

**CHERRYWOOD SOLAR
202 MW SOLAR PROJECT
CAROLINE COUNTY, MARYLAND**

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SECTION 1 – PROJECT OVERVIEW

The Cherrywood Solar I Project is a 202 Megawatt (MW) polycrystalline photovoltaic (PV) single-axis tracking project proposed by Cherrywood Solar I, LLC (the “Applicant”). As currently proposed, the Caroline County, Maryland Solar Project (the “Project”) is located on a plain of properties that run from southwest to northeast between the Towns of Greensboro and Goldsboro just west of the Choptank River (see **Figure 1** and **Figure 2**). The Project will consist of sixteen (16) parcels, some of which are contiguous, and approximately four (4) other additional parcels will be used for easements to accommodate the various connector lines. In addition, the Applicant will be constructing a new substation within the Limit of Construction (LOC) at Property 12. Within this same Property the Applicant is currently evaluating the potential of including an estimated twenty (20) to thirty (30) acre battery storage component of the Project. If this becomes viable, a supplemental filing will be prepared which outlines the full details of this proposal. The Project will be approximately two hundred two megawatts (202 MW) single axis tracking alternating current (AC) solar polycrystalline photovoltaic (PV) project proposed by Cherrywood Solar I, LLC. It is anticipated that the Project would include a development envelope of approximately one thousand eighty-three (1,083.62) acres once buffers and setbacks have been established in addition to avoidance from environmental constraints. As shown in **Figure 3**, the proposed Project for purposes of this Report includes three (3) sections.

The Upper Section consists of Tax Map 0011, Grid 0004, Parcel 0052 (“Property 1”), Tax Map 0011, Grid 0005, Parcel 0158 (“Property 2”), Tax Map 0011, Grid 0004, Parcel 0053 (“Property 3”), Tax Map 0011, Grid 0009, Parcel 0056 (“Property 4”), Tax Map 0011, Grid 0009, Parcel 0058 (“Property 5”), and Tax Map 0011, Grid 0003, Parcel 0005 (“Property 6”) and is comprised of approximately five hundred five (505.68) acres of which the LOC includes approximately two hundred ninety-five (295.72) acres.

The Middle Section consists of Tax Map 0010, Grid 0011, Parcel 0034 (“Property 7”), Tax Map 0011, Grid 0017, Parcel 0025 (“Property 8”), and Tax Map 0010, Grid 0018, Parcel 0011 (“Property 9”) and is comprised of approximately two hundred sixty-eight (268.47) acres of which the LOC includes approximately one hundred fifty-four (154.07) acres.

The Lower Section consists of Tax Map 0011, Grid 0020, Parcel 0007 (“Property 10”), Tax Map 0011, Grid 0020, Parcel 0051 (“Property 11”), Tax Map 0015, Grid 0001, Parcel 0066 (“Property 12”), Tax Map 0015, Grid 0007, Parcel 0067 (“Property 13”), Tax Map 0014, Grid 0012, Parcel 0008 (“Property 14”), Tax Map 0014, Grid 0024, Parcel 0016 (“Property 15”); and Tax Map 0014, Grid 0023, Parcel 0038 (“Property 16”) and is comprised of approximately one thousand one hundred forty-six (1,146.07) acres of which the LOC includes approximately six hundred thirty-three (633.83) acres.

The total acreage of the parcels evaluated consists of one thousand nine hundred twenty (1,920.22) acres. However, as noted above, not all will be used for the Project and appropriate areas have been excluded based on environmental constraints mapping. The total LOC for this Project is approximately one thousand eighty-three (1,083.62) acres. The site characteristics relative to soils, wetlands, forest conservation, etc. have been tabulated in an excel spreadsheet and included in **Appendix 1**. The Project has contracted to either lease the underlying parcels under long-term leases or to contract land with options to purchase, from the various property owners associated with the sixteen (16) parcels, and eight (8) families (see **Figure 3**) via an Option to Lease/Purchase Agreement. **Table 3** includes the various FEMA FIRM information as well as latitude and longitude for each parcel.

All of the Properties are in close proximity and drain directly to the Upper Choptank River. The Upper Choptank River watershed is predominantly rural with significant agricultural areas, as well as forest, small towns and pockets of suburban development. Large areas of land, which had poorly drained soils, were able to be developed because lands

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were drained by Public Drainage Association ditches. Maintenance of these ditches is central to continuation of much of the current economic activity in the watershed. About fifty-six percent (56%) of the Upper Choptank Watershed in Maryland is prime farmland. According to the Chesapeake Bay Program's Phase 5.2 Model, the land use distribution in the watershed is approximately fifty-three percent (53%) agricultural, thirty-five percent (35%) forest, and twelve percent (12%) urban. **Appendix 2** includes the various NRCS Soils Maps for each Property.

The Critical Area Commission has determined that the Project is not located in the Critical Area. There is no activity proposed on the Site which would impact the Critical Area or impair nearby waterways and receiving streams.

The Properties are all zoned Rural (R) and all have agriculture as the existing property use. These Properties are all located in close proximity to lands with active mining permits, a local wastewater treatment facility, a drive-in movie theater, and an existing small scale solar project. Only twelve (12) non-participating residences with line-of-sight to the Project will require setbacks and landscape buffers. Participating property owner agreements allow for screening areas where needed.

The Applicant participated in a County Task Force that drafted the Caroline County Solar Ordinance. The County held several workshops and standard public information hearings which culminated in the County Commissioner adoption of same in December, 2017. Overall, and giving consideration to this new Caroline County Solar Ordinance, it is anticipated the Project will have four (4) voluntary screening options. The depth of the buffers in most areas are twenty feet (20') and comprised of different mixes and densities of trees, shrubs, pollinators, and other planting materials. In a few sensitive areas the buffers will be fifty feet (50') deep. The proposed design and screening regime will obscure views of the Project consistent with the new Caroline County Solar Ordinance (**Appendix 3**). Also, consistent with the Solar Ordinance, a fifty-foot (50') setback will be generally included from property lines with two hundred-foot (200') setbacks to non-participating residences. As noted throughout the ERD, the Project is being designed/developed to be consistent with the local code and this newly adopted Ordinance.

The surface topography is mostly flat with the majority of grades from zero percent (0%) to five percent (5%) and consists of poor, moderate, and well-draining soils with classifications and soil characteristics as defined in **Appendix 2** below. There are a few areas with fifteen percent (15%) to thirty percent (30%) slopes which will be avoided. More than fifty percent (50%) of the soils are moderate to well-draining. However, there is a large area with poorer draining soils that also has a higher percentage of drainage ditches and wetland areas, some of which will be avoided. The Maryland Department of the Environment (MDE) has guidelines for stormwater management that govern Environmentally Sensitive Design (ESD) for utility scale solar projects. If slopes within the LOC are less than ten percent (10%) non-rooftop disconnection credits are allowed and no stormwater structures are required except for level spreaders on areas with grades between five percent (5%) and ten percent (10%).

Other than construction equipment traffic, there is anticipated to be no ground disturbance for the installation of the racking and solar modules. The Sites have very little change in grade and the piles can be installed on the existing elevations. Minimal earthwork will be required for the construction of the concrete pads for the transformers and inverters. Other property improvements that will have only moderate impact/disturbance to in-situ conditions involve grading improvements and roadbed stabilization to support ingress and egress of construction vehicles, as well as delivery trucks during the construction phase of the Project. The Project will obtain a Stormwater NPDES NOI Permit prior to construction.

Total generating capacity for the Project is anticipated to be 202 MW Alternating Current (AC) output. The Project will consist of approximately 462,672 First Solar Series 6 solar modules (or similar) as shown in the Solar Array Layout

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(see **Figure 4**). The array will be installed using a pile-driven post-supported racking system utilizing galvanized steel posts with galvanized steel or aluminum structures for mounting the modules. A typical Solar Panel Racking Detail depicts the array with portrait racking with one row of modules positioned vertically on each rack (see **Figure 5**). The space between rows will be approximately sixteen feet and five inches (16' 5") from post to post. The solar arrays will continuously rotate around a horizontal axis, oriented North-South, to orient the solar modules at an optimal angle to the incoming solar insolation during the day. In this configuration, the minimum leading-edge height (bottom edge of the modules) will be approximately two feet (2') from grade, and the maximum (top-edge height of the modules) will be approximately eight feet (8') from grade, although other feasible configurations are possible with higher top-edge heights. The solar arrays will be designed to withstand a snow load of twenty-five (25) pounds per square foot (psf) and wind of one hundred (100) miles per hour (mph) (risk category I per IBC 2012 for Caroline County).

There will be eighty-one (81) separate power stations where the direct current from the arrays will be converted to alternating current as transmitted to the electric grid. Each power station will include an inverter pad with one (1) inverter and one (1) liquid AC transformer. Each power station will make up 1/81 of the array AC capacity or approximately 2.5 MW. The nameplate capacity of the facility will be of 202 MW. The onsite facilities will also include a project substation and switch gear.

The Applicant has performed the PJM Generation Interconnection Feasibility Study and System Impact Study. Both reports are included in their entirety in **Appendix 4**. The Project will include a new three-breaker 230 kV ring bus substation to be constructed adjacent to the Keeney-Steele 230 kV circuit. Two (2) of the positions on the ring bus will be transmission line terminals for the tie-in of Line 23009 to the substation. The other position will be a terminal configured for the interconnection of a generator. The project has been assigned Queue Position AB2-037. Based on the findings from the Generation Interconnection Feasibility Study and System Impact Study Reports, the estimated cost to build the substation is \$6,491,000 with an estimated construction time of twenty-four (24) months.

The Project will be fully fenced with improved farm lane entrances primarily used wherever possible. Access permits from Caroline County will be acquired for any proposed new entrance. There is no planned need for water and sewer for the Project since there will be no operations and/or maintenance facilities and no full-time personnel located at this Site. Screening will be provided through a twenty foot (20') buffer of indigenous shrubs, trees, and grass plantings; including pollinators, consistent with the local Solar Ordinance and CPCN conditions. However, in some areas where the Project abuts nearby residences, a voluntary more robust fifty foot (50') landscape buffer is proposed in addition to a two hundred foot (200') setback. Wherever possible, the existing wooded area will remain and serve as a natural buffer.

A key feature of the Project is the close proximity of the Upper Section, Middle Section, and Lower Section which allows for short runs of underground interconnections to include two (2) underground crossings at Route 313, a sixty-six foot (66') easement crossing under an abandoned railroad track owned by the Department of Transportation (DOT), a right-of-way (ROW) from Caroline County to bury a line within a County owned ROW, a directional drill under a small private lake, and another directional drill under a Forest Stewardship Parcel. Appropriate agreements will be executed with DOT, the County, and private land owners to provide for these interconnection opportunities, the details of which will be included in future site plans and supporting documents submitted to the County for review and approval. **Appendix 5** includes conceptual underground crossing details for the Forest Stewardship parcel crossing, railroad crossing, and private lake crossing.

In addition to the CPCN, the Project will require National Pollutant Discharge Elimination System (NPDES) stormwater permit coverage and other State Regulatory Approvals including conformance with stormwater management, sediment

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and erosion control, and consistency with Critical Areas. Three (3) separate NPDES NOI Permits will likely be obtained; one (1) for each Section (Upper, Middle, and Lower). In addition to satisfying local site plan review and approval requirements, the site plan will be subject to review as part of the CPCN process in order to obtain substantial conformance with local regulatory codes.

Figure 1 – Regional Context Map

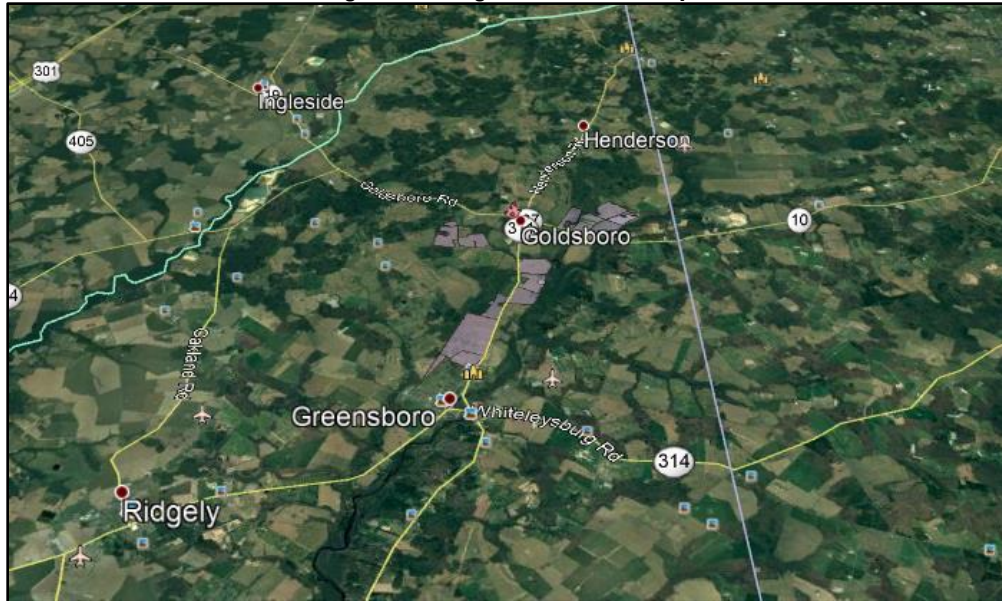
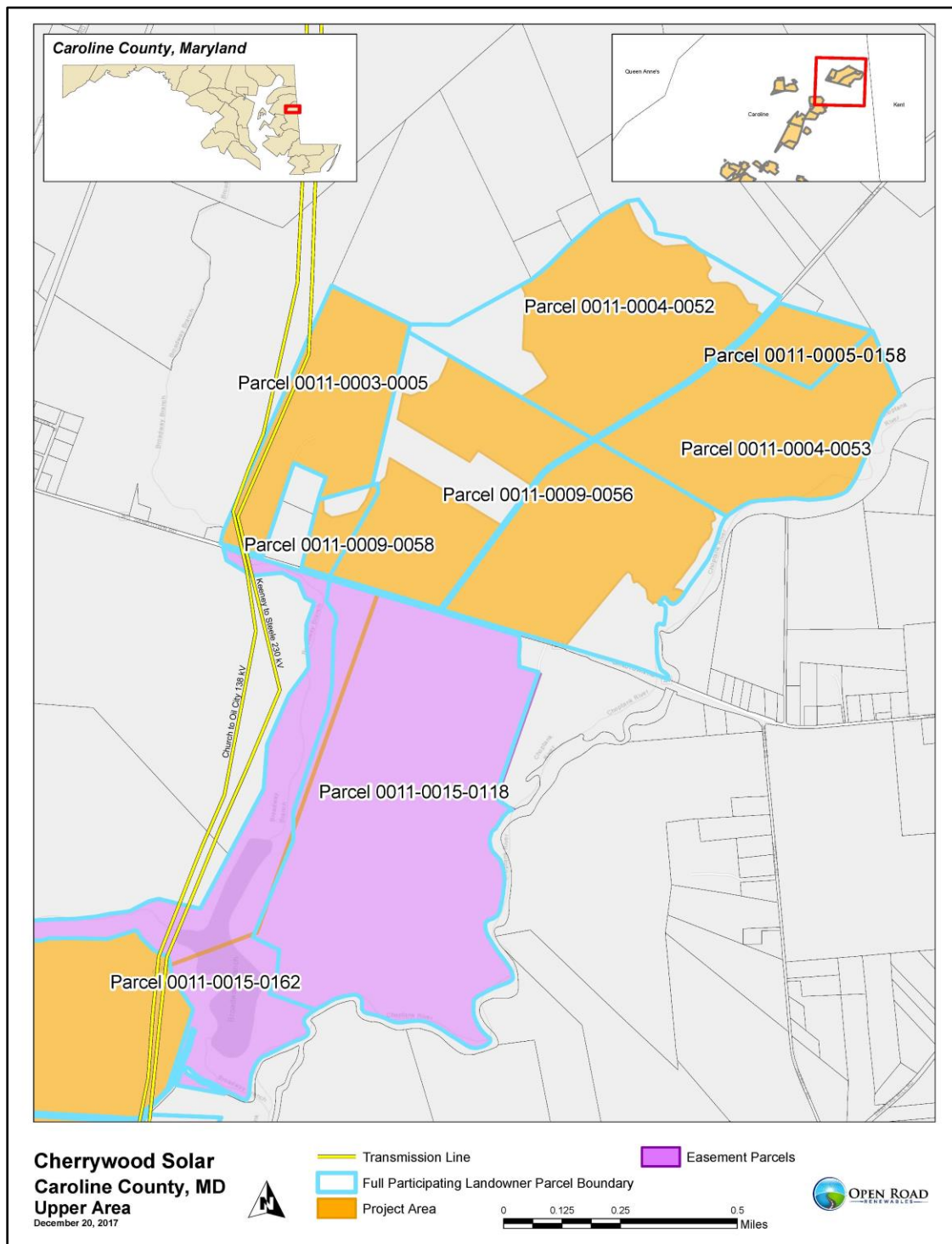


Figure 2 – Local Context Map



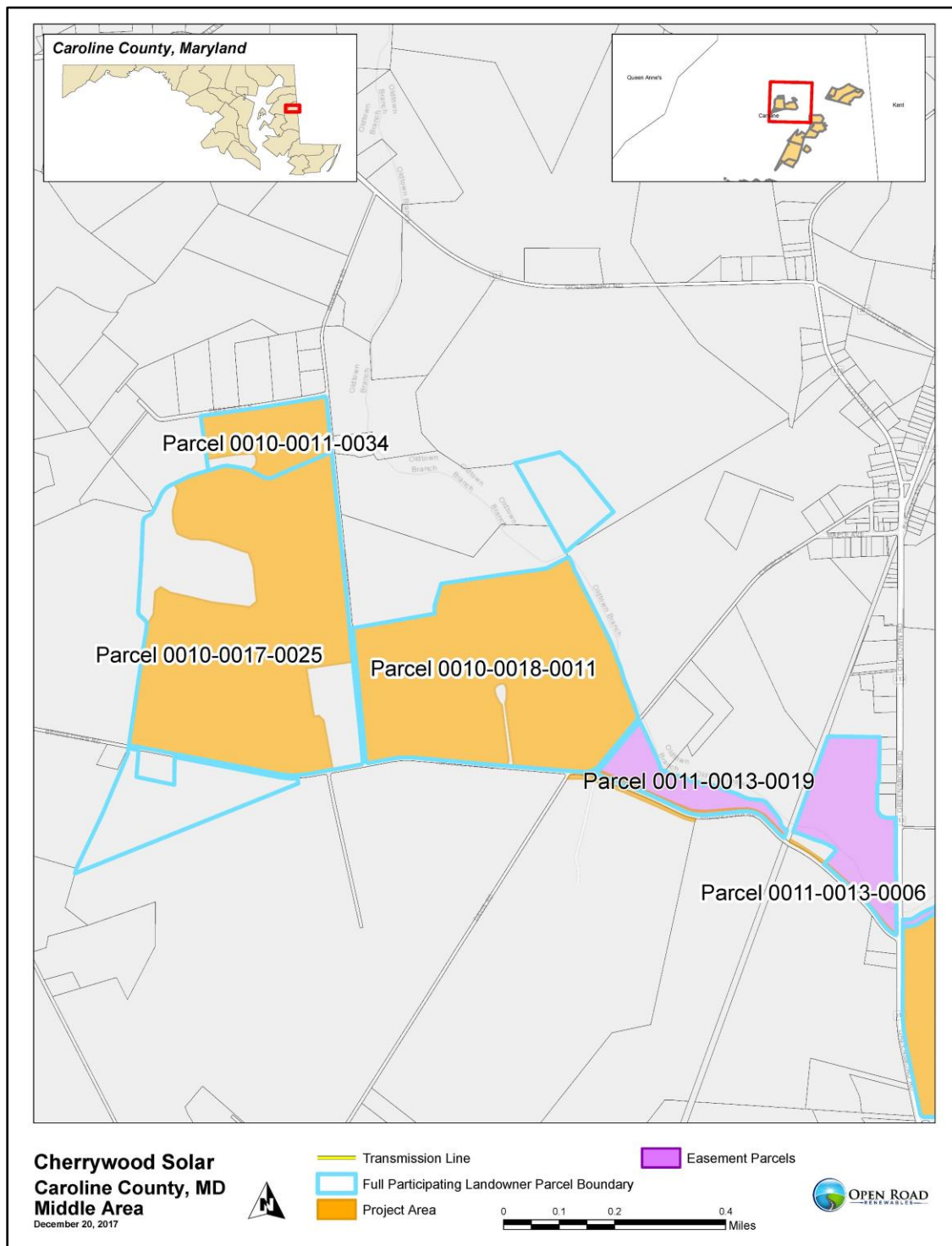
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Figure 3a – Project Site Location Map (Upper Section)



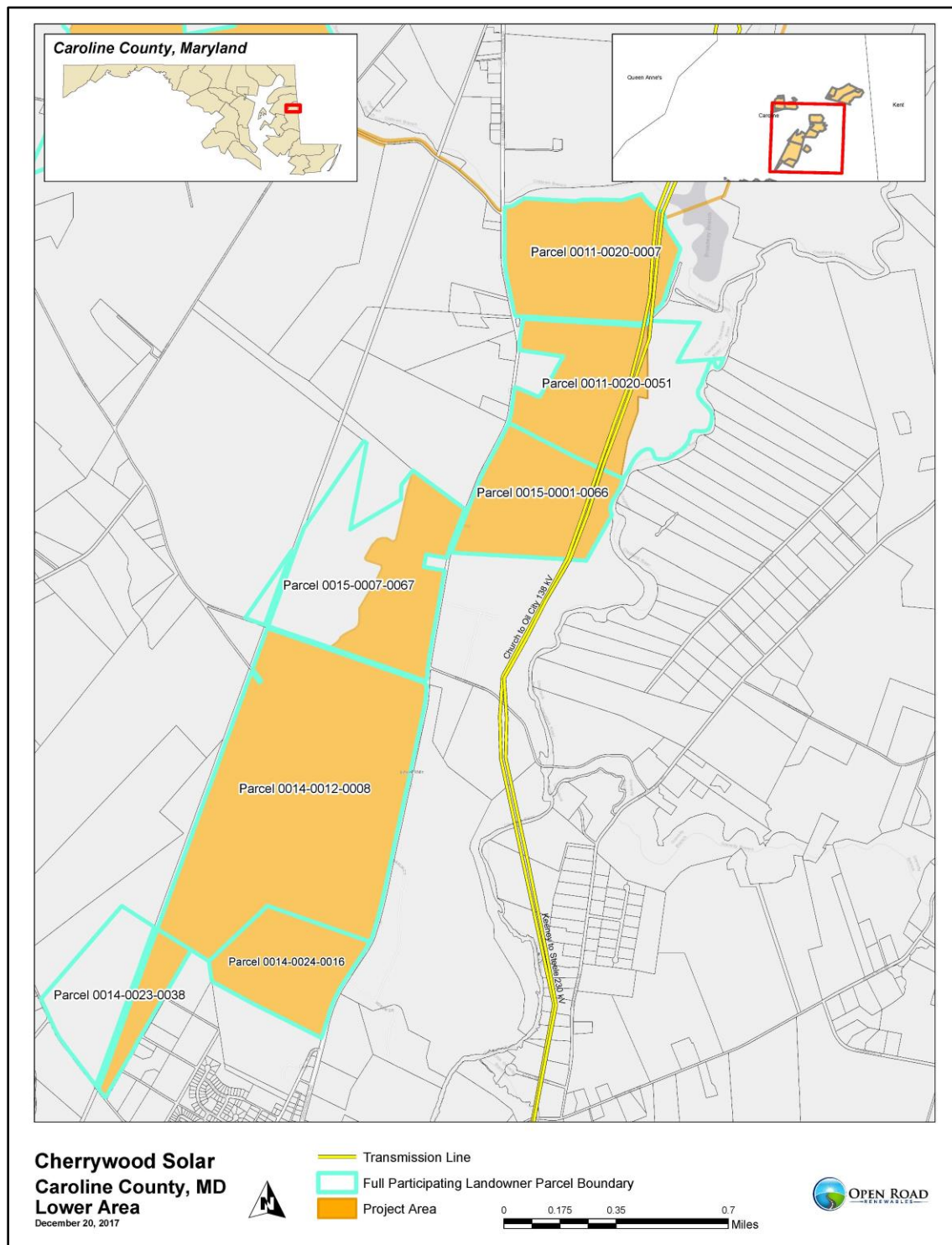
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Figure 3b – Project Site Location Map (Middle Section)



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Figure 3c – Project Site Location Map (Lower Section)



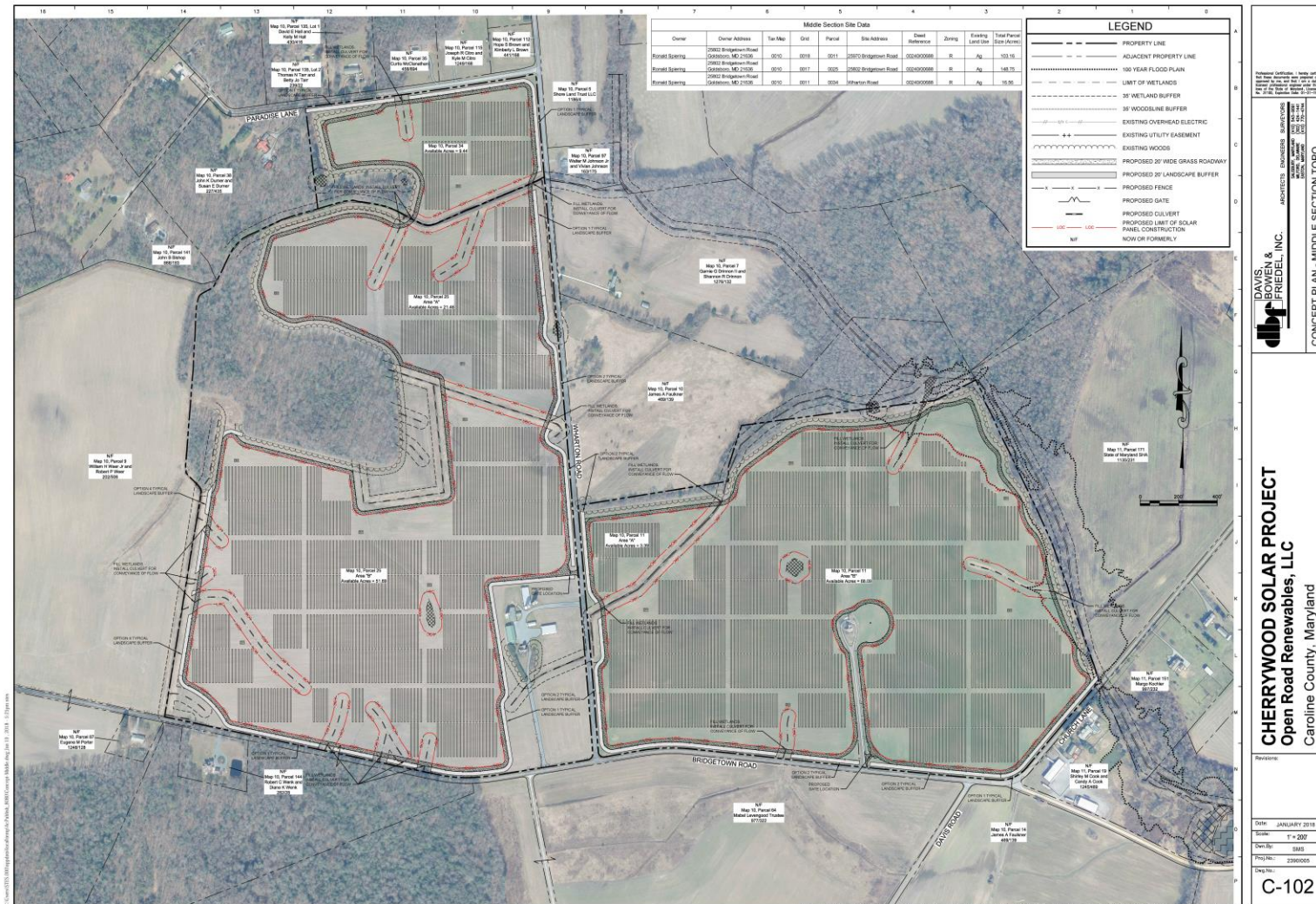
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Figure 4a – Cherrywood Solar I – Upper Section Design Concept and Solar Array Layout



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Figure 4b – Cherrywood Solar I – Middle Section Design Concept and Solar Array Layout



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Figure 4c – Cherrywood Solar I – Lower Section Design Concept and Solar Array Layout

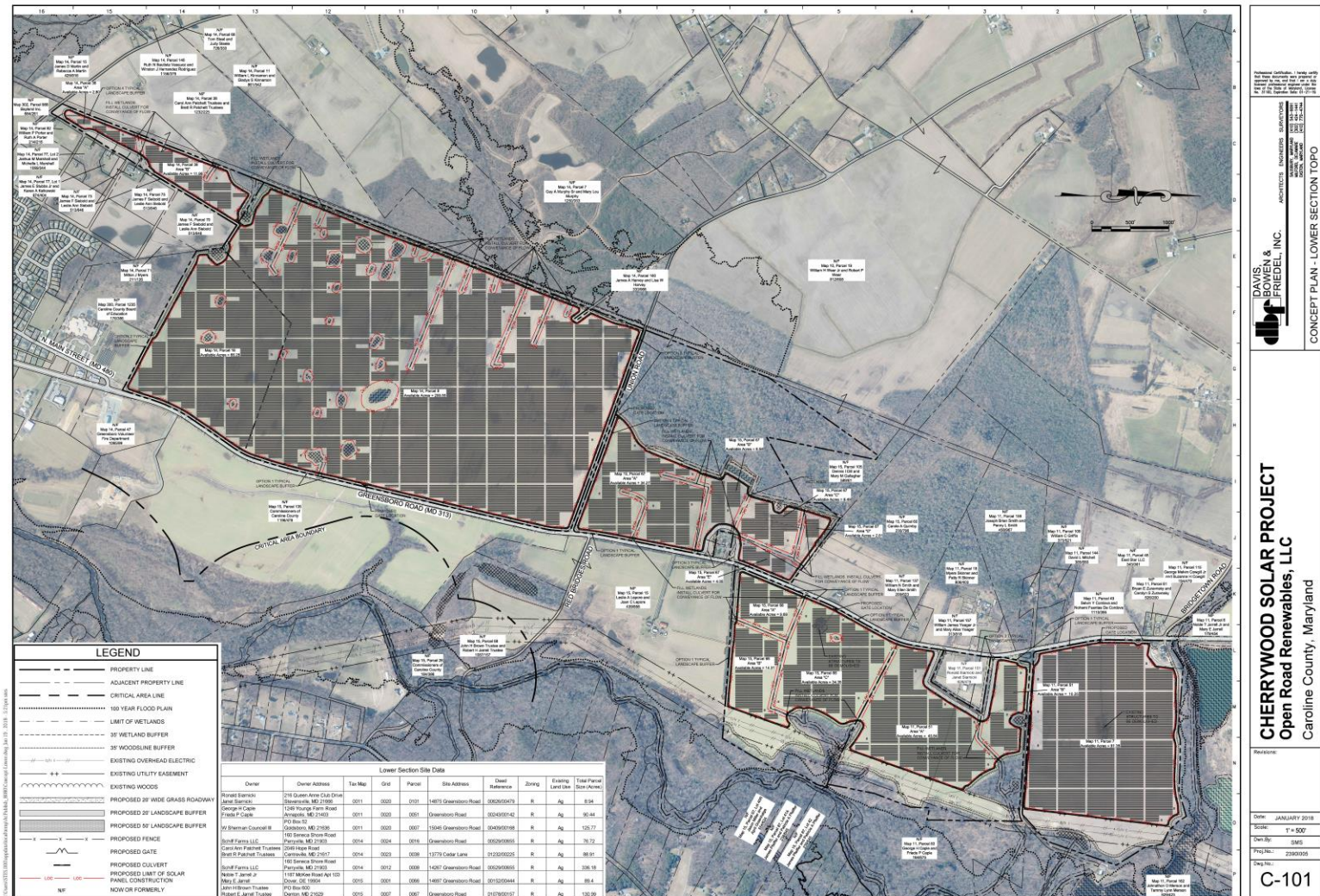


Figure 5 – Solar Array Section [Typical]

NOTES:

1. SYSTEM SPECIFICATIONS:

TOTAL SYSTEM:

219.6 MWP

202.0 MW AC

DC/AC RATION: 1.09

2. SINGLE AXIS TRACKING: 0.39 GCR

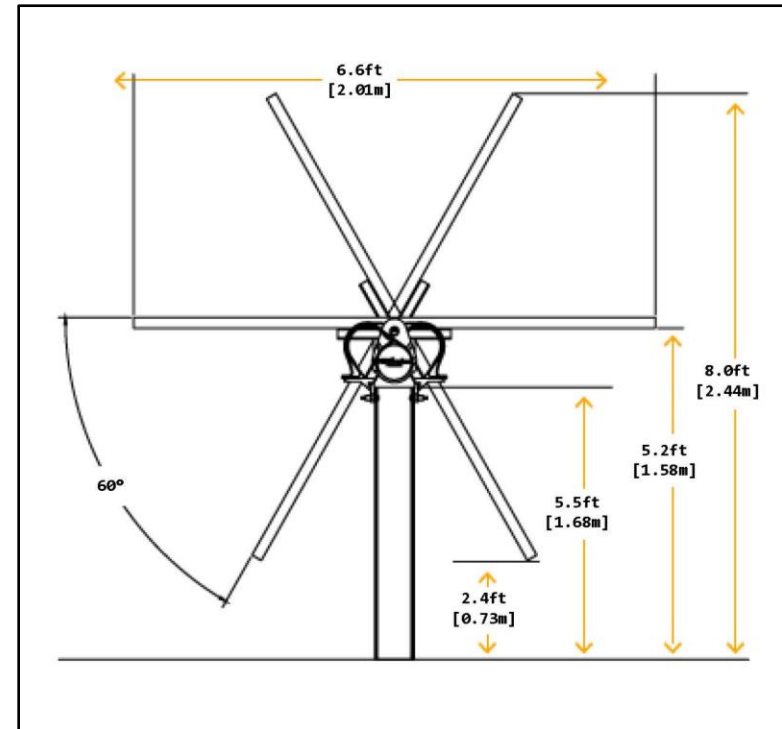
3. FENCE LAYOUT - 6' HIGH CHAIN LINK FENCE

(499,086 FIRST SOLAR FS-6440, 6 MODULES PER STRING, 83,181 STRINGS)

(APPROX. 71,298 POSTS (TYPICAL 84 PANEL ROWS WITH 12 PILES EACH))

(81 SMA SC500EV (1500V) INVERTERS WITH NAMEPLATE 2,500KW CAPACITY EACH)

(1 INVERTER AND 1 TRANSFORMER PER PAD)



SECTION 2 – STATEMENT OF NEED AND PURPOSE

The State of Maryland has enacted aggressive legal and policy standards in pursuit of more renewable energy generation within its borders. The State's goal and commitment is clear and widely considered to be among the most aggressive in the United States. Maryland's Renewable Portfolio Standard (RPS) mandates that twenty-five percent (25%) of Maryland's electricity be generated from renewable energy sources by 2020, which must include at least two and one-half percent (2.5%) solar energy. The RPS solar energy requirement increases each year from now until 2020 and the solar set-aside alone is projected to result in the need for at least 1,600 MW of solar capacity by 2020. The Applicant proposes to construct, own, and operate this 202 MW solar generation facility, which will increase the State's current solar electricity output. There will be significant economic benefits resulting from the Project to include a capital cost of approximately up to \$200M and approximately two-hundred fifty to three-hundred fifty (250-350) design, management, and construction personnel working remotely or on the Site at the height of construction during the period from November, 2019 to August, 2020.

The construction schedule is estimated to be eight (8) to ten (10) months and is expected to be completed prior to December 31, 2020. Significant local resources are being employed as part of the design, entitlement, construction, and startup process. The tax revenue yield for a project of this size and type will also be beneficial. This Project will contribute to the local economy as well as the State's commitment to more in-state renewable energy generation. It has been reported that Maryland imports approximately of forty-one percent (41%) of its required energy generation. This Project will help to reduce this reliance upon power generated out of state. Given the nature of solar power generation, it will also lead to reduced and more certain costs of electricity produced. Furthermore, this Project will contribute to the stated goals and objectives of Maryland Public Utilities Article § 7-702.

The public benefit of solar facilities like the Project has been clearly established by law. At the same time, the State's requirements and commitments in this area are some of the most progressive in the United States. The Applicant, through this proposal, seeks to assist the State in its effort to meet these objectives and to create more renewable energy generation in Maryland. The Project will deliver all of its output to the PJM wholesale electricity market via the Delmarva Power and Light Company (DPL) electric distribution system serving Maryland.

The Applicant is currently in discussions with multiple power purchasers for the output of the Project. However, as of the date of this submittal, an offtake agreement has not been executed.

SECTION 3 – APPLICANT INFORMATION

A. NAME AND ADDRESS OF APPLICANT

Cherrywood Solar I, LLC
c/o Todd R. Chason
233 East Redwood Street
Baltimore, MD 21202

B. PERSON AUTHORIZED TO RECEIVE NOTICES AND COMMUNICATIONS

Mr. Cyrus Tashakkori
Cherrywood Solar I, LLC
1105 Navasota St.
Austin, TX 78702
Phone 512.921.8643
cyrus@openroadrenewables.com

Mr. Todd R. Chason
Mr. David W. Beugelmans
Gordon Feinblatt LLC
233 East Redwood Street
Baltimore, MD 21202
tchason@gflaw.com
dbeugelmans@gflaw.com

C. LOCATION AT WHICH A COPY OF THE APPLICATION MAY BE INSPECTED BY THE PUBLIC

Caroline County Department of Planning and Codes
Health & Public Services Building
403 South Seventh St., Suite 210
Denton, MD 21629

SECTION 4 – STATE AND LOCAL PERMITS AND APPROVALS

(A Matrix of Permits and Approvals required for the Project follows as **Table 1.**)

A. MARYLAND PUBLIC SERVICE COMMISSION (PSC)

1. Certificate of Public Convenience and Necessity (CPCN)

This document accompanies the petition to the Commission requesting the grant of a CPCN for the Project.

B. INDEPENDENT SYSTEM OPERATOR

1. Interconnection

The Applicant has performed the PJM Generation Interconnection Feasibility Study and System Impact Study, both of which are included in their entirety in **Appendix 4**. The Project will include a new three-breaker 230 kV ring bus substation to be constructed adjacent to the Keeney-Steele 230 kV circuit. Two (2) of the positions on the ring bus will be transmission line terminals for the tie-in of Line 23009 to the substation. The other position will be a terminal configured for the interconnection of a generator. The project has been assigned Queue Position AB2-037. Based on the findings from the Generation Interconnection Feasibility Study and System Impact Study Reports, the estimated cost to build the substation is \$6,491,000 with an estimated construction time of twenty-four (24) months. The substation will be located near the transmission line on Parcel 0011-0020-0051.

C. MARYLAND DEPARTMENT OF THE ENVIRONMENT

1. NPDES General Permit for Construction Activity

A National Pollutant Discharge Elimination System (NPDES) General Permit is required for planned construction activities with a planned total disturbance of one (1) acre or greater. Coverage under the General Permit is obtained by filing a completed Notice of Intent (NOI) form with the Maryland Department of the Environment, Water Management Administration (MDE/WMA).

The completed NOI form is considered a formal application for coverage and intent to comply with the terms of the General Permit. An NOI will be submitted to MDE during the construction drawing plan review phase.

D. MARYLAND DEPARTMENT OF NATURAL RESOURCES FOREST SERVICE

1. Forest Conservation Act

Generation facilities subject to a CPCN may be exempt from compliance with the Forest Conservation Act ("FCA"). The Applicant engaged ECS Mid-Atlantic to perform a Simplified Forest Stand Delineation and prepare an associated report for submittal to Caroline County as part of its local FCA review process. The

FSD and draft FCA Worksheet are included in **Appendix 6**. Caroline County has reviewed the Simplified FSD and draft FCA worksheet and advised that the findings are acceptable. Consistent with these documents and as part of the local site plan process a Forest Conservation Plan (FCP) will be prepared and submitted to the County.

Because the County has accepted the Simplified FSD and draft FCA Worksheet, Caroline County has also indicated that the Project satisfies the “no net loss” requirement in the FCA. Therefore, based on the statutory exemption for projects subject to CPCN that satisfy the “no net loss” requirement, Caroline County will not require afforestation mitigation. There is no plan to cut forested areas and the few stand-alone and isolated trees that will be removed will be significantly offset by the many acres of trees to be planted as part of the proposed vegetative buffer plan.

In Caroline County, the fee is assessed at a rate of thirty cents (\$0.30) per square foot of the conservation requirement within the designated Priority Funding Area and at a rate of thirty-six cents (\$0.36) per square foot of conservation requirement outside the designated Priority Funding Area. Should any type of mitigation be required to satisfy Caroline County FCA requirements for the few trees to be removed, in addition to the fee option, the Applicant may also mitigate by planting trees at a one-to-one (1:1) ratio, placing appropriate acreage of wooded area within the same watershed and/or County into a Forest Conservation Easement (FCE) at a two-to-one (2:1) ratio, or purchasing mitigation credits from a mitigation bank at a two-to-one (2:1) ratio, or paying the County's in lieu of fee. If these options cannot be achieved within the same watershed and/or County, the mitigation rate would change from two-to-one (2:1) to four-to-one (4:1).

E. CAROLINE COUNTY PLAN REVIEW AND PERMITTING

1. Zoning and Comprehensive Plan Consistency

The underlying zoning for all of the Properties is Rural (R) with the predominant use Agriculture. Solar generation facilities are a commercial use that will undergo site plan review consistent with Caroline County's Commercial Site Plan Checklist. The County imposed a temporary moratorium on utility scale solar projects while the Task Force studied other county's regulatory approaches, including designating areas within the Delmarva Power and Light Company (DPL) distribution system where properties would be allowed for use as utility scale solar projects. The Solar Ordinance adopted in December, 2017 limits utility scale solar projects to 2,000 acres of farmland (one and a half percent (1.5%) of the County's farmland). Places in the County designated for growth have been determined to be off limits for utility scale solar development.

Caroline County established an eight (8)-member Task Force, of which the Applicant was an active member, to draft and vet the proposed Ordinance. The Applicant diligently participated in discussions along with other community, government, business, and industry representatives, to ensure the proposed Project would be fully consistent with the new Solar Ordinance. Most of the components of the new Solar Ordinance are fully consistent with common PPRP approaches and include requirements relating to subjects such as decommissioning plans with financial assurance, setback and screening, height and lighting, glare, fencing, and aesthetics. The Applicant has also coordinated planning efforts for the Project with farming tenants to minimize disruption of farming activity.

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The Applicant will complete the applicable local review process, which will ensure consistency with local zoning requirements including application for the Special Use Exception.

The new Solar Ordinance provides that utility-scale solar projects may not be constructed in previously-established planned growth districts within the County. In addition, it limits utility scale solar projects, in the aggregate, to 2,000 acres of agricultural land in the County. The Project falls outside the planned growth districts and, if constructed, the total amount of utility-scale solar in the County would be well within the 2,000-acre limit for agricultural land. Finally, specific design requirements, setbacks, and landscape buffers were defined based on proximity of projects to residential dwellings, all of which have been incorporated into the design of the Project.

2. SITE PLAN REVIEW / APPROVAL AND LOCAL PERMITTING

As with other CPCN projects, site plan requirements may include, but may not be limited to, ingress/egress, setbacks and buffers, screening, internal drive aisles and access ways, Fire Marshal conditions/requirements, electric code requirements, building code requirements/references, sediment and erosion control, stormwater management, solar panel layouts including inverter locations and switchgear, gen-tie alignment and specifications, and a number of other requirements that parallel environmental requirements of the Maryland Environmental Article as may be delegated to local jurisdictions for implementation.

Following site plan submittal to the Zoning Administrator, a Technical Advisory Committee (TAC) meeting will be held and the Applicant will receive and review comments on the submittal package. With TAC recommended approval, the revised plans will be submitted to the Planning Commission for review and approval. If a Special Exception or Conditional Use approval is needed the Project will need to submit the appropriate application and supporting documents to the Board of Zoning Appeals (BZA). The various tools to be used by the technical team to assure local submittals are consistent with local process and standards will include careful reference to the following:

www.carolinemd.org/DocumentCenter/View/192
<http://www.carolinemd.org/271/PlanningZoning-Technical-Advisory-Commit>
<http://www.carolinemd.org/274/Site-Plans>
<http://www.carolinemd.org/269/Development-Review>

Table 1 below outlines in more detail the State and Local permits and approvals associated with these processes.

It is important to note that in developing the site plan and addressing site stabilization requirements that will be governed by the sediment and erosion control permit, the MDE will stipulate a phasing/sequencing plan as part of the site plan approval process. Thus, the sediment and erosion control plans will have to specify how each disturbed area in the phasing plan will be stabilized before the next construction area is disturbed. Due to the relatively large size of this Project, MDE and the County will require interim stabilization every seven (7) days. Under State Code, stabilization of a site requires vegetative cover within the proposed LOC to prevent runoff and sediment and erosion regulatory violations.

This requirement will best be met through strategically planning the construction phase of the Project to include phasing plans. These phasing plans will maximize use of laydown areas, minimize truck traffic

throughout the construction area, and phase contractors so that work on solar modules and wiring is preceded by completion of work installing posts and racking.

It should be noted that the State's limitation of twenty (20) acres of disturbance at any time during construction has been recently modified to be less restrictive, allowing for the State to consider other phasing options that will limit disturbance to defined areas.

3. Grading and Building Permits

A Grading Permit and Building Permit will be applied for after the Construction Drawing approval. These documents will provide the detailed engineering and specifications required to implement the approved site plan leading to necessary grading and building permits as required by Caroline County. At the same time the Grading and Building Permits are applied for, the Applicant will submit construction documents for the Electrical Permits needed for construction.

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F. SUMMARY OF PERMITS/APPROVALS

Table 1 – Matrix of State/Local Permits and Approvals

Agency	Permit/Approval	Regulatory Citation (s)	Required For		Status			Waiver, Variance, or Exemption		Comments
			Construction	Operation	Application Contained Herein	Application to be Filed	Permit Approval/ Obtained	Yes	No	
State of Maryland Public Service Commission (PSC)	Certificate of Public Convenience and Necessity (CPCN)	COMAR 20.79	√		√				√	To be prepared at a later date.
PJM Interconnection, LLC	Interconnection	Condition for Issuance of CPCN		√			√		√	PJM completed the Feasibility Study Report in September, 2016. PJM completed the System Impact Study in April, 2017.
Maryland Department of the Environment (MDE)	National Pollution Discharge Elimination System (NPDES) General Permit for Construction Activity	COMAR 26.08, Clean Water Act (CWA) Section 401, 40 CFR 122	√			√			√	Application to be submitted at the time Construction Documents have been completed.
Maryland Department of Natural Resources Forest Service	Forest Conservation Act (FCA)	Natural Resources Article 5-1602(b)(5)						√		The Applicant has submitted the Simplified FSD and draft FCA Worksheet for County review. The County has indicated, based on their review, that afforestation will not be required.
Caroline County	Environmental Site Design Erosion Sediment Control Construction Drawings	Applicability varies according to Local and State Requirements	√			√			√	It is expected that the County will participate in the CPCN process and provide input regarding the site plan, stormwater management, and sediment and erosion control. Grading, Electrical, and Building Permits will be applied for after construction drawings are approved.

SECTION 5 – COMAR 20.79.03.01 DESCRIPTION OF GENERATING STATION

A. LOCATION

The Caroline County, Maryland Solar Project (the “Project”) is located on a plain of properties that run from southwest to northeast between the Towns of Greensboro and Goldsboro just west of the Choptank River. The Project will consist of sixteen (16) parcels, only some of which are contiguous and approximately four (4) other additional parcels will be used for easements to accommodate the various connector lines. The Project will be approximately two-hundred two megawatts (202 MW) single axis tracking alternating current (AC) solar polycrystalline photovoltaic (PV) project proposed by Cherrywood Solar I, LLC. It is anticipated that the Project would include a development envelope of one thousand eighty-three (1,083.62) acres once buffers and setbacks have been established in addition to avoidance from environmental constraints. As shown in **Figure 3**, the proposed Project for purposes of this Report includes three (3) sections.

The Upper Section consists of Tax Map 0011, Grid 0004, Parcel 0052 (“Property 1”), Tax Map 0011, Grid 0005, Parcel 0158 (“Property 2”), Tax Map 0011, Grid 0004, Parcel 0053 (“Property 3”), Tax Map 0011, Grid 0009, Parcel 0056 (“Property 4”), Tax Map 0011, Grid 0009, Parcel 0058 (“Property 5”), and Tax Map 0011, Grid 0003, Parcel 0005 (“Property 6”) and is comprised of approximately five hundred five (505.68) acres of which the LOC includes approximately two hundred ninety-five (295.72) acres.

The Middle Section consists of Tax Map 0010, Grid 0011, Parcel 0034 (“Property 7”), Tax Map 0011, Grid 0017, Parcel 0025 (“Property 8”), and Tax Map 0010, Grid 0018, Parcel 0011 (“Property 9”) and is comprised of approximately two hundred sixty-eight (268.47) acres of which the LOC includes approximately one hundred fifty-four (154.07) acres.

The Lower Section consists of Tax Map 0011, Grid 0020, Parcel 0007 (“Property 10”), Tax Map 0011, Grid 0020, Parcel 0051 (“Property 11”), Tax Map 0015, Grid 0001, Parcel 0066 (“Property 12”), Tax Map 0015, Grid 0007, Parcel 0067 (“Property 13”), Tax Map 0014, Grid 0012, Parcel 0008 (“Property 14”), Tax Map 0014, Grid 0024, Parcel 0016 (“Property 15”), and Tax Map 0014, Grid 0023, Parcel 0038 (“Property 16”) and is comprised of approximately one thousand one hundred forty-six (1,146.07) acres of which the LOC includes approximately six hundred thirty-three (633.83) acres.

Regarding other adjacent parcels which will only be used for necessary easements to facilitate the electrical interconnection of the various Sections noted above; streams, wetlands, forests areas, and other environmental constraints can be completely avoided by directional drilling.

The parcels which will be included in the Project to facilitate interconnection of the Sections noted above include Tax Map 0011, Grid 0015, Parcel 0118; Tax Map 0011, Grid 0015, Parcel 0162; Tax Map 0011, Grid 0013, Parcel 0019; and Tax Map 0011, Grid 0013, Parcel 0006. These parcels are shown in purple on **Figure 3**.

The proposed array layout will maintain a fifty-foot (50') setback from road frontages and property lines that are not internal to the Project (see **Figure 4**). Although the Project is not within the Critical Area and subject to Critical Area buffers and setbacks, the Project will be located more than one hundred feet (100') from designated streams and thirty-five feet (35') from the drip line of existing trees. Within this setback appropriate buffering/screening will be provided. The landscape buffer plans will be prepared by a licensed landscape architect from Davis, Bowen & Friedel, Inc. (DBF) which will be reviewed and approved by Caroline County, and the local Soil Conservation

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District Office. These same agencies also review and approve other planting plans within the fence associated with site stabilization, drainage, and stormwater management. The perimeter fence, which is proposed to be a six foot (6') high chain-link fence, will be located thirty-five feet (35') from the drip line along the wooded perimeter of the Project as shown in **Figure 4**. The electricity produced by the Project's solar modules and inverters will be delivered into the PJM Interconnection, LLC (PJM), System, the largest centrally dispatched control area in North America consisting of all or part of the States of Maryland, Pennsylvania, New Jersey, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee, Virginia, and West Virginia.

All of the Properties are in close proximity and drain directly to the Upper Choptank River. The Upper Choptank River watershed is predominantly rural with significant agricultural areas, as well as forest, small towns and pockets of suburban development. Large areas of land, which had poorly drained soils, were able to be developed because lands were drained by Public Drainage Association ditches. Maintenance of these ditches is central to continuation of much of the current economic activity in the watershed. About fifty-six percent (56%) of the Upper Choptank Watershed in Maryland is prime farmland. According to the Chesapeake Bay Program's Phase 5.2 Model, the land use distribution in the watershed is approximately fifty-three percent (53%) agricultural, thirty-five percent (35%) forest, and twelve percent (12%) urban.

Although the significant ditching of farmed properties increased productivity and contributed significantly to farming viability in this watershed, it also contributed greatly to the degradation of water quality in the Upper Choptank River. Sixty-seven percent (67%) of degraded stream miles in the watershed are artificially straightened or channelized in some way. During channelization, trees in the riparian buffer zone are often cut and woody debris is removed from the stream channel to allow for efficient movement of water away from agricultural fields. As a result, heavily channelized streams are often shallow and offer little habitat diversity. The Delmarva Peninsula contains over eight hundred (808) miles of Public Drainage Association or tax ditches that drain over 143,311 acres of land. Caroline County, which is part of the Choptank River watershed, holds the greatest number of tax ditches in the Maryland Eastern Shore. The historical loss of wetlands in the Upper Choptank River watershed is estimated to be 48,169 acres, which is a relatively large loss of wetlands compared with other similar Maryland watersheds and has contributed to the degrading of water quality in the Upper Choptank River.

As stated above, water quality in the Upper Choptank is poor. Sediment loads from the watershed to the non-tidal waters have increased, but phosphorus levels in nontidal waters have decreased. Still, nitrogen, phosphorus, and sediment levels in the tidal waters of the Upper Choptank are too high. Habitat for underwater grasses are poor because algal densities are too high and water clarity is poor. Only bottom dissolved oxygen levels are good. No underwater grass beds are found in the Upper Choptank and bottom dwelling animal populations are not healthy. The River itself is tidal for much of its length and includes an ecologically delicate estuarine ecosystem.

All waters of the State are assigned a "Designated Use" in regulation, COMAR 26.08.02.08, which is associated with a set of water quality criteria necessary to support that use. These designated uses may or may not be currently compliