smithfield, VA 1:62500 USGS topographic map.....	20
9. Detail of 1966 aerial depicting building complex near center of project area.....	20
10. March 1994 aerial view of the project area.....	21
11. Previously recorded sites within 0.5 miles and 1 mile of the project area.....	22
12. Shovel Test Pit (STP) location map.....	24
13. Representative STP profile in woods, Transect 30 STP 4.....	25
14. STP north profile, Transect 30 STP 4.....	26
15. Representative STP profile, Transect 31 STP 9.....	26
16. STP north profile, Transect 31 STP 9.....	27
17. Site location map.....	29
18. Site 44IW0324 looking southeast.....	29
19. Planview of depression at site 44IW0324.....	30
20. Depression at site 44IW0324 looking southwest.....	30
21. Large pile directly west of the depression at site 44IW0324 looking northeast.....	31

22. Pile of cement at site 44IW0324 looking southeast.....	31
23. Breakdown of artifacts recovered from site 44IW0324.....	32
24. Site 44IW0325 looking north through depression.....	33
25. Planview of depression at site 44IW0325.....	33
26. Bricks at the bottom of depression at site 44IW0325 looking west.....	34
27. Site 44IW0326 looking east.....	35
28. Breakdown of artifacts recovered from site 44IW0326.....	35

Tables

1. Isolated finds.....	28
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EXECUTIVE SUMMARY

On behalf of Nuby Run Solar LLC, Hurt & Proffitt, Inc. (H&P) has completed a Phase I archaeological survey of a 34-acre tract located in the central part of Isle of Wight County in Virginia's Hampton Roads region.

The purpose of the survey was to identify all archaeological sites in the Area of Potential Effects (APE), to estimate site size and boundaries, and to preliminarily assess the eligibility of identified sites for listing in the National Register of Historic Places (NRHP). The total area surveyed was approximately 34 ac. (13.7 Ha). The archaeological survey of the APE was conducted by a crew led by Dwayne Pickett from October 25 to November 3, 2021.

H&P first completed a reconnaissance survey of the project corridor which consists of a deciduous forest on the east, west and south ends of the project area and an agricultural field. A clump of trees extending into the field approximately halfway along its south edge is related to former structures which no longer exist. Fifty shovel test transects were laid out and spaced 50 feet (15.24m) apart running north to south across the APE. A total of 263 shovel test pits (STPs) were then placed at 50-foot (15.24m) intervals along those transects. Another 65 STPs were placed at 25-foot (7.62m) intervals around STPs that were positive for cultural material. A total of 328 STPs were excavated with 36 being positive for cultural material.

In addition to shovel testing, a pedestrian survey was conducted in the agricultural field which had approximately 75-80% surface visibility. The combined survey strategies resulted in the discovery of 11 isolated historic artifacts, one isolated prehistoric artifact (by definition not NRHP eligible) and three historic sites.

Site 44IW0324 is a moderate concentration of late 19th- early 20th century artifacts located to the north and south of the former structures. All that remains of these buildings is a pile of cement and a depression where it appears that one of the structures, or what remained of it, was removed by a machine and its remnants piled next to it. A 1919 map is the earliest map of the project area that depicts a structure there. The late date of this site along with the lack of intact stratigraphy and discernible features suggests that site 44IW0324 has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Site 44IW0325 is located in the woods along the eastern end of the property and consists of a depression with a few machine-made bricks at the bottom. The only artifacts recovered from STPs in this area were brick fragments. This depression might be related to an outbuilding associated with the structures at site 44IW0324. Given the low density of artifacts, the lack of domestic artifacts and the absence of

intact stratigraphy, site 44IW0325 has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Site 44IW0326 is also located at the eastern end of the property and consists of a low concentration of late 19th- early 20th century artifacts. Given the low number of architectural artifacts, this concentration might be related to disposal activities associated with the structures at site 44IW0324. The late date of this site along with the lack of intact stratigraphy and discernible features suggests that site 44IW0326 has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

1. INTRODUCTION

On behalf of Nuby Run Solar LLC, Hurt & Proffitt, Inc. (H&P) has completed a Phase I archaeological survey of a 34-acre tract located in the central part of Isle of Wight County in Virginia's Hampton Roads region (Figure 1). The Area of Potential Effects (APE) for archaeological resources was defined as those portions of the project where ground disturbance may occur. This consisted of 19 acres of a relatively flat agricultural field and 15 acres of forest located on the east, west and south ends of the project area (Figure 2). The purpose of the survey was to identify all archaeological sites in the Area of Potential Effects (APE) of the proposed solar site, to estimate site size and boundaries and to preliminarily assess the eligibility of identified sites for listing in the National Register of Historic Places (NRHP). The total area surveyed was approximately 34 ac. (13.7 Ha).

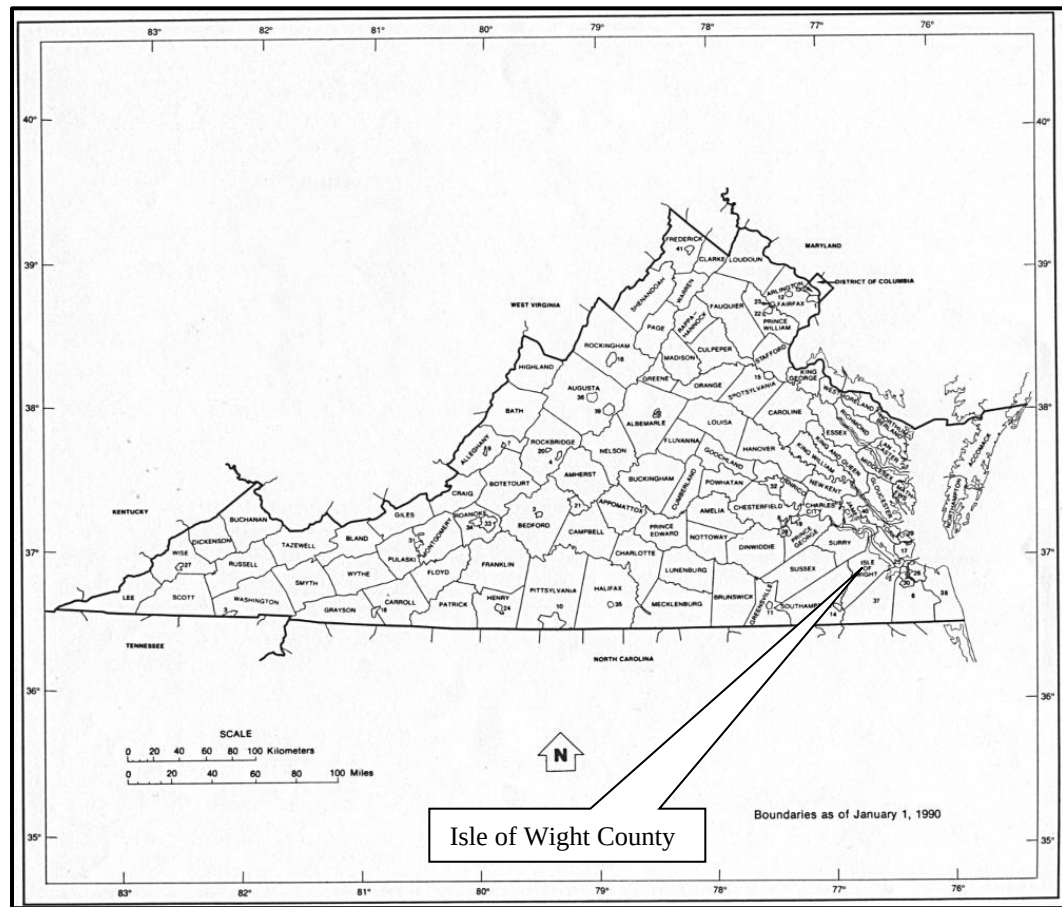


Figure 1. Project location.



Figure 2. Project area map showing areas of potential ground disturbance.

Prior to initiating the field portion of the project, Hurt & Proffitt compiled historic and environmental data regarding the distribution of known and potential sites in the project vicinity. This research included a review of site files stored in the Virginia Department of Historic Resources' (VDHR's) Virginia Cultural Resource Information System (V-CRIS), VDHR archives, Library of Congress digital map and photographic archives and local histories. A summary of that research follows, including information on all previously recorded cultural resources within a 1-mile (1.6-kilometer) radius of the project area.

The archaeological survey of the APE was conducted by a crew led by Dwayne Pickett from October 25 to November 3, 2021. All work conducted as a part of this investigation was in accordance with the National Historic Preservation Act of 1966 (as amended), the Archaeological and Historical Preservation Act of 1974, Executive Order 11593, and Title 36 of the Code of Federal Regulations, Parts 60-66 and 800 (as revised). The field investigations and technical report meet the requirements specified in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Federal Register 48:190:44716-44742) and the Virginia Department of Historic Resources *Guidelines for Conducting Historic Resources Survey In Virginia* (2011, rev. 2017). The Principal Investigator performing the cultural resource investigations meets or exceeds the qualifications described in the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44738-9).

2. SETTING

The project development footprint of approximately 34 acres is situated within a larger parcel of 117.3 acres bordering the south side of Orbit Road (Rte.637) (Figure 3). This parcel is approximately 2 miles southeast of the county seat, also named Isle of Wight. The APE consists of a long approximately rectangular block running parallel to the south side of Orbit Road (Rte. 637). Approximately 19 of the 34 acres consists of a relatively flat agricultural field along the road. The east and west ends of the project area are composed of deciduous forest while the south side is a mix of deciduous forest and pine plantation. A clump of trees extending into the field approximately halfway along its south edge is related to a former habitation site with structures still depicted on current topographic maps (Figure 4).

The project area is located in the Embayed portion of Virginia's Coastal Plain geologic province. The Embayed portion is a narrow strip along Virginia's eastern edge stretching from the Fall Zone to the Atlantic Ocean. It is characterized by younger strata than the adjoining Piedmont province and is cut by large tidal rivers that flow into the Chesapeake Bay (Geology of Virginia 2021). The area between the Coastal and Piedmont provinces was an important area for cultural interaction (Thornbury 1965). The lack of lithic resources in the Coastal Plain such as quartz and quartzite meant that people had to either travel to areas near the Fall Line or trade with others for the material they needed (Egloff 1989).

The nearest water source to the project area is Nuby Run which forms the western and southern boundaries of the larger parcel in which the proposed development area sits. Nuby Run is a tributary to Great Swamp which it joins approximately 1800 feet (548.6m) east of Orbit Road. Great Swamp flows southeasterly through a series of reservoirs, eventually emptying into the Nansemond River which flows into the James River several miles to the northeast of the project area. The margins of Nuby Run are depicted as wetlands on topographic maps. Elevations range from 97 feet AMSL in the northwestern part of the county to about sea level along the James River in the northeastern corner of the county. Elevations within the project area are between 62-84 ft AMSL.

There are three different soil types within the APE. Slagle fine sandy loam 0 to 2 percent slopes (18A) makes up 58.3% of the APE and covers about 19.6 acres mainly in the agricultural field. Along the wooded area to the south is Slagle fine sandy loam 2 to 6 percent slopes (18B) which comprises 29.8% of the APE and covers about 10 acres. Making up 12% of the APE is Emporia fine sandy loam 0 to 2 percent slopes (5A) which comprises 4 acres in the eastern end of the APE (Figure 5).

Sagle fine sandy loam is very deep, moderately well drained and moderately slow or slow permeable soil found within marine terraces and uplands of the Atlantic Coastal

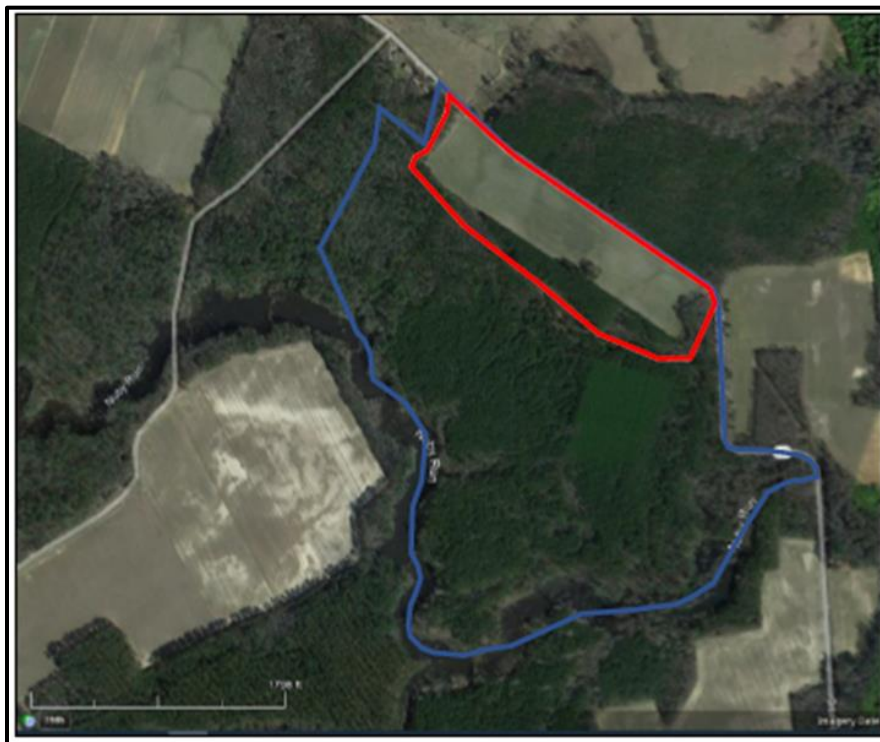


Figure 3. Project area (red line) depicted within larger parcel (blue line).

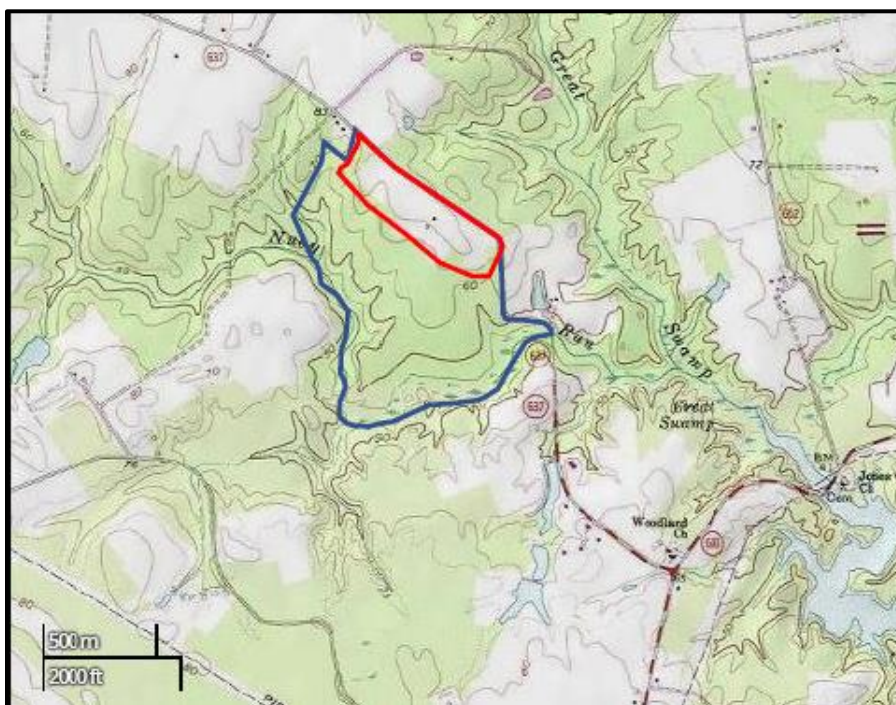


Figure 4. Project area depicted on USGS Isle of Wight 7.5-minute quadrangle. Scale 1:24000.



Figure 5. Limits of proposed ground disturbance depicted on Isle of Wight County Soil Map (NRCS 2021).

Plain. It is strong to extremely acidic. This soil is mainly used for crops and forestry. In fields it can support corn, soybeans, tobacco and peanuts whereas in wooded areas it can support Virginia pine, sweet gum, red maple, southern red oak, water oak, yellow poplar and hickory.

Emporia fine sandy loam is also very deep, moderately well drained and moderately slow or slow permeable soil found within marine terraces and uplands of the Atlantic Coastal Plain. It is very strong to moderately acidic. This soil supports both crops and woodlands. In fields it can support corn, soybeans, tobacco, peanuts and cotton whereas in wooded areas it can support loblolly pines, Virginia pine, red maple, sweet gum, oak, and hickory (NRCS 2021).

3. HISTORY

Project area precontact history

Paleoindian Period 15,000–8,000 B.C.

It is believed that the first people who entered the Western Hemisphere came from Asia at the end of the last great Ice (or Pleistocene) Age. Glaciers covered large areas of Canada and they lowered the sea level by 300 feet (91.4m), exposing an immense, 1,000-mile (1609.3km)-wide plain between Siberia and Alaska known as Beringia.

In 1927 a fluted point was discovered in Folsom, New Mexico, which was in the ribs of an extinct species of bison. Five years later near Clovis, New Mexico, a woolly mammoth kill site was found with associated stone tools dating to 11,200 years ago. The fluted points that were discovered are called Clovis points and they are the distinguishing feature of Paleo sites.

In the western plains they used these points to hunt large game like the mastodons but along the east coast that does not appear to have been the case. The archaeological data from Virginia records numerous discoveries of fluted points, but no clear-cut association between extinct large game and fluted points (Boyd 1989:139). For this reason, many archaeologists now hold that eastern Paleoindians were generalized foragers (e.g., Grayson and Meltzer 2003; but see Fiedel and Haynes 2004).

The first people lived in groups that have been classified as bands, which was like an extended family. They camped along streams that ran through the tundra-like grasslands and the open pine, spruce and fir forests that covered Virginia at that time. Due to the severe climate, each band moved around seasonally to hunt and forage (Egloff and Woodward 2006).

Although it is clear that people entered the Western Hemisphere through Alaska some sites suggest that people may have been here earlier and possibly entered from elsewhere. These pre-Clovis sites such as Cactus Hill in southern Virginia, which has been dated to almost 17,000 years ago, suggests people could have been here much earlier than was previously thought (Egloff and Woodward 2006).

Current research of the Paleoindian time period is focused on the southeastern Coastal Plain area and the upper Roanoke River. The Nottoway River Survey has identified numerous Paleo sites along with the pre-Clovis Cactus Hill site in southeastern Virginia. One of the important sites discovered is the Williamson site which has shown evidence of intact Clovis-age deposits beneath a plow zone layer (Hall 1999; McAvoy and McAvoy 2003).

In the upper Roanoke River area stratified Paleoindian sites have been discovered in the Leesville/Smith Mountain Lake area (Childress and Blanton 1997; Gingerich 2016; Gingerich et al. 2015). The sites in this area have well-defined Paleoindian to Early Archaic components and are being studied for how lithic resources and the climate changed during the Younger Dryas and the Pleistocene/Holocene transition (Boyd 2020).

Two sites dating to the Paleoindian period have been found in Isle of Wight County. Both are located along the James River in the northern part of the county. Site 44IW0015 was a shell midden eroding into the river where fluted points were found. Also eroding into the river was site 44IW0081 where a Hardaway point was discovered.

Archaic Period (8000 – 1200 B.C.)

The Archaic period is generally divided into three phases, Early (8,000–6,000 B.C.), Middle (6000–2500 B.C.), and Late (2500–1200 B.C.). At the beginning of the Early Archaic was the dawn of the Holocene epoch at approximately 8,000 B.C. The climate began to warm and the glacial ice sheets retreated. The warming trend associated with the Holocene period fostered a diversity of flora and fauna throughout the eastern seaboard on land as well as within the gradually forming Chesapeake Bay.

The people of the Early Archaic settled a diverse area ranging from the mountains in the west to the coastline in the east. A look at the distribution of these sites shows that they are concentrated along the Ridge and Valley and the Fall Line. Both these environments provided natural resources such as stone for lithics. Groups of about 25-50 people would work as a unit at base camps and breakup into smaller units to gather resources utilizing smaller camps (Barber 2020).

Diagnostic artifacts recovered from Early Archaic sites include Charleston Corner Notched, Palmer and Kirk, Amos, Warren, Big Sandy, Kessell and ending with Kirk Stemmed. During this time period, the bifurcate tradition was developed and thumb nosed scrapers continued to be used. Also, ground stone tools such as axes, celts, adzes and grinding stones make their first appearance. Towards the end of this period there is an increased reliance on a wider range of lithic resources (Coe 1964; Custer 1990).

There are only seven sites recorded in Isle of Wight County that have an Early Archaic component. No sites dating to this time period are located within 3 miles (4.8 km) of the project area.

The Middle Archaic period coincided with a relatively warm and dry period. Sites dating to this time period are more numerous suggesting an increase in population

and sites appear to be occupied for longer periods of time (Delcourt and Delcourt 1987; Stoltman and Baerreis 1983). The people of this time period were thought to comprise small groups of highly mobile hunter-gathers exploiting upland forests of oak and hickory which spread during this warmer dryer period. Because of this new forest growth nuts and berries began to play an important role in their diets. Despite the number of Middle Archaic sites located in the uplands they likely exploited resources over a vast area including the estuary system around the Chesapeake Bay (Egghart 2020a).

During this time period there was an increased use of ground stone tools, cobble tools and a shift to local lithics in crafting projectile points. Projectile points from this time period include Stanley Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate and Halifax Side-Notched. LeCroy points area seen as coinciding with the beginning of the Middle Archaic with Savannah River points marking the end of the period (Egghart 2020a).

No sites dating to this time period are located within 3 miles (4.8 km) of the project area.

By the Late Archaic Period, the population in Virginia could have been in the tens of thousands. In order to feed the growing number of people, hunting and gathering practices had to intensify. At the beginning of the Late Archaic Period retreating glaciers led to higher sea levels on the Atlantic seaboard. This allowed for the development of large estuaries and tidal wetlands that were beneficial to the development of coastal resources such as fish and shellfish. Groups began settling along river valleys, the lower portion of the coastal plain tributaries of major rivers and near swamps. At riverside sites large hearths of fire-cracked rock have been found suggesting Late Archaic people prepared large amounts of food there. Because of this some archaeologists have hypothesized that fish began to play a larger role in the diet. Platform hearths seen during this period are interpreted as being associated with fish processing (Dent 1995:185).

During this period, they may also have begun to domesticate plants such as goosefoot, squash and gourds (Yarnell 1976:268; Chapman and Shea 1981:70). They also used squash and gourds for food storage in addition to earthen pits (Egloff and Woodward 2006:22). Other characteristics of this time period is an increase in sedentism, the beginnings of long-distance trade networks and societies becoming less egalitarian (Egghart 2020b).

The projectile point technology of the Late Archaic Period is dominated by stemmed and notched point forms, many with broad blades, likely used as projectiles or knives. These points diminish in size towards the latter portion of this period (Dent 1995; Justice 1995).

No sites dating to this time period were located within 3 miles (4.8 km) of the project area.

Woodland Period (1200 B.C.– A.D. 1600)

Like the Archaic Period, the Woodland Period is also divided into three phases; Early (1,200 -500 B.C.), Middle (500 B.C.-A.D. 900) and Late (A.D. 900-1600). The beginning of the Woodland period is usually marked by the appearance of pottery in the archaeological record which was used for storing and cooking food. Also, the Native Americans of the Woodland period began to maintain a greater reliance on horticulture and agriculture which increased sedentism and the nucleating of societies (Klein and Klatka 1991; Mouer 1991).

In the Piedmont region of Virginia, Early Woodland settlements are located along rivers as well as in interior areas and there is evidence to suggest the Piedmont areas developed a more sedentary lifestyle during this time (Klein and Klatka 1991; Mouer 1991). A number of Early Woodland sites in the Piedmont are large permanent or semi-permanent villages. This corresponds with the domestication of plants such as the goosefoot and sunflower along intentionally cleared riverine areas. Also, long distance trade appears to decline with exotic items becoming less prominent. In the Coastal Plain, Early Woodland sites are scarce and appear to be seasonal in nature and occupied for short durations (Egghart 2020c). Early Woodland projectile points include various stemmed or lanceolate forms and include a variety of small, stemmed point types (Coe 1964; McLearen 1991).

In the Middle Woodland Period people move away from smaller tributaries and began to settle along estuaries and major streams and also began to organize into larger groups (Hantman and Klein 1992). They became more sedentary and exploited riverine and estuarine resources such as fish, deer, waterfowl and turkey along with nuts, amaranth and chenopod seeds. The spear was replaced by the bow and arrow for hunting and corn had transformed into the large ears familiar today (Egloff and Woodward 2006:25). During this time period specialized crafts and increased trade over long distances is noted. With this comes evidence of rank societies and the spreading of religious and ritual behavior including symbols and regional styles in ceramics (Nash 2020).

Modification in ceramic manufacturing is characteristic of the Middle Woodland Period with Pope's Creek ceramics being associated with the beginning of this period and Mockley ceramics with the later. Pope's Creek ceramics are tempered with medium to coarse sand, with occasional quartz inclusions, and interior scoring has also been recorded (Stephenson 1963:94; McLearen and Mouer 1989). The majority of Pope's Creek ceramics have net-impressed surfaces (Egloff and Potter 1982:99). Shell-tempered Mockley ceramics first appeared around 200 A.D. in Virginia to

southern Delaware. There was a variation in surface treatments for Mockley that included plain, cord-marked and net-impressed (Egloff and Potter 1982:103). The pottery of the Piedmont was similar to that of neighboring regions, though it was tempered with quartz and sand, and fabric, net and cord markings were common (Egloff and Woodward 2006:35).

The highest concentration of Middle Woodland sites is east of the Fall Line (Nash 2020). As such, one site dating to this time period was found within three miles (4.8 km) of the project area. Site 44IW0058 is recorded as a Middle Woodland camp. Artifacts collected from a plowed field included 29 quartz and quartzite flakes, one Stoney Creek fabric marked and two Stoney Creek cord mark sherds.

The use of domesticated plants had assumed a major role in the prehistoric subsistence system by the Late Woodland Period. The arrival and cultivation of beans joined corn and squash as the three major crops (Egloff and Woodward 2006:26). The adoption of agriculture represented a major change in the prehistoric subsistence economy and settlement patterns. Expanses of arable land became a dominant settlement factor, and sites were located on fertile floodplain soils or, in many cases, on higher terraces or ridges adjacent to them. Native Americans in Virginia became more populous and developed strong identities to their local settings. They became more sedentary and organize into villages and small hamlets with more substantial housing that may have been placed in rows around a plaza. These villages were highly nucleated and occasionally fortified with palisades. The fortifications demonstrate inter-group conflict (Egloff and Woodward 2006:26; Means and Moore 2020).

No sites dating to this time period were found within three miles (4.8 km) of the project area but two sites recorded as Woodland are located within that distance. Site 44IW0059 is classified as a Woodland camp where artifacts were found in a plowed field. They include 34 quartz and quartzite flakes along with shell tempered and grit tempered sherds that were either fabric, net or cord marked. The other site is 44IW0060 which is also described as a Woodland camp. A total of 16 quartz and quartzite flakes, one biface and one grit tempered sherd were recovered from a plowed field.

Project area history

The Spanish were the first recorded Europeans to reside in what would become Virginia. A mission was established along the York River in 1570 that was short lived. Native Americans attacked the Jesuits there and killed all except an altar boy who was later rescued by the Spanish (Mallios 2006). It was not until 1607 when the English established the Jamestown colony on the James River. Despite many hardships Jamestown prevailed and did not succumb to the failures that plagued the Roanoke and Popham colonies (Pickett and Pickett 2011).

The following year in 1608, Captain John Smith explored the area that would become Isle of Wight County. He traded beads and trinkets with the Warrosquoyacke for corn. The Warrosquoyacke inhabited land in an area that became known as Fergusson's Wharf and controlled an area that extended roughly five miles along the James River and 20 miles inland (Morrison 1907). Over the next few years, they maintained a peaceful relationship with the settlers, occasionally providing them with overnight accommodations and taking in two men for the purposes of exploration and learning (King 1993).

On April, 27, 1619 a ship called the *Marygold* arrived at Jamestown with 100 settlers. They established a settlement near the mouth of Lawne's Creek which today is the dividing line between Isle of Wight and Surry Counties. The settlement was organized by Captain Christopher Lawne, Sir Richard Worsley, Nathaniel Basse, and John Hobson and was called Warrosquoyacke or Lawne's Plantation. Not long after its establishment the settlers fell ill and began to die. Within a year Lawne and about 80 others were dead. In 1620, the settlement was given more time from the London Company to establish itself. At the same time, the company also renamed the plantation Isle of Wight, most likely after the homeplace of Sir Richard Worsley. Patents for two additional plantations were granted the next year, further increasing the population of the colony (King 1993).

With the successful cultivation of tobacco people began to move further away from the colonial center at Jamestown in search of land. Tobacco was grown by just about everyone from large landowners to tenant farmers (Kulikoff 1986: 4-5; Rutman and Rutman 1984: 41-43). In order to be financially successful, large landowners needed an abundance of labor. Indentured servants and slaves were used to fulfill this need but by the second half of the 17th century the labor force began to be dominated by African slaves (Morgan 1975).

The need for land in order to grow tobacco caused colonists to increasingly encroach on lands controlled by the Powhatan Confederacy. This led to increased conflict which resulted in the Powhatan uprising of 1622. On Good Friday, March 22, 1622, tribes belonging to the confederacy attacked settlements up and down the James River killing 347 colonists. The Warrosquoyacke took part in the uprising and attacked two settlements in what would become Isle of Wight County. Basse's Choice and Bennett's Welcome were attacked resulting in the deaths of 53 colonists. Retaliation from the colonists and ongoing wars resulted in the Warraskoyack disappearing from colonial records by 1650. These attacks alarmed colonial officials and led to the British Crown taking over the colony from the Virginia Company in 1624. Ten years later in 1634 eight counties were established one of which was Warrosquoyacke (Isle of Wight) (Dabney 1971; Salmon and Campbell 1994).

In 1635, the population of Warrosquoyacke was 532 and by 1637, the name of the county was officially changed to Isle of Wight. The county was originally bound on the north by Lawne's Creek, on the east by the James River and an inland line that extended from the point of Richard Hayes's plantation to the head of Colonel Pitt's creek, and on the south by a line that ran west for an undefined distance. In 1642, it was divided into the Upper and Lower Parish, with Pagan Creek as the dividing line (King 1993). Initial settlements centered on the south shore of the James River as well as the east and west shores of Pagan Creek.

The project area is south of the James River near the center of Isle of Wight County, removed from the major plantations on the James and York Rivers. The first town in the county was established at Pate's Field where the Pagan River enters the James River. It was established as the result of a law passed in 1680 that required every county that exported tobacco and other goods to lay out a town of fifty acres with half acre lots. The lots were to include both a dwelling and a storehouse, and other stipulations were put in place to discourage people from developing and reselling the lots. After January 1681, all exports and imports were required to pass through these towns. The town at Pate's Field however was too remote and inconvenient for people to access and thus never fully succeeded (King 1993).

At the beginning of the eighteenth-century increasing numbers of African slaves were transported to Virginia. Between 1700 and 1750, approximately 45,000 slaves were brought to the colony brining the estimated total population to around 230,000 (Isaac 1982:12). This period also saw a marked increase in American-born slaves. In 1728, three out of five adults were African born, but by 1740, less than half of all slaves were born in African (Kulikoff 1986:71).

The town of Smithfield was established in 1750 by Captain Arthur Smith from a portion of his farm that bordered Pagan Creek. That area already had a tobacco storehouse with a public landing that offered ferry access. A total of 72 lots were laid out and two center lots were set aside for the construction of a courthouse. In 1750 construction began on the new courthouse which still stands in Smithfield today (Dashiell 1996).

During this period, the economy of the county continued to rely on the production of tobacco. The crop, however, quickly depleted the land and was slowly replaced with corn and other grains, orchards and livestock. The pine forests of the area were also harvested for tar, pitch and turpentine (King 1993).

In 1757 Great Britain and France went to war which spilled over into North America. The French and Indian War lasted for six years and ended in 1763. Following this conflict, Great Britain tried to recoup some of the costs for defending the American colonies by levying taxes and tightening the administration of trade through navigation acts. Additionally, King George forbade settlement of lands west of the

mountains and trade with the Native Americans. All this was done without a representative from the colonies in Parliament and prompted many colonists to adopt the phrase no taxation without representation (Salmon and Campbell 1994).

At the onset of the Revolutionary War many citizens in Isle of Wight County were divided. Some had immigrated from England and Scotland and were faced with choosing between their king and county or the new land in which they lived. In October of 1775, a number of local patriots joined the Princess Anne District Battalion and participated in battles at Kempsville and Portsmouth. Others joined the 7th, 8th, and 9th companies of the 4th Virginia Regiment of Foot, which eventually joined Washington's army and fought at Trenton and Germantown. Though no major battles were fought in Isle of Wight County, British Lieutenant Colonel Tarleton led a raid on the courthouse in Smithfield that caused substantial damage. Residents also found the shoreline difficult to defend and at least one tobacco warehouse had to be closed due to an attempted invasion by British forces (King 1993).

The first federal census, taken in 1790, recorded the population of Isle of Wight County at 9,028 people. Out of that number 4,786 were of European descent, 3,867 were slaves, and 375 were freed slaves. In 1790, Virginians owned nearly half of the slaves in the nation (Berlin 2010:104). The United States outlawed the importation of slaves in 1808 but did not outlaw the domestic slave trade (Berlin 2010:70). During this period many Virginia farmers, especially in the Piedmont, began to diversify their crops, turning to those that required less labor. This led to a surplus of slave labor that was used for manufacturing or leased out to others (Sanford 1994:119).

The population of the county was slow to grow, as only 10,517 residents were recorded in 1830. Also, the geographical distribution of people began to shift with an increasing number moving to the western part of the county (King 1993). To accommodate the shift in population, a new courthouse was constructed closer to the center of the county around 1800. This courthouse, which is still in use today, is located approximately 2 miles (3.2 km) north of the project area.

During the late eighteenth and early nineteenth centuries, farmers in Isle of Wight County began to move away from tobacco and began growing cotton. In the early nineteenth century a gin and two cotton factories began to operate. Although ferries had long served the transportation needs of the county, bridges and roads also began to improve during this period (Figure 6). In 1818, the Corrowaugh Post Office was established in what is now the town of Windsor approximately 9 miles (14.5 km) south of the project area (King 1993).

At the start of the Antebellum Period, many in the coastal areas of Virginia were farmers. In the 1820s and 30s there was an agricultural depression which caused a number of people to leave the area and look for opportunities elsewhere. (Mansfield 1989; Parramore et al. 1994). Cotton farmers could not compete with cotton of the



Figure 6. Project vicinity depicted on Böye, Herman, Henry Schenck Tanner, E. B Dawson, and William Branch Giles, 1827 *A map of the state of Virginia: reduced from the nine sheet map of the state in conformity to law.* H.S. Tanner and E.B. Dawson, Philadelphia, Pennsylvania (Library of Congress).

Deep South, and many inhabitants of the region moved west. This agricultural depression was exacerbated by cold weather that destroyed many cotton crops and contributed to the drastic reduction in cotton farming in Virginia (Crofts 1992).

Despite these setbacks, agriculture continued in Isle of Wight County with over 1,400 farms growing such crops as corn, sweet potatoes, peas, watermelons, beans and cotton (King 1993). However, in contrast with earlier periods, only 44 pounds of tobacco were reportedly produced in Isle of Wight County in 1850 (Whichard 1959). Neighboring Sussex County began growing peanuts which was introduced to Isle of Wight County as a commercial crop just prior the Civil War (King 1993).

One of the more significant developments in the county was the construction of the Norfolk and Petersburg Railroad in 1858. With its construction people could ship items to market more readily which stimulated the economy. One of the stops on the railroad was at Windsor Station at the site of the Corrowaugh Post Office. The opening of this station spurred the lumber industry in the county, which resulted in land clearing and the construction of sawmills (Isle of Wight n.d.). From Windsor

Station, farmers could send crops to market in Norfolk or Petersburg, giving those near the station an advantage over more remote parts of the county (King 1993; Maguire 1989).

Between 1830 and 1860, the total population of the county decreased from 10,517 to 9,977, with the number of enslaved persons decreasing from 4,272 to 3,570. Less reliance on slave labor was at the core of this decrease. The only group that saw an increase was free blacks whose numbers grew to 1,370 and comprised 13 percent of the total population (King 1993).

The beginning of the Civil War interrupted the economic prosperity brought by the railroad. William Mahone, the engineer of the railroad, joined the Confederate Army and served with distinction. In May, 1862 Union forces took control of the railroad from Norfolk to Zuni after the evacuation of Norfolk. As a response, the railroad company removed sections of track making the portion of the rail line under Union control unusable (Chabot 1938) (Figure 7).

The Confederates kept watch and sent out patrols to look for any Union attempts to cross the Blackwater River and the Union in the Suffolk area took similar steps to prevent a Confederate crossing of the Nansemond River. The area between the two rivers was the scene of small skirmishes between bands of opposing cavalry.

On December 12, 1862, an engagement took place at Joyner's Ford, near Zuni. According to Captain J. H. Sikes of Company D, Seventh Confederate Cavalry, the number of Confederates at the ford did not exceed 30 men. The opposing Union force, according to Captain Sikes, was much larger and used artillery. The Confederates successfully repelled attempts by Union infantry and cavalry to cross the river. Union troops eventually managed to cross the river below the ford on pontoon boats. The Confederate troopers made a last stand at the Joyner house, but were overwhelmed by the Federal Army and captured. Confederate reinforcements arrived as Union soldiers retreated across the Blackwater River with their prisoners which included Captain Sikes (Sikes 1862).

The Union remained active along the Norfolk and Petersburg railroad. In May 1863, they tore up tracks between Suffolk and the Blackwater River. Major General Dix reported that two regiments of Confederate infantry with two artillery pieces tried to stop them about five miles east of Zuni (Wistar 1863).

Following the war, Mahone began the task of rebuilding the Norfolk and Petersburg Railroad, as well as the repairing of water stations and station buildings (Chabot 1938). Although the South was in economic ruin, Mahone wanted to connect Norfolk

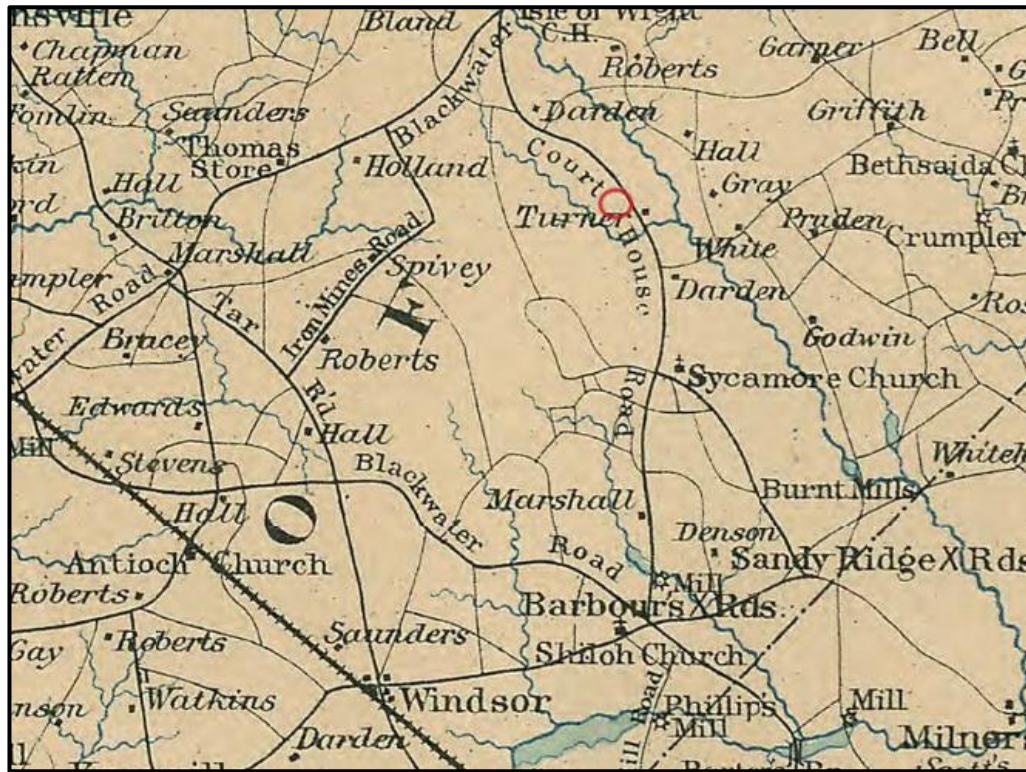


Figure 7. Project vicinity depicted on Civil War map. Preliminary map of a part of the south side of James River, Va.: from surveys and reconnaissances. [Washington: GPO, between to 1893] (Library of Congress).

to the Mississippi Valley. In order to do this, he began consolidating railroads. The Atlantic, Mississippi and Ohio Railroad Company was formed from a merger with the Norfolk and Petersburg in 1872. From this, the Norfolk and Western was organized in 1881 (Virginia Writers' Program 1942).

In addition to rebuilding the railroad, peanut farming was also on the rise in Isle of Wight County after the war. Peanut production increased from 40,000 bushels in 1872 to over 200,000 bushels in 1890. In 1877, John King established a peanut factory in Windsor and a peanut cleaning factory was established in Smithfield in 1880 (King 1993).

Lumber also continued to be an important industry. In 1878 the Camp Manufacturing Company established itself along the Blackwater River and others opened up close to the James River. Because of the train station, Windsor became a center for those who used the railroad to ship their lumber. This caused the community to grow considerably (King 1993).

At the turn of the twentieth century peanuts remained an important crop along with soybeans. As such, by 1935, the county had over 1,400 farms. One of those farms was located within the APE. A 1919 USGS map depicts a structure in the project area (Figure 8). An aerial photo from 1966 offers the clearest evidence of the former farmstead. It shows a small complex of buildings, including a house, large barn and several smaller structures arranged within a series of fenced yards and gardens (Figure 9).

In 1939 the Community Electric Cooperative began erecting power lines and providing electricity to the more rural portions of the county. The construction of the James River Bridge, which opened on November 17, 1928, connected Isle of Wight residents with the growing urban centers of Hampton and Newport News. In order to pay for it, a toll was collected which discouraged many from using it (King 1993).

By 1950, there were over 14,000 people living in Isle of Wight County. Smithfield was the largest town with Windsor being the second largest despite only having 451 inhabitants. At this time commercial forestry was still a leading industry along with the continued importance of agriculture (Whichard 1959). In 1975, the state took over the operation of the James River Bridge and removed its tolls. This encouraged people who worked in the Newport News area to move to Isle of Wight County. As a result, the population increased.

The number of farms in the county declined greatly by the early 1990s, and many farmers shifted their focus from crops to beef cattle (King 1993). A 1994 aerial photo of the project area shows the farm complex which appears to be abandoned (Figure 10). Sometime after that date it appears that all the buildings were razed. According to the 2010 U. S. Census, the population of the county was 35,270, an 18.6 percent increase from 2000 and indicative of the continued growth of the area (USCB).

Previous Investigations

H&P reviewed the Virginia Department of Historic Resources' (VDHR) Virginia Cultural Resource Information System (V-CRIS) for previously recorded cultural resources and previously conducted Phase I Archaeological Surveys in the vicinity of the project area. A review of these resources within 0.5 miles (0.8 km) of the project parcel boundaries identified no previously recorded archaeological sites and no previous Phase I Archaeological Surveys. Two architectural resources have been recorded within 0.5 miles (0.8km) (Figure 11).

Resource 046-5310 is a standard steel I-beam, timber deck bridge located east of the project parcel on Orbit Road at the crossing of Nuby Run. The bridge was surveyed in 2011 and determined not eligible for listing in the National Register of Historic Places. A 1950 Colonial Revival house at 18493 Orbit Road (046-5546), was recorded in 2019 by Commonwealth Heritage Group, Inc. (CHG). Although the

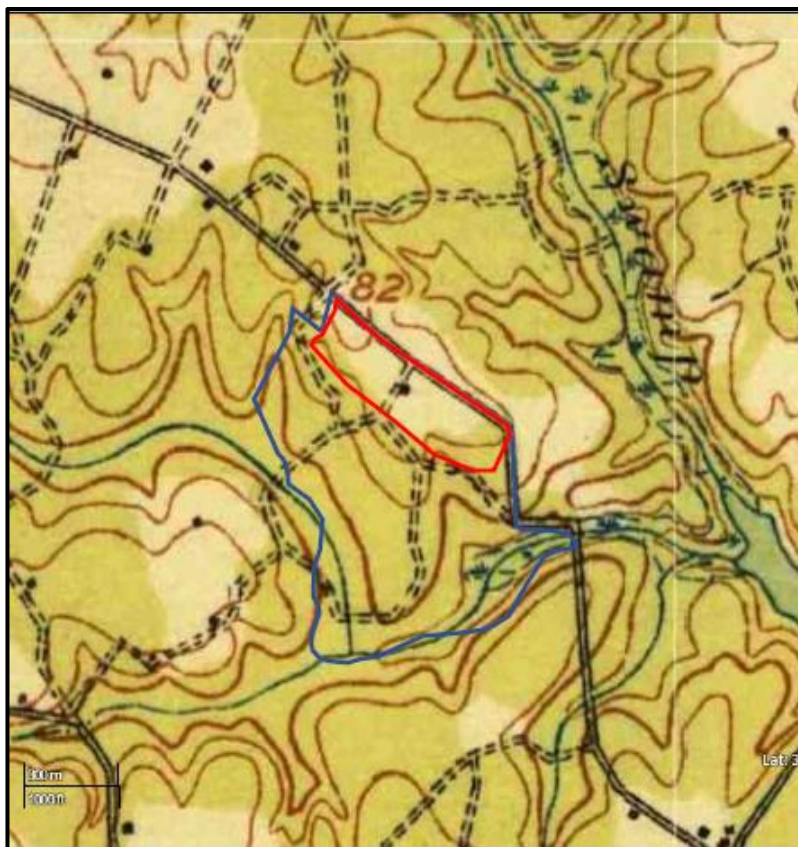


Figure 8. Project area depicted on 1919 Smithfield, VA 1:62500 USGS topographic map (USGS 2021).



Figure 9. Detail of 1966 aerial depicting building complex near center of project area.



Figure 10. March 1994 aerial view of the project area (Google Earth).

house and outbuildings were not considered by CHG to be individually eligible for the National Register, they recommended further study to determine if the property might be a contributing element to a larger rural agricultural historic district. CHG assumed eligibility of the property strictly for the purposes of environmental review of the solar energy project it was surveyed for at the time. This property is located on the north side of Orbit Road and approximately 2,000 feet (609.6m) to the west of the proposed Nuby Run project development area.

Expanding the V-CRIS search to 1 mile (1.6km) captures one previously recorded archaeological site and six additional architectural resources (Figure 11). Archaeological Site 44IW0311 is located on the north side of Orbit Road approximately 4,500 feet (1,371.6m) west of the current project area. This site consists of the remains of a medical office dating from between 1900 and 1938. The site was recorded by CHG in 2019 and determined not eligible for the National Register. Although the site was recorded as part of a Phase I Archaeological Survey, that survey is not currently mapped in V-CRIS, nor are any additional surveys mapped within a 1-mile (1.6km) radius. The six additional architectural resources consist of a potentially eligible farm at 12452 Redhouse Road (046-0004), a potentially eligible house and cemetery at 18421 Orbit Road (046- 0021), the Woodland United Methodist Church and cemetery (046-5158) which has not been evaluated, the National Register-eligible Julius Caesar Darden House (046-5188) at 19614 Orbit Road, a dwelling at 18402 Orbit Road (046-5545) that was considered eligible for environmental review purposes only, and the unevaluated Gray Cemetery (046-5590).



Site Potential

Historic aerial images and maps reveal that the project area has been in roughly its present configuration since at least the early part of the 20th century. Significantly, the parcel contains the archaeological remains of a small farmstead that dates at least from that time period. While the farmstead is not denoted on earlier maps, it is unclear when it may have been constructed.

4. FIELD AND LABORATORY METHODS

The goal of the present archaeological survey was to identify any archaeological sites in or eligible for listing in the NRHP within the project's APE. The survey methodology employed to meet this goal was chosen with regard to the project's scope (i.e., the project's potential to affect significant resources, should they be present), the potential of the APE to contain significant archaeological resources, and local field conditions.

Prior to initiating the field study, H&P notified VA 811 and had utilities marked. Once in the field, the APE was subjected to a surface reconnaissance to assess conditions and identify any surface indications of archaeological sites. The wooded areas to the east, west and south of the project area had no surface exposure so it was determined that the wooded areas would require shovel testing. The agricultural field had approximately 75-80% surface visibility and it was determined that a pedestrian survey was warranted.

Shovel test pits (STPs) were excavated at 50-foot (15.24m) intervals along transects spaced 50 feet (15.24m) apart. The STPs measured 15 inches (38.1cm) in diameter and were excavated stratigraphically to 0.4ft. (12cm) into culturally sterile subsoil. All soil from the STPs was screened through 0.25-inch (0.64-cm) mesh to facilitate artifact recovery. Soil profiles were recorded using Munsell Soil Color charts and standard soils nomenclature (Kollmorgen Instruments Corporation 1992). All positive STPs were delineated using radial STPs excavated at half intervals or less. STPs were not excavated in areas with slopes greater than 15 percent, areas of previous construction disturbance and waterlogged areas. All shovel test locations were recorded and mapped.

The pedestrian survey was carried out by a crew of five people spaced arm's length apart walking parallel, straight transects at a slow pace. Each observed artifact was marked with a pin flag. The artifacts' provenience information was noted on the bag and recorded using a GPS unit. When a site was encountered, artifacts were recorded that lay within a 25-foot (7.62m) area of the corresponding transect and STP line already established for the woods. At least two STPs were excavated at each site discovered in order to determine if intact stratigraphy or features were present.

All artifacts recovered as a result of this survey have been processed and prepared for curation by the Hurt & Proffitt Archaeological Materials Laboratory in accordance with the specifications in *Curation of Federally Owned and Administered Archaeological Collections* (36 CFR Part 79) and the VDHR's *State Curation Standards*. Artifacts retained during this investigation will be stored temporarily at the H&P laboratory and curated along with all original field records and photographs at the VDHR at the conclusion of the project.

5. RESULTS

The Phase I archaeological survey resulted in the excavation of 328 STPs with 36 being positive for cultural material and a pedestrian survey which resulted in the collection of numerous artifacts from an agricultural field (Figure 12). Fifty shovel test transects were laid out and spaced 50 feet (15.24m) apart running north to south across the APE. A total of 263 STPs were then placed at 50-foot (15.24m) intervals along those transects. Another 65 STPs were placed at 25-foot (7.62m) intervals around STPs that were positive for cultural material. The positive STPs and artifact concentrations in the field were located in the central and eastern sections of the APE and all contained historic material with the exception of one STP which contained a flake.

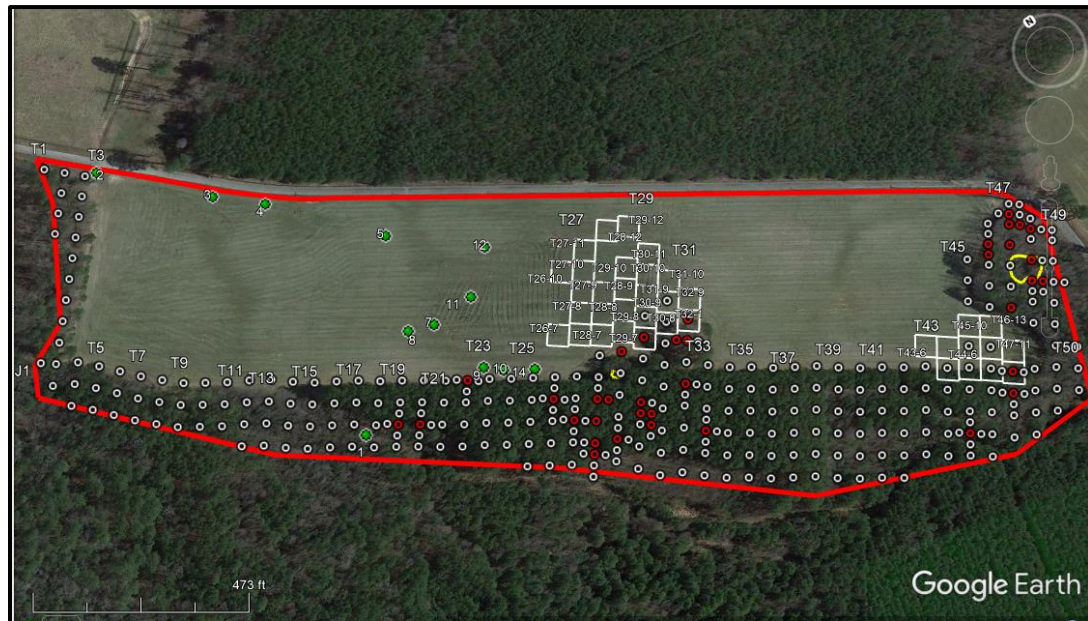


Figure 12. Shovel Test Pit (STP) location map. Positive STPs in red, isolated finds in green and yellow denotes depressions.

The stratigraphy in the wooded areas of the APE consisted of an upper stratum that developed naturally from forestation over an abandoned plow zone. The typical STP in this section contained three layers. Layer A measured between 0.5-0.8 feet (15.24-24.4cm) deep. The soil was a brown (10YR 4/3) sandy loam. This layer was on top of a dark yellowish brown (10YR 3/4) silty loam that was between 1-1.3 feet (30.5-39.6cm) deep. Layer C was an olive yellow (2.5Y 6/6) clay loam subsoil (Figures 13-14).

In the agricultural field the stratigraphy consisted of a plow zone above subsoil. Layer A measured between 0.7-0.9 feet (21.3-27.4cm) deep. The soil was a dark greyish brown (10YR 4/2) sandy loam. This was on top of a yellowish brown (10YR 5/4) clay loam subsoil (Figures 15-16).

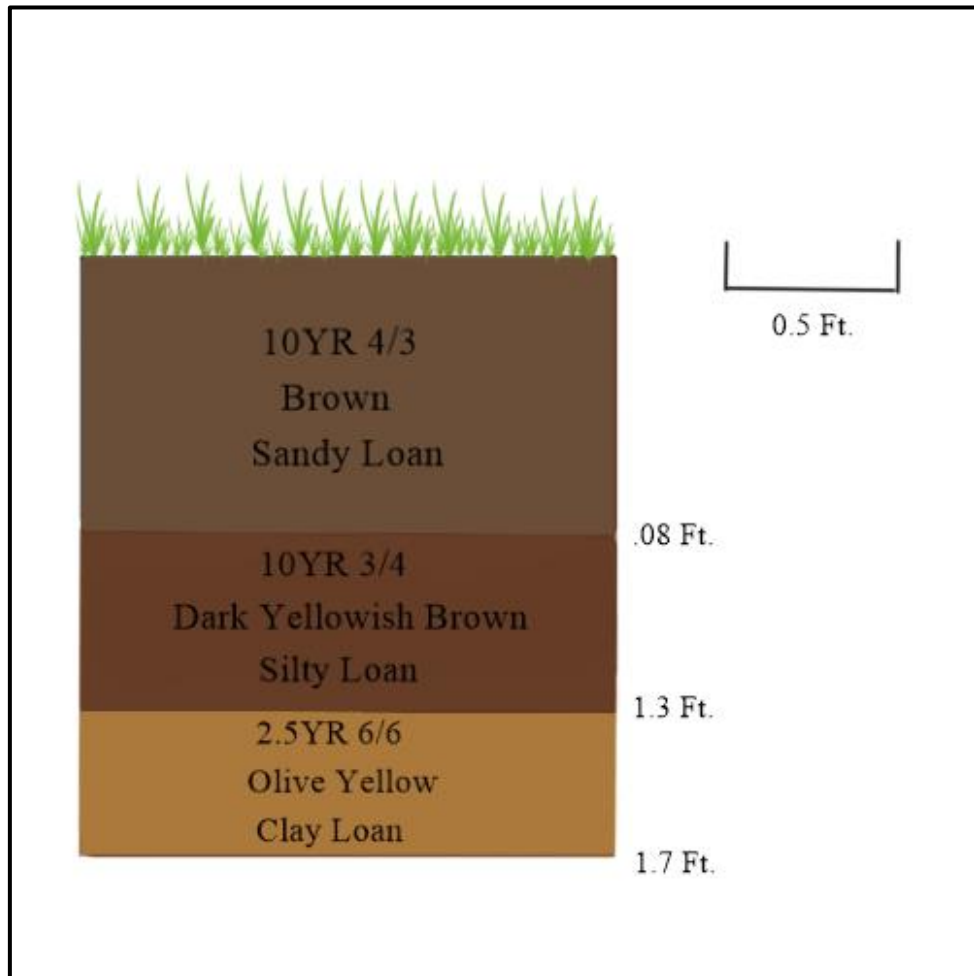


Figure 13. Representative STP profile in woods, Transect 30 STP 4.



Figure 14. STP north profile, Transect 30 STP 4.

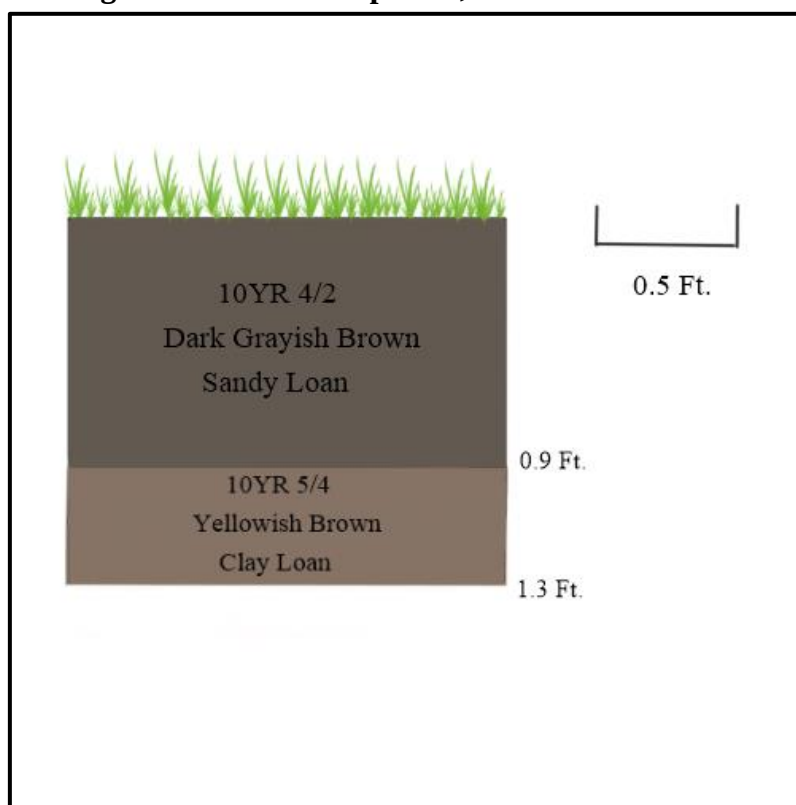


Figure 15. Representative STP profile in field, Transect 31 STP 9.



Figure 16. STP north profile, Transect 31 STP 9.

As a result of the survey, 11 isolated historic artifacts and one isolated prehistoric artifact (by definition not NRHP eligible) as well as three historic sites all dating to the late 19th – early 20th centuries were identified. In total, 181 artifacts and 1,221.4 grams of brick were found in the APE. The lone prehistoric artifact was a quartzite, secondary flake discovered in T45 STP 7. The rest of the isolated finds were either glass or ceramics. Four bottle glass fragments and one flat glass fragment were found along with a whole bottle embossed with “Baking Powder Davis OK”. The ceramics included three whiteware fragments along with one ironstone and one European hard paste porcelain fragment (Table 1).

Location	Artifact	Decoration/Color
Isolated find 1	Whole glass bottle	Aqua, "Baking Powder Davis OK"
Isolated find 2	Whiteware	None
Isolated find 3	Bottle glass	Cobalt blue
Isolated find 4	Bottle glass	Frosted blue
Isolated find 5	European hard paste porcelain	None
Isolated find 7	Bottle glass	Clear
Isolated find 8	Glass jar lid	Milky white
Isolated find 11	Whiteware	None
Isolated find 12	Whiteware	None
T19 STP 3	Flat glass	Clear
T20 STP 3	Ironstone	None
T45 STP 7	Secondary flake	Quartzite

Table 1. Isolated finds.**44IW0324**

Site 44IW0324 is a moderate concentration of late 19th- early 20th century artifacts located to the north and south of the former structures in the middle of the project area (Figure 17-18). All that remains of these buildings is a pile of cement located just south of T31 STP 1, and a depression where it appears that one of the structures, or what remained of it, was removed by a machine and its remnants piled directly to the west of it. The depression measures 21 x 13 feet (6.4 x 4m) and is located exactly where a structure, possibly the main house, was located on the 1966 aerial photo. Two mounds are located in the depression which contain a few machine-made bricks (Figures 19-22).

In total, 144 artifacts were found with 55.5 percent of the assemblage consisting of glass and 30.5 percent ceramics (Figure 23). Out of the 80 glass artifacts recovered, 72 were bottle glass and eight were flat glass. Forty-four ceramics were found with 21 of them being whiteware, 13 ironstone, six European hard paste porcelain, three Albany Slip/Bristol glaze and one American salt glazed. Also, 271.4 grams of bricks and 13 nails were found. Eleven of the nails were wire, one was a cut nail and one was unidentifiable.

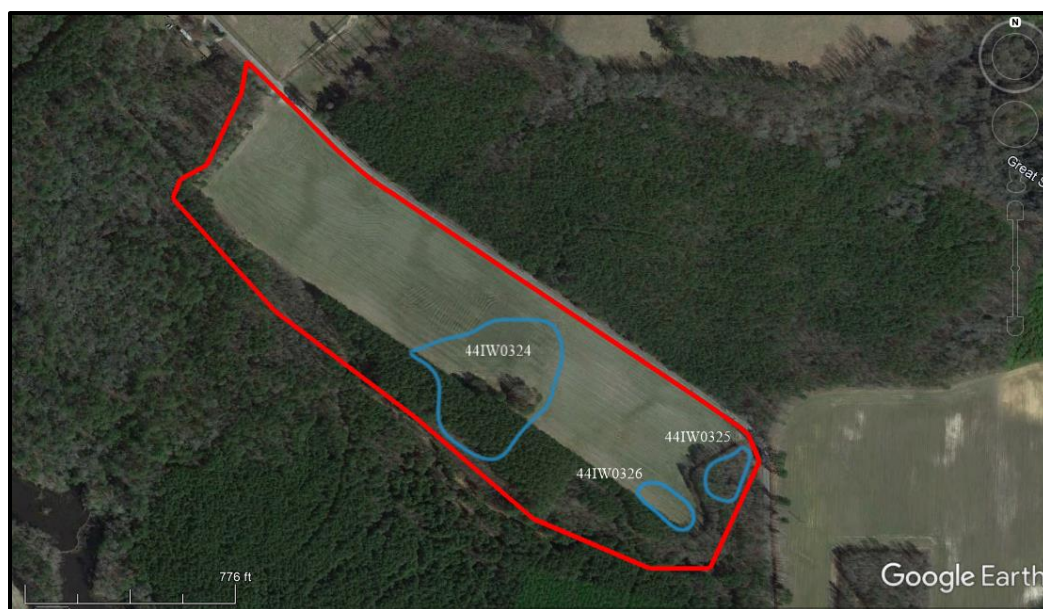


Figure 17. Site location map.



Figure 18. Site 44IW0324 looking southeast. Photo by author.

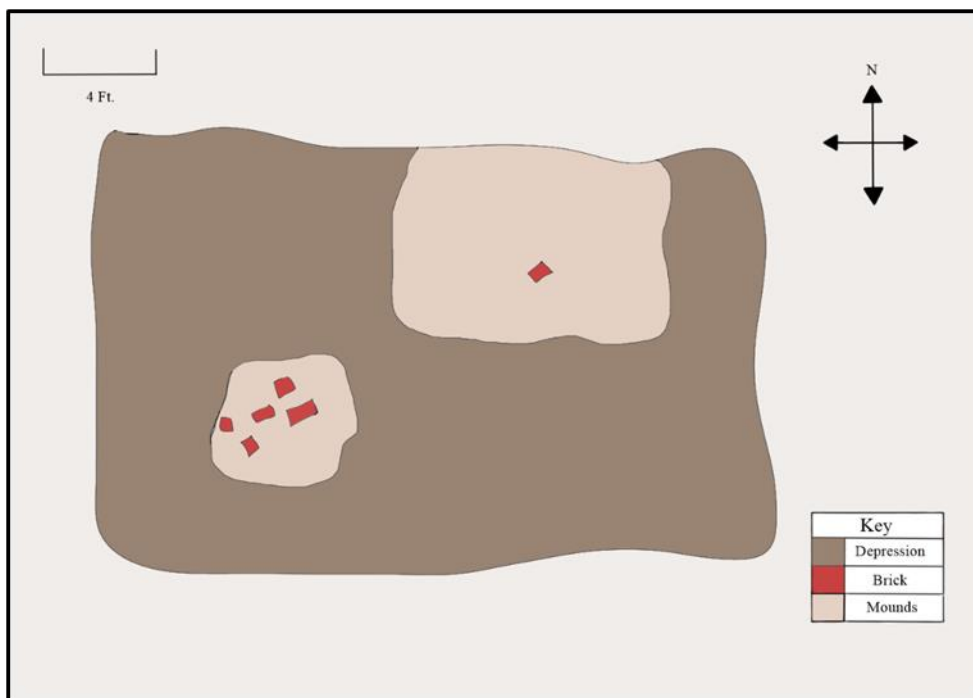


Figure 19. Planview of depression at site 44IW0324.



Figure 20. Depression at stie 44IW0324 looking southwest. Photo by author.



Figure 21. Large pile directly west of the depression at site 44IW0324 looking northeast. Photo by author.



Figure 22. Pile of cement at site 44IW0324 looking southeast. Photo by author.

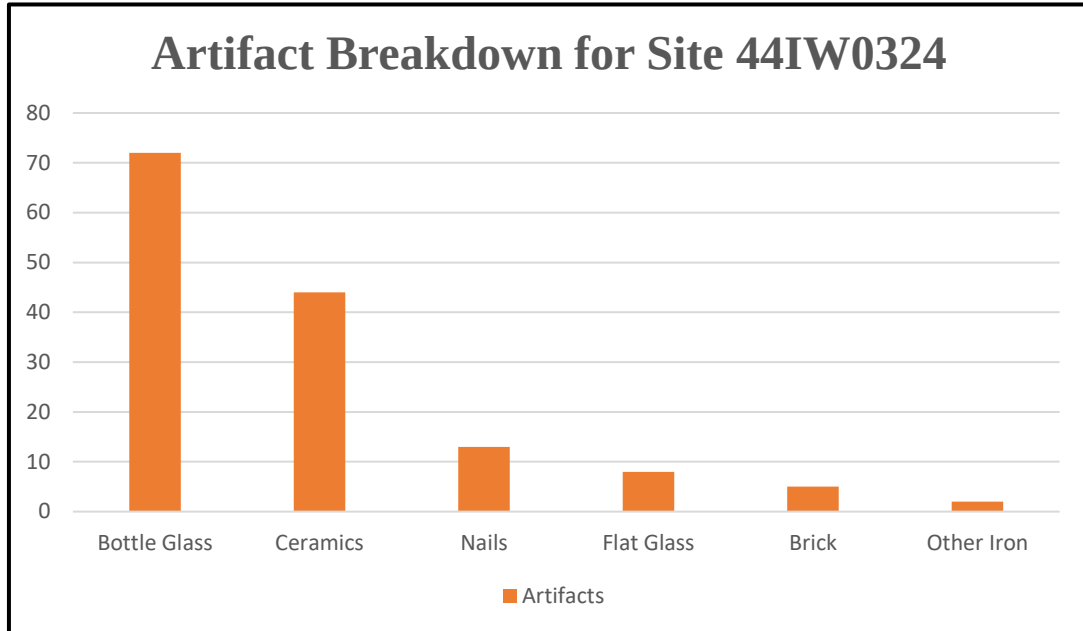


Figure 23. Breakdown of artifacts recovered from site 44IW0324.

The presence of the Albany Slip/Bristol glaze ceramics dates the site to around 1890 to about 1920. This fits well with the other ceramics found such as the whiteware and ironstone sherds that have date ranges that extend into the 20th century. The date also fits well with the earliest map of the project area that depicts a structure there in 1919.

44IW0325

Site 44IW0325 is located in the woods along the eastern end of the property and consists of a depression with a few machine-made bricks at the bottom (Figure 17 and 24). The depression measures 68 x 46 feet (20.7 x 14m) and is roughly rectangular in shape (Figure 25). Two half bricks and three brick bats were observed in the depression and the only other artifacts recovered from the STPs were 950 grams of brick fragments (Figure 26).

The lack of any other architectural artifacts along with the lack of domestic artifacts suggests that this depression might be related to an outbuilding associated with site 44IW0324. Unfortunately, no maps or aerial photos depicts a structure in this area.



Figure 24. Site 44IW0325 looking north through depression. Photo by author.

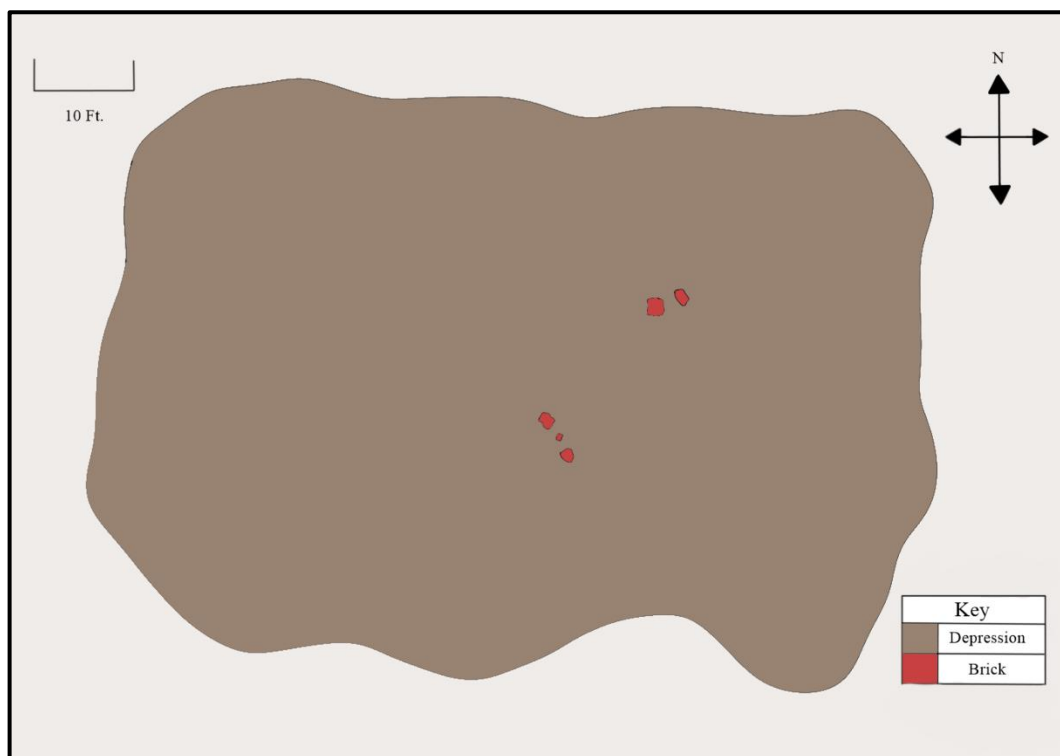


Figure 25. Planview of depression at site 44IW0325.



Figure 26. Bricks at the bottom of depression at site 44IW0325 looking west. Photo by author.

44IW0326

Site 44IW0326 is also located at the eastern end of the property and consists of a low concentration of late 19th- early 20th century artifacts (Figures 17 and 27). A total of 22 artifacts were recovered with 59 percent of them being ceramics and 36.4 glass (Figure 28). Out of the 13 ceramics found ten were whiteware, two European hard paste porcelain and one lead glazed redware. Eight glass shards were recovered with seven of them being bottle glass and one being a flat glass fragment. The only other artifact found was a small brick fragment weighing 0.5 grams.

The presence of European hard paste porcelain dates the site to between 1850-1950 suggesting that it is contemporary with site 44IW0324. Given the low number of architectural artifacts, this concentration is most likely not related to a structure in this area but instead might be related to disposal activities associated with the structures at site 44IW0324.



Figure 27. Site 44IW0326 looking east. Photo by author.

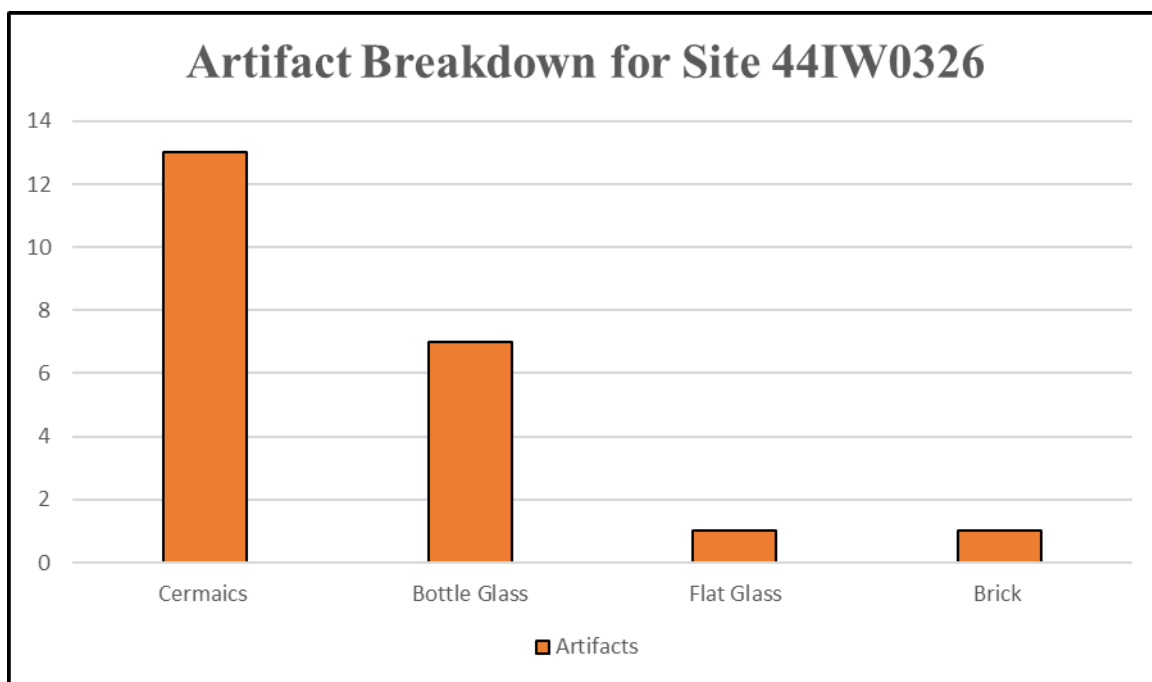


Figure 28. Breakdown of artifacts recovered from site 44IW0326.

6. CONCLUSIONS AND RECOMMENDATIONS

The Phase I archaeological survey resulted in the discovery of 11 isolated historic artifacts and one prehistoric isolated artifact (by definition not NRHP eligible) as well as three historic sites all dating to the late 19th- early 20th centuries. The historic sites consist of a widely dispersed low to moderate density scatter of domestic and architectural artifacts that have no intact stratigraphy.

Site 44IW0324 is a moderate concentration of late 19th- early 20th century artifacts located to the north and south of the former structures. All that remains of these buildings is a pile of cement and a depression where it appears that one of the structures, or what remained of it, was removed by a machine and its remnants piled next to it. A 1919 map is the earliest map of the project area that depicts a structure there.

The late date of this site along with the lack of intact stratigraphy and discernible features suggests it has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Site 44IW0325 is located in the woods along the eastern end of the property and consists of a depression with a few machine-made bricks at the bottom. The only artifacts recovered from STPs in this area were brick fragments. This depression might be related to an outbuilding associated with the structures at site 44IW0324.

Given the low density of artifacts, the lack of domestic artifacts and the absence of intact stratigraphy this site has little research potential. This leads H&P to recommend that it is not eligible for the NRHP.

Site 44IW0326 is also located at the eastern end of the property and consists of a low concentration of late 19th- early 20th century artifacts. Given the low number of architectural artifacts, this concentration might be related to disposal activities associated with the structures at site 44IW0324.

The late date of this site along with the lack of intact stratigraphy and discernible features suggests that site 44IW0326 has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

In summary, all three sites identified within the APE during the current survey have little research potential because of the lack of discernible features and relatively low artifact densities. H&P recommends no further work within the APE.

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Site Number	Context	Layer	Typology	Form	Subform	Size (mm)	Length (cm)	Weight (g)	Count
44IW0324	10 Isolate	Surface	Ceramic	European Hard Paste Porcelain	Body	30	N/A	5.8	1
44IW0324	14 Isolate	Surface	Ceramic	Ironstone	Rim	65	N/A	17.7	1
44IW0324	20-3	B	Ceramic	Ironstone	Base	25	N/A	3	1
44IW0324	22-1	A	Bottle Glass	Press Molded	Body	30	N/A	3.3	1
44IW0324	26-2	A	Bottle Glass	Press Molded	Body	15	N/A	0.6	1
44IW0324	26-7	Surface	Ceramic	Whiteware	Rim	30	N/A	3.4	1
44IW0324	27-10	Surface	Ceramic	European Hard Paste Porcelain	Body	30	N/A	2.5	2
44IW0324	27-10	Surface	Ceramic	Ironstone	Rim	45	N/A	16.1	1
44IW0324	27-10	Surface	Ceramic	Ironstone	Body	35	N/A	6	1
44IW0324	27-10	Surface	Other	Press Molded	Rim	15	N/A	0.6	1
44IW0324	27-10	Surface	Flat Glass	N/A	Body	10-25	N/A	2.4	3
44IW0324	27-10	Surface	Slate	Fragment	N/A	15	N/A	0.3	1
44IW0324	27-11	Surface	Bottle Glass	Press Molded	Body	25	N/A	1.3	1
44IW0324	27-11	Surface	Bottle Glass	Blown in mold	Base	30	N/A	4.6	1
44IW0324	27-11	Surface	Bottle Glass	Blown in mold	Base	55	N/A	20.7	1
44IW0324	27-3	A	Bottle Glass	Press Molded	Body	40	N/A	2.4	1
44IW0324	27-7	Surface	Bottle Glass	Press Molded	Body	25	N/A	2	1
44IW0324	27-8	Surface	Ceramic	Whiteware	Rim	20	N/A	1.4	1
44IW0324	27-8	Surface	Ceramic	Albany Slip/Bristol Glaze	Handle	50	N/A	37.8	1
44IW0324	27-8	Surface	Bottle Glass	Press Molded	Base	50	N/A	22.6	1
44IW0324	27-8	Surface	Flat Glass	N/A	Body	15	N/A	0.6	1
44IW0324	27-8	Surface	Bottle Glass	Press Molded	Body	30	N/A	3.2	1
44IW0324	27-8	Surface	Bottle Glass	Blown in mold	Body	40	N/A	13.8	1
44IW0324	27-8	Surface	Plastic	Bakelite	N/A	15	N/A	0.5	1
44IW0324	27-9	Surface	Ceramic	Modern Porcelain	Child's tea set lid	20	N/A	3.6	1
44IW0324	28-12	Surface	Ceramic	Whiteware	Base	35-40	N/A	13.8	2
44IW0324	28-12	Surface	Ceramic	Whiteware	Body	25	N/A	2.3	1
44IW0324	28-12	Surface	Ceramic	Whiteware	Rim	30	N/A	2.8	1
44IW0324	28-12	Surface	Glass	Melted	N/A	15	N/A	0.5	1
44IW0324	28-12	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.2	1
44IW0324	28-3	A	Bottle Glass	Press Molded	Body	15	N/A	0.7	1
44IW0324	28-3 RE	B	Bottle Glass	Press Molded	Body	15	N/A	0.5	1
44IW0324	28-3 RE	B	Bottle Glass	Blown in mold	Base	45	N/A	10.3	1
44IW0324	28-3 RE	B	Nail	Wire	Machine Headed	N/A	35	5	1
44IW0324	28-3 RE	B	Iron Other	Wire	N/A	45	N/A	0.4	1
44IW0324	28-4	A	Ceramic	Albany Slip/Bristol Glaze	Body	25	N/A	4.1	1
44IW0324	28-4	A	Ceramic	Whiteware	Body	20	N/A	1.9	1
44IW0324	28-4	A	Bottle Glass	Press Molded	Body	15	N/A	0.5	1
44IW0324	28-4	A	Bottle Glass	Press Molded	Body	25	N/A	3.6	1
44IW0324	28-4	A	Glass	Melted	N/A	35	N/A	5.8	1
44IW0324	28-5	A	Bottle Glass	Blown in mold	Body	35	N/A	4.4	1
44IW0324	28-5 RS	A	Bottle Glass	Press Molded	Body	25	N/A	1.6	1
44IW0324	28-5 RS	A	Nail	Cut	Machine Headed	N/A	45	8.8	1
44IW0324	28-5 RS	A	Nail	Unidentified	N/A	N/A	30	3.7	1
44IW0324	28-7	Surface	Bottle Glass	Press Molded	Body	15	N/A	0.9	1
44IW0324	28-7	Surface	Bottle Glass	Press Molded	Body	15	N/A	1	1
44IW0324	28-8	Surface	Ceramic	Ironstone	Body	20	N/A	1.6	1
44IW0324	28-8	Surface	Bottle Glass	Press Molded	Body	30	N/A	3	1
44IW0324	28-8	Surface	Bottle Glass	Press Molded	Rim	30	N/A	4.1	1
44IW0324	28-8	Surface	Other	Press Molded	Body	40	N/A	7.1	1
44IW0324	28-9	Surface	Brick	Fragment	N/A	N/A	N/A	52.8	1
44IW0324	28-9	Surface	Ceramic	Whiteware	Body	25	N/A	1.4	1
44IW0324	28-9	Surface	Flat Glass	N/A	Body	20	N/A	1.3	1
44IW0324	28-9	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.2	1
44IW0324	28-9	Surface	Bottle Glass	Press Molded	Body	30	N/A	2.8	1
44IW0324	29-1	B	Bottle Glass	Blown in mold	Base	55-85	N/A	37	2
44IW0324	29-1	B	Bottle Glass	Blown in mold	Body	10-25	N/A	3.3	5
44IW0324	29-10	Surface	Bottle Glass	Press Molded	Body	15	N/A	0.7	1
44IW0324	29-10	Surface	Bottle Glass	Press Molded	Body	35	N/A	5.9	1
44IW0324	29-12	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.3	1
44IW0324	29-5	A	Flat Glass	Press Molded	Body	25	N/A	0.9	1
44IW0324	29-7	Surface	Bottle Glass	Press Molded	Body	45	N/A	13	1
44IW0324	29-7	Surface	Bottle Glass	Press Molded	Body	40	N/A	12.4	2
44IW0324	29-7	Surface	Other	Press Molded	Body	35	N/A	5.9	1

Site Number	Context	Layer	Typology	Form	Subform	Size (mm)	Length (cm)	Weight (g)	Count
44IW0324	29-7	Surface	Stone	Decorative Rock	N/A	40	N/A	15.5	1
44IW0324	29-7	Surface	Tin	Tin Can Fragment	N/A	45	N/A	18	1
44IW0324	29-8	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.5	2
44IW0324	29-9	Surface	Ceramic	Whiteware	Body	20	N/A	1.2	1
44IW0324	29-9	Surface	Ceramic	Ironstone	Rim	25	N/A	2.7	1
44IW0324	29-9	Surface	Ceramic	European Hard Paste Porcelain	Body	40	N/A	6.2	1
44IW0324	29-9	Surface	Bottle Glass	Blown in mold	Body	25	N/A	1.6	1
44IW0324	29-9	Surface	Bottle Glass	Press Molded	Body	20-35	N/A	8.6	3
44IW0324	29-9	Surface	Bottle Glass	Blown in mold	Body	30-35	N/A	10	2
44IW0324	29-9	Surface	Flat Glass	N/A	Body	20-35	N/A	8	5
44IW0324	30-1	Surface	Brick	Fragment	N/A	N/A	N/A	47.3	1
44IW0324	30-1	A	Brick	Fragment	N/A	N/A	N/A	74	1
44IW0324	30-1	Surface	Ceramic	Whiteware	Base	40	N/A	6.7	1
44IW0324	30-1	Surface	Ceramic	Whiteware	Rim	15	N/A	0.6	1
44IW0324	30-1	Surface	Bottle Glass	Press Molded	Body	10-50	N/A	6/8	4
44IW0324	30-1	A	Nail	Wire	Machine Headed		1.1-7.2	77.2	10
44IW0324	30-1	A	Iron Other	Sheet Fragment	N/A	25	N/A	4.9	1
44IW0324	30-10	Surface	Ceramic	Whiteware	Base	25	N/A	2.3	1
44IW0324	30-10	Surface	Ceramic	Whiteware	Body	20	N/A	1.2	1
44IW0324	30-10	Surface	Bottle Glass	Press Molded	Body	30	N/A	4.3	1
44IW0324	30-11	Surface	Ceramic	Ironstone	Body	40	N/A	8.7	1
44IW0324	30-11	Surface	Bottle Glass	Blown in mold	Base	30	N/A	7	1
44IW0324	30-4	Surface	Bottle Glass	Blown in mold	Base	30	N/A	1.8	1
44IW0324	30-4 RS	A	Bottle Glass	Press Molded	Body	10	N/A	0.4	1
44IW0324	30-4 RSRE	B	Bottle Glass	Press Molded	Body	50	N/A	4.8	1
44IW0324	30-4 RSRE	B	Faunal	Marine Shell	Oyster	15	N/A	0.8	1
44IW0324	30-4 RSRERS	B	Bottle Glass	Press Molded	Body	20	N/A	0.6	1
44IW0324	30-8	Surface	Ceramic	European Hard Paste Porcelain	Body	15-20	N/A	1.2	2
44IW0324	30-8	Surface	Ceramic	European Hard Paste Porcelain	Body	30	N/A	2.8	1
44IW0324	30-8	Surface	Ceramic	Whiteware	Body	25	N/A	1.1	1
44IW0324	30-8	Surface	Ceramic	Whiteware	Base	25	N/A	2.5	1
44IW0324	30-8	Surface	Ceramic	Albany Slip/Bristol Glaze	Body	30	N/A	4.7	1
44IW0324	30-8	Surface	Ceramic	Ironstone	Body	25	N/A	3.2	1
44IW0324	30-8	Surface	Ceramic	Ironstone	Body	30	N/A	2.7	1
44IW0324	30-8	Surface	Bottle Glass	Press Molded	Body	10	N/A	0.1	1
44IW0324	30-8	Surface	Bottle Glass	Blown in mold	neck and finish	20	N/A	10.4	1
44IW0324	30-8	Surface	Flat Glass	N/A	Body	20	N/A	3.9	2
44IW0324	30-8	Surface	Bottle Glass	Press Molded	Body	20-25	N/A	6.6	3
44IW0324	30-8	Surface	Bottle Glass	Blown in mold	Base	35	N/A	8.5	1
44IW0324	30-9	Surface	Ceramic	Whiteware	Body	15	N/A	1.1	1
44IW0324	30-9	Surface	Ceramic	Ironstone	Body	20	N/A	1.5	1
44IW0324	30-9	Surface	Ceramic	Ironstone	Rim	20	N/A	1.7	2
44IW0324	30-9	Surface	Bottle Glass	Press Molded	Body	10	N/A	0.3	1
44IW0324	30-9	Surface	Bottle Glass	Press Molded	Body	25-55	N/A	19.9	2
44IW0324	30-9	Surface	Bottle Glass	Press Molded	Body	25	N/A	2	1
44IW0324	30-9	Surface	Other	Press Molded	Rim	15	N/A	1.3	1
44IW0324	31-1	Surface	Ceramic	European Hard Paste Porcelain	Body	20-30	N/A	7.2	3
44IW0324	31-1	Surface	Ceramic	Whiteware	Body	15-25	N/A	4.4	2
44IW0324	31-1	Surface	Ceramic	Ironstone	Body	15	N/A	2.1	3
44IW0324	31-1	Surface	Bottle Glass	Press Molded	Base	30	N/A	4.4	1
44IW0324	31-1	Surface	Bottle Glass	Press Molded	Body	25-40	N/A	14.6	2
44IW0324	31-1	Surface	Flat Glass	N/A	Body	15-25	N/A	4.5	4
44IW0324	31-1	Surface	Bottle Glass	Press Molded	Body	15-40	N/A	5.6	3
44IW0324	31-1	Surface	Bottle Glass	Press Molded	Body	30	N/A	3.2	1
44IW0324	31-1	Surface	Bottle Glass	Press Molded	Base	45	N/A	7.7	1
44IW0324	31-10	Surface	Other	Press Molded	Lid	25	N/A	1.9	1
44IW0324	31-9	Surface	Ceramic	American Salt Glazed	Body	45	N/A	15.3	1
44IW0324	31-9	Surface	Ceramic	Whiteware	Body	35	N/A	4.1	1
44IW0324	31-9	Surface	Ceramic	Whiteware	Base	20-25	N/A	4.5	2
44IW0324	31-9	Surface	Bottle Glass	Press Molded	Body	25	N/A	3.2	2
44IW0324	31-9	Surface	Bottle Glass	Press Molded	Body	20	N/A	0.8	1
44IW0324	31-9	Surface	Bottle Glass	Blown in mold	Base	45	N/A	17.5	1
44IW0324	31-9	Surface	Bottle Glass	Press Molded	Body	35	N/A	1.9	1
44IW0324	31-9	Surface	Bottle Glass	Press Molded	Body	25	N/A	2.4	1

Site Number	Context	Layer	Typology	Form	Subform	Size (mm)	Length (cm)	Weight (g)	Count
44IW0324	31-9	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.1	1
44IW0324	31-9	Surface	Other	Press Molded	Lid	30	N/A	2.5	1
44IW0324	32-1	Surface	Ceramic	Whiteware	Base	30	N/A	4.9	1
44IW0324	32-1	Surface	Ceramic	Ironstone	Body	20	N/A	3.1	2
44IW0324	32-1	Surface	Ceramic	Whiteware	Body	25	N/A	3.1	1
44IW0324	32-1	Surface	Bottle Glass	Press Molded	Body	20	N/A	2.4	1
44IW0324	32-1	Surface	Bottle Glass	Blown in mold	Body	25	N/A	2.2	1
44IW0324	32-1	A	Bottle Glass	Press Molded	Body	10	N/A	0.4	1
44IW0324	32-1	Surface	Faunal	Marine Shell	Oyster	30	N/A	1.5	1
44IW0324	32-2	A	Bottle Glass	Press Molded	Body	25	N/A	1.8	1
44IW0324	32-2 RE	Surface	Brick	Fragment	N/A	N/A	N/A	9.2	1
44IW0324	32-2 RE	Surface	Flat Glass	Press Molded	Body	15-30	N/A	4.2	3
44IW0324	32-9	Surface	Ceramic	Ironstone	Body	25	N/A	1.9	1
44IW0324	34-4	B	Plastic	Sheet Fragment	N/A	15	N/A	0.3	1
44IW0324	34-4	B	Coral	Fragment	N/A	10	N/A	0.1	1
44IW0324	33-4	Surface	Bottle Glass	N/A	Body	N/A	N/A	N/A	1
44IW0324	19-3	B	Flat Glass	N/A	Body	20	N/A	1	1
44IW0325	46-2	A	Brick	Fragment	N/A	N/A	N/A	56	9
44IW0325	46-2 RS	B	Brick	Fragment	N/A	N/A	N/A	166.6	65
44IW0325	46-2 RS	B	Charcoal	Fragment	N/A	15	N/A	0.2	1
44IW0325	47-2	A	Brick	Fragment	N/A	N/A	N/A	179.7	80
44IW0325	47-2 RN	Surface	Brick	Fragment	N/A	N/A	N/A	15.1	9
44IW0325	47-2 RE	B	Brick	Fragment	N/A	N/A	N/A	4.8	1
44IW0325	47-3	Surface	Brick	Fragment	N/A	N/A	N/A	4.9	2
44IW0325	47-3	B	Lime Mortar	Fragment	N/A	N/A	N/A	18.5	21
44IW0325	48-1 RS	B	Brick	Fragment	N/A	N/A	N/A	11.4	1
44IW0325	48-3	B	Brick	Fragment	N/A	N/A	N/A	2.4	2
44IW0325	48-4	A	Brick	Fragment	N/A	N/A	N/A	488.8	26
44IW0325	48-4 RE	Surface	Brick	Fragment	N/A	N/A	N/A	1.3	1
44IW0326	43-6	Surface	Ceramic	Whiteware	Base	20	N/A	2.4	1
44IW0326	44-1	Surface	Ceramic	Whiteware	Body	30	N/A	3.2	1
44IW0326	44-6	Surface	Ceramic	Whiteware	Body	20	N/A	1.8	1
44IW0326	44-6	Surface	Ceramic	Whiteware	Body	15	N/A	0.5	1
44IW0326	44-6	Surface	Bottle Glass	Press Molded	Body	20	N/A	0.8	1
44IW0326	44-6	Surface	Bottle Glass	Blown in mold	Neck	35	N/A	11.9	1
44IW0326	45-10	Surface	Bottle Glass	Blown in mold	Body	25	N/A	2	1
44IW0326	45-4	Surface	Ceramic	Whiteware	Base stem	35	N/A	7	1
44IW0326	45-9	Surface	Ceramic	Whiteware	Body	25	N/A	3.7	1
44IW0326	45-9	Surface	Bottle Glass	Press Molded	Body	15-25	N/A	4.7	2
44IW0326	46-12	Surface	Ceramic	Whiteware	Body	15	N/A	0.5	1
44IW0326	46-12	Surface	Ceramic	European Hard Paste Porcelain	Body	10	N/A	0.2	1
44IW0326	46-13	Surface	Ceramic	Whiteware	Body	15	N/A	0.6	1
44IW0326	46-7	Surface	Ceramic	Whiteware	Body	10-20	N/A	2.2	2
44IW0326	46-7	Surface	Ceramic	European Hard Paste Porcelain	Body	25	N/A	4.6	1
44IW0326	46-7	Surface	Ceramic	Lead Glazed Redware	Base	35	N/A	10.7	1
44IW0326	47-11	Surface	Ceramic	Whiteware	Body	10	N/A	0.1	1
44IW0326	47-11	Surface	Flat Glass	N/A	Body	20	N/A	1.6	1
44IW0326	47-7	Surface	Bottle Glass	Press Molded	Body	5	N/A	0.1	1
44IW0326	47-7	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.2	1
44IW0326	47-7	A	Bottle Glass	Press Molded	Body	15	N/A	0.6	1
44IW0326	47-7	A	Secondary Flake	Quartzite	N/A	20	N/A	1.2	1
44IW0326	47-8	B	Brick	Fragment	N/A	N/A	N/A	0.5	1
	1 Isolate	Surface	Bottle Glass	Blown in mold	Whole	55	N/A	193.7	1
	11 Isolate	Surface	Ceramic	Whiteware	Body	10	N/A	0.1	1
	12 Isolate	Surface	Ceramic	Whiteware	Body	25	N/A	2.1	1
	2 Isolate	Surface	Ceramic	Whiteware	Base	60	N/A	21.9	1
	3 Isolate	Surface	Bottle Glass	Press Molded	Body	30	N/A	1.8	1
	4 Isolate	Surface	Bottle Glass	Press Molded	Body	20	N/A	1.3	1
	5 Isolate	Surface	Ceramic	European Hard Paste Porcelain	Body	20	N/A	1.2	1
	7 Isolate	Surface	Bottle Glass	Press Molded	Base	30	N/A	5.1	1
	8 Isolate	Surface	Other	Press Molded	Rim	30	N/A	4.2	1
	9 Isolate	Surface	Brick	Fragment	N/A	N/A	N/A	88.1	1

Curriculum Vita

(Revised May 2019)

Randy Michael Lichtenberger

56 Kirkley Circle
Forest, VA 24551

Phone (434) 258-8478

Education

The University of Virginia, Charlottesville, VA.

Successfully completed PhD. coursework, 2002-2008. Withdrew from program to pursue employment objectives.

The College of William and Mary, Williamsburg, VA

M.A.: Anthropology with specialization in historical archaeology, June 1995.

Thesis Topic: An Archaeological Assessment of Middlesex County, Virginia.

The George Washington University National Law Center, Washington, D.C.

Completed three semesters of coursework toward Juris Doctor degree before voluntarily withdrawing to pursue a career in archaeology (August 1990-December 1991).

State University of New York at Binghamton, Binghamton, NY

B.A.: Double major in Geology (Environmental Studies Concentration) and History (specializing in American History), June 1990.

Experience

Oct. 2010-Present	Director of Cultural Resources, Hurt & Proffitt, Inc., Lynchburg.
Oct. 2009-Present	Regional Archaeologist (Lynchburg, Bristol, Salem and Staunton Districts), Virginia Department of Transportation.
Jan. 2006-Oct. 2009	Preservation Program Manager, Virginia Department of Transportation, Lynchburg District.
July 2000-Jan. 2006	Archaeology Field Supervisor, The Corporation for Thomas Jefferson's Poplar Forest, Forest Virginia.
Dec. 1999-July 2000	Staff Archaeologist, The Corporation for Thomas Jefferson's Poplar Forest, Forest Virginia.
April 1998-July 1999	Project Manager, R. Christopher Goodwin & Associates, Inc., New Orleans, Louisiana.

July 1997-April 1998	Principal Investigator & Laboratory Director, Archaeological and Historical Consultants, Inc., Centre Hall, Pennsylvania.
Mar. 1997-July 1997	Principal Investigator, Archaeological and Historical Consultants, Inc., Centre Hall, Pennsylvania.
Dec. 1995-Feb. 1997	Field Director, Archaeological & Historical Consultants, Inc., Centre Hall, PA.
1995	Crew Chief, John Milner Associates, Inc., Alexandria, VA. Phase I Archaeological Survey at Seneca Army Depot HAZMAT site in NY.
1995	Crew Chief, Colonial Williamsburg Foundation Department of Archaeological Research, Williamsburg, VA. Supervised field work in and around Williamsburg, VA.
1994-95	Field Technician, Colonial Williamsburg Foundation Department of Archaeological Research, Williamsburg, VA. Field work in and around Williamsburg, VA.
1994	Intern at the William and Mary Center for Archaeological Research. Co-authored the report, An Archaeological Assessment of the City of Suffolk, Virginia. Also, field work on various projects in Virginia and laboratory processing.
1993	Laboratory Assistant, Engineering-Science, Inc., Washington, D.C.
1992-93	Field Technician, John Milner Associates, Inc., Alexandria, VA and West Chester, PA. Field work in Washington, D.C., Baltimore, MD, Danville, VA, Beckley, WV, Richmond, VA, East Stroudsburg, PA, Alexandria, VA, Simpsonville, MD. Laboratory Assistant, various projects.
1991	Field Technician, Engineering-Science, Inc., Washington, D.C. Field work in Manassas, VA, Annapolis, MD, and Alexandria, VA.
1991	Field Technician, John Milner Associates, Inc., West Chester, PA. Field work in Danbury, CT, Kingston, NY.
1991	Field Technician, 3D Environmental Services, Inc., Cincinnati, OH. Field work in Annapolis, MD.
1989-90	Field Technician, Public Archaeology Facility, Binghamton, NY. Field work on various projects throughout upstate NY. Laboratory Assistant, catalogued historical artifacts.

Reports

Lichtenberger, Randy

2019 Archaeological Excavation of the Mead's Tavern Basement (44CP0244), Campbell

County, Virginia. Submitted by Hurt & Proffitt, Inc. to Liberty University, Lynchburg, Virginia.

Lichtenberger, Randy and Keith Adams

2019 Report on Archaeological Excavation of the Greenfield Plantation Terraces (44BO0514-0004; 011-0026), Botetourt County, Virginia. Submitted by Hurt & Proffitt, Inc. to Botetourt County.

Lichtenberger, Randy

2018 Leftwich Family Cemetery at Mount Airy (44BE0355; 009-0221) Archaeological Investigation, Bedford County, Virginia. Submitted by Hurt & Proffitt, Inc. to Leftwich Historical Foundation, Lynchburg, Virginia.

Lichtenberger, Randy and Robert Clarke

2017 Phase I Archaeological Survey of the Town of Glen Lyn River Front Park Primitive Camp Site, Giles County, Virginia. Submitted by Hurt & Proffitt, Inc. to Town of Glen Lyn, Virginia.

Lichtenberger, Randy

2017 Phase I Archaeological Survey of the Mead's Tavern Site (44CP0244), Campbell County, Virginia. Submitted by Hurt & Proffitt, Inc. to Liberty University, Lynchburg, Virginia.

Lichtenberger, Randy and Elizabeth A. Moore

2017 Final Report on Excavation at the Oak Hill Plantation Slave Quarter (44PY0440-0005), Pittsylvania County, Virginia. Submitted by Hurt & Proffitt, Inc. to the Virginia Department of Historic Resources, Richmond.

Lichtenberger, Randy

2017 Phase I Archaeological Survey at the Preston House Site (44RN0104, 129-5018), City of Salem, Virginia. Submitted by Hurt & Proffitt, Inc. to Salem Historical Society.

Lichtenberger, Randy

2017 Phase I Archaeological Survey at Point of Honor (44CP0020, 118-0014), Lynchburg, Virginia. Submitted by Hurt & Proffitt, Inc. to Lynchburg Museum Foundation.

Lichtenberger, Randy and Keith Adams

2017 Archaeological Monitoring Associated with the Combined Sewer Overflow Project, Lynchburg, Virginia. Submitted by Hurt & Proffitt, Inc. to City of Lynchburg.

Lichtenberger, Randy, Robert Clarke and Keith Adams

2016 Archaeological Investigation of a "cemetery of unknown origin" in the L. Barnes Brockman, Sr. Business and Industrial Park, Amherst, Virginia. Submitted by Hurt & Proffitt, Inc. to Town of Amherst Industrial Development Authority.

Lichtenberger, Randy and Keith W. Adams

2016 Phase I Archaeological Survey of the Proposed Carlisle Tract Borrow Site, Hog Island Wildlife Management Area, Surry County, Virginia. Submitted by Hurt & Proffitt, Inc. to Virginia Department of Game and Inland Fisheries.

Lichtenberger, Randy

2016 Phase I Archaeological Survey at Tyro Mill (062-0028), Nelson County, Virginia. Submitted by Hurt & Proffitt, Inc. to Catherine and Mack Walls, Spring Grove, Virginia.

Lichtenberger, Randy

- 2015 Phase I Archaeological Survey of the Cabellsville Site (44NE0174), Nelson County, Virginia. Submitted by Hurt & Proffitt, Inc. to the Virginia Department of Historic Resources, Richmond.

Lichtenberger, Randy and Keith W. Adams

- 2014 Archaeological Investigations at Yankee Square, Old City Cemetery, Lynchburg, Virginia. Submitted by Hurt & Proffitt, Inc. to Old City Cemetery, Lynchburg, Virginia.

Lichtenberger, Randy and Sarah Clarke

- 2012 Historical Assessment of a "cemetery of unknown origin" in the L. Barnes Brockman, Sr. Business and Industrial Park, Amherst, Virginia. Submitted by Hurt & Proffitt, Inc. to Town of Amherst, Virginia.

Lichtenberger, Randy, Keith W. Adams and Perry Tourtellotte

- 2012 Archaeological Investigations at the site of the Caretaker's House, Old City Cemetery, Lynchburg, Virginia. Submitted by Hurt & Proffitt, Inc. to Old City Cemetery, Lynchburg, Virginia.

Lichtenberger, Randy and Robert "Cham"bliss Light, Jr., Esq.

- 2011 Clark Family Cemetery (Site 44CP0181) Archaeological Investigation, Campbell County, Virginia. Submitted by Hurt & Proffitt, Inc. to The Lynchburg Historical Foundation, Inc., Lynchburg, Virginia.

Lichtenberger, Randy

- 2011 An Archaeological Survey of the Proposed Sweet Briar College Radio Tower Project, Appomattox County, Virginia. Submitted by Hurt & Proffitt, Inc. to Stu-Comm, Inc., Charlottesville, Virginia.

Heath, Barbara J., Randy Lichtenberger, Keith Adams, Lori Lee, and Elizabeth Paull

- 2005 Poplar Forest Archaeology: Studies in Plantation Life and Landscape, Excavations and Analysis of Site B, Southeast Curtilage, June 2004–August 2005. Ms. On file, The Corporation for Jefferson's Poplar Forest, Forest, VA.

Heath, Barbara J., Randy Lichtenberger, Keith Adams, and Elizabeth Paull

- 2004 Poplar Forest Archaeology: Studies in African American Life, Excavations and Analysis of Site A, Southeast Terrace and Site B, Southeast Curtilage, June 2003-June 2004. Ms. on file, The Corporation for Jefferson's Poplar Forest, Forest, VA.
<http://www.poplarforest.org/ARCH/pwf04report.pdf>

Lichtenberger, Randy and Barbara J. Heath

- 2003 Excavation Report on Sandusky West Parking Lot Survey and Mitigation Project. Submitted to Historic Sandusky, Inc., Lynchburg, VA. Copy on file at the Corporation for Jefferson's Poplar Forest, Forest, VA.

Heath, Barbara J. and Randy Lichtenberger

- 2002 Excavation Report on Boundary Testing for Tree Screen and Parking at Historic Sandusky. Submitted to Historic Sandusky, Inc., Lynchburg, VA. Copy on file at the Corporation for Jefferson's Poplar Forest, Forest, VA.

Lichtenberger, Randy M.

- 1999a Phase I Cultural Resources Survey and Inventory of the Proposed Vermilion River Dredge Maintenance Project, Lafayette Parish, Louisiana (Randy Lichtenberger, Dave Robinson, Ralph Draughon, Jr., and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc. to the U.S. Army Corps of Engineers, New Orleans District.
- 1999b Phase I Cultural Resources Survey of the 3.4 Acre Triple Arch Oil Co. No. 1 Well Site and Associated Access Road within the Bodcau State Wildlife Management Area, Bossier Parish, Louisiana (with Ryan Crutchfield and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc. to C. H. Fenstermaker & Associates, Inc.
- 1999c Phase II Evaluatory Testing of Sites 1MG724, 1MG725, 1MG695, 1MG715, and 1MG696 within the Amended Route of the Proposed Southern Natural Gas Company North Alabama Pipeline Project, Morgan County, Alabama (with William P. Athens, Ryan Crutchfield, Frank Vento, James Allen Green, Dave D. Davis, and Patrick Robblee). Submitted by R. Christopher Goodwin & Associates, Inc., to Southern Natural Gas Company, Birmingham.
- 1999d Phase I Cultural Resources Survey and Archeological Inventory of the Proposed Expansion of I-10 from US 29 (Pensacola Blvd.) to US 90 (Scenic Highway) and I-110 from Maxwell Street to I-10, Escambia County, Florida (with Matt Keelean, William P. Athens, and Susan Barrett Smith). Submitted by R. Christopher Goodwin & Associates, Inc., to Florida Department of Transportation, District III.
- 1999e Phase I Cultural Resources Survey of SR 30 (US 98) Retention Ponds 3 and 4; State Project No.: 48280-3510, Escambia County, Florida (with Ralph Draughon, Jr., Angele Montana, and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc., to Florida Department of Transportation, District III.
- 1998f Supplemental Phase I Cultural Resources Survey and Inventory of the Proposed Route 190 Expansion Project Corridor in the Vicinity of Sites 16ST68, 16ST175, and 16ST178 and Phase II National Register Evaluation of Standing Structure SS23 (with Paul Hughbanks, Patrick P. Robblee, and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc., to URS Greiner, Inc./Woodward Clyde.
- Lichtenberger, Randy M.
- 1998a Phase I Archaeological Survey for the Landenberg Road Bridge Rehabilitation/Replacement Project (S.R. 3024, Section 28S), New Garden Township, Chester County, Pennsylvania. Prepared for the Pennsylvania Department of Transportation, Engineering District 6-0
- Lichtenberger, Randy M.
- 1998b Phase I Cultural Resources Survey and Inventory of the Proposed 5.1 km (3.17 mi) Long SR 727 (Fairfield Drive), Jackson Street to SR 10A (Mobile Highway) Expansion,, Escambia County, Florida (with Scott E. Simmons, Julian Granberry, Christine Herman, Ralph Draughon, Jr., Matthew Keelean, Paul Hughbanks, Michael B. Godzinski, and Dave D. Davis). Submitted by R. Christopher Goodwin & Associates, Inc. to the Florida Department of Transportation, District III.
- Lichtenberger, Randy M.
- 1998c Phase II Evaluatory Testing of Site 3FR289 within the Proposed Ozark/NOARK Expansion Project Dual 20 in O.D. Pipeline Corridor, Franklin County, Arkansas (with Andrea Stilwell, Angele Montana, Charlene Keck, Julianne Crawford, and

William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc., to
ENSR Consulting and Engineering.

Lichtenberger, Randy M.

1998d Phase I Cultural Resources Survey and Inventory of the Proposed Hidalgo Energy Facility, Hidalgo County, Texas (with Glenn Walter, Paul Hughbanks, Ralph Draughon, Jr., and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc., to ENSR Consulting and Engineering.

Lichtenberger, Randy M.

1998e Phase II Evaluatory Testing of Locus B of Site 1MG74 within the Amended Route of the Proposed Southern Natural Gas Company North Alabama Pipeline Project, Morgan County, Alabama (with Ryan Crutchfield, Scott E. Simmons, Matthew Keelean, James Allen Green, and William P. Athens). Submitted by R. Christopher Goodwin & Associates, Inc., to Southern Natural Gas Company.

Tidlow, Evelyn M., and Randy M. Lichtenberger

1997a FERC 4 Report for ANR Defiance-Leidy Pipeline Project. Contract for ANR Pipeline Company, Detroit, Michigan.

Lichtenberger, Randy M., and Evelyn M. Tidlow

1997b Addendum To: Phase I Cultural Resources Survey for Proposed New Wells and Pipelines in the Crawford Storage Field, Fairfield and Hocking Counties, Ohio. Prepared for Columbia Gas Transmission Corporation, Charleston, West Virginia.

Lichtenberger, Randy M.

1997c Addendum To: Phase I Cultural Resources Survey for Proposed New Wells and Pipelines in the Crawford Storage Field, Fairfield and Hocking Counties, Ohio. Prepared for Columbia Gas Transmission Corporation, Charleston, West Virginia.

Lichtenberger, Randy M.

1997d Phase II Archaeological Survey at Tobyhanna Army Depot (TYAD), Tobyhanna, Pennsylvania. Prepared for Baltimore District, U.S. Army Corps of Engineers, Baltimore, Maryland.

Lichtenberger, Randy M.

1997e Phase I Archaeological Survey for Mount Jackson Road Bridge Replacement, S.R. 0108, Section L04, City of New Castle, Taylor Township, and North Beaver Township, Lawrence County, Pennsylvania. Prepared for the Pennsylvania Department of Transportation Engineering District 11-0.

Lichtenberger, Randy M.

1997f Phase I Archaeological Survey for the Proposed Replacement of Third Street Bridge Over French Creek, Utica Borough, Venango County, Pennsylvania. Prepared for the Pennsylvania Department of Transportation Engineering District 1-0.

Lichtenberger, Randy M., Nancy Van Dolsen, Wendy Zug-Gilbert, and Gary Coppock

1997g Phase II Archaeological Assessment and Addendum to the National Register Nomination for the Catoctin Furnace Historical District at the Reed-Stitely House, Frederick County, Maryland. Prepared for the Maryland Department of Transportation, State Highway Administration.

Lichtenberger, Randy M., David J. Rue, and David R. George
1997h Phase IB Archaeological Survey for the New Cumberland Army Depot, New Cumberland, York County, Pennsylvania. Prepared for the Baltimore District, U.S. Army Corps of Engineers, Baltimore, MD

Deitrick, V.L., A.L. Gray, M.L. Groveman, and R.M. Lichtenberger
1994a A Phase I Archaeological Survey of the Proposed Widening and Realignment of Route 616 City of Suffolk, Virginia. William and Mary Center for Archaeological Research, Williamsburg, Virginia. Submitted to Virginia Department of Transportation, Richmond, Virginia. On file, William and Mary Center for Archaeological Research, Williamsburg, Virginia.

Lichtenberger, R.M, M.L. Groveman, and A.L. Gray
1994b An Archaeological Assessment of the City of Suffolk, Virginia. William and Mary Center for Archaeological Research, Williamsburg, Virginia. Submitted to City of Suffolk, Department of Planning, Suffolk, Virginia. On file, William and Mary Center for Archaeological Research, Williamsburg, Virginia.

Papers Presented

Lichtenberger, Randy and Dan Pezzoni
2018 *A Colonial Tavern in the Virginia Backcountry: Archaeological and Architectural Findings from the Mead's Tavern 2018 Field Season*. Presented at the Archeological Society of Virginia annual conference in Winchester, Virginia.

Lichtenberger, Randy
2017 Invited paper on the Greenfield Plantation archaeological salvage excavation for the Friday evening COVA/ASV public session "Examining Contemporary Notions of Race and Racism through Recent Archaeological Research in Western Virginia." Presented at the Archeological Society of Virginia annual conference in Natural Bridge, Virginia.

Lichtenberger, Randy
2015 Exploring Cabellsville, Amherst County's First Courthouse Village. Presented at the Archeological Society of Virginia annual conference in Manassas, Virginia.

Lichtenberger, Randy
2006 *Remembering Thomas Jefferson in Landscape: Evidence for the Evolution of Historical Authenticity*. Presented at the Society for American Archaeology annual conference in San Juan, Puerto Rico.

Lichtenberger, Randy
2005 *Everyday Living in Jefferson's Shadow*. Presented at the Society for Historical Archaeology annual meeting in York, England.

Lichtenberger, Randy and Michael Jennings
2002 *Assessing New London, Virginia: A Colonial Town Faces Destruction*. Presented at the Society for Historical Archaeology annual meeting in Mobile, Alabama.

Lichtenberger, Randy and Barbara Heath
2001 *Defining "Household" at Thomas Jefferson's Poplar Forest*. Presented at the Society for Historical Archaeology annual meeting in Long Beach, California.

Lichtenberger, Randy, Charlene Keck, and Angele Montana

2000 *The Iron Cross Gravemarker: A French Roman Catholic Hallmark in Southern Louisiana*. Presented at the Society for Historical Archaeology annual meeting in Quebec City, Quebec, Canada.

Lichtenberger, Randy and Patrick P. Robblee

1996 *Growth and Decline of an 18th Century Virginia Suburb*. Presented at the Society for Historical Archaeology annual meeting in Cincinnati, Ohio.

Lichtenberger, Randy

1995 *An Archaeological Assessment of Middlesex County, Virginia*. Presented at the Council for Northeast Historical Archaeology Conference and Annual Meeting at Louisbourg, Nova Scotia.

Grants Awarded

2017 Virginia Department of Historic Resources Threatened Sites. Award to conduct metals conservation of artifacts from the Greenfield Plantation Site in Botetourt County.

2015 and 2016 Virginia Department of Historic Resources Threatened Sites. Award to conduct Archaeological excavation at the Oak Hill slave quarter in Pittsylvania County.

2013 and 2014 Virginia Department of Historic Resources Threatened Sites. Award to conduct Phase I archaeological survey at Cabellsville, first county seat of Amherst County, in Nelson County, Virginia.

2013 Council of Virginia Archaeologists. Award to conduct Phase I archaeological survey at the 1763 Mead's Tavern in New London, Virginia.

2011 Virginia Department of Historic Resources Threatened Sites. Award to conduct archaeological excavations at Historic Sandusky Museum, Lynchburg, Virginia.

Virginia Governor's Fellowship – 2002-2005

Award for full tuition and fees at the University of Virginia, Charlottesville.

Mellon Research Fellowship - 2001

Awarded for one week of study at the Virginia Historical Society in Richmond to research a series of early nineteenth century Virginia diaries.

Professional Memberships

Council of Virginia Archaeologists (COVA), 2001-Present

Ethics Committee 2002-Present; Chair, 2004-Present

Archeological Society of Virginia (ASV), 2017-Present

Virginia Archaeology Charitable Trust (VACT), Founding board member 2017-Present; President, 2019-Present

Society for Historical Archaeology, 1994-2009

Council for Northeast Historical Archaeology, 2001-2014

Awards

Commissioner's Award – 2019

Awarded by the Virginia Department of Transportation for Outstanding Customer Service
(Work on historic Clarkton Bridge memorandum of agreement and mitigation plan)

Preservationist of the Year – 2013

Awarded by the Lynchburg Historical Foundation.

DWAYNE W. PICKETT, RPA

34 St Simons Dr.
Bluffton, SC 29910
Phone: (843) 422-5556
Email: dwayne.pickett@gmail.com

EDUCATION:

M.A. in Anthropology, The College of William & Mary

EMPLOYMENT:

2007-Present

Director, Pickett Educational Resources LLC, Bluffton, SC

- Develop, schedule, and teach educational programs for K-12 students and adults with museums, local schools and homeschool groups.
- Work with museums to create unique and insightful programs using real and replica artifacts.
- Prepare written lesson plans for teaching interdisciplinary history and archaeology courses as well as for educational DVDs.
- Write and present lectures for mainstream and academic audiences.
- Maintain website and conduct online marketing as well as use social media to promote educational DVDs that the company produced.
- Create proposals and cost-effective budgets for programs.

2002-Present

Cultural Resource Specialist, Self-Employed, Bluffton, SC

- Successfully bid on archaeological projects by coming up with competitive budget proposals.
- Direct and organize field excavations as well as supervise archaeological technicians and volunteers.
- Catalogue artifacts and prepared them for curation in accordance with federal standards set by the National Park Service's 36 CFR Part 79.
- Help local historical sites with identifying, cataloging and preserving collections including a letter by Thomas Jefferson valued at \$700,000.
- Conduct historical research, author reports as well as give lectures.
- Coordinate efforts between multiple agencies and landowners resulting in assured cooperation and the timely completion of projects.

- 2000-2002 **Project Manager**, TRC Garrow and Associates, Inc., Durham, NC
- Team leader who arranged, organized and directed multiple archaeological projects.
 - Complied information from various sources, wrote reports and proposals.
 - Prepared artifacts for curation in accordance with federal standards.
 - Presented research findings at professional conferences and to the public.
- 1998-2000 **Assistant Director**, CHRS, Inc., North Wales, PA
- Planned, coordinated, and managed numerous archaeological projects as a team leader.
 - Complied background research in publishable format.
 - Prepared artifacts for curation in accordance with federal standards set forth by the National Park Service's 36 CFR Part 79.
 - Authored detailed reports as well as proposals and marketing material.
 - Presented research findings at professional conferences and to the public.
 - Coordinated with clients, landowners, and review agencies resulting in the timely completion of projects.
- 1993-1998 **Project Director**, Colonial Williamsburg, Williamsburg, VA
- Planned, organized and managed multiple archaeological projects.
 - Conducted intensive historical research and wrote reports.
 - Developed and lead educational programs.
 - Cataloged and accessioned artifacts and prepared them for curation.
 - Gave public and professional lectures.
 - Taught advanced archaeological field school.

VOLUNTERR EXPERIENCE:

- 2013-2020 **Instructor**, Osher Lifelong Learning Institute at University of South Carolina Beaufort, SC
- Taught classes on 16th and 17th history of the southeastern United States and Beaufort County, South Carolina.
 - Classes were based on two books that I have written or co-authored.
- 2018-2019 **President Board of Directors**, Lowcountry Montessori, Beaufort, SC
- Provided direction for achieving the school's mission statement.
 - Served on Fundraising Committee.
 - Strengthen programs and services to achieve academic goals.
 - Evaluated performance of the Director.

MEMBERSHIPS:

Register of Professional Archaeologists (RPA)
Society for Historical Archaeology
National Trust for Historic Preservation

SELECT PUBLICATIONS:

Phase III Archaeological Excavation of the Mead's Tavern Basement (44CP0244), Campbell County, Virginia. Prepared for Liberty University, Lynchburg, Virginia. In progress.

Phase I Archaeological Survey of the Proposed Springfield Solar Site. Westmoreland County, Virginia. Prepared for Springfield Solar LLC, Charlottesville, Virginia. October 2021.

Archaeological Survey of the Banister River, Pittsylvania County, Virginia. Prepared for the Virginia Department of Historic Resources, Richmond. September 2021.

Phase I Archaeological Survey of the Proposed Dry Bridge Energy Center, LLC Chesterfield County, Virginia. Prepared for Dry Bridge Energy, LLC Charlottesville, Virginia. January 2021.

Captain William Hilton and the Founding of Hilton Head Island. The History Press. July 1, 2019

Archaeological Survey in Advance of Construction Activities at the Morris Center for Lowcountry Heritage Ridgeland, South Carolina. Prepared for The Morris Center for Lowcountry Heritage. June 2018.

Going Green at Jamestown. *Dig Magazine*. July 1, 2014

The European Struggle to Settle North America: Colonizing Attempts by England, France and Spain, 1521-1608. McFarland. Feb 8, 2011

Pivotal Decisions in American History: Revolution or Resolution? Bacon's Rebellion in Virginia 1676. Educational DVD. © Pickett Educational Resources LLC. 2008

Meet Joan Peirce "an honest, industrious woman" Living History at Historic Jamestowne. Educational DVD. © Pickett Educational Resources LLC. 2007

Archaeological Excavations and Monitoring of Construction Activities at Historic Elk Landing, Elkton, Maryland. Aug. 2004.

Historical and Archaeological Research into the Entrance Avenue to Tryon Palace Historic Sites & Gardens New Bern, North Carolina. Tryon Palace research publication. Oct. 2003

Limited Archaeological Testing Within the Foundation of the Log Structure at Historic Elk Landing, Elkton Maryland. For the Historic Elk Landing Foundation, Inc. Oct. 2002.

Archaeological Survey and Testing at Historic Elk Landing, Elkton Maryland. For the Historic Elk Landing Foundation, Inc. Aug. 2002.

Maryland's War of 1812 Battlefield Sites: An Archaeological Assessment. *Maryland Humanities*. Sept 2001

Archaeology of the Tucker House Revisited: Recent Excavations of the Kitchen. *Bermuda Journal of Archaeology and Maritime History*. Volume 10. Oct. 1998

Phase III Data Recovery in Advance of Waterproofing Activities at Site 44YO755, the Thomas Pate House, Yorktown, Virginia. Department of Archaeological Research Publications, Colonial Williamsburg Foundation. Jan. 1998

The John Page House Site: An Example of the Increase in Domestic Brick Architecture in Seventeenth-Century Tidewater Virginia. Masters Thesis. Dec. 1996

Changing Landscapes: Recent Excavations at the John Page House Site. *The Colonial Williamsburg Interpreter*, volume 16 number 4, pages 9-13. Dec. 1995

CONFERENCE PAPERS:

“It was a busy bustling place”: The Rise and Decline of Commerce at Elk Landing. Paper presented at the Society for Historical Archaeology conference, January 2003, Providence, Rhode Island.

Frenchtown to Elkton: Upland Investigations of the War of 1812 in Maryland. Paper presented at the Society for Historical Archaeology conference, January 2001, Long Beach California.

Mr. Madison’s War: An Archaeological Assessment of Maryland’s War of 1812 Battlefield Sites. Paper presented at the American Battlefield Protection Program conference, November 2000, Baltimore Maryland.

The John Page House Site: An Artifactual Analysis of a Colonial Chesapeake Home. Paper presented at the Society for Historical Archaeology Conference, January 1997, Corpus Christi, Texas.

The John Page House Site: 1996 Update. Paper presented at the Jamestown Conference, November 1996, Jamestown, Virginia.

Changing Landscapes: The Adoption of Brick Architecture in Seventeenth-Century Tidewater Virginia. Paper presented at the Society for Historical Archaeology Conference, January 1996, Cincinnati, Ohio.

Excavations at the John Page House Site. Paper presented at the Jamestown Conference, November 1995, Jamestown, Virginia.

Snapshot

Date Generated: November 16, 2021

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): No Data
Site Type(s): Farmstead
Other DHR ID: No Data
Temporary Designation: Site 1

Site Evaluation Status

Not Evaluated

Locational Information

USGS Quad: SMITHFIELD
County/Independent City: Isle Of Wight (County)
Physiographic Province: Coastal Plain
Elevation: 70
Aspect: No Data
Drainage: James
Slope: 2 - 6
Acreage: 3.170
Landform: Other
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Farmstead
Cultural Affiliation: African American, Euro-American
Cultural Affiliation Details: No Data
DHR Time Period: Reconstruction and Growth, World War I to World War II
Start Year: No Data
End Year: No Data
Comments: Site 1 is a moderate concentration of late 19th- early 20th century artifacts located to the north and south of the former structures. All that remains of these buildings is a pile of cement and a depression where it appears that one of the structures, or what remained of it, was removed by a machine and its remnants piled next to it. A 1919 map is the earliest map of the project area that depicts a structure there.

Bibliographic Information

Bibliography:

No Data

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

Dwayne W. Pickett, Principal Investigator Randy Lichtenberger, Director of Cultural Resources

Project Review File Number:

No Data

Sponsoring Organization:

No Data

Organization/Company:

Hurt & Proffitt

Investigator:

Dwayne Pickett

Survey Date:

11/3/2021

Survey Description:

Phase I archaeological survey of a 34-acre tract located in the central part of Isle of Wight County

Current Land Use

Agricultural field

Date of Use

11/3/2021 12:00:00 AM

Comments

No Data

Threats to Resource:

Development

Site Conditions:

Surface Deposits Present But With No Subsurface Integrity, Unknown Portion of Site Destroyed

Survey Strategies:

Subsurface Testing, Surface Testing

Specimens Collected:

Yes

Specimens Observed, Not Collected:

No

Artifacts Summary and Diagnostics:

Whiteware, ironstone, milk glass press molded glass, clear bottle glass, unidentified nails, brick.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository:

H&P

Permanent Curation Repository:

VDHR

Field Notes:

Yes

Field Notes Repository:

VDHR

Photographic Media:

Digital

Survey Reports:

Yes

Survey Report Information:

Pickett and Lichtenberger, in prep.

Survey Report Repository:

VDHR

DHR Library Reference Number:

No Data

Significance Statement:

This is a moderate concentration of late 19th- early 20th centuries artifacts located to the north and south of former structures. All that remains of these buildings is a pile of cement and a depression where it appears that one of the structures, or what remained of it, was removed by a machine and its remnants piled next to it. A 1919 map is the earliest map of the project area that depicts a structure there. The late date of this site along with the lack of intact stratigraphy and discernible features suggests that this site has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Surveyor's Eligibility Recommendations:

Recommended Not Eligible

Surveyor's NR Criteria Recommendations, :

No Data

Surveyor's NR Criteria Considerations:

No Data

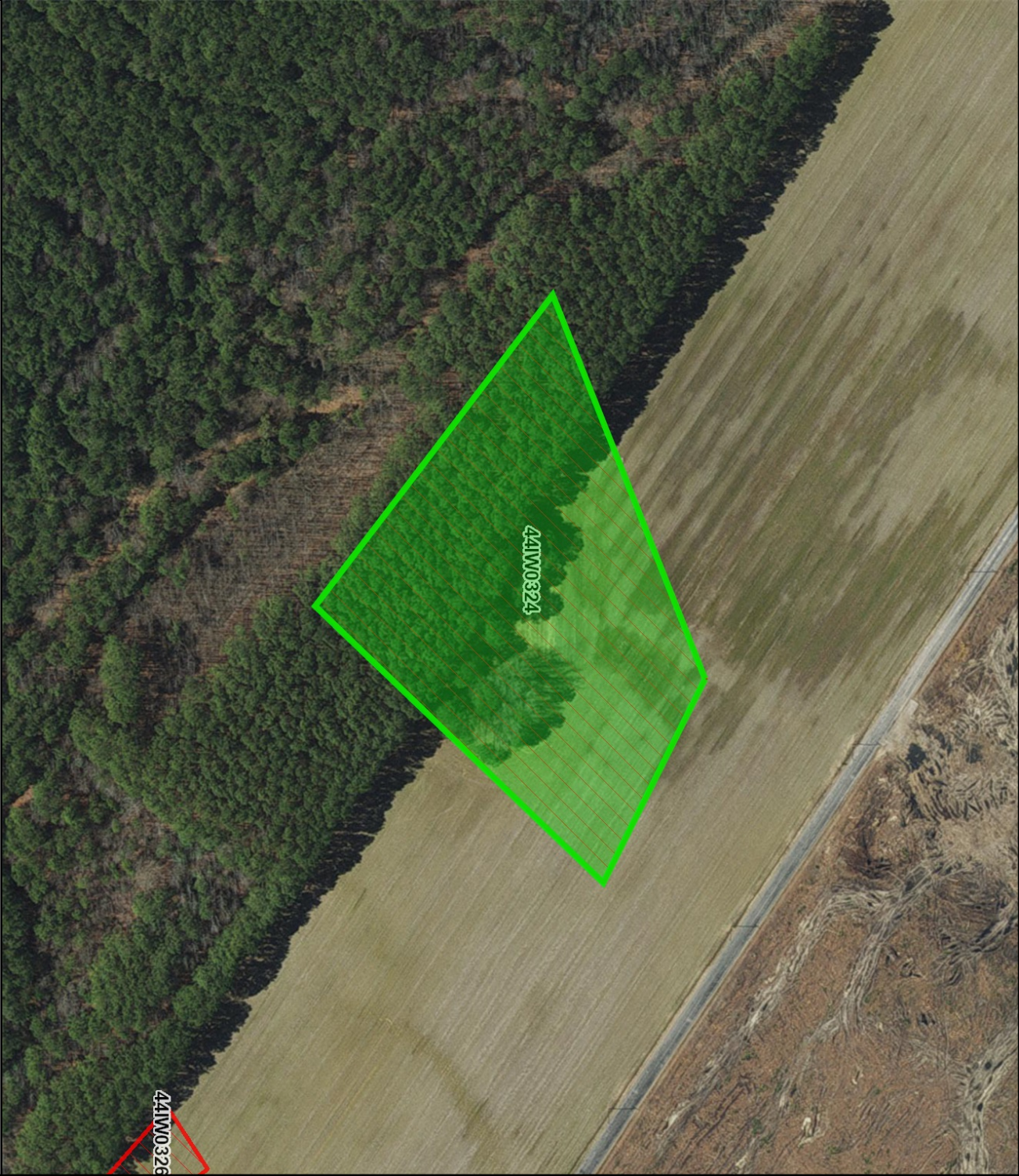


Legend

- Architecture Resources
- Architecture Labels
- Individual Historic District Properties
- Archaeological Resources
- Archaeology Labels
- DHR Easements
- USGS GIS Place names
- County Boundaries



Feet



Title: Archaeological Resources

Date: 11/16/2021

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

Snapshot

Date Generated: November 16, 2021

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): No Data
Site Type(s): Outbuilding
Other DHR ID: No Data
Temporary Designation: Site 2

Site Evaluation Status

Not Evaluated

Locational Information

USGS Quad: SMITHFIELD
County/Independent City: Isle Of Wight (County)
Physiographic Province: Coastal Plain
Elevation: 71
Aspect: No Data
Drainage: James
Slope: 2 - 6
Acreage: 0.700
Landform: Other
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Subsistence/Agriculture
Site Type: Outbuilding
Cultural Affiliation: African American, Euro-American
Cultural Affiliation Details: No Data
DHR Time Period: Reconstruction and Growth, World War I to World War II
Start Year: No Data
End Year: No Data
Comments: Site 2 is located in the woods along the eastern end of the property and consists of a depression with a few machine-made bricks at the bottom. The only artifacts recovered from STPs in this area were brick fragments. This depression might be related to an outbuilding associated with the structures at site 1.

Bibliographic Information

Bibliography:

No Data

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

Dwayne W. Pickett, Principal Investigator Randy Lichtenberger, Director of Cultural Resources

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Hurt & Proffitt

Investigator: Dwayne Pickett

Survey Date: 11/3/2021

Survey Description:

Phase I archaeological survey of a 34-acre tract located in the central part of Isle of Wight County

Current Land Use	Date of Use	Comments
Forest	11/3/2021 12:00:00 AM	No Data

Threats to Resource: Development

Site Conditions: Surface Features, Unknown Portion of Site Destroyed

Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Brick

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: H&P

Permanent Curation Repository: VDHR

Field Notes: Yes

Field Notes Repository: VDHR

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Pickett and Lichtenberger, in prep.

Survey Report Repository: VDHR

DHR Library Reference Number: No Data

Significance Statement:

This site is located in the woods along the eastern end of the property and consists of a depression with a few machine-made bricks at the bottom. The only artifacts recovered from STPs in this area were brick fragments. This depression might be related to an outbuilding associated with the structures at site 1. Given the low density of artifacts, the lack of domestic artifacts and the absence of intact stratigraphy site 2 has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations, : No Data

Surveyor's NR Criteria Considerations: No Data

Legend

-  Architecture Resources
-  Architecture Labels
-  Individual Historic District Properties
-  Archaeological Resources
-  Archaeology Labels
-  DHR Easements
-  USGS GIS Place names
-  County Boundaries



Title: Archaeological Resources

Date: 11/16/2021

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Feet

0 50 100 150 200

1:2,500 / 1"=208 Feet

Snapshot

Date Generated: November 16, 2021

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): No Data
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: Site 3

Site Evaluation Status

Not Evaluated

Locational Information

USGS Quad: SMITHFIELD
County/Independent City: Isle Of Wight (County)
Physiographic Province: Coastal Plain
Elevation: 70
Aspect: No Data
Drainage: James
Slope: 2 - 6
Acreage: 0.270
Landform: Other
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: African American, Euro-American
Cultural Affiliation Details: No Data
DHR Time Period: Reconstruction and Growth, World War I to World War II
Start Year: No Data
End Year: No Data
Comments: Site 3 is also located at the eastern end of the property and consists of a low concentration of late 19th- early 20th century artifacts. Given the low number of architectural artifacts, this concentration might be related to disposal activities associated with the structures at site 1.

Bibliographic Information

Bibliography:

No Data

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

Dwayne W. Pickett, Principal Investigator Randy Lichtenberger, Director of Cultural Resources

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Hurt & Proffitt

Investigator: Dwayne Pickett

Survey Date: 11/3/2021

Survey Description:

Phase I archaeological survey of a 34-acre tract located in the central part of Isle of Wight County

Current Land Use	Date of Use	Comments
Agricultural field	11/3/2021 12:00:00 AM	No Data

Threats to Resource: Development

Site Conditions: Surface Deposits Present But With No Subsurface Integrity, Unknown Portion of Site Destroyed

Survey Strategies: Subsurface Testing, Surface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Whiteware, ironstone, milk glass press molded glass, clear bottle glass.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: H&P

Permanent Curation Repository: VDHR

Field Notes: Yes

Field Notes Repository: VDHR

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Pickett and Lichtenberger, in prep.

Survey Report Repository: VDHR

DHR Library Reference Number: No Data

Significance Statement: This site consists of a low concentration of late 19th- early 20th centuries artifacts. Given the low number of architectural artifacts, this concentration might be related to disposal activities associated with the structures at site 1. The late date of this site along with the lack of intact stratigraphy and discernible features suggests that this site has little research potential. This leads H&P to recommend that this site is not eligible for the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations, : No Data

Surveyor's NR Criteria Considerations: No Data

Legend

-  Architecture Resources
-  Architecture Labels
-  Individual Historic District Properties
-  Archaeological Resources
-  Archaeology Labels
-  DHR Easements
-  USGS GIS Place names
-  County Boundaries



Title: Archaeological Resources

Date: 11/16/2021

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Feet



1:2,500 / 1"=208 Feet



046-5546_House_18493_Orbit_Road_2021_view_north

Property Information

Property Names

Name Explanation	Name
Function/Location	Dwelling, 18493 Orbit Road

Property Addresses

Current - 18493 Orbit Road

County/Independent City(s): Isle Of Wight (County)

Incorporated Town(s): *No Data*

Zip Code(s): 23487

Magisterial District(s): *No Data*

Tax Parcel(s): *No Data*

USGS Quad(s): SMITHFIELD

Property Evaluation Status

DHR Staff: Considered Eligible for Environmental Review purposes only

Additional Property Information

Architecture Setting: Rural

Acreage: 4

Site Description:

June 2019: This resource is located in a rural area. The property is a 4-acre parcel, surrounded by pasture. The house and domestic outbuildings stand in a cluster north of Orbit Road, with the house facing south. A circular gravel driveway leads to the house. A garage, outbuilding, and gazebo stand northeast of the house. The house has a carport attached to the north elevation of the house. Around the house are scattered mature trees. At the southeast corner of the property, near the northwest corner of the intersection of Orbit Road and Bowling Green Road, stand two other buildings: a pole barn machine shed and prefabricated shed.

November 2021: The property remains unchanged since the previous survey.

Surveyor Assessment:

June 2019: This architectural resource is located within a 1/2 mile of a proposed solar energy farm. The resource is directly visible from the proposed project area. According to Isle of Wight real estate assessment records, this dwelling was built in 1950. The house does not represent an individually significant example of the Colonial Revival style, as it has typical details such as the symmetrical core, stretcher bond brick, and side-gabled roof with gabled dormers. This building is recommended as not eligible under Criterion C of the NRHP/VLR. It is not known to be associated with significant events or persons, and as an architectural resource is not recommended eligible under Criterion D.

This resource is also located in an agricultural area of Isle of Wight County and surrounded by other farms that appear to have a high degree of architectural and landscape integrity. This cluster of farms may be significant in the architectural history, agricultural development, and landscape of Isle of Wight County. Additional investigation is recommended to research the history and development of this cluster of farms to aid in determining its significance and NRHP/VLR eligibility.

November 2021: Hurt & Proffitt concurs with the previous eligibility recommendation made for this property.

Surveyor Recommendation: Recommended Not Eligible

Ownership

Ownership Category	Ownership Entity
Private	<i>No Data</i>

Primary Resource Information

Resource Category:	Domestic
Resource Type:	Single Dwelling
NR Resource Type:	Building
Date of Construction:	1950
Date Source:	Local Records
Historic Time Period:	The New Dominion (1946 - 1991)
Historic Context(s):	Domestic
Other ID Number:	<i>No Data</i>
Architectural Style:	Colonial Revival

Form: *No Data*
Number of Stories: 1.5
Condition: Excellent
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: The core of this Colonial Revival, Cape Cod style dwelling measures three bays wide and two bays deep. There are multiple wings and additions to this core. A one-story tall, two-bay wide wing extends from the eastern gable end of the core and a one-and-one-half story tall gabled ell extends from the north (rear elevation). A shed roof addition has been made to the north elevation of the one-story, eastern wing. Also added to this eastern wing and connected with an open hyphen is a two-car carport. The exterior of the house is stretcher bond brick, with vinyl siding cladding the gabled dormers on the front roof slope. The roof is covered with asphalt shingles. An exterior end, stretcher bond chimney rises up the western gable end of the house. A gabled entry porch, with curved underside, square posts, and matchstick railing, shelters the front entry. The front entry is topped with a decorative fanlight and flanked by sidelights. A gabled roof porch, with square wood posts, extends partially across the western gable end. The attached carport features square brick posts. The windows are one-over-one, double-hung sash with faux muntins and rowlock brick sills. The façade of the core features two picture windows.

November 2021: This resource remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Chimneys	Exterior End	Brick	Stretcher Bond
Dormer	Gable	Vinyl	<i>No Data</i>
Porch	Portico/Entry Porch	Wood	Square
Porch	1-Story Partial Width	Wood	Square
Roof	Side Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource Information

Secondary Resource #1

Resource Category: Domestic
Resource Type: Garage
NR Resource Type: Building
Date of Construction: ca 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This two-car garage has a square plan, and it has a stretcher bond brick exterior and the front gabled roof is covered with asphalt shingles. There are two, overhead vehicular doors on the western elevation.

November 2021: This resource remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #2

Resource Category: Domestic
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This small shed has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. An entry door is centered on the south elevation.

November 2021: This shed remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #3

Resource Category: Domestic
Resource Type: Outbuilding, Domestic
NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This one-story tall outbuilding has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. The windows are one-over-one, double-hung sash with faux muntins and rowlock sills.

November 2021: The outbuilding remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #4

Resource Category: Domestic
Resource Type: Outbuilding, Domestic

NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This frame gazebo has an octagonal plan. The roof is covered with asphalt shingles. The supports are square wooden posts.

November 2021: The gazebo remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Complex	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Wood	Other

Secondary Resource #5

Resource Category: Domestic
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 1980
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This large pole barn structure has a rectangular plan. The east and west side walls slope slightly outward from the eaves. The exterior and roof are both covered with corrugated metal. Large, sliding, corrugated metal doors are on the south and north elevations.

November 2021: The pole barn remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Metal	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Metal	Panels

Secondary Resource #6

Resource Category: Agriculture/Subsistence
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map

Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Subsistence/Agriculture
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This prefabricated frame shed has a T-111 sided exterior. The gambrel roof is covered with asphalt shingles.

November 2021: This shed remains unchanged since the previous survey.

March 2019

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Side Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Plywood/Particle Board	Panels

Historic District Information

Historic District Name: *No Data*
Local Historic District Name: *No Data*
Historic District Significance: *No Data*

CRM Events

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*
Investigator: Ben Leatherland
Organization/Company: Hurt & Proffitt
Photographic Media: Digital
Survey Date: 11/2/2021
Dhr Library Report Number: *No Data*

Project Staff/Notes:

Sarah M. Clarke
Hurt & Proffitt Senior Architectural Historian

Project Bibliographic Information:

Isle of Wight Property Search

Event Type: DHR Staff: Considered Eligible for Environmental Review purposes only

DHR ID: 046-5546
Staff Name: R.Kirchen
Event Date: 10/29/2019
Staff Comment
2019-0563

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2019-0563

Investigator: Amy Krull and Susan E. Bamann
Organization/Company: Commonwealth Heritage Group, Inc.
Photographic Media: Digital
Survey Date: 3/14/2019
Dhr Library Report Number: IW-089

Project Staff/Notes:

Commonwealth Heritage Group, Inc. Project staff included Amy Krull, M.A., RPA, Sarah G. Traum, M.A., Susan E. Bamann, Ph.D., RPA, B. Scott Rose, M.A., RPA, and D. Allen Poyner. Cultural resource survey conducted in March, May, and June 2019 for a proposed 146.30-acre solar farm in Isle of Wight County.

Project Bibliographic Information:

Isle of Wight Property Search

Bibliographic Information

Bibliography:

Isle of Wight County Property Search

Property Notes:

No Data

RECONNAISSANCE ARCHITECTURAL SURVEY

NUBY RUN SOLAR SITE

Isle of Wight County, Virginia

November 16, 2021



H&P PROJECT NO.
2021813

CONTACT:
Sarah M. Clarke
Senior Architectural Historian

SUBMITTED TO:

Mr. Drew Price, President
Nuby Run Solar, LLC
321 E. Main Street, Suite 500
Charlottesville, VA 22902

2524 Langhorne Road | Lynchburg, VA 24501
(434) 847-7796 | www.HandP.com



Table of Contents

Executive Summary	3
Introduction	4
Setting	6
Historic Context	7
Field Methods	15
Results	15
Conclusions and Recommendations	17
References Cited	18

Figures

Figure 1. Project location	4
Figure 2. Proposed location of solar farm	5
Figure 3. Proposed location of solar farm and identified architectural resources on current topographic map.....	6
Figure 4. Aerial image of proposed solar farm location... ..	7
Figure 5. Approximate location of project on <i>Map of Isle of Wight and Part of Nansemond County</i> (Campbell, et al 1864).....	12
Figure 6. Project area depicted on 1919 Smithfield, VA 1:62500 USGS topographic map (USGS 2021).....	13
Figure 7. Detail of 1966 aerial depicting proposed project location.....	14
Figure 8. House at 18493 Orbit Road (VDHR No. 046-5546)..... ..	16
Figure 9. House at 18688 Orbit Road (VDHR No. 046-5646)..... ..	17

EXECUTIVE SUMMARY

This report presents the results of a reconnaissance survey of two architectural resources in Isle of Wight County, Virginia. The survey was completed by Hurt & Proffitt (H&P) on behalf of Nuby Run Solar, LLC. The fieldwork for this project was conducted on November 2, 2021.

The architecture survey conducted for this project resulted in the identification of one new architecture property, house at 18688 Orbit Road (VDHR No. 046-5646) and one previously recorded property, house at 18493 Orbit Road (VDHR No. 046-5546). Both the previously recorded property, and the newly surveyed property are mid-twentieth century dwellings. The previously recorded property (VDHR No. 046-5646) was recorded in 2019 and recommended not individually eligible for the National Register of Historic Places (NRHP). However, it was recommended that the property may be a contributing resource to a larger rural historic district. For the purposes of the environmental review conducted for the previous project in 2019, the property was recommended as a contributing resource to a potential rural historic district.

Nuby Run Solar, LLC proposes to construct a solar farm of 34 acres on the south side of Orbit Road (Rt. 637). The project requires a permit from the Federal Energy Regulatory Commission (FERC) which necessitates compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Area of Potential Effects (APE) for architecture includes those parcels within 0.5 miles of the proposed location of the solar farm, the vicinity where alterations to feeling and setting may occur.

The reconnaissance-level surveys completed for this project include background research of Isle of Wight County records and survey files at the Virginia Department of Historic Resources. The fieldwork for the project entailed photographing and drawing site plans for each resource.

Based on the results of the survey, H&P recommends that the newly identified architectural resource the house at 18688 (VDHR No. 046-5646), is not individually eligible for the NRHP, nor is it a contributing resource to a larger historic district. In addition, H&P recommends that the previously recorded resource, the house located at 18493 Orbit Road (VDHR No. 046-5546) is not individually eligible for the NRHP, which is consistent with the previous eligibility determination made in 2019. Additional survey would be needed to establish whether the property is contributing to a larger rural historic district.

1. INTRODUCTION

This report presents the results of reconnaissance architectural surveys completed for a proposed solar farm near the town of Windsor in Isle of Wight County, Virginia (Figure 1). The survey for this project was conducted by Hurt & Proffitt (H&P) on behalf of Nuby Run Solar, LLC. H&P completed the fieldwork for this project on November 2, 2021.

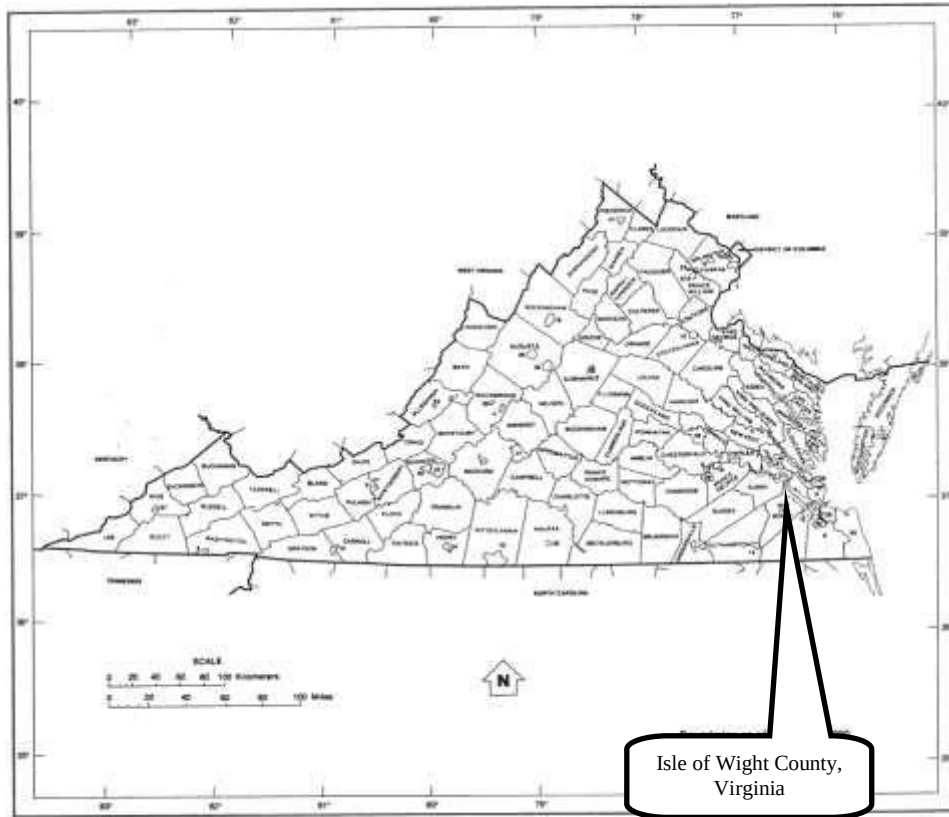


Figure 1. Project location.

The resources surveyed for this project are in proximity to Orbit Road (Rt. 637), approximately 10 miles northeast of the Town of Windsor in Isle of Wight County, Virginia. All of the architectural properties are in close proximity to Orbit Road.

Nuby Run Solar, LLC proposes to construct a 34-acre solar farm to the south of Orbit Road. The proposed solar farm consists of 34 acres and is a portion of a larger land parcel of approximately 117.3 acres (parcel no. 39-01-038). The parcel proposed for the solar farm contains no extant structures and is currently utilized for crop cultivation. The architecture APE for the project is the project footprint, and those parcels within 0.5 miles of the proposed location of the solar farm, where alterations to feeling and setting may occur (Figure 2).

Prior to beginning the fieldwork for the project, H&P completed background and historic research at VDHR and Isle of Wight County, which included a site file review of previously recorded architectural resources in the VDHR's Virginia Cultural Resources Information System (V-CRIS).

The fieldwork for this project was completed by Sarah M. Clarke, H&P Senior Architectural Historian. The field investigations and technical report meet the requirements specified in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Federal Register 48:190:44716-44742) and the Virginia Department of Historic Resources (VDHR) *Guidelines for Conducting Cultural Resource Survey In Virginia* (2017). The Principal Investigator performing the cultural resource investigations meets or exceeds the qualifications described in the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44738-9).

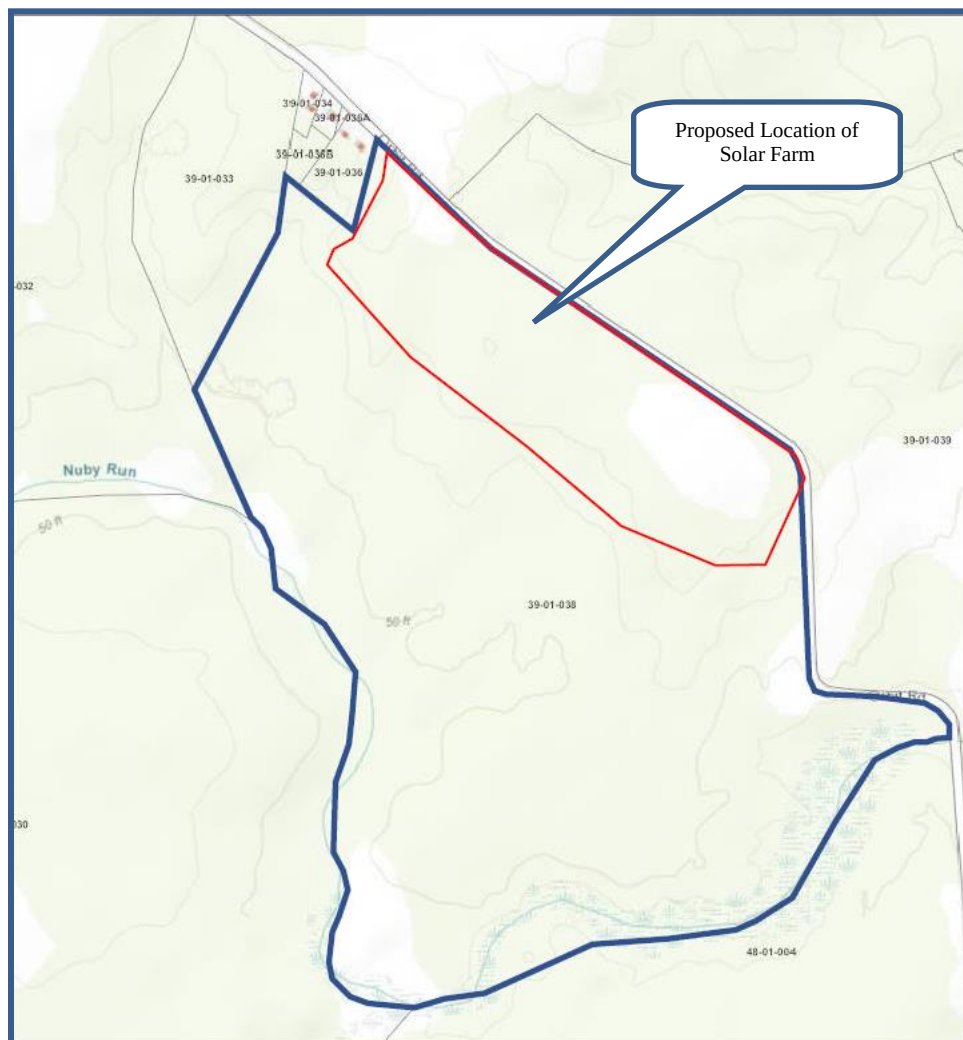


Figure 2. Proposed location of solar farm. Project parcel (blue line) and development footprint (red line) as depicted in Isle of Wight County GIS (accessed September 2021).

2. SETTING

The project is located northeast of the Town of Windsor in Isle of Wight County, to the south of Orbit Road (Rt. 637). The proposed location of the solar farm is a cultivated field that consists of 34 acres which is part of a larger 117-acre parcel (Figure 3). The area surrounding the proposed solar farm parcel consists of heavily wooded areas and clear cultivated fields (Figure 4).

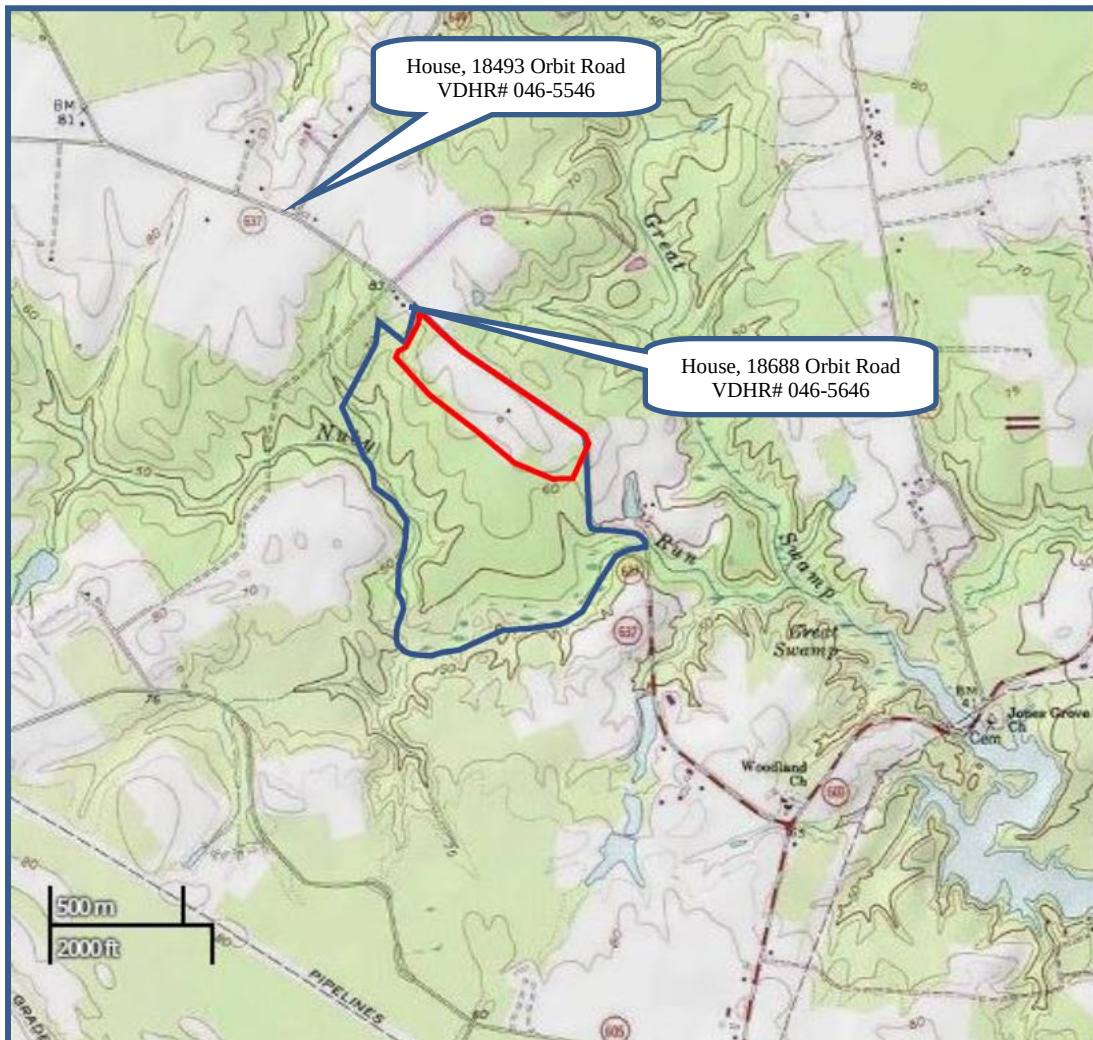


Figure 3. Proposed solar farm location and identified architectural resources on current topographic map (USGS 2021).



Figure 4. Aerial image of proposed solar farm location.

3. HISTORIC CONTEXT

Settlement to Society (1607-1750)

English settlement in the Tidewater region of Virginia began with the founding of the Jamestown colony in 1607. Soon thereafter, the Jamestown colonists began exploring the mouth of the Elizabeth River and Hampton Creek. During this exploration, the colonists eventually encountered Native Americans when they visited the town of Kecoughtan, part of the Powhatan Confederacy. The colonists continued their exploration of the area and eventually founded the Jamestown settlement at the mouth of the James River (Mansfield 1989).

The colonists did not explore the area of modern day Isle of Wight County until 1608, when John Smith sought to trade with the Warrosquoyacke tribe for food (King 1993). The Warrosquoyacke lived in the area of modern Fergusson's Wharf and hunted along the James River, as well as 20 miles inland (Morrison 1907). The settlers and Native Americans continued friendly relations for the next several years. The settlers continued to learn from the Native Americans and explore the land (King 1993).

Within a few years, the colonists began cultivating the crop of tobacco which led to both huge exports to England, as well as impressive growth in population. English settlement continued to expand, including the region that would become modern-day Isle of Wight County. Led by Captain Christopher Lawne, Sir Richard Worsley, Nathaniel Basse, and

John Hobson, the colonists settled near the mouth of Lawne's Creek. Lawne's Creek is the modern dividing line between Isle of Wight and Surry Counties. The first settlement in this area was called Warrosquoyacke; however, the new residents of this area suffered greatly from disease, especially malaria with a majority dying within the year. In 1620, the settlement became known as the plantation of Isle of Wight. The area continued to grow and two additional patents were granted that year (King 1993).

In 1619, the first Africans arrived in Virginia via a Dutch trader, a majority of which ended up at Governor Sir George Yeardley's Flowerdew Hundred Plantation. As the seventeenth century progressed enslaved individuals began to replace indentured servants as the primary source of labor in the Tidewater area. The first recorded slave within the modern boundary of Isle of Wight County was at Bennett's Welcome, a plantation that belonged to Edward Bennett (IWCW 2021).

The expanded settlement along the James River eventually led to conflict with the communities of the Powhatan Confederacy. On March 22, 1622, the tribes of the Powhatan Confederacy attacked the James River settlements, 347 colonists were killed. As a result, the management of the colony was transferred from the Virginia Company to the British Crown in 1624. In 1634 eight counties or shires were established: Henrico, James City, Charles City, Warwick River, Charles River, Warrosquoake (Isle of Wight), Elizabeth City, and Accomack. In addition county courts and officials, to include justices, sheriffs, clerks, and lieutenants of the militia were established (Dabney 1971).

In 1637 Warrosquoyacke officially became Isle of Wight and was bound on the north by Lawne's Creek, the east by the James River, and inland extended from Richard Hayes's plantation to the head of Colonel Pitt's creek, the southern boundary ran to the west for an undefined distance. In 1642, Isle of Wight was divided into the Upper and Lower Parish, Pagan Creek was the boundary between the two. A majority of the settlements were along the southern shore of the James River and the shores of Pagan Creek (King 1993).

The project area is south of the James River, in the middle of Isle of Wight County, far from the larger established plantations on the James and York Rivers. The first town of Isle of Wight County was at Pate's Field near Pagan Point Creek and Warrosquoyacke Back Bay Creek. In 1680, a law was passed that required every county that exported tobacco and other goods to lay out a town of fifty acres with half-acre lots. Each lot had to include a dwelling and a storehouse. By 1681, all exports and imports had to pass through these established towns. However, Pate's Field, Patesfield, was considered too remote and inconvenient for trade (King 1993).

During this time, the transportation of enslaved individuals continued to increase. In fact, between 1700 and 1750, 45,000 enslaved people were brought to the colony. In addition, there was an increase in the number of American-born slaves. This increase in the number of enslaved peoples in the colony resulted in the need for housing for these individuals. Evidence of these quarters does not really appear until the eighteenth century. However, due to the sheer number of enslaved individuals and tension between

planters and their workers, separate quarters became the norm (Upton 1984).

Quarter sites in the Coastal Plain area are defined by sub-floor pits; however there is no architectural evidence suggesting a structure. In addition, Colonoware or Colono-Indian pottery has been found in significant amounts in sites of the late-seventeenth century through to the early-nineteenth century of housing for the enslaved (Deetz 1993).

Colony to Nation (1750-1789)

By 1750, the second town was established in Isle of Wight County, Smithfield. Originally, Smithfield was part of the property owned by Captain Arthur Smith that sat along Pagan Creek. Due to its location, Smithfield was perfect because it contained a storehouse, a public landing, and had access to a ferry landing. Smith laid out 72 lots, with two proposed locations for a courthouse. One of these locations was accepted, and construction of the courthouse began in 1750. The courthouse and a contemporary tavern are still standing in the Town of Smithfield today. It was during this period that there was a transition away from the cultivation of tobacco. Tobacco was hard on the land and depleted the soil, so new crops were introduced like corn, other grains, orchards, and livestock. In addition, the pine forests in Isle of Wight were utilized for their tar, pitch, and turpentine (King 1993).

With the start of the Revolutionary War, many citizens of Isle of Wight County were divided in their loyalties. The loyalists had to abandon their homes and property. In 1775, many residents of Isle of Wight County joined the Princess Anne District Battalion to fight at Kempsville and Portsmouth. These same men later joined the 7th, 8th, and 9th companies of the 4th Virginia Regiment of Foot. Eventually, these soldiers joined Washington's army and fought at Trenton and Germantown. No major battles were fought within Isle of Wight County; however, raids were led by British Lieutenant Colonel Tarleton. Including one on the courthouse in Smithfield, which severely damaged the building. In addition, the shoreline was under threat of invasion, which led to the closing of one of the tobacco warehouses (King 1993).

During the eighteenth century, enslaved peoples were still imported into Virginia. Though there was not a significant increase in the number in the Tidewater area. In fact, it appears that many of the enslaved were moved from Tidewater to other parts of Virginia, or other regions (Morgan 1988). Virginia passed the Emancipation Act in 1782. This new law allowed the enslaved to be freed by their owner through a deed of manumission or through a will after their death (IWCM 2021).

Early National Period (1789-1830)

In 1790, the population of Isle of Wight County was 9,028. This included 4,786 whites, 3,867 enslaved individuals, and 375 free blacks. The population of Isle of Wight County grew very slowly, by the 1830 census the number of individuals in the county only increased to 10,517 people (King 1993).

The population of Isle of Wight County began to move to the western parts of the county. Because of this, it was decided that the courthouse should be moved to accommodate the population shift. Around 1800, the new courthouse was constructed, it is still used and sits approximately 1.5 miles from the project area (King 1993).

Agriculture began to change during this time period. Tobacco cultivation had been on the decline because of soil depletion. Therefore, the residents of Isle of Wight County began to grow new crops, specifically cotton. By the early-nineteenth century, Isle of Wight County had two functioning cotton factories (King 1993).

Additional changes came in the transportation network in Isle of Wight County. Residents long relied on ferries for the transportation of goods and people. This time period also saw improvements of roads and bridges (King 1993).

Slavery continued during this time period, though the United States government outlawed the importation of enslaved people, the domestic slave trade continued. Due to the changes in crop cultivation mentioned above, less slave labor was required, which led to a surplus of slave labor (Berlin 2010).

Antebellum Period (1830-1861)

The population of Isle of Wight County continued to decrease from 10,517 in 1830 to 9,977 in 1860. This is primarily due to the decrease in the number of enslaved people, which declined from 4,272 in 1830 to 3,570 in 1860. This is due to changes in farming and the crops cultivated during this time that did not rely as heavily on slavery (King 1993). A map of this period depicts no structures in the immediate project vicinity (Figure 5).

A majority of the residents in Isle of Wight County were farmers. However, there was an agricultural depression in eastern Virginia in the 1820s and 1830s. This economic crisis is credited with one of the reasons for the population decline in the county (Mansfield 1989). Further problems stemmed from the fact that Lower Tidewater cotton farmers could not compete with the cotton farmers of the Deep South. In spite of these issues, agriculture continued with over 1,400 farms in Isle of Wight County. The focus was on new crops like corn, sweet potatoes, peas, watermelons, beans, and some cotton. It was also during this time that peanut cultivation began in Isle of Wight County (King 1993).

During the Antebellum period the railroad came to Isle of Wight County. The Norfolk and Petersburg Railroad, completed in 1858, provided access to new markets and injected some needed energy into the economy of the region. The railroad also opened up the region for the lumber industry (King 1993).

The changes in agriculture resulted in the exportation of enslaved people from Virginia to the Deep South. Called “the second middle passage,” more than one million slaves were sent to the Deep South. During this time, there was talk of ending slavery within

Virginia; however, after Nat Turner's Rebellion in 1831, all talk ceased (Berlin 2010).

Civil War (1861-1865)

The area between the Nansemond and Blackwater Rivers witnessed at least 30 engagements during the Civil War between September 28, 1862 and March 17, 1863. In this area both the Confederate and Union troops had patrols between the two rivers. Specifically the localities of Providence Church, Zuni, Windsor, and Joyner's Ferry. The Confederates attempted to prevent Union troops from crossing the Blackwater River. The Union troops worked to prevent the Confederates from crossing the Nansemond River (Cormier 1989). Union Major-General John A. Dix estimated at least 5,000 Confederate troops fortifying the Blackwater River (Dix).

One skirmish took place on December 12, 1862 at Joyner's Ford near the community of Zuni. Captain J.H. Sikes of Company D of the 7th Confederate States Cavalry stated that at least 30 Confederate soldiers engaged with Union forces at Joyner's Ford. At first, the Confederates were able to hold off Union forces and kept them from crossing the river. Eventually, Union troops did manage to cross the river on pontoon boats. The Confederate soldiers attempted to hold the Union soldiers but were soon overwhelmed and captured by Union forces (Sikes 1862).

Union forces focused considerable attention along the Norfolk and Petersburg Railroad. In May 1863, Union troops were busy tearing up the railroad tracks between Suffolk and the Blackwater River. Major General Dix stated that two regiments of Confederate troops with artillery pieces attacked the Union troops.

All of this activity along the railroad interrupted the prosperity the railroad brought to Isle of Wight County. After the evacuation of Norfolk in May 1862, Union troops had control of the Norfolk and Petersburg Railroad from Norfolk to Zuni. To make that portion unusable, the railroad removed sections of track outside of what the Union troops occupied (Chabot 1938). The Confederates were still in possession of the western end of the railroad and continued to transport troops to the Blackwater River (Dix 1862).



Figure 5. Approximate location of project on Map of Isle of Wight and Part of Nansemond (Campbell, et al 1864).

Reconstruction and Growth (1865-1917)

After the end of the Civil War, began the task of rebuilding the Norfolk and Petersburg Railroad. The ultimate goal was to connect Norfolk with the markets of the Mississippi Valley. In 1872, the Norfolk and Petersburg Railroad merged to form the Atlantic, Mississippi, and Ohio Railroad Company. A result of this merger was the creation of the Norfolk and Western in 1881 (Chabot 1907).

Prior to the start of the Civil War, was the start of peanut cultivation in the county. By the end of the Civil War, peanut farming was being encouraged in Isle of Wight County. In 1872, 40,000 bushels of peanuts were cultivated in the county, by 1890 it was over 200,000 bushels. A peanut factory was constructed in Smithfield, and in 1877 another factory was built in Windsor (King 1993). Lumbering, an industry that began in the area with the construction of the Norfolk and Petersburg Railroad, also continued after the Civil War. In 1878, the Camp Manufacturing Company, a lumber company, was built on the east bank of the Blackwater River. Lumber operations were established in communities with wharves on the James River (King 1993).

Windsor benefitted from its proximity to the railroad and became an important distribution point. By 1878, Windsor had the first two-room school in Isle of Wight County. By 1902, Windsor had a jail and a public school.

The Civil War also brought the 13th Amendment which outlawed slavery in the United

States. Freedman's Bureaus were established throughout the country to help newly freed blacks (Berlin 2010).

World War I to World War II (1917-1945)

The types of crops cultivated in Isle of Wight County remained mostly unchanged, with peanuts continuing to be the primary crop; however, soybeans were introduced to the county. In 1935, there were over 1,400 farms in Isle of Wight County, this number includes farms of both whites and blacks. By 1919, a new farmstead was erected on the project parcel (Figure 6). Change came with the erection of power lines by the Community Electric Cooperatives, which provided electricity to rural parts of the county. In 1928, the James River Bridge opened, which connected Isle of Wight residents with the larger cities of Hampton and Newport News (King 1993).

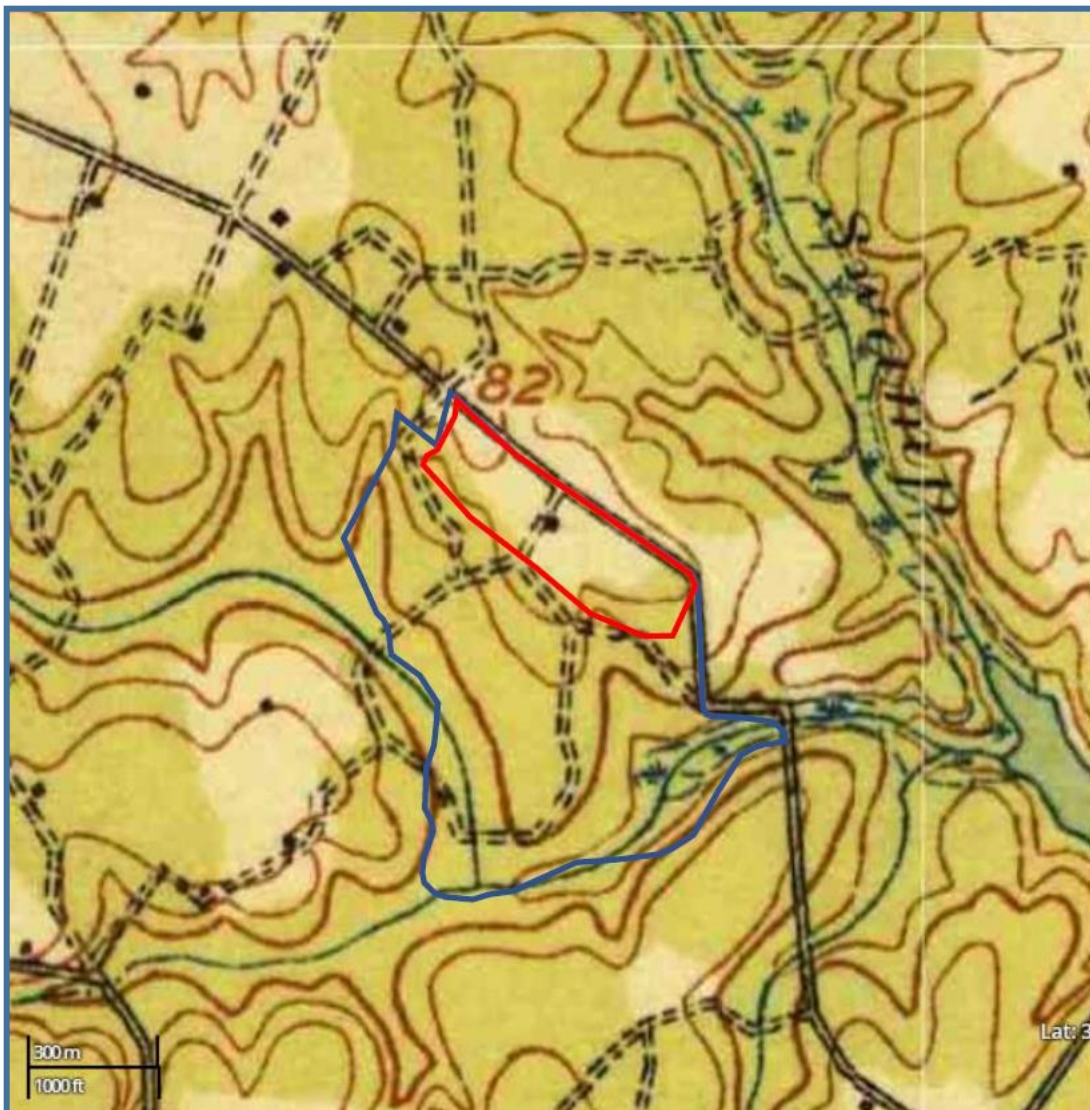


Figure 6. Project area depicted on 1919 Smithfield, VA 1:62500 USGS topographic map (USGS 2021).

The New Dominion (1945 to Present)

In 1950, the Isle of Wight population was over 14,000 people. Smithfield was the largest town. Windsor was the second largest town. In 1975, the Commonwealth of Virginia took over operation of the James River Bridge and removed the tolls on the bridge. The removal of tolls made Isle of Wight County an attractive place to move for people working in Newport News. This resulted in a population increase and new residential and commercial construction along Route 17 and in the Town of Smithfield.

The number of farms began to decline by the 1990s, and there was a transition from crops to beef cattle (King 1993). While the farmstead on the project parcel continued in use in the 1960s, it was abandoned by 2010 (Figure 7). In the 2010 U.S. Census the population of Isle of Wight County was 35,270 and increase of 18.6 percent from the 2000 census. The Smithfield and Isle of Wight Convention and Visitors Bureau promotes the historic tourism and outdoor activity of the area.



Figure 7. Detail of 1966 aerial depicting proposed project location.

4. FIELD METHODS

The purpose of the architectural investigation was to survey and evaluate two properties for individual eligibility for listing in the NRHP. Of the two resources located within the project APE, one is previously recorded. The previously recorded resource is the house at 18493 Orbit Road (VDHR No. 046-5546), the newly recorded resource is the house at 18688 Orbit Road (VDHR No. 046-5646). The APE for this project includes the property parcels that are within 0.5 mile, the vicinity where alterations to feeling and setting may occur. Background research was completed at Isle of Wight County and survey files at VDHR. H&P staff conducted a site visit to photograph and survey the architectural resources. The resources were photographed and site plans were drawn depicting the relationship of the resources to the landscape, and each other.

5. RESULTS

H&P completed reconnaissance level survey for two properties: the previously recorded house at 18493 Orbit Road (VDHR No. 046-5546), and the newly identified house at 18688 Orbit Road (VDHR No. 046-5646).

House at 18493 Orbit Road (VDHR No. 046-5546) The dwelling sits at the top of a poured concrete circular drive. The west side of the driveway is flanked by mature trees and shrubs and the perimeter of the property is enclosed with a vinyl, picket fence. Constructed in 1950 this Colonial Revival, Cape Cod single dwelling is one-and-half stories with three bays composed of a stretcher-bond brick and clad in vinyl siding. The pedimented front entrance is supported by four, square posts and is capped with a gable roof. The front door is capped with a decorative fan light and is flanked by side lights. Two picture windows flank the front entrance of the dwelling and two dormers pierce the façade of the dwelling. The vinyl windows are one-over-one light with faux muntins. An exterior-end brick chimney is visible on the west elevation of the dwelling. The single dwelling is capped with a gable roof covered with asphalt shingles.

The dwelling has multiple additions including a one-story brick, two-bay addition on the east elevation, and a one-and-half story addition on the north (rear) elevation that is capped with a shed roof. The east elevation addition has a hyphen that connects to a carport clad in stretcher bond brick and gable ends sheathed in vinyl siding.

A one-story, two-bay, gable-end-entry, brick garage sits to the east of the primary dwelling. Another outbuilding is a one-story shed clad in stretcher-bond brick and vinyl siding that sits to the north of the dwelling. A frame, octagonal gazebo sits to the northeast of the dwelling. A large vehicle shed clad in metal siding sits to the northeast of the dwelling.

This property was recommended not individually eligible for the NRHP and was recommended as a contributing resource to a potential rural historic district. H&P

concurs with the previous recommendation concerning individual eligibility. However, additional work is needed to determine whether the dwelling is a contributing resource to a potential rural historic district.



Figure 8. House at 18493 Orbit Road (VDHR No. 046-5546).

House at 18688 Orbit Road (VDHR No. 046-5646) The dwelling sits to the south of a gravel and dirt circular drive. The lawn is overgrown and dotted with mature trees, two large shrubs are visible on the façade of the dwelling. The dwelling was constructed in 1963 and is one-story, five bays clad in stretcher-bond brick and vinyl siding. The paired and single windows are vinyl, one-over-one with double-hung sashes. The front entrance is a single-leaf, door accessed by a front stoop with brick steps and wrought-iron railing.

The east elevation of the dwelling has a one-story, one-bay addition on the dwelling clad in a combination of stretcher-bond brick and vinyl siding. A pair of wood doors with multiple lights is visible on the east elevation.

There are multiple outbuildings that sit to the southeast of the dwellings. Two are one-story, one-bay, gable-end-entry, sheds clad in metal sheets and capped with gable roofs covered in standing-seam metal. A one-story, five-bay mobile home sits to the southwest of the primary dwelling. The mobile home is clad in metal with a metal skirt. The metal windows are four-over-four lights with double-hung sashes. The single-leaf metal door is accessed by wood steps and deck that are in poor condition. The low-pitch gable roof is covered with standing-seam metal.



Figure 9. House at 18688 Orbit Road (VDHR No. 046-5646)

H&P recommends that the house at 18688 Orbit Road is not individually eligible for the NRHP under Criteria A, B, or C; Criterion D is not applicable. The dwelling does not represent any important people or events in history and the design, workmanship, and materials are stock and unremarkable.

6. CONCLUSIONS AND RECOMMENDATIONS

As a result of the survey, H&P recommends that the house at 18688 Orbit Road (VDHR No. 046-5646) is not individually eligible for the NRHP under Criteria A, B, or C; Criterion D is not applicable. The previously recorded architectural resource, the house at 18493 (VDHR No. 046-5546) was recommended not individually eligible for the NRHP and was recommended as a contributing resource to a potential rural historic district. H&P concurs with the previous recommendation concerning individual eligibility. However, additional work is needed to determine whether the dwelling is a contributing resource to a potential rural historic district.

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Property Information

Property Names

Name Explanation	Name
Function/Location	Dwelling, 18493 Orbit Road

Property Addresses

Current - 18493 Orbit Road

County/Independent City(s): Isle Of Wight (County)

Incorporated Town(s): *No Data*

Zip Code(s): 23487

Magisterial District(s): *No Data*

Tax Parcel(s): *No Data*

USGS Quad(s): SMITHFIELD

Property Evaluation Status

DHR Staff: Considered Eligible for Environmental Review purposes only

Additional Property Information

Architecture Setting: Rural

Acreage: 4

Site Description:

June 2019: This resource is located in a rural area. The property is a 4-acre parcel, surrounded by pasture. The house and domestic outbuildings stand in a cluster north of Orbit Road, with the house facing south. A circular gravel driveway leads to the house. A garage, outbuilding, and gazebo stand northeast of the house. The house has a carport attached to the north elevation of the house. Around the house are scattered mature trees. At the southeast corner of the property, near the northwest corner of the intersection of Orbit Road and Bowling Green Road, stand two other buildings: a pole barn machine shed and prefabricated shed.

November 2021: The property remains unchanged since the previous survey.

Surveyor Assessment:

June 2019: This architectural resource is located within a 1/2 mile of a proposed solar energy farm. The resource is directly visible from the proposed project area. According to Isle of Wight real estate assessment records, this dwelling was built in 1950. The house does not represent an individually significant example of the Colonial Revival style, as it has typical details such as the symmetrical core, stretcher bond brick, and side-gabled roof with gabled dormers. This building is recommended as not eligible under Criterion C of the NRHP/VLR. It is not known to be associated with significant events or persons, and as an architectural resource is not recommended eligible under Criterion D.

This resource is also located in an agricultural area of Isle of Wight County and surrounded by other farms that appear to have a high degree of architectural and landscape integrity. This cluster of farms may be significant in the architectural history, agricultural development, and landscape of Isle of Wight County. Additional investigation is recommended to research the history and development of this cluster of farms to aid in determining its significance and NRHP/VLR eligibility.

November 2021: Hurt & Proffitt concurs with the previous eligibility recommendation made for this property.

Surveyor Recommendation: Recommended Not Eligible

Ownership

Ownership Category	Ownership Entity
Private	<i>No Data</i>

Primary Resource Information

Resource Category: Domestic

Resource Type: Single Dwelling

NR Resource Type: Building

Date of Construction: 1950

Date Source: Local Records

Historic Time Period: The New Dominion (1946 - 1991)

Historic Context(s): Domestic

Other ID Number: *No Data*

Architectural Style: Colonial Revival

Form: *No Data*
Number of Stories: 1.5
Condition: Excellent
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: The core of this Colonial Revival, Cape Cod style dwelling measures three bays wide and two bays deep. There are multiple wings and additions to this core. A one-story tall, two-bay wide wing extends from the eastern gable end of the core and a one-and-one-half story tall gabled ell extends from the north (rear elevation). A shed roof addition has been made to the north elevation of the one-story, eastern wing. Also added to this eastern wing and connected with an open hyphen is a two-car carport. The exterior of the house is stretcher bond brick, with vinyl siding cladding the gabled dormers on the front roof slope. The roof is covered with asphalt shingles. An exterior end, stretcher bond chimney rises up the western gable end of the house. A gabled entry porch, with curved underside, square posts, and matchstick railing, shelters the front entry. The front entry is topped with a decorative fanlight and flanked by sidelights. A gabled roof porch, with square wood posts, extends partially across the western gable end. The attached carport features square brick posts. The windows are one-over-one, double-hung sash with faux muntins and rowlock brick sills. The façade of the core features two picture windows.

November 2021: This resource remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Chimneys	Exterior End	Brick	Stretcher Bond
Dormer	Gable	Vinyl	<i>No Data</i>
Porch	Portico/Entry Porch	Wood	Square
Porch	1-Story Partial Width	Wood	Square
Roof	Side Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource Information

Secondary Resource #1

Resource Category: Domestic
Resource Type: Garage
NR Resource Type: Building
Date of Construction: ca 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This two-car garage has a square plan, and it has a stretcher bond brick exterior and the front gabled roof is covered with asphalt shingles. There are two, overhead vehicular doors on the western elevation.

November 2021: This resource remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #2

Resource Category: Domestic
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 1950
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This small shed has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. An entry door is centered on the south elevation.

November 2021: This shed remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #3

Resource Category: Domestic
Resource Type: Outbuilding, Domestic
NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This one-story tall outbuilding has a stretcher bond brick exterior, with vinyl siding in the gable ends. The front gabled roof is covered with asphalt shingles. The windows are one-over-one, double-hung sash with faux muntins and rowlock sills.

November 2021: The outbuilding remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Masonry	Brick	Stretcher Bond

Secondary Resource #4

Resource Category: Domestic
Resource Type: Outbuilding, Domestic

NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map
Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This frame gazebo has an octagonal plan. The roof is covered with asphalt shingles. The supports are square wooden posts.

November 2021: The gazebo remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Complex	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Wood	Other

Secondary Resource #5

Resource Category: Domestic
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 1980
Date Source: Map
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This large pole barn structure has a rectangular plan. The east and west side walls slope slightly outward from the eaves. The exterior and roof are both covered with corrugated metal. Large, sliding, corrugated metal doors are on the south and north elevations.

November 2021: The pole barn remains unchanged since the previous survey.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Metal	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Metal	Panels

Secondary Resource #6

Resource Category: Agriculture/Subsistence
Resource Type: Shed
NR Resource Type: Building
Date of Construction: ca 2000
Date Source: Map

Historic Time Period: Post Cold War (1992 - Present)
Historic Context(s): Subsistence/Agriculture
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Good
Threats to Resource: Other
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

June 2019: This prefabricated frame shed has a T-111 sided exterior. The gambrel roof is covered with asphalt shingles.

November 2021: This shed remains unchanged since the previous survey.

March 2019

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Side Gable	Asphalt	<i>No Data</i>
Structural System and Exterior Treatment	Wood Frame	Plywood/Particle Board	Panels

Historic District Information

Historic District Name: *No Data*
Local Historic District Name: *No Data*
Historic District Significance: *No Data*

CRM Events

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*
Investigator: Ben Leatherland
Organization/Company: Hurt & Proffitt
Photographic Media: Digital
Survey Date: 11/2/2021
Dhr Library Report Number: *No Data*

Project Staff/Notes:

Sarah M. Clarke
Hurt & Proffitt Senior Architectural Historian

Project Bibliographic Information:

Isle of Wight Property Search

Event Type: DHR Staff: Considered Eligible for Environmental Review purposes only

DHR ID: 046-5546
Staff Name: R.Kirchen
Event Date: 10/29/2019
Staff Comment
2019-0563

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2019-0563

Investigator: Amy Krull and Susan E. Bamann
Organization/Company: Commonwealth Heritage Group, Inc.
Photographic Media: Digital
Survey Date: 3/14/2019
Dhr Library Report Number: IW-089

Project Staff/Notes:

Commonwealth Heritage Group, Inc. Project staff included Amy Krull, M.A., RPA, Sarah G. Traum, M.A., Susan E. Bamann, Ph.D., RPA, B. Scott Rose, M.A., RPA, and D. Allen Poyner. Cultural resource survey conducted in March, May, and June 2019 for a proposed 146.30-acre solar farm in Isle of Wight County.

Project Bibliographic Information:

Isle of Wight Property Search

Bibliographic Information

Bibliography:

Isle of Wight County Property Search

Property Notes:

No Data



046-5546_House_18493_Orbit_Road_2021_view_north

Property Information

Property Names

Name Explanation	Name
Function/Location	House, 18688 Orbit Road

Property Evaluation Status

Property Addresses

Current - 18688 Orbit Road

County/Independent City(s): Isle Of Wight (County)

Incorporated Town(s): *No Data*

Zip Code(s): 23487

Magisterial District(s): *No Data*

Tax Parcel(s): *No Data*

USGS Quad(s): SMITHFIELD

Additional Property Information

Architecture Setting: Rural

Acreage: *No Data*

Site Description:

November 2021: The dwellings sits to the south of Orbit Road, at the top of a dirt and gravel circular drive. There are several mature trees on the property and the lawn is overgrown. Two large shrubs are visible on the facade of the dwelling. Two metal sheds sit to the southeast of the main dwelling and a mobile home sits to the southwest.

Surveyor Assessment:

November 2021: H&P recommends that the house at 18688 Orbit Road is not individually eligible for the NRHP under Criteria A, B, or C; Criterion D is not applicable. The dwelling does not represent any important people or events in history and the design, workmanship, and materials are stock and unremarkable.

Surveyor Recommendation: Recommended Not Eligible

Ownership

Ownership Category	Ownership Entity
Private	<i>No Data</i>

Primary Resource Information

Resource Category: Domestic

Resource Type: Single Dwelling

NR Resource Type: Building

Date of Construction: 1963

Date Source: Written Data

Historic Time Period: The New Dominion (1946 - 1991)

Historic Context(s): Domestic

Other ID Number: *No Data*

Architectural Style: Ranch

Form: *No Data*

Number of Stories: 1.0

Condition: Fair

Threats to Resource: None Known

Cultural Affiliations: Indeterminate

Cultural Affiliation Details: *No Data*

Architectural Description:

November 2021: The dwelling was constructed in 1963 and is one-story, five bays clad in stretcher-bond brick and vinyl siding. The paired and single windows are vinyl, one-over-one with double-hung sashes. The front entrance is a single-leaf, door accessed by a front stoop with brick steps and wrought-iron railing.

The east elevation of the dwelling has a one-story, one-bay addition on the dwelling clad in a combination of stretcher-bond brick and vinyl siding. A pair of wood doors with multiple lights is visible on the east elevation.

Exterior Components

Component	Component Type	Material	Material Treatment
Foundation	Solid/Continuous	No Data	No Data
Porch	Stoop/Deck	No Data	Not Visible
Roof	Side Gable	Asphalt	No Data
Structural System and Exterior Treatment	Wood Frame	Brick	Veneer
Structural System and Exterior Treatment	Wood Frame	Vinyl	Siding
Windows	Double-hung	Vinyl	No Data

Secondary Resource Information

Secondary Resource #1

Resource Category:	Domestic
Resource Type:	Shed
NR Resource Type:	Building
Date of Construction:	ca 1970
Date Source:	Site Visit
Historic Time Period:	The New Dominion (1946 - 1991)
Historic Context(s):	Domestic
Other ID Number:	No Data
Architectural Style:	No discernible style
Form:	No Data
Number of Stories:	1.0
Condition:	Poor
Threats to Resource:	Neglect, None Known
Cultural Affiliations:	Indeterminate
Cultural Affiliation Details:	No Data

Architectural Description:

November 2021: This shed is one-story, one-bay, gable-end-entry, sheds clad in metal sheets and capped with gable roofs covered in standing-seam metal.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Metal	No Data
Structural System and Exterior Treatment	Steel Frame	Metal	Siding

Secondary Resource #2

Resource Category:	Domestic
Resource Type:	Shed
NR Resource Type:	Building
Date of Construction:	ca 1970
Date Source:	Site Visit
Historic Time Period:	The New Dominion (1946 - 1991)
Historic Context(s):	Domestic
Other ID Number:	No Data
Architectural Style:	No discernible style
Form:	No Data
Number of Stories:	1.0
Condition:	Poor

Threats to Resource: Neglect, None Known
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

November 2021: The shed is one-story, one-bay, gable-end-entry, sheds clad in metal sheets and capped with gable roofs covered in standing-seam metal.

Exterior Components

Component	Component Type	Material	Material Treatment
Roof	Front Gable	Metal	<i>No Data</i>
Structural System and Exterior Treatment	Steel Frame	Metal	Siding

Secondary Resource #3

Resource Category: Domestic
Resource Type: Mobile Home/Trailer
NR Resource Type: Building
Date of Construction: ca 1970
Date Source: Site Visit
Historic Time Period: The New Dominion (1946 - 1991)
Historic Context(s): Domestic
Other ID Number: *No Data*
Architectural Style: No discernible style
Form: *No Data*
Number of Stories: 1.0
Condition: Poor
Threats to Resource: Neglect, None Known
Cultural Affiliations: Indeterminate
Cultural Affiliation Details: *No Data*

Architectural Description:

November 2021: A one-story, five-bay mobile home sits to the southwest of the primary dwelling. The mobile home is clad in metal with a metal skirt. The metal windows are four-over-four lights with double-hung sashes. The single-leaf metal door is accessed by wood steps and deck that are in poor condition. The low-pitch gable roof is covered with standing-seam metal.

Exterior Components

Component	Component Type	Material	Material Treatment
Foundation	Not Visible	<i>No Data</i>	<i>No Data</i>
Porch	1-Story Partial Width	Wood	Not Visible
Roof	Side Gable	Metal	<i>No Data</i>
Structural System and Exterior Treatment	Steel Frame	Metal	Siding
Windows	Double-hung	Metal	<i>No Data</i>

Historic District Information

Historic District Name: *No Data*
Local Historic District Name: *No Data*
Historic District Significance: *No Data*

CRM Events

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*
Investigator: Ben Leatherland
Organization/Company: Hurt & Proffitt

Photographic Media: Digital
Survey Date: 11/2/2021
Dhr Library Report Number: *No Data*
Project Staff/Notes:
Sarah M. Clarke
Hurt & Proffitt Senior Architectural Historian
Project Bibliographic Information:
Isle of Wight Property Search

Bibliographic Information

Bibliography:
Isle of Wight County Property GIS
Property Notes:
No Data



046-5646_House_18688_Orbit_Road_2021_view_south



046-5646_18688_Orbit_Road_2021_view_NW



046-5646_House_18688_Orbit_Road_2021_view_east



046-5646_Shed_2021_view_SE



046-5646_Shed_2021_view_south

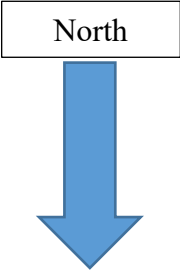
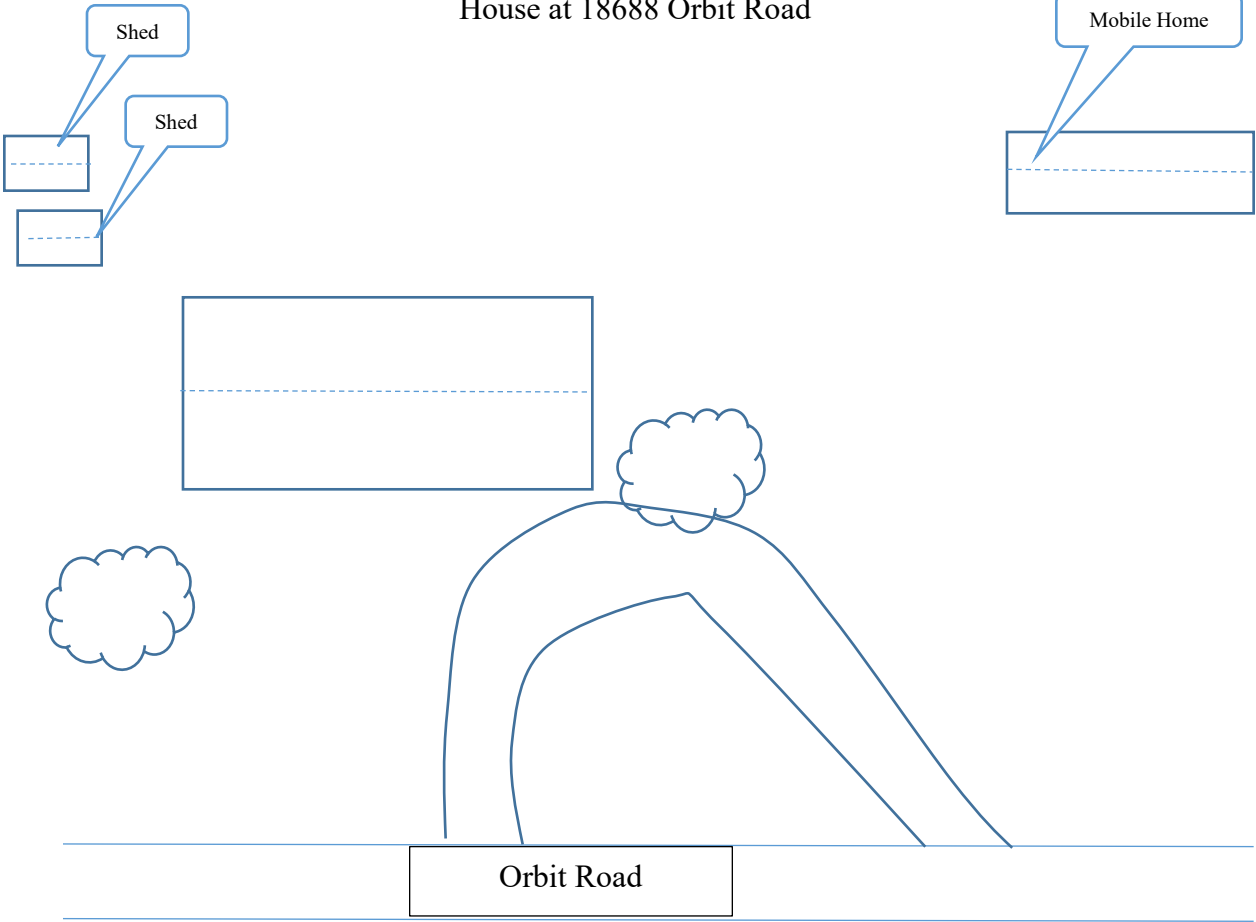


046-5646_Mobile_Home_2021_view_S



046-5646_Mobile_Home_2021_view_SW

VDHR No. 046-5646
House at 18688 Orbit Road



Not to Scale

Nuby Run Solar

Water Quality Impact Assessment

December 2021

Prepared For:
Nuby Run Solar, LLC

Submitted to:
Isle of Wight
Department of Planning and Zoning

I. Project Narrative

This Water Quality Impact Assessment (WQIA) was prepared by Timmons Group on behalf of Nuby Run Solar, LLC for the proposed Nuby Run Solar (Project, Site) project, located off Orbit Road in Isle of Wight County. The approximately 40 acre Site (Parcel Number 39-01-038) is located within the Hampton Roads watershed (HUC 02080208) in the Southern Coastal Plain physiographic province. The purpose of the proposed project is to construct a solar power generation facility utilizing single axis tracking panels. Additional improvements include utility installation and stormwater improvements.

A WQIA is required when there are proposed modifications to the Chesapeake Bay Preservation Act Resource Protection Area (RPA) buffer. This WQIA memo was developed for the planning commission to demonstrate that the proposed development is consistent with the spirit and intent of the Chesapeake Bay Preservation Area Ordinance.

There are currently no RPA buffer encroachments planned for the proposed Nuby Run Solar Site. This memo is prepared in compliance with the requirements set forth in Article 4, Performance Standards and Development Criteria, specifically section 4003 of the County ordinance.

Impacts to the RPA were avoided by incorporating resourceful site planning, including the utilization of the wetland delineation, and RPA determination to adjust the layout to avoid RPA impacts. As an additional measure to ensure compliance there is no tree clearing or land disturbance proposed within 100 feet of the confirmed RPA buffer.

II. Project Site Conditions

i. Location & Existing Condition

The Project Study Limits for the proposed Nuby Run Solar Site are located on the south side of Orbit Road and north of Nuby Run. The project site generally consists of agricultural fields and mixed hardwood forest. The site is generally flat and has floodplain wetlands and RPA associated with Nuby Run located along the southern boundary in the mid-successional forested area.

ii. Topography & Hydrology

The existing topography within the Site is relatively flat with elevations approximately 60 to 80 feet above msl. The approximately 39.7-acre study area is located within the Hampton Roads watershed (HUC 02080208) in the Southern Coastal Plain physiographic province (see [Figure 2: Hydrologic Unit Code Map](#)). The majority of the Site consists of a maintained agricultural field and mixed pine-hardwood forest. Surface water onsite is

drained by Nuby Run flowing south and east into Great Swamp (see Figure 2: Hydrologic Unit Code Map). It is bound by Orbit Road to the north, mixed pine-hardwood forest and Orbit Road to the east, and mixed pine-hardwood forest to the west and south.

The Site is not located within Flood Zone X, defined as an Area of Minimal Flood Hazard with a 0.2% annual chance flooding.

iii. Vegetation

The majority of the Site consists of maintained agricultural field. Vegetation in non-agricultural areas was dominated by loblolly pine (*Pinus taeda*), red maple (*Acer rubrum*), and sweetgum (*Liquidambar styraciflua*) in the tree and sapling strata; American holly (*Ilex opaca*), sweetbay (*Magnolia virginiana*), and devil's-walkingstick (*Aralia spinosa*) in the shrub stratum; switch cane (*Arundinaria tecta*), Japanese stiltgrass (*Microstegium vimineum*), and eastern woodland sedge (*Carex blanda*) in the herbaceous stratum; and honeysuckle (*Lonicera japonica*) in the woody vine stratum,

iv. Soils

A soil survey for the project site was developed using soil data from the Natural Resources Conservation Service's (NRCS) online Soil Survey Geographic (SURGO) database and is included in Figure 3: Environmental Inventory Map. The SSURGO identified one (1) hydric soil within the Project Study Limits. Kinston loam (7) is described as "poorly drained". Non-hydric soils consist of various loamy sands and sandy loams.

III. RPA Modification

i. Jurisdictional & RPA Determinations

In order to identify the extent of onsite surface waters, a wetland delineation was conducted by Timmons Group on December 8, 2020. The delineation was performed based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual; the Regional Supplement to the USACE Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0); and subsequently issued COE regulatory guidance regarding the identification of stream channels through the recognition of field indicators of an ordinary high-water mark within drainage features. The wetland delineation conducted on December 8, 2020 has been confirmed by the USACE in a letter dated December 15, 2021 issued by Melissa Nash (NAO-2021-01444).

The extents of the RPA buffer were confirmed on October 28, 2021, Nathan Hughes and Amber Foster of DEQ met with representative Dan Cox from Timmons Group to confirm the limits of the RPA. Per the site visit conversation, DEQ confirmed the limits of the RPA presented on the map entitled Figure 5: Resource Protection Area dated 12/16/2020.

ii. Resource Protection Area Buffer Modification

There are no RPA buffer encroachments planned for the proposed Nuby Run Solar Site. See Figure 6: Conceptual Site Plan.

IV. Potential Water Quality Impacts

i. Erosion & Sediment Control

Proper erosion and sediment control measures will be designed and specified in accordance with the *Virginia Erosion and Sediment Control Handbook*, state's minimum standards (MS-19) and the Isle of Wight County code. A Storm Water Pollution Prevention Plan (SWPPP) will also be developed and incorporated with these measures in accordance with the Virginia Stormwater Management Program (VSMP). The designed erosion and sediment control measures shall be installed prior to land disturbance activities and maintained until construction is complete and disturbed areas have been stabilized with permanent vegetation. The specific erosion and sediment control measures for the project site will be selected during the civil design process and reviewed and approved by all authorities having jurisdiction.

ii. Stormwater Management

Project stormwater management will be designed in compliance with the Virginia Stormwater Management Program (VSMP) regulations.

V. Avoidance, Minimization and Mitigation

Impacts to RPA features were avoided by incorporating resourceful site planning, including the utilization of the wetland delineation, and RPA determination to adjust the layout to avoid impacts. As an additional measure a 100' buffer between development activities and the RPA has been implemented.

VI. Conclusion

There are no proposed RPA buffer encroachments associated with the development of the Nuby Run Solar Site for construction of utility scale solar facility. The site has been designed to avoid the wetlands area located on the Site. Adverse effects on water quality will be minimized by

erosion and sediment control measures designed to protect the site WOUS, buffers during project construction, and avoidance of secondary impacts from construction stormwater runoff.

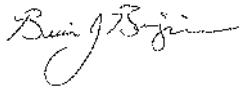
Tree clearing along the southern section of the site will occur to reducing shading impacts, however the proposed tree clearing is more than 100' away from the RPA buffer and the area is proposed to be planted with pollinator friendly herbaceous vegetation.

This WQIA was developed under the requirements set forth in Article 4, Performance Standards and Development Criteria, specifically section 4003 of the County ordinance.

It is our intent this WQIA memorandum has demonstrated that there is no proposed RPA buffer encroachment.

Please do not hesitate to contact Brian Breissinger at (804) 200-6439 or brian.breissinger@timmons.com with any questions, concerns, or if any additional information is required to complete this review.

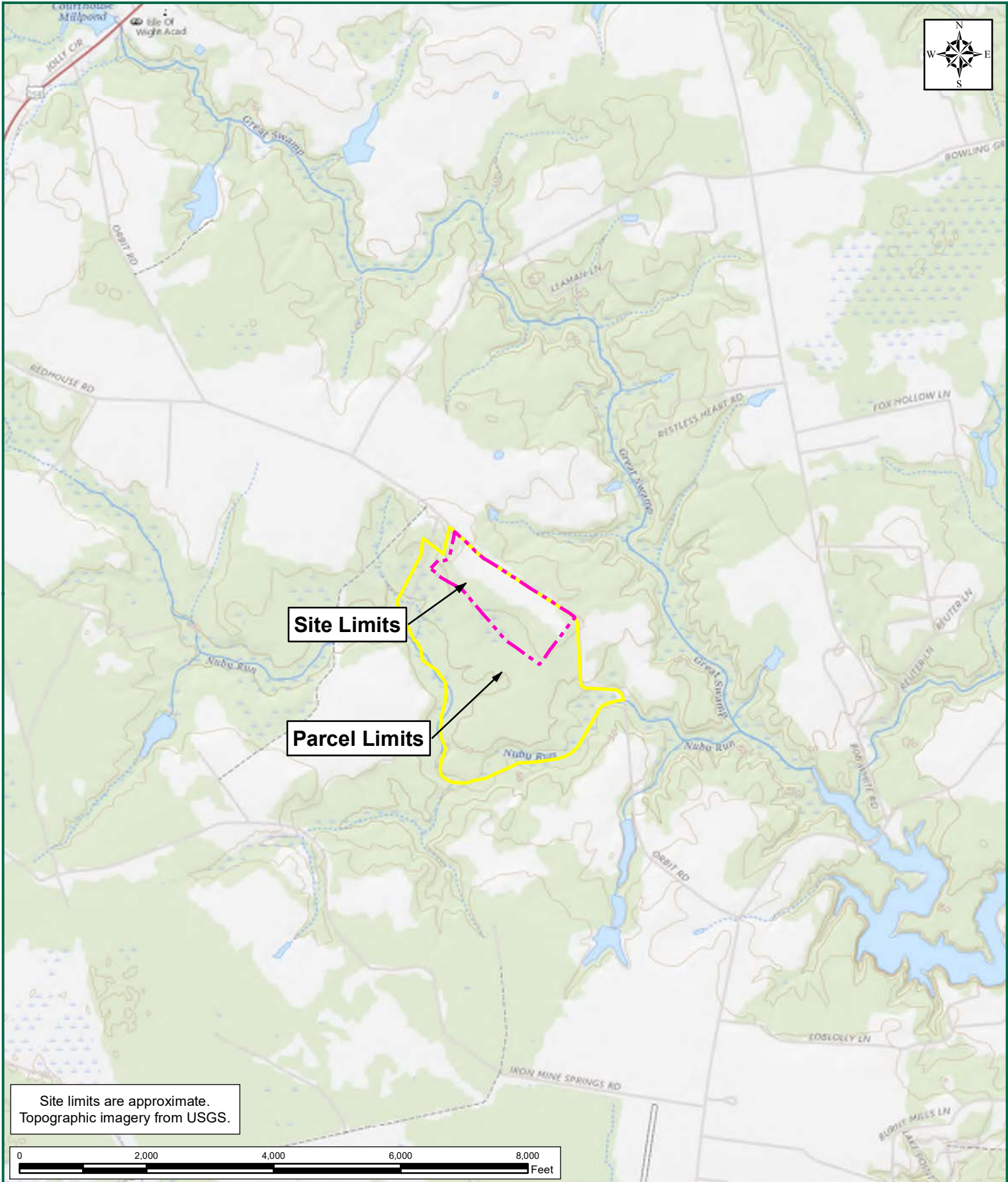
Sincerely,



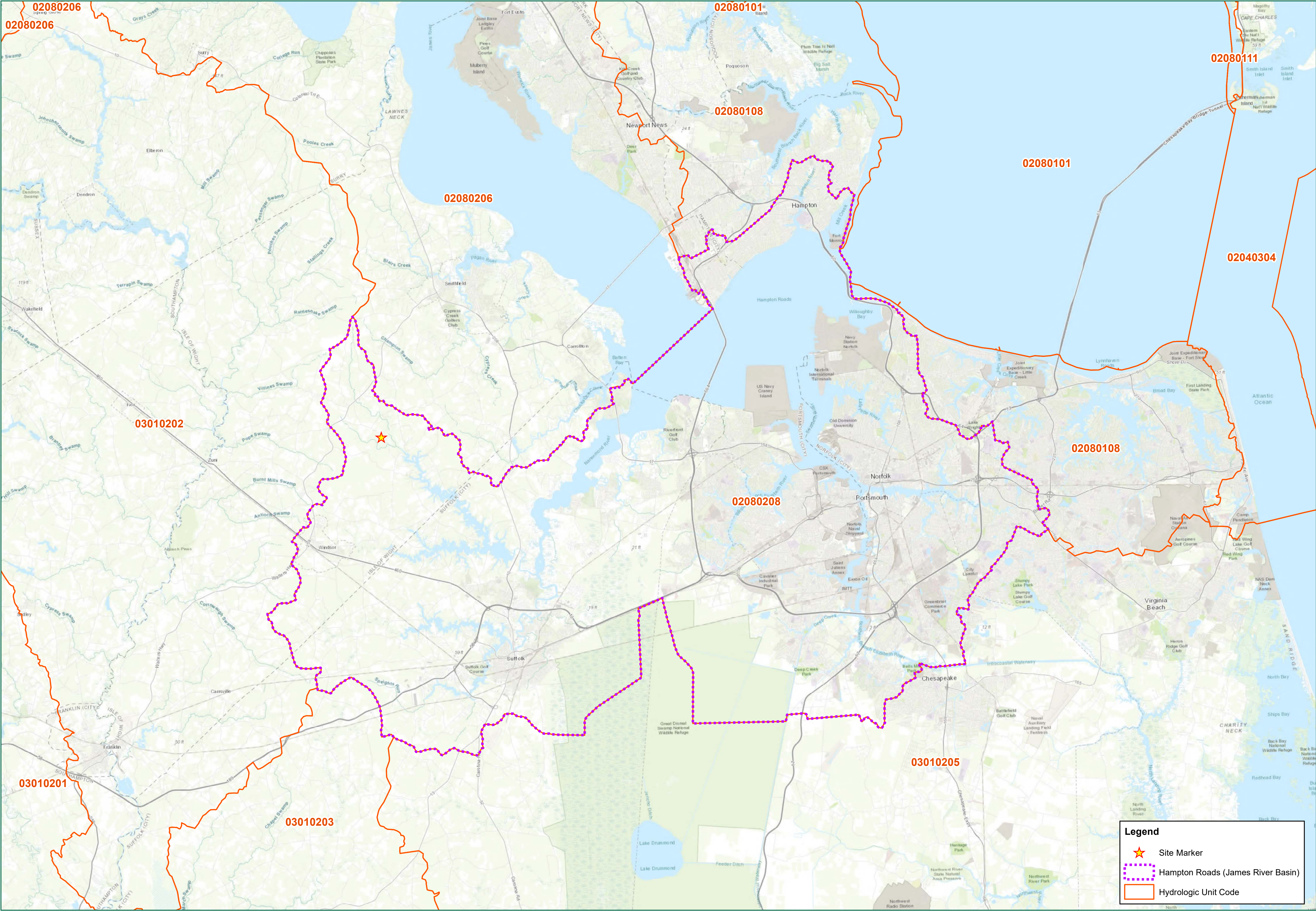
Brian Breissinger
Senior Environmental Project Manager

FIGURES

- Figure 1: Vicinity Map
- Figure 2: Hydrologic Unit Code Map
- Figure 3: Environmental Inventory Map
- Figure 4: Wetlands and Waters Delineation Map
- Figure 5: Resource Protection Area Map
- Figure 6: Conceptual Site Plan



VIRGINIA DG PORTFOLIO SOLAR - NUBY RUN ISLE OF WIGHT, VIRGINIA FIGURE 1: VICINITY MAP TIMMONS GROUP JOB NUMBER: 47276 PROJECT STUDY LIMITS: 39.7 ACRES LATITUDE: 36.882100 LONGITUDE: -76.689088	TIMMONS GROUP YOUR VISION ACHIEVED THROUGH OURS. U.S.G.S. QUADRANGLE(S): SMITHFIELD DATE(S): 2019 WATERSHED(S): HAMPTON ROADS (JAMES RIVER BASIN) HYDROLOGIC UNIT CODE(S): 02080208
--	--





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1001 Builders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

**VIRGINIA DG PORTFOLIO SOLAR -
NUBY RUN**
ISLE OF WIGHT COUNTY,
VIRGINIA

DATE	12/03/2020
PROJECT NUMBER	47276
PROJECT NAME	VIRGINIA DG PORTFOLIO SOLAR - NUBY RUN
DESIGNED BY / DRAWN BY	K. SCHMIDT

NOTES:
Site marker is approximate.
HUC from USGS.
Topographic basemap from
Esri Online.

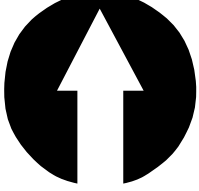
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inclusive, but not limited to construction, bidding,
and/or construction staking without the express
written consent of TIMMONS GROUP.

REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION
**FIGURE 2:
HYDROLOGIC
UNIT CODE MAP**

Legend

-  Site Marker
-  Hampton Roads (James River Basin)
-  Hydrologic Unit Code

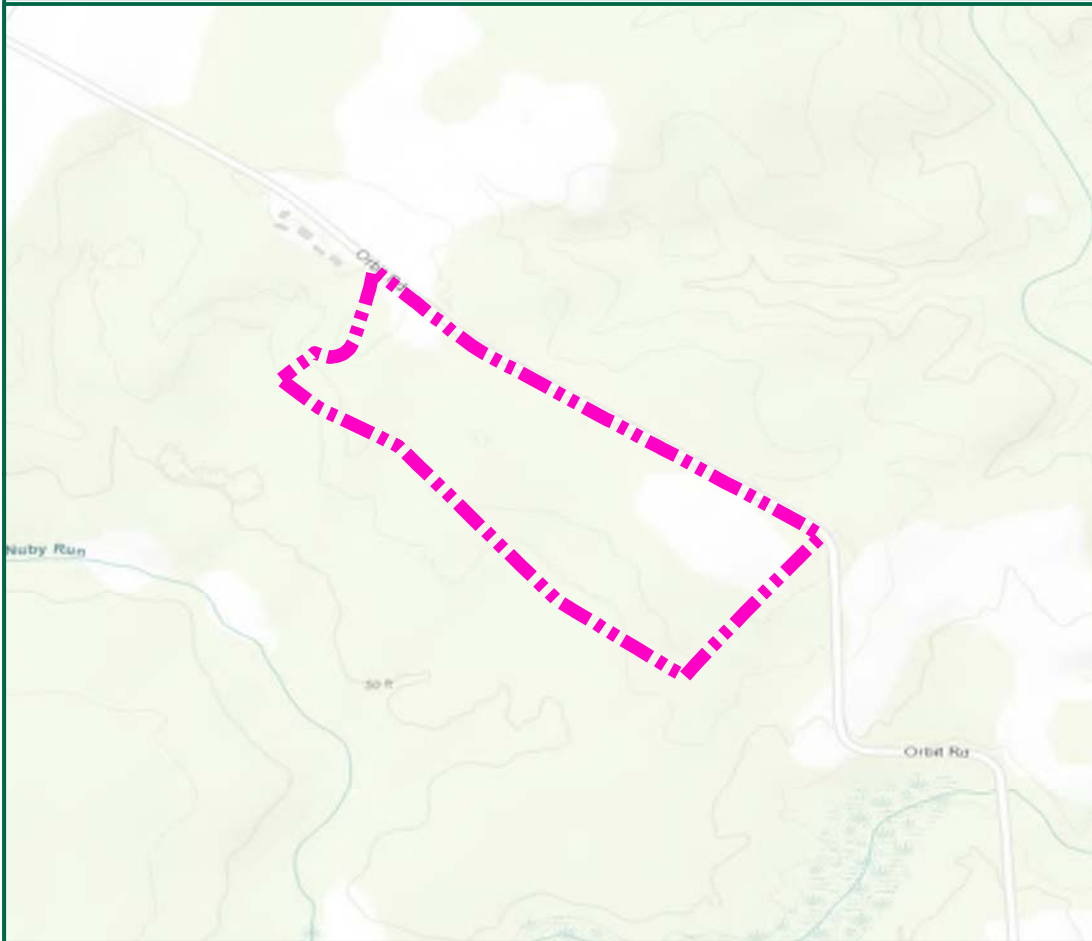


Miles

0 2 4

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1" = 2 Miles	1



Resource Identification	Confirmation						Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	Stream (sq ft)	Stream (lf)	
A	4,139						NT/V
B	30,640						NT/V
C					50	50	NT/NV
Total	34,779	0	0	0	50	50	
Total Stream Length =				50 sq ft	0.001 ac	50 lf	
Total Wetland Area =				34,779 sq ft	0.80 ac		
* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water							

Legend

Project Study Limits- 39.7 Acres

Stream Identifier

Wetland Identifier

Flag

Field Data Station

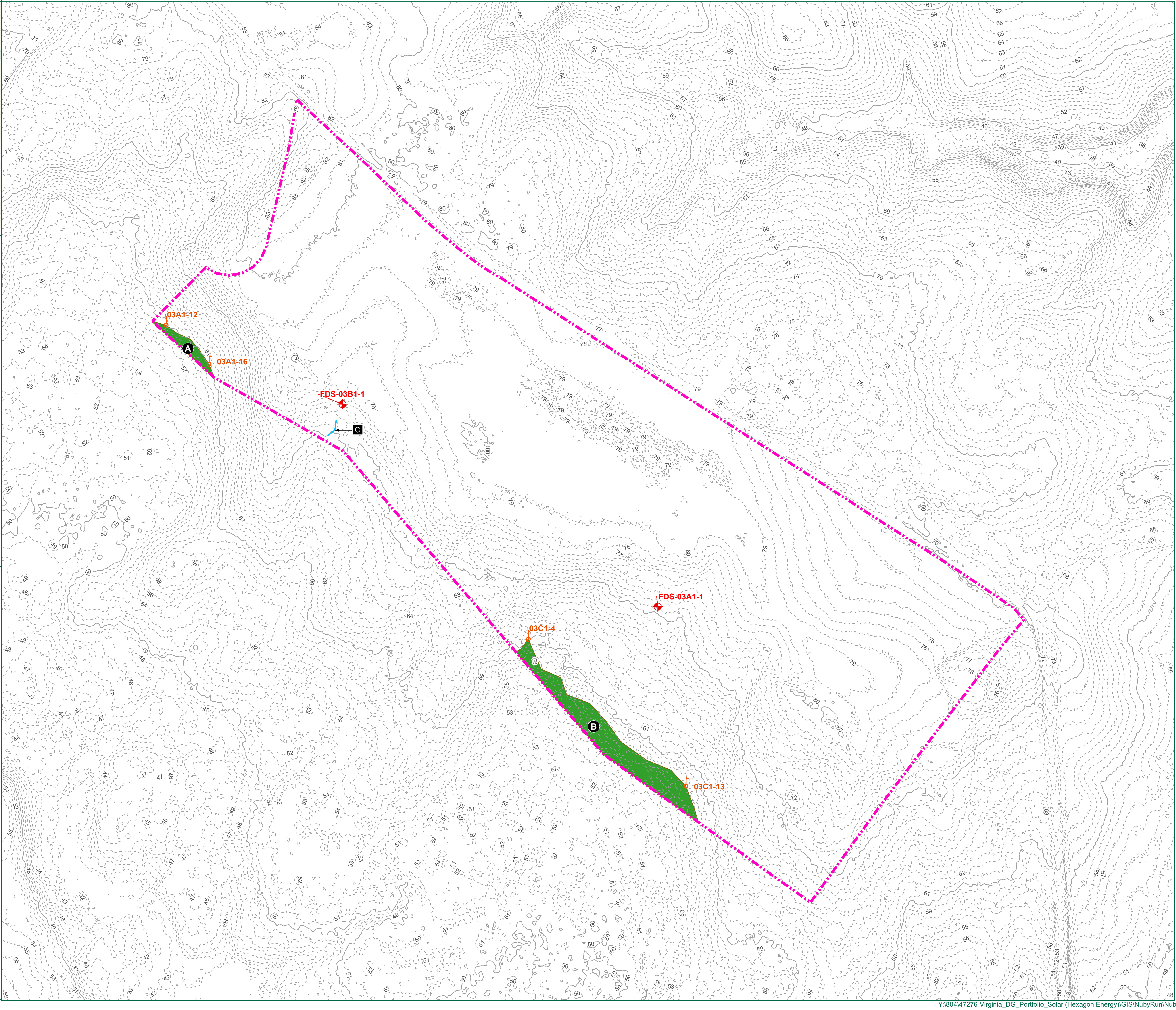
Streams

Palustrine Forested (PFO) Wetlands

Topographic Contours

Major- 10 Foot

Minor- 1 Foot



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TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

VIRGINIA DG PORTFOLIO SOLAR -
NUBY RUN

ISLE OF WIGHT COUNTY,
VIRGINIA

DATE	12/16/2020
PROJECT NUMBER	47276
PROJECT NAME	NUBY RUN
DESIGNED BY / DRAWN BY	M. COOLEY

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2. Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LIDAR.

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REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION
**FIGURE 4:
WETLANDS AND
WATERS
DELINEATION MAP**

SCALE (FEET)

0 125 250

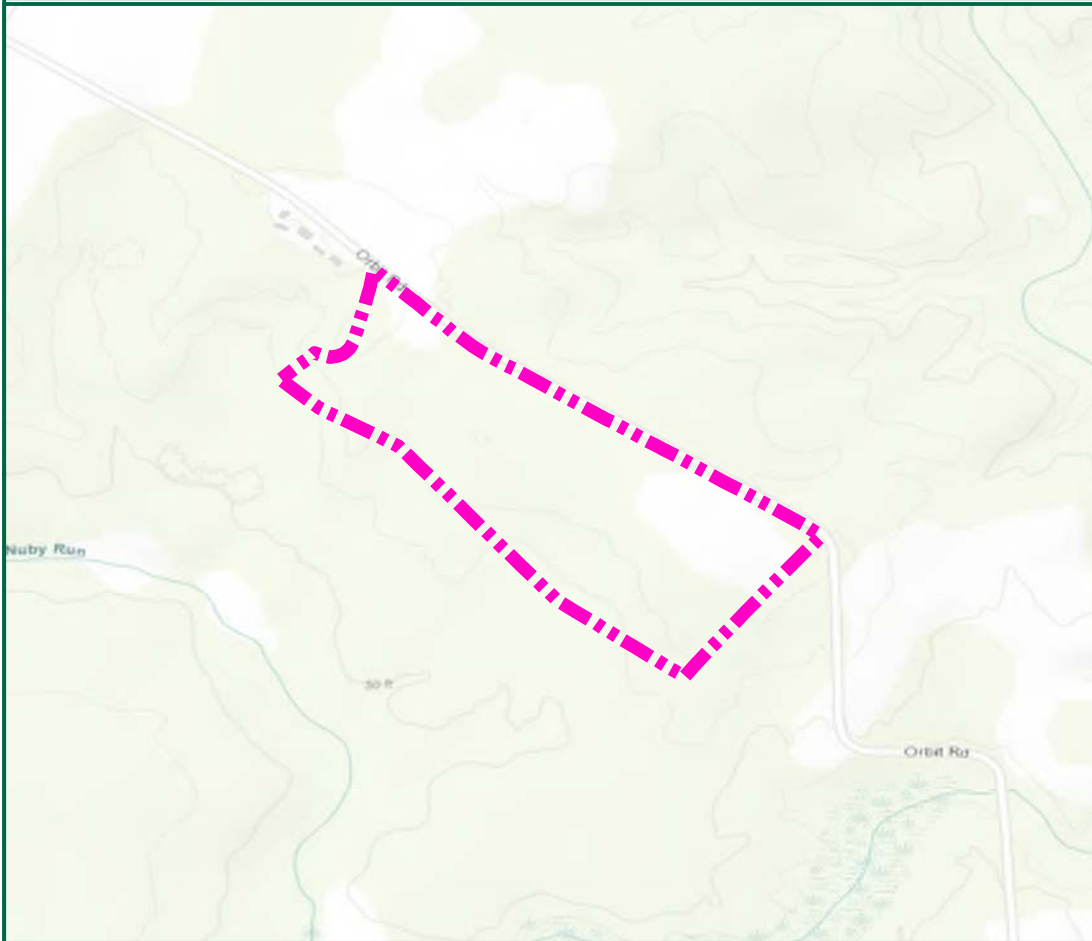
PLANS PRINTED AS 11x17 ARE HALF SCALE

SCALE

H:1" = 125'

SHEET NUMBER

1



Legend

Project Study Limits- 39.7 Acres

Resource Protection Area

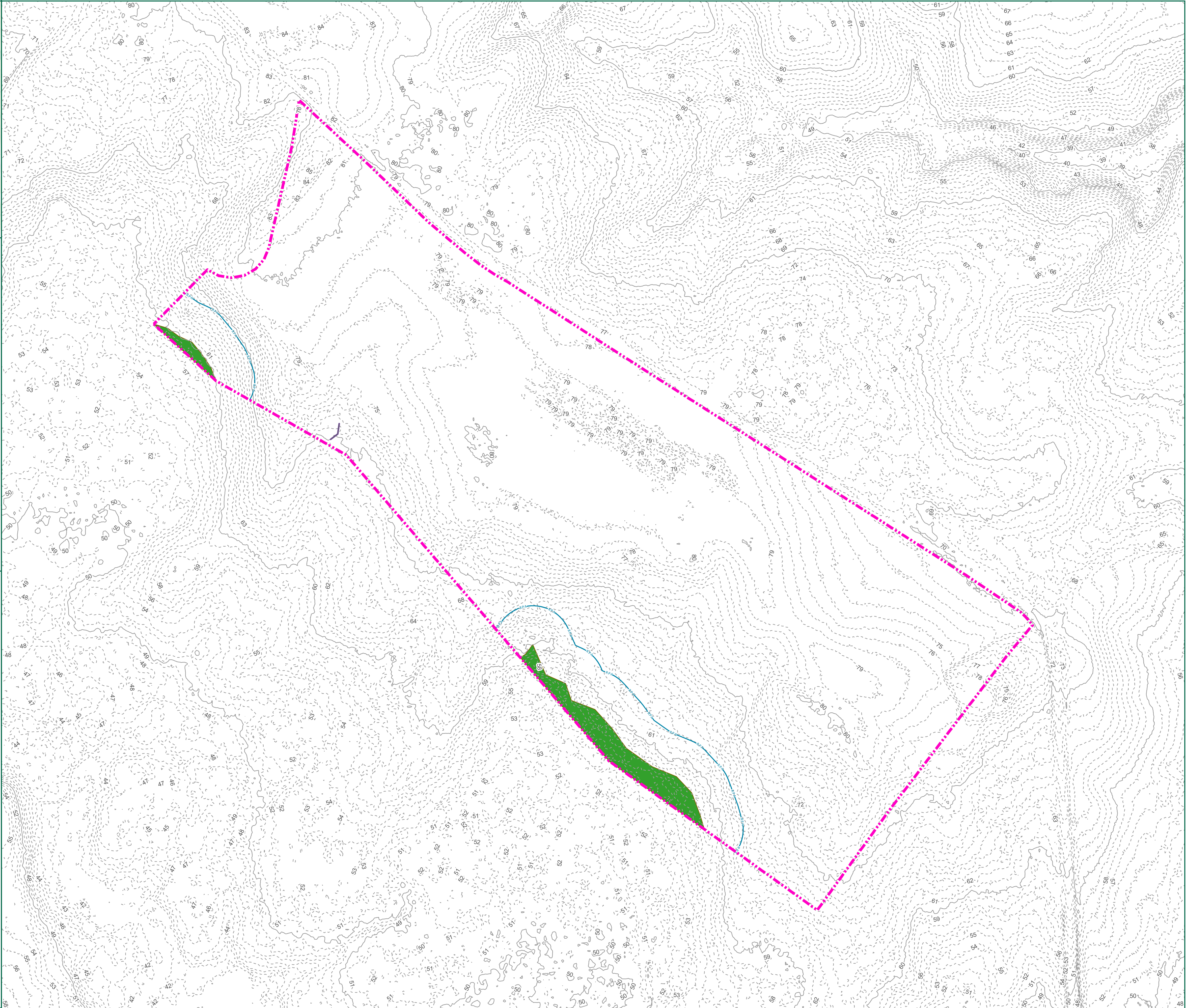
Intermittent Stream (R4)

Palustrine Forested (PFO) Wetlands

Topographic Contours

Major- 10 Foot

Minor- 1 Foot



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PROJECT NAME & LOCATION

VIRGINIA DG PORTFOLIO SOLAR -
NUBY RUN

ISLE OF WIGHT COUNTY,
VIRGINIA

DATE	12/16/2020
PROJECT NUMBER	47276
PROJECT NAME	NUBY RUN
DESIGNED BY / DRAWN BY	M. COOLEY

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2. Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LIDAR.
5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

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REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 5:
RESOURCE
PROTECTION
AREA MAP

SCALE (FEET)

0125250

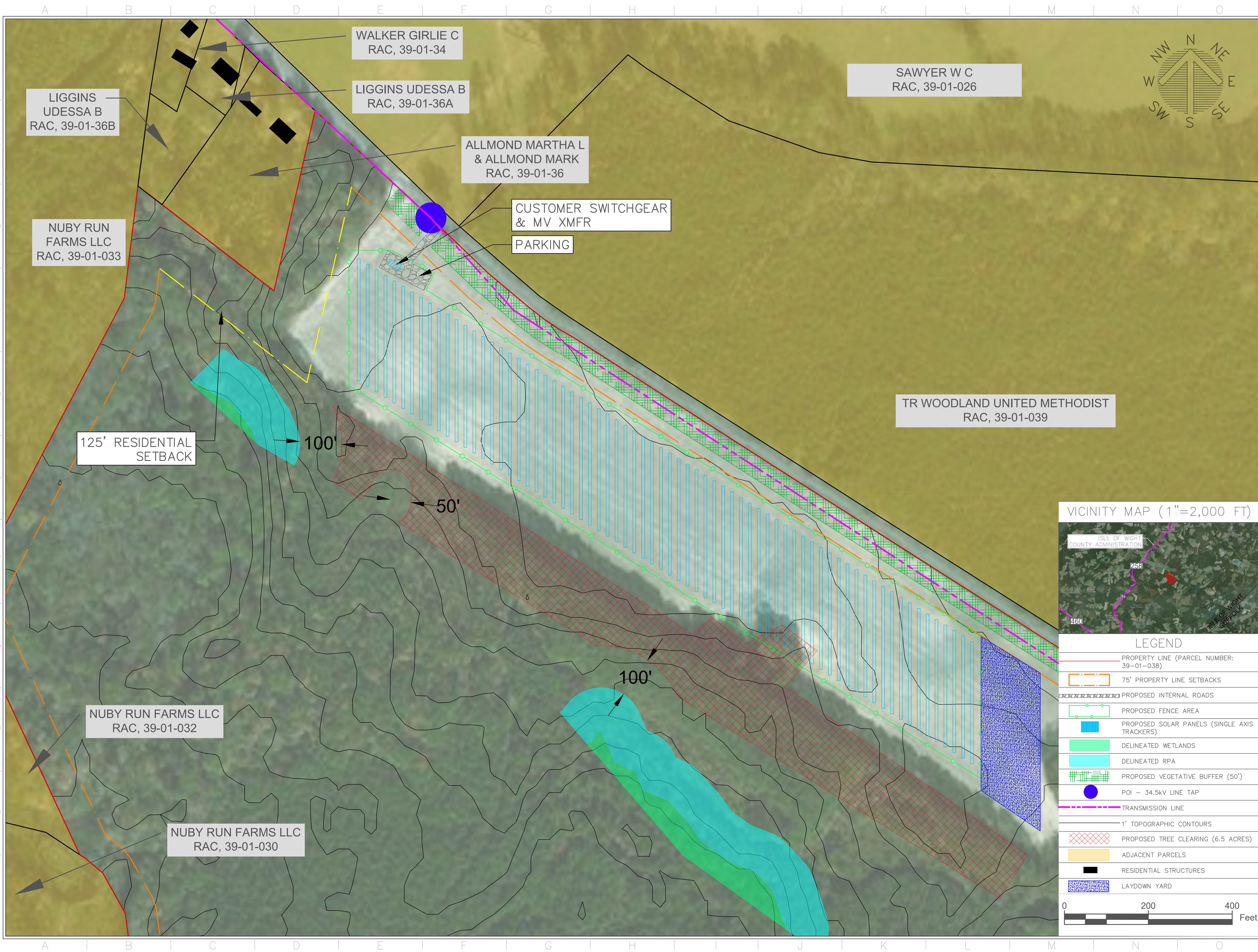
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE

SHEET NUMBER

H:1" = 125'

1



HEXAGON
ENERGY

HEXAGON ENERGY, LLC
321 E. Main St, Suite 500
Charlottesville, VA 22902
Phone: 434.227.5090
Website: www.hexagon-energy.com

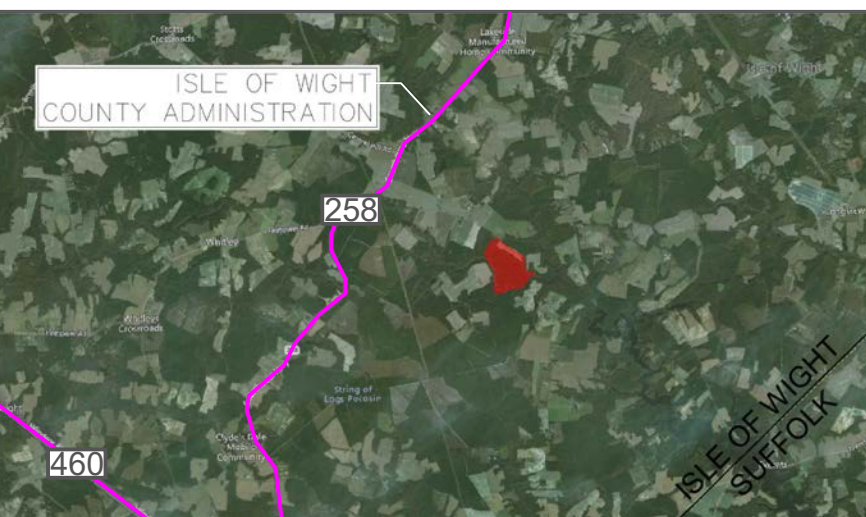
Professional Engineer:

PE Seal:

DRAWING TYPE
☒ Preliminary ☐ Construction
☐ Customer Approval ☐ As-built
☐ Permitting ☐ Other

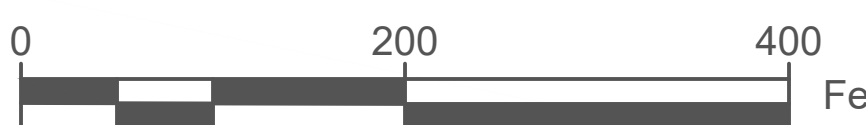
REVISIONS			
Rev	By	Description	Date
0	EO	RFP PLAN	3/30/2021
1	EO	PERMIT PLAN	4/15/2021
2	EO	RFP PLAN	7/30/2021
3	EO	COUNTY SITE PLAN	9/28/2021
4	EO	REVISE TREE CLEARING AND VICINITY MAP	12/15/2021

VICINITY MAP (1"=2,000 FT)



LEGEND

- PROPERTY LINE (PARCEL NUMBER: 39-01-038)
- 75' PROPERTY LINE SETBACKS
- PROPOSED INTERNAL ROADS
- PROPOSED FENCE AREA
- PROPOSED SOLAR PANELS (SINGLE AXIS TRACKERS)
- DELINEATED WETLANDS
- DELINEATED RPA
- PROPOSED VEGETATIVE BUFFER (50')
- POI - 34.5kV LINE TAP
- TRANSMISSION LINE
- 1' TOPOGRAPHIC CONTOURS
- PROPOSED TREE CLEARING (6.5 ACRES)
- ADJACENT PARCELS
- RESIDENTIAL STRUCTURES
- LAYDOWN YARD



Project Name:
NUBY RUN SOLAR, LLC

Site Address:
ORBIT RD
WINDSOR, VA 23487
36.882° N, -76.689° W

Sheet Name:

SITE PLAN

Scale: 1"=100FT | Project ID: TBD

Sheet No:

L1.1

Existing Vegetation Shading Description

This memo accompanies the conceptual site plan depiction of the existing vegetation's shading impacts on the site area for the proposed Nuby Run Solar as seen in Appendix R.

This depiction illustrates the current daily max of shading if no vegetation management were to occur. Based on our engineer's production analysis, this would translate to 96,000 kWh/yr lost from lack of sun exposure. This meaningful impairment makes for a less efficient array and limits the environmental benefits of the clean energy project. 96,000kWh currently requires burning 4 tons of coal and 679,000,000 cubic feet of natural gas based on our current power supply in Virginia. This combination will create over 51 tons of pollution each year that could be avoided by removing the shading losses.

As seen in proposed CUP condition #15, we are seeking to revegetate the 6.8 acres of proposed clearing with a seed mix including native pollinators that bloom in spring and summer to support the surrounding agricultural community. Additionally, the proposed clearing exists at the edge of the ecological core which maintains the natural corridors and connectivity of habitats within the area. DCR recognized both of these considerations as key mitigation measures.

We have also committed to an additional 100ft non-disturbance buffer from the RPA edge, as seen in our provided WQIA and revised site plan. This conservative approach will ensure ample existing vegetation is maintained, ensuring strong water quality impact safeguards, and can be accomplished without impacting clean energy production.

PLANNING REPORT

APPLICATION:

Request of Jerry Kooiman on behalf of KS Carrollton, LLC, property owner, for a height exception for the Heritage Apartment building located at 23321 Sugar Hill Road on property with tax map number 34-01-106B to allow the building to exceed the maximum height limit of 35 feet permitted in the Urban Residential district by 2.25 feet. The total building height requested is 37.25 feet.

ELECTION DISTRICT:

District 3

LOCATION:

The property is located at 23321 Sugar Hill Road adjacent to the Carrollton Meadows subdivision and Finley's General Store.

BACKGROUND:

The property owner received approval by the Board of Supervisors at its regular meeting on December 13, 2018, for a zoning change from General Commercial (GC) to Urban Residential (UR) to allow for a 12-unit multifamily building on a previously undeveloped site. As presented at the time it was approved, the proposed structure was to consist of 3 floors with six 1-bedroom units and six 2-bedroom units.

The property owner subsequently submitted a site plan for a three story apartment building in January 2020. The site plan was approved in March 2021, and building plans were submitted stating the height of the building to be 34.5 feet tall which is under the 35 feet maximum height permitted by the zoning ordinance. As construction began on the building, staff became aware that the building height exceeded 35 feet in January 2022 and informed the property owner that a building height exception was needed for the additional 2.25 feet in height.

DESCRIPTION:

The property owner is requesting a building height exception to exceed the maximum building height of 35 feet permitted in the UR zoning district by 2.25 feet. The request will result in a total building height of 37.25 feet.

COMPREHENSIVE LAND USE PLAN:

The future recommended land use for the subject property is Suburban Residential on the Future Recommended Land Use Map in the Comprehensive Plan.

When the property was rezoned in 2018, appropriate land uses for this future land use designation included single family detached, single family attached, and multifamily residential with varying densities. The current use was deemed consistent with the intent of the recommended future land use designation. Under the current future land use designation of suburban residential, the Comprehensive Plan cites less intensive uses such as single family residences and less intense attached residential uses such as duplexes, community amenities, and preserved natural features as appropriate in these areas to serve as a transitional area between higher density and nonresidential uses and more rural uses. Multifamily uses would not be considered consistent in the future recommended Suburban Residential areas according to the current Plan.

ORDINANCE REVIEW:

According to the height standards for the Urban Residential zoning district found in Section 4-8005.A of the Zoning Ordinance, the maximum building height is 35 feet. The Board of Supervisors with a recommendation by the planning commission may, however, authorize an exemption to the height regulations according to Section 5-2000.D.5. In granting exceptions, the board of supervisors with a recommendation by the planning commission may impose reasonable conditions.

AGENCY REVIEW:

The application did not require outside agency or department review.

STAFF CONCLUSIONS:

Strengths:

According to the revised site plan, the building is set back fifty feet from the adjacent properties with single family residences which is 35 feet more than the minimum 15 foot side yard required. This provides approximately an additional 15.5 foot side yard setback for every additional foot in height.

Weaknesses:

The building height exceeds the maximum 35 feet permitted in the UR district.

STAFF RECOMMENDATION:

Because the building exceeds the maximum permitted height for the district, staff recommends denial of the height exception request.

ATTACHMENTS:

Description	Type	Upload Date
Building Height Exception Request Reason Letter	Cover Memo	1/19/2022
MISC-12-22 Heritage Height Exception Application	Backup Material	1/19/2022
Heritage Apt Building Elevations	Backup Material	1/19/2022
Heritage Apartment Site Plan	Backup Material	1/19/2022

Isle Of Wight County
17140 Monument Circle, suite 206
Isle of Wight, VA 23397

Jan, 12 2022

Attn.: Members of the Planning Commission and Board of Supervisors

RE: Request for Exceptions to County Ordinance for 23321 Sugar Hill Road, Carrollton VA 23314

Dear Planning Commission & Board of Supervisors,

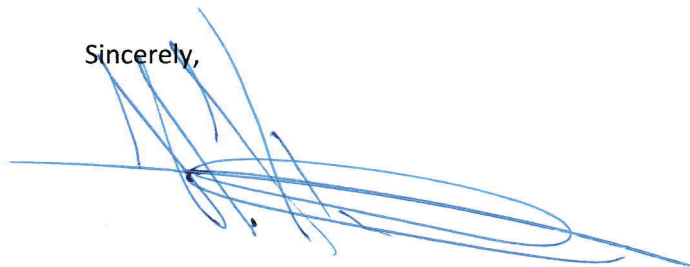
In the spring of 2021, we submitted a request for a building permit to construct a 3 story 12-unit apartment building. The process involves submitting a site-plan and a set of building plans, a set of plans for the fire protection system and a set of plans for the HVAC system including load calculations. All these documents were under review by the different departments for a number of months some were returned with comments that involved making some changes to make sure everything is in compliance with building codes and zoning requirements.

We secured a permit on 10/05/2021 and after the structure was erected, we were notified by the County that the building appeared to exceed the maximum height restrictions. We engaged a surveyor at the request of the Department of Zoning to determine the exact height. According to Davis and Associated when taking the "average" grade "we are looking at 37.25 feet, this is worst case scenario, if one measures from the finished floor, it is 36.25 feet. It is an unfortunate situation in that the exact height of the building as indicated on the submitted blueprints was overlooked in the process.

We are kindly requesting that both PC and BOS grant an exception, we were told by staff that similar accommodation have been made in the past.

Thank you for your consideration in granting this exception. If you have any questions or need further clarification, I can be reached at 757 328 3114 or by e-mail at Inkooiman@aol.com

Sincerely,



Jerry Kooiman for K.S. Carrollton LLC

ORIGINAL

Revised 12/20/2021



APPLICATION FOR EXCEPTIONS

A. APPLICATION FOR (CHECK ALL THAT APPLY):

- ☐ Chesapeake Bay Preservation Area Ordinance Exception
- ☐ Newport Development Service Overlay District Exception
- ☐ Highway Corridor Overlay District Exception
- ☐ Signage Exception
- ☐ Subdivision Ordinance Waiver



☒ Other (please list) EXCEPTION TO SEC 4-800.5 & SEC 3-300

The proposal is a request to Section (s) N.A. of the Chesapeake Bay Preservation Area Ordinance, the Isle of Wight County Zoning Ordinance, or the Isle of Wight County Subdivision Ordinance.

Proposed Use or Activity: PLEASE SEE ATTACHED LETTER ADDRESSED TO THE BOARD OF SUPERVISORS.

B. PROJECT DESCRIPTION:

Project Name: HERITAGE APARTMENTS

Property Address (if any): 23321 SUGAR HILL RD. CARROLLTON

Comprehensive Plan Designation: NEWPORT

The exception will apply to 1.0 acres out of 1.0 total acres

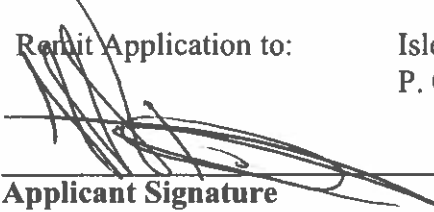
Tax Parcel Identification # 34-01-106B Number of acres to be effected: 1.0

Proposed Utilities (check all that apply): Public Water ☒ Private Well ☐

Public Sewer ☒ Private Septic ☐

NOTICE: THE ATTACHED CHECKLIST MUST BE COMPLETED, CERTIFIED, AND SUBMITTED OR THE APPLICATION WILL BE CONSIDERED INCOMPLETE.

Remit Application to: Isle of Wight County Central Permitting, 17140 Monument Circle, Suite 100
P. O. Box 80, Isle of Wight, Virginia 23397

 Jan 12 '22
Applicant Signature Date

Owner Signature if different Date

FOR OFFICE USE ONLY:

Complete Application Received On: 1/13/2022 Fees Paid: \$250⁰⁰
Tax Query: [☒] Current [☐] Delinquent Distribution Date: N/A
Posted/Date to Post: N/A

AGENCIES REFERRALS:

☐ Department of Conservation & Recreation
☐ Economic Development
☐ Emergency Services
☐ General Services
☐ Environmental Planner
☐ Health Department
☐ Transportation Manager
☐ Commission of Revenue
☐ Other _____

☐ Inspections
☐ Sheriff's Office
☐ Town of Smithfield
☐ Town of Windsor
☐ VDOT
☐ Schools
☐ Budget & Finance
☐ County Attorney

Verified By:  Date: 1/13/2022

COUNTY OF ISLE OF WIGHT

DISCLOSURE OF REAL ESTATE HOLDINGS

Applicant K.S. CARROLLTON LLC
 Address 214 SHIVERS Mill Lane
CARROLLTON VA ^{Street} 23314
 City State Zip

REAL ESTATE HOLDINGS TO BE AFFECTED

Location or Address	Description
23321 SUGAR Hill Rd CARROLLTON VA 23314	3 STORY APARTMENT BUILDING & DETACHED STRUCTURE

OTHER OWNERS OF AFFECTED REAL ESTATE

(Not Required for Corporation whose stock is traded on a national or local stock exchange or having more than 500 shareholders.)

Name of Individuals Corporation/Partnership Business Association	Address

Does any member of the Isle of Wight County Planning Commission or governing body have any interest in such property, either individually, by ownership of stock in a corporation owning such land, partnership, as the beneficiary of a trust, or the settlor of a revocable trust, or whether a member of the immediate household of any member of the Planning Commission or governing body has any such interest? Yes ☐ No ☒

If yes, names of members:

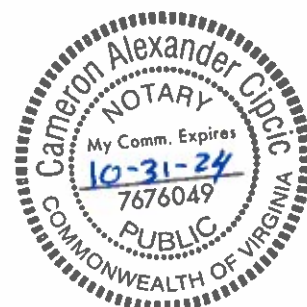
I do solemnly swear that the foregoing statement(s) and attachments(s), if any, are complete, correct and true.

Applicant: JEREMY KOOLMAN Applicant: [Signature] Date: 1/12/22
 Printed or Typed Name Signature

Commonwealth of Virginia
 County of Isle of Wight SUFFOLK

Subscribed and sworn to before me Cameron Alexander Cipicik,
 A Notary Public in and for the County of Isle of Wight, Commonwealth
 of Virginia, this 12th day of February, 2022.

[Signature]
 Notary Public



- ☐ 7. For CBPA Exception applications, a major water quality impact assessment which meets the criteria in Section 4003 of the Chesapeake Bay Preservation Area Ordinance must be submitted at the time of application.
- ☐ 8. Such other information as may be necessary to demonstrate compliance with all other applicable federal, state and County standards and regulations.
- ☐ 9. All real estate taxes must be paid and current at the time of submittal; otherwise, the submittal will be refused at the counter. Proof of the most recent tax payment to the County must accompany the application.

I, the undersigned, certify that this application is complete, accurate and contains all required and requested information, documents and other submittals, and that all statements made herein are, to the best of my knowledge, true and correct. I further certify that I have exercised due diligence to obtain the most recent, complete and correct information available. I understand that any section not completed in its entirety may delay processing of this application.

Jeremy H. Koorman
Printed or Typed Name

[Signature]
Signature

Jan 12th, 2022
Date

Isle Of Wight County
17140 Monument Circle, suite 206
Isle of Wight, VA 23397

Jan, 12 2022

Attn.: Members of the Planning Commission and Board of Supervisors

RE: Request for Exceptions to County Ordinance for 23321 Sugar Hill Road, Carrollton VA 23314

Dear Planning Commission & Board of Supervisors,

In the spring of 2021, we submitted a request for a building permit to construct a 3 story 12-unit apartment building. The process involves submitting a site-plan and a set of building plans, a set of plans for the fire protection system and a set of plans for the HVAC system including load calculations. All these documents were under review by the different departments for a number of months some were returned with comments that involved making some changes to make sure everything is in compliance with building codes and zoning requirements.

We secured a permit on 10/05/2021 and after the structure was erected, we were notified by the County that the building appeared to exceed the maximum height restrictions. We engaged a surveyor at the request of the Department of Zoning to determine the exact height. According to Davis and Associated when taking the "average" grade "we are looking at 37.25 feet, this is worst case scenario, if one measures from the finished floor, it is 36.25 feet. It is an unfortunate situation in that the exact height of the building as indicated on the submitted blueprints was overlooked in the process.

We are kindly requesting that both PC and BOS grant an exception, we were told by staff that similar accommodation have been made in the past.

Thank you for your consideration in granting this exception. If you have any questions or need further clarification, I can be reached at 757 328 3114 or by e-mail at lnkooiman@aol.com

Sincerely,

A handwritten signature in dark ink, appearing to read 'Jerry Kooiman', is written over a horizontal line. The signature is stylized with long, sweeping strokes.

Jerry Kooiman for K.S. Carrollton LLC

Prepared by: Stephen J. DeBoer, VS 1 #78424
Plumbe & Overton, PC
629 Center Road, Chesapeake, VA 23312
Advocate: Title & Abstract
1422A Tempyville Road, Chesapeake, VA 23320

Map/Parcel No.: 34-01-106B
Title Insurance Underwriter:
Stewart Title Guaranty Company
Consideration: \$139,000.00
Assessed Value: \$100,000.00

DEED OF BARGAIN AND SALE

THIS DEED is made this 16th day of January, 2019, by and between L. NATHAN FORREST, JR. Trustee of the J. Nathan Forrest, Jr., Revocable Living Trust, dated November 6, 2014, Grantor, party of the first part, and KS CARROLLTON, LLC, Grantee, party of the second part, whose mailing address is: 214 Shives Mill Lane, Carrollton, VA 23314

WITNESSETH:

THAT FOR and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the said party of the first part does hereby grant and convey, with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE, unto the said party of the second part, the following described property, to-wit:

A CL. THA certain parcel of land situate, lying and being in the Newport Magisterial District of the County of Isle of Wight, Virginia, being known and designated as the property of 'JAMES S. DICK', containing 1.00 acre by survey, as shown on that certain plat entitled, "PLAT OF THE PROPERTY OF JAMES S. DICK, FORMERLY (FORMALLY) THE PROPERTY OF KENNETH E. WILLIAMS DEED BOOK 249, PAGE 222, LOCATED IN NEWPORT MAGISTERIAL DISTRICT, ISLE OF WIGHT COUNTY, VIRGINIA, EMIN B. ALLEY, R., CERTIFIED LAND SURVEYOR, SMITHFIELD, VIRGINIA, SCALE: 1" = 50' MARCH 1, 1985", which said plat is duly recorded in the Clerk's Office of the Circuit Court of the County of Isle of Wight, Virginia in Deed Book 005, Page 16.

together with that certain Drainage Easement as reference in instrument recorded in Deed Book 305 at Pages 211 thru 217.

IT BEING the same property conveyed to J. Nathan Forrest, Jr., Trustee of the J. Nathan Forrest, Jr., Revocable Living Trust, dated November 6, 2014, by deed from Jack N. Forrest, Jr., dated October 14, 2015, and recorded November 3, 2015, in the aforesaid Clerk's Office as Instrument Number 150004646.

The said property is conveyed subject to all unexpired conditions, restrictions, reservations and easements of record, if any, constituting constructive notice, and all matters visible upon inspection.

WITNESS the following signature and seal:

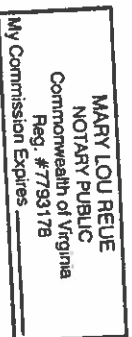
 (SEAL)
J. NATHAN FORREST, JR., Trustee of the J.
Nathan Forrest, Jr., Revocable Living Trust,
dated November 6, 2014

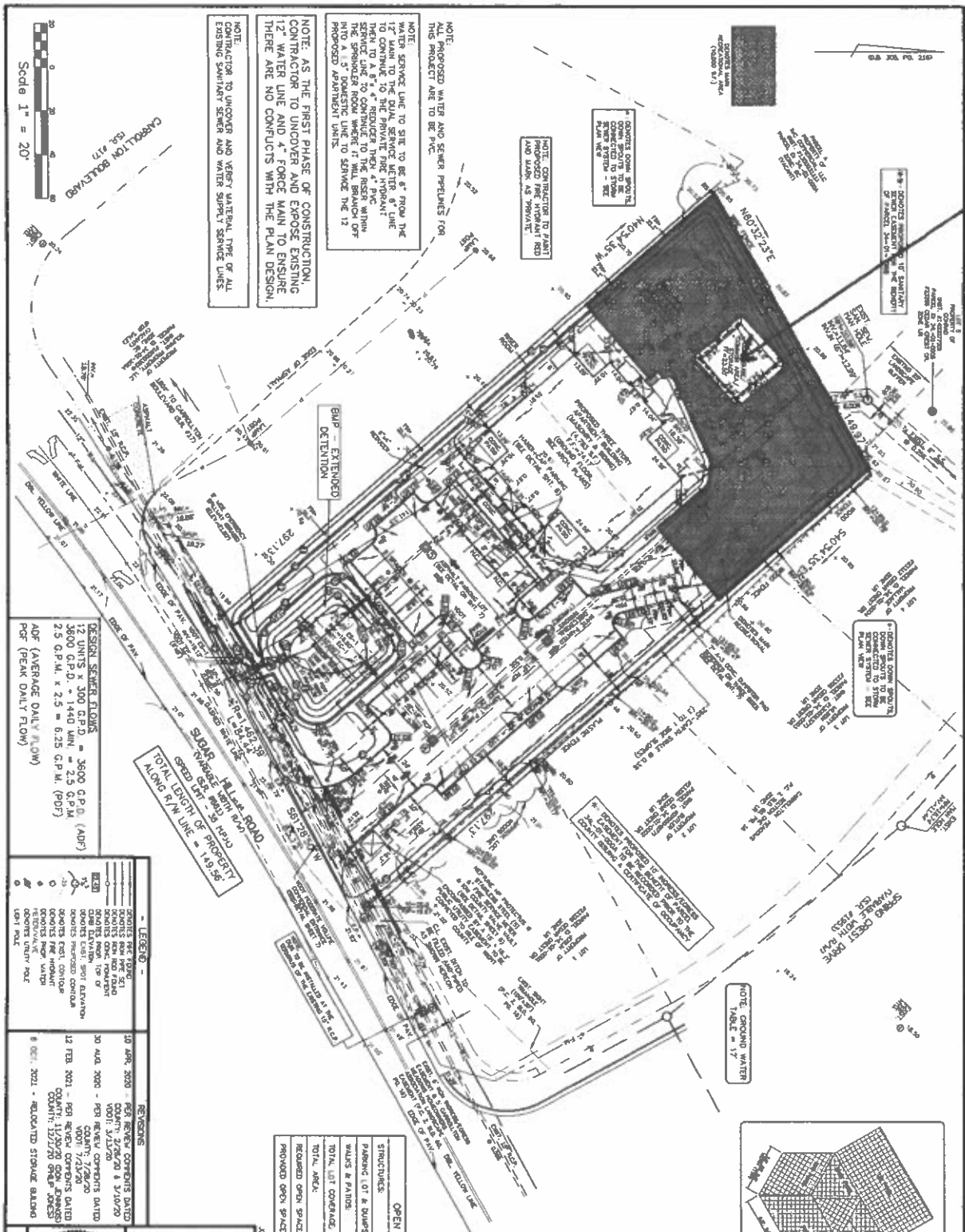
STATE OF VIRGINIA
CITY OF Salem, to-wit:

I, the undersigned, Notary Public in and for the City and State aforesaid, do hereby certify that J. Nathan Forrest, Jr., Trustee of the J. Nathan Forrest, Jr., Revocable Living Trust, dated November 6, 2014, whose name is signed to the foregoing Instrument, has acknowledged the same before me in my City and State aforesaid and is either personally known to me or has produced a state issued driver's license as identification.

GIVEN under my hand this 16th day of January, 2019.

My commission expires: 9-30-2022
Notary Registration No.: 7793178





STOCH DRAIN STRUCTURE TABLE			
STRUCTURE	TYPE	YTD	MAINT
1	V001 D-1	21.85	18.87
2	V001 D-1	22.25	18.37
3	V001 D-1	21.85	18.86
4	V001 D-1	21.85	18.17
5	V001 D-1	21.85	18.72
6	V001 D-1	18.70	17.26
7	V001 D-1	21.00	18.17
8	V001 D-1	21.00	18.35
9	V001 D-1	18.87	17.65
10	V001 D-1	21.00	17.41
			18.17

	OPEN SPACE	CALCULATIONS
STRUCTURES	3,238 S.F. (120)	
PARKING LOT & DRIVEWAY PAV.	11,418 S.F. (260)	
VALUES & PATIOS	1,013 S.F. (45)	
TOTAL LOT COVERAG.	16,669 S.F. (425)	
TOTAL AREA	43,560 S.F. (1,000)	
REQUIRED OPEN SPACE	750 S.F. PER 17' x 750' = 8,000 S.F.	21%
PROVIDED OPEN SPACE	24,851 S.F. (24%)	

NOTE: PROPERTY OWNER TO BE RESPONSIBLE FOR MAINTENANCE OF THE OPEN SPACE PER SECTION 5-5007.010 OF THE TULSA CITY ZONING ORDINANCE

REVISIONS	
10 APR. 2020	SEA REVISION COMMENTS DATED 12/20/20
31 JUL 2020	SEA REVISION COMMENTS DATED 31/7/20
30 JUL 2020	SEA REVISION COMMENTS DATED 30/7/20
12 FEB 2021	SEA REVISION COMMENTS DATED 12/2/21
12 FEB 2021	SEA REVISION COMMENTS DATED 12/2/21
8 OCT. 2021	RELOCATED STRONG BLIND

DAVIS & ASSOCIATES, P.C.
SLAVETORES • PLANNERS
3430 OLDORF VILLAGE DR
FPO BOX 1044741 • SUITE 1
TODDINGTON, VIRGINIA 22603
(757) 667-8683

THE
OF
"THE HERITAGE"
NEWPORT MAGISTERIAL DISTRICT
SIDE OF WIGHT COUNTY, VIRGINIA

SHEET 3 OF 9

Davis & Associates, P. C.
Land Surveyors & Planners
3630 George Washington Memorial Hwy, Suite G
Yorktown, Virginia 23693
757-867-8583

January 12, 2022

Jerry Kooiman
KS Carrollton, LLC.
214 Shivers Mill Lane
Carrollton, VA 23314

RE: Building Height Determination
"The Heritage"
23321 Sugar Hill Road
Carrollton, VA

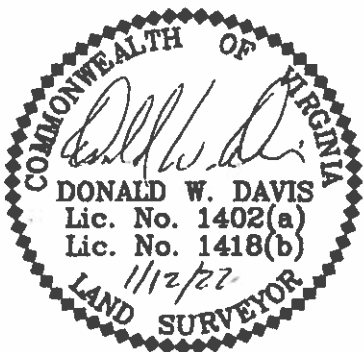
Dear Mr. Kooiman,

At your request, Davis & Associates, PC did on January 11, 2022 perform a field run survey to determine the height of the building height from average grade to the middle height of the highest gable in the pitched or hipped roof. The vertical height of the referenced building is 37.25' (feet).

I trust the above information is of use to you. As always please feel free to contact to discuss this matter further if needed.

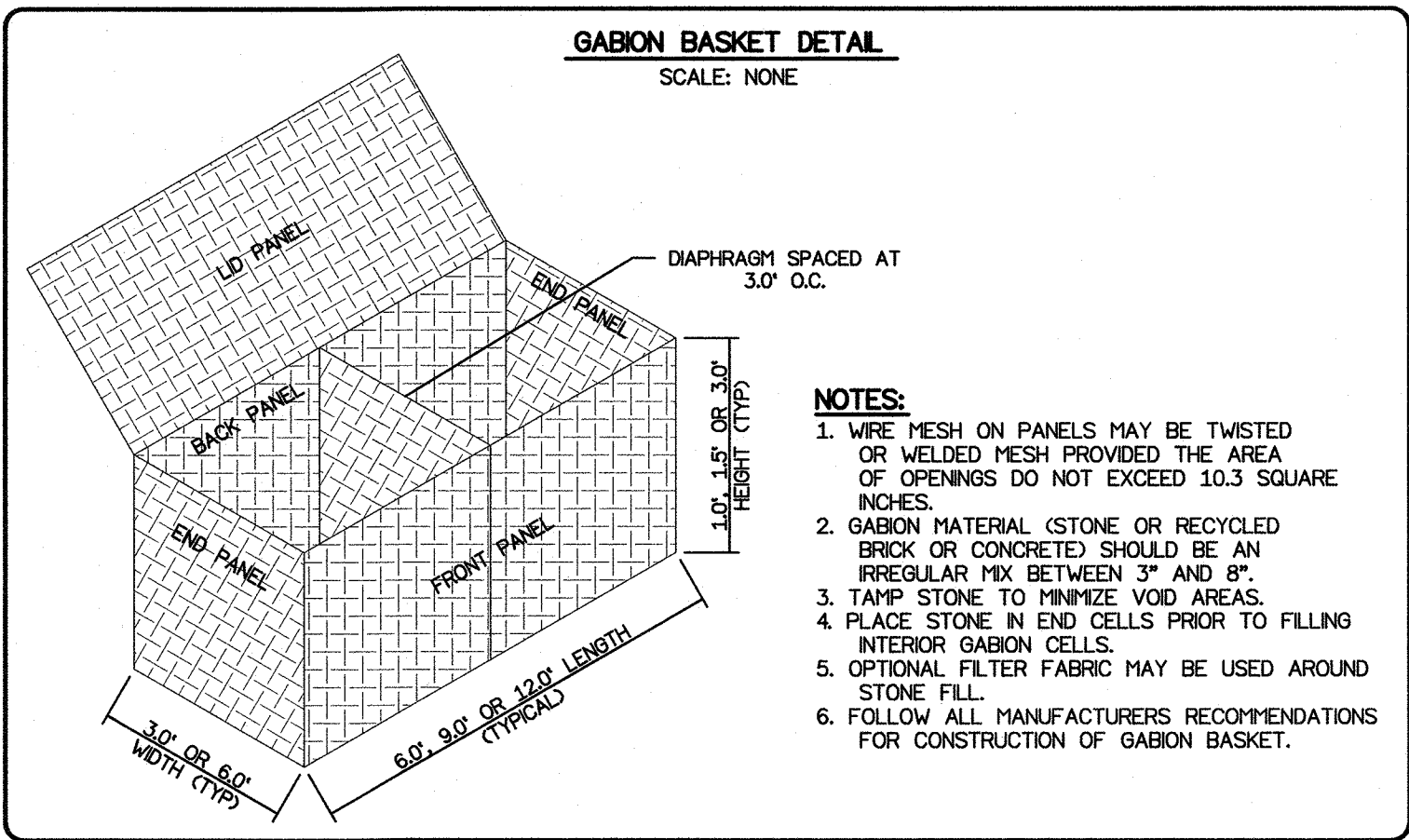
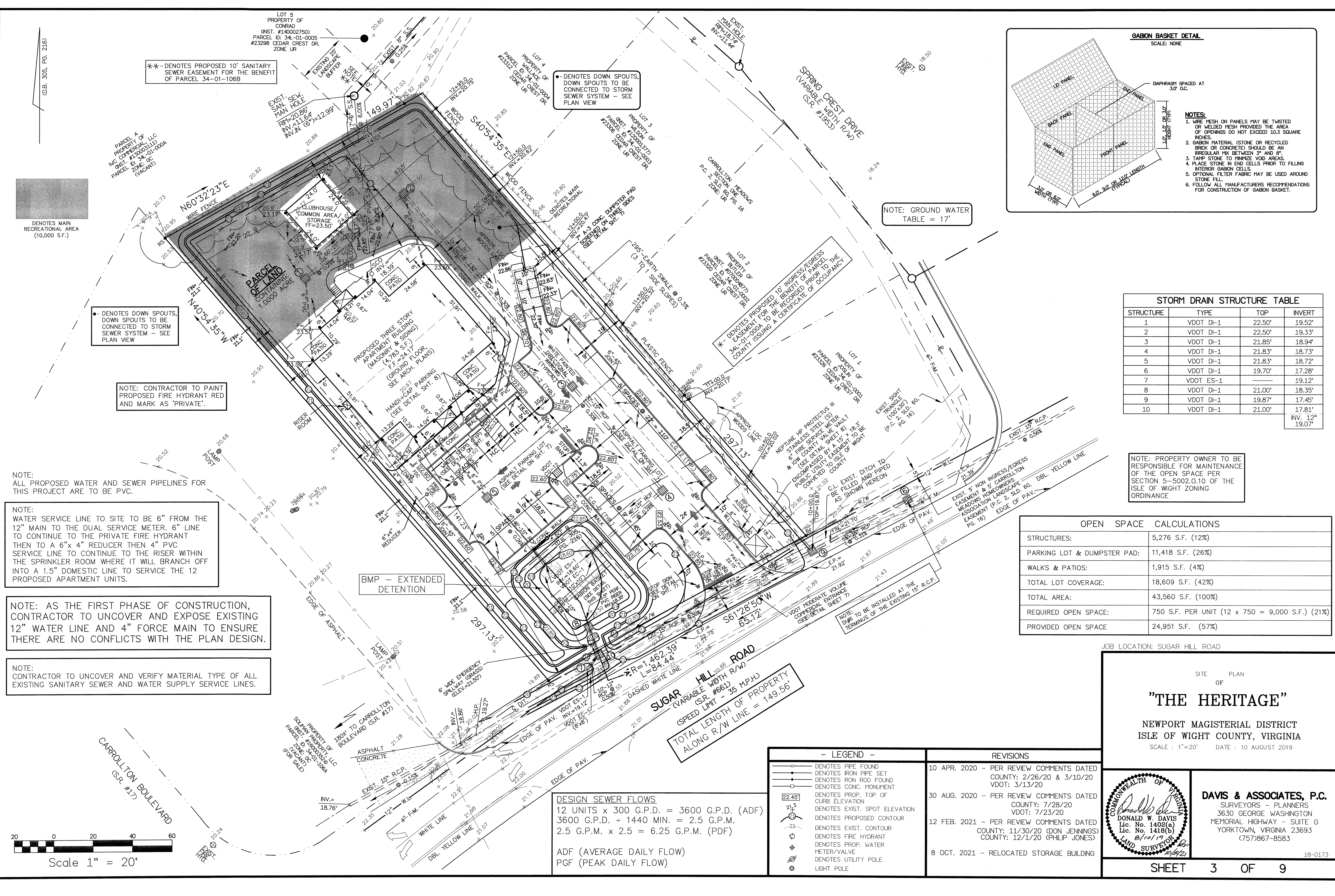
Sincerely,


Donald W. Davis, L.S.



MATERIALS LIST: BRICK AND HARDY PLANK EXTERIOR
FASCIA AND SOFFITS WRAPPED IN VINYL
30 YEAR SHINGLES ON ROOF
VINYL WINDOWS
EXTERIOR DOORS METAL AND COMPOSIT MATERIALS
PORCHES: VINYL RAILINGS, COMPOSITE COLUMNS, BLACK METAL FENCING





STORM DRAIN STRUCTURE TABLE			
STRUCTURE	TYPE	TOP	INVERT
1	VDOT DI-1	22.50'	19.52'
2	VDOT DI-1	22.50'	19.33'
3	VDOT DI-1	21.85'	18.94'
4	VDOT DI-1	21.83'	18.73'
5	VDOT DI-1	21.83'	18.72'
6	VDOT DI-1	19.70'	17.28'
7	VDOT ES-1		19.12'
8	VDOT DI-1	21.00'	18.35'
9	VDOT DI-1	19.87'	17.45'
10	VDOT DI-1	21.00'	17.81'
			INV. 12" 19.07'

NOTE: PROPERTY OWNER TO BE RESPONSIBLE FOR MAINTENANCE OF THE OPEN SPACE PER SECTION 5-5002.0.10 OF THE ISLE OF WIGHT ZONING ORDINANCE

OPEN SPACE CALCULATIONS	
STRUCTURES:	5,276 S.F. (12%)
PARKING LOT & DUMPSTER PAD:	11,418 S.F. (26%)
WALKS & PATIOS:	1,915 S.F. (4%)
TOTAL LOT COVERAGE:	18,609 S.F. (42%)
TOTAL AREA:	43,560 S.F. (100%)
REQUIRED OPEN SPACE:	750 S.F. PER UNIT (12 x 750 = 9,000 S.F.) (21%)
PROVIDED OPEN SPACE	24,951 S.F. (57%)

JOB LOCATION: SUGAR HILL ROAD

SITE PLAN OF

"THE HERITAGE"

NEWPORT MAGISTERIAL DISTRICT
ISLE OF WIGHT COUNTY, VIRGINIA

SCALE: 1"=20' DATE: 10 AUGUST 2019

COMMONWEALTH OF VIRGINIA

DONALD W. DAVIS
Lic. No. 1402(a)
Lic. No. 1418(b)

LAND SURVEYOR

DAVIS & ASSOCIATES, P.C.

SURVEYORS - PLANNERS

3630 GEORGE WASHINGTON
MEMORIAL HIGHWAY - SUITE G
YORKTOWN, VIRGINIA 23693
(757)867-8583

18-0173

SHEET 3 OF 9

LEGEND	REVISIONS
○ DENOTES PIPE FOUND ● DENOTES IRON PIPE SET ● DENOTES IRON ROD FOUND □ DENOTES CONC. MONUMENT ○ DENOTES PROP. TOP OF CURB ELEVATION ○ DENOTES EXIST. SPOT ELEVATION ○ DENOTES PROPOSED CONTOUR ○ DENOTES EXIST. CONTOUR ○ DENOTES FIRE HYDRANT ○ DENOTES PROP. WATER METER/VALVE ○ DENOTES UTILITY POLE ○ LIGHT POLE	10 APR. 2020 - PER REVIEW COMMENTS DATED COUNTY: 2/26/20 & 3/10/20 VDOT: 3/13/20 30 AUG. 2020 - PER REVIEW COMMENTS DATED COUNTY: 7/28/20 VDOT: 7/23/20 12 FEB. 2021 - PER REVIEW COMMENTS DATED COUNTY: 11/30/20 (DON JENNINGS) COUNTY: 12/1/20 (PHILIP JONES) 8 OCT. 2021 - RELOCATED STORAGE BUILDING

DESIGN SEWER FLOWS

12 UNITS x 300 G.P.D. = 3600 G.P.D. (ADF)
3600 G.P.D. + 1440 MIN. = 2.5 G.P.M.
2.5 G.P.M. x 2.5 = 6.25 G.P.M. (PDF)

ADF (AVERAGE DAILY FLOW)
PGF (PEAK DAILY FLOW)

PLANNING REPORT

PLANNING REPORT

APPLICATION:

Discussion on the Proposed Revisions to the Isle of Wight County Zoning and Subdivision Ordinances

ELECTION DISTRICT:

All

BACKGROUND:

Planning Commission discussed proposed criteria for short term rentals in the Zoning Ordinance and irregular lot shape in the Subdivision Ordinance at their October 26, 2021, regular meeting. Commission members voted to continue discussion of these items at their next regular meeting.

In addition to these changes, the Board of Supervisors suggested revisions to the Zoning Ordinance changes previously recommended for approval by the Planning Commission at the Board's November 18, 2021, public hearing. These proposed changes are attached for your review and discussion.

DESCRIPTION:

The purpose of the recommended ordinance changes is to provide clarity of regulatory intent, ensure compliance with the *Code of Virginia*, provide additional flexibility, and offer some relief from the regulatory burden on property owners.

ORDINANCE REVIEW:

Applications for text amendments may be initiated by resolution of the Board of Supervisors, by motion of the Planning Commission, or by application petition of any property owner(s) addressed to the Board of Supervisors. An application for text amendment will set forth the new text to be added and the existing text, if any, to be deleted or amended.

The draft text for the proposed ordinance changes are for Planning Commission review and discussion at their January 25, 2022, meeting. After discussion, the Planning Commission may direct staff to proceed with finalizing the draft changes and advertising them for public hearing.

AGENCY REVIEW:

County staff worked with the County Attorney in developing the proposed ordinance changes.

STAFF RECOMMENDATION:

The draft text for the proposed ordinance changes are for Planning Commission review and discussion only. The Planning Commission may decide to either continue their discussion of the proposed changes or direct staff to advertise them for public hearing.

ATTACHMENTS:

Description	Type	Upload Date
Board Additional Recommended Changes	Exhibit	1/13/2022
Proposed STR Ordinance Changes	Exhibit	1/13/2022
STR Use Table	Exhibit	1/13/2022
Lot Shape Subdivision Ord Changes	Exhibit	1/13/2022

Proposed Zoning Ordinance Revisions

Revised January 14, 2022

The draft revisions suggested by the Board of Supervisors at their November 18, 2021, regular meeting are listed by section below. Staff has also included one additional change to allow the temporary use of shipping containers for storage of materials during construction. These changes are in addition to the changes previously reviewed and recommended for approval by the Planning Commission at their October 2021, regular meeting. Only the new proposed changes are in red underlined text. Language proposed to be deleted is shown in red text with ~~strikethrough~~ markings.

1. The Board recommended to increase flexibility of the ordinance by decreasing the minimum setback requirement for accessory structures located in the side yard setback. This change is proposed for the Rural Agricultural Conservation and Rural Residential zoning districts.

Sec. 4-2006 - Bulk regulations, Rural Agricultural Conservation District

C. Minimum side yard setback:

~~2. Accessory structures: Five (5) Fifteen (15) feet (see supplementary density and dimensional requirements, #1, accessory building requirements).~~

Sec. 4-3007. - Bulk regulations, Rural Residential District

C. Minimum side yard setback:

~~2. Accessory structures: Five (5) Fifteen (15) feet (see supplementary density and dimensional requirements, #1, accessory building requirements).~~

2. The following are additional changes proposed proposed for Article V, "Supplemental Use Regulations":

Sec. 5-1004. - Accessory uses.

C. Portable on demand storage (POD) units, shipping containers or dumpsters used for renovation or construction work shall be considered temporary structures. They are permitted for use for a total of sixty (60) days, after which a zoning permit must be obtained through the planning and zoning department for a period not to exceed six months.

Sec. 5-2000. - Supplementary density and dimensional regulations.

A. Accessory building requirements.

1. The square footage of an accessory building shall not exceed the square footage of the primary structure.
2. The following provisions shall regulate the location of accessory buildings with respect to required yards:

- a. Accessory buildings shall be prohibited in any required yard which adjoins a street, except as permitted under subsection 5-2000.E.3.
- b. Accessory buildings shall be located at least five (5) feet from any required rear and side lot boundary lines.
- ~~c. Where an accessory building is located in a zoning district requiring a side yard and such building is entirely to the rear of the principal structure, the accessory building shall be located at least five (5) feet from any adjoining lot line.~~
- c. Accessory buildings shall not exceed the maximum height restriction for the zone in which such structures are located, except as specified in subsection 5-2000.D.2.
- d. Shipping containers may be used as residential, commercial and industrial accessory structures subject to the criteria in subsection 5-5006.J.

Sec. 5-5001. - Supplementary use regulations for agricultural use types.

G. Reptile breeding.

- 1. In addition to obtaining a conditional use permit, reptile breeding shall comply with the following provisions:

- c. An operational plan shall accompany the conditional use permit application to describe how the business will operate, what structures/facilities will be devoted to the use, what species of reptiles will be kept, how large they grow and how will they will be caged long term, how the reptiles will be cared for including feeding, medical check-ups, how the cages will be cleaned and maintained to prevent the spread of bacteria, how waste disposal will be handled, and any other information as may be determined by the zoning administrator, planning commission and board of supervisors. The owner/operator shall be responsible for keeping a current report on file with the County Department of Emergency Services with a list of any poison species to be kept on the property.

Sec. 5-5003. - Supplementary use regulations for civic use types.

M. Utility services, major.

4. Utility Scale Solar Energy Facilities.

- i. Facilities shall not be located within the limits of the County's Development Service Districts. This prohibition shall not apply to those solar facilities classified as minor utility use types and are considered incidental and accessory to the principal use of the property.

Draft Short Term Rental Zoning Ordinance Revisions
Revised January 14, 2022

1. Add Short Term Rentals as a commercial use type in Article III, “Use Types.”

Sec. 3-6000. - Commercial use types.

Short Term Rental.\ the provision of a room or space that is suitable or intended for occupancy for dwelling, sleeping, or lodging purposes, for a period of fewer than thirty consecutive days, in exchange for a charge for the occupancy. A short term rental operator shall be further defined as the proprietor of any dwelling, lodging, or sleeping accommodations offered as a short-term rental, whether in the capacity of owner, lessee, sublessee, mortgagee in possession, licensee, or any other possessory capacity

2. The following changes are proposed for Article IV, “Zoning Districts”:

Sec. 4-1005. - Table of permissible uses.

Proposed changes to Section 4-1005, “Table of Permissible Uses,” to include adding Short Term Rentals as a permitted use in the Rural Agricultural Conservation and Rural Residential districts and as a conditional use in all other residential districts.

Table 1
Table of Permissible Uses (ATTACHED)

3. The following changes are proposed for Article V, “Supplemental Use Regulations”:

Sec. 5-5002. - Supplementary use regulations for residential use types.

Q. Short Term Rentals

1. A zoning permit is required. Permit information must include a local point of contact who is available to respond to and resolve complaints during the entire length of the rental period. Failure to respond and resolve complaints will result in the revocation of the permit.
2. All properties with short term rentals must meet current building and zoning regulations and be subject to a safety inspection from the County Inspections Department prior to permit approval.
3. Operators must obtain a business license and register for transient occupancy and state sales tax.
4. The locality may assess a penalty of up to \$500 per violation for failure to obtain required permits and may prohibit the rental of a property. Repeated violations may result in the prohibition on rental of applicable properties.
5. One off-street space per guest room is required in addition to the parking required for the house.

6. Rentals are limited to owner-occupied residences. No visible evidence of the conduct of a short term rental is allowed on the outside of the property.
7. Event rentals are not permitted.

Use Descriptions	RAC	RR	VC	NC	SE	SR	UR	LC
AGRICULTURAL USE TYPES								
Agricultural Crop Service Tower and Antenna (*)	P	C	P	C				
Agricultural Farm Equipment Sales and Service	C		C					P
Agricultural Farm Product Processing, Warehousing and Distribution Service	P		P					C
Agricultural Feed Seed and Farm Supply Service	C		P					P
Agricultural Service/Agent	P	P	P					P
Agriculture	P	P	P	C				
Agritourism (See Part 2A)	P	P	P					
Aquaculture	P	P	P	C				
Aquaculture, Waterfront Business	C	C	P					
Commercial Feedlot (*)	P		C					
Fair, Agricultural	P		C					
Family Burial Plot	P							

[illegible]

Accessory Apartment (*)								
• Residential Accessory Apartment	P	P	p*	C	p*	C	C	
• Commercial Accessory Apartment			C					P
Boathouse (*)	P	P	P	P	P	P	C	
Community Recreation (*)		C		C	C	C	C	
Condominium (*)				C			P	
Congregate Housing (*)			C			C	P	
Dwelling, Multifamily Conversion (*)	C		C	C	C	C	P	
Dwelling, Single-Family	P	P	P	P	P	P	P	
Dwelling, Single-Family, Farm	P							
Dwelling Two-Family Duplex (*)	C	C	C	C		P	P	
Family Day Care Home (*)	P	P	P	P	P	P	P	
Group Home	P	P	P	P	P	P	P	C
Guest House (*)	P	P		C	C			
Home Occupation, Type I (*)	P	P	P	P	P	P	P	
Home Occupation, Type II (*)	P	P	C	C				
Kennel, Private (*)	P	P						

Manufactured Home, Class A (*)	P	P	C					
Manufactured Home, Class B (*)	P							
Manufactured Home, Class C								
Manufactured Home, Family Member Residence (*)	P							
Manufactured Home, Temporary Residence (*)	P							
Manufactured Home Park								
Manufactured Home Subdivision								
Multifamily Dwelling (*)			C			C	P	
Short Term Rental (*)	<u>P</u>	<u>P</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	
Temporary Emergency Housing (*)	P	P	P	P	P	P	P	
Townhouse (*)			C	C		C	P	

CIVIC USE TYPES

Administrative Service	P		P					P
Adult Care Center (*)	C		C					C
Assisted Living Facility	C		C					C

Cemetery (*)								
• Animal	C	C	C	C				
• Church	C	C	C	C	C	C	C	C
• Private	C	C	C	C				C
• Public	C	C	C	C				C
Child Care Center (*)	C	C	C	C	C			P
Child Care Institution (*)	C	C	C					C
Club	C	C	C	C	C	C	C	P
Community Center (*)	C		P					P
Correctional Facility	C							
Crisis Center	C	C	C					P
Cultural Service	C	C	P	C	C	C	C	P
Educational Facility College/ University	C							C
Educational Facility Primary/Secondary (*)	C	C	C	C	C	C	P	P
Halfway House	C	C	C	C	C	C	C	P
Life Care Facility	C	C	C	C	C	C	P	P
Modular Classroom (*)	P	P	P	P	P	P	P	P
Nursing Home (*)	C	C	C	C	C	C	C	P
Park & Ride Facility	P		C					P
Post Office	P		P		C	C	C	P
Public Sports/Event Facility	C		C					C
Public Maintenance & Service Facility (*)	C		C					C
Public Park and Recreational Area (*)	P	P	P	P	P	P	P	P
Public Safety Service	P	C	P	C	C	C	C	P
Religious Assembly (*)	C	C	C	C	C	C	C	C

Rehabilitation Service			C					P
Transit Station	C		C					C
Utility Service/Major (*)	C	C	C	C	C	C	C	C
Utility Service/Minor (*)	P	P	P	P	P	P	P	P

OFFICE USE TYPES

Financial Institution			C					P
General Office			C				C	P
Laboratory			C					P
Medical Office			C				C	P

COMMERCIAL USE TYPES

Adult Entertainment Establishment (*)								
Auction Establishment	C		C					C
Bed and Breakfast (*)	C	C	P	C	C	C	C	C
Boarding House	C	C	C	C	C	C	C	
Boating and Fishing Facilities	C		C					C
Business Support Service								P
Business or Trade School	C		C					C
Campground (*)	C							
Campground, Workforce (*)	C							
Car Wash			C					P
Catering								C
Commercial Equipment Repair, Accessory to Dwelling (*)	P	C	P	C	C	C		
Commercial Indoor Amusement			C					C

Commercial Indoor Entertainment			C					C
Commercial Indoor Sports & Recreation (*)	C		C				C	P
Commercial Outdoor Entertainment/ Sports & Recreation (*)	C							C
Commercial Outdoor Swimming Pool & Tennis Facility (*)	C	C	C	C	C	C	C	C
Construction Office, Temporary (*)	P	P	P	P	P	P	P	P
Construction Sales & Service								C
Contractor Office and Storage Facility (*)	C		C					C
Convenience Store (*)	C		C					C
Crematorium (*)	C		C					C
Dance Hall								C
Equipment Sales and Rental	C							
Event center	C		P					P
Flea Market (*)	C		C					C
Funeral Home (*)	C		C					P
Garden Center (*)	C		C					P
Gasoline Station (*)	C		C					C
General Store, Country	C	C	P	C				
Golf Course (*)	C	C	C	C	C	C	C	P
Golf Driving Range (*)	C		C					P
Hospital								C
Hospital, Special Care								C

Hotel/Motel/Motor Lodge/Inn			C					C
Itinerant Merchant								P
Kennel, Commercial (*)	C							C
Laundry								
Lawn and Garden Services	P							P
Manufactured Home Sales								
Marina (*)	C	C	C	C	C	C	C	C
Medical Clinic			C					C
Micro-Brewery, Distillery, Cidery (*)								C
Mini-Warehouse (*)								C
Motor Vehicle Dealership/New (*)								C
Motor Vehicle Dealership/Used (*)								C
Motor Vehicle/Outdoor Storage								
Motor Vehicle Parts/ Supply, Retail (*)			C					P
Motor Vehicle/ Rental (*)								C
Motor Vehicle Repair Service/Major (*)			C					C
Motor Vehicle Repair Service/Minor (*)			C					C
Pawn Shop								C
Peddler			P					P
Personal Improvement Service			C					P

Personal Service			C					P
Real Estate Office, Temporary	P	P	P	P	P	P	P	
Recreational Vehicle Sales & Service								C
Restaurant, Drive-In Fast Food (*)			C					C
Restaurant, General			C				C	C
Retail Sales			C				C	P
Studio, Fine Arts	C		C				C	P
Tattoo Parlor								C
Taxidermy (*)	P		C					C
Truck Stop								C
Veterinary Hospital/ Clinic	P		C				P	P
Wholesale Sales	C		C					P

INDUSTRIAL USE TYPES

Abattoir or Livestock Processing (*)	C							
Asphalt or Concrete Plant (*)								
Brewery, Distillery, Cidery								
Construction Yard (*)	C							
Custom Manufacturing	C		C					C
Industry, Type I	C							
Industry, Type II								
Industry, Type III								
Landfill, Industrial (*)	C							
Landfill, Rubble (*)	C							
Landfill, Sanitary (*)	C							
Meat Packing								

Recycling Center (*)	C							
Refuse and Recycling Center	C		C					
Resource Extraction (*)	C							
Sawmill, Commercial								
Scrap and Salvage Service (*)	C							
Shipping Container (*)	C	C		C	C	C		C
Towing Service Storage								
Yard (*)								
Transfer Station	C							
Warehousing and Distribution	C							

MISCELLANEOUS USE TYPES

Amateur Radio Tower (*)	P	P	P	P	P	P	P	P
Aviation Facility, Commercial (*)	C							
Aviation Facility, General (*)	C							
Aviation Facility, Private (*)	C	C						
Communication Tower (*)	C	C	C	C				C
Composting System, Confined Vegetative Waste or Yard (*)	C							
Hunt Club	P		C					
Parking Facility, Surface/Structure								C
Reconstructed Wetland (*)	P	C	C	C	C	C	C	C

Shooting Range, Outdoor (*)	C							
Turkey Shoot (*)	P							

GC	LI	GI	GIC	PDR	PDMH	PDCP	PDMX	PDIP
P	P	P	P			P	C	P
	P	P	P			P		P
P	P	P	P			P	C	P
P	P	P	P			P		P
	C	C	C					C
C	C	C	C					C
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	C	P	C					C

P				P			P	
P	P	P	P	P	P	P	P	P
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	C	P	C			C		P
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		c	c					c

Proposed Subdivision Ordinance Revisions

Revised January 14, 2022

The draft revisions are listed by section below. New, proposed language is in red underlined text. Language proposed to be deleted is shown in ~~red text with strikethrough~~ markings.

3.2.3.B. Exception to subdivision requirements.

- 4) Boundary line adjustments to any valid and properly recorded plat, including vacation or alteration, provided the requirements of Section 15.2-2275 of the Code of Virginia and the following requirements are met:

~~(a) The adjustment does not result in the creation of irregularly shaped lots;~~

(a) The adjustment is executed by the owner or owners of such land as provided in Section 15.2-2264 of the Code of Virginia;

(b) The adjustment does not result in any new violations to the dimensional requirements of the zoning ordinance;

(c) The adjustment does not involve the relocation or alteration of streets, alleys, easements for public passage, or other public areas; and

(d) No easements or utility rights-of-way shall be relocated or altered without the express written consent of all persons or entities holding any interest in the easement or rights-of-way.

5.11.1. Shape. Lots should be designed, arranged, and shaped so that they provide satisfactory and desirable sites for buildings, be properly related to natural topography, and conform to requirements of this ordinance and the zoning ordinance. Lots shall be generally regular in shape, such as rectangular or pie-shaped, and may not contain peculiarly shaped elongations solely to provide necessary square footage of area which would be unusable for normal purposes, the only exception to this rule being elongations ~~for use as to provide~~ access to a public street within a flag lot. For lots with a width of sixty (60) feet or greater, lot proportions should provide approximately two and one-half (2.5) feet of lot depth for every one (1) foot of lot width.

5.11.4. Side lines. Side lines of lots shall be reasonably straight and approximately at right angles or radial to the street line.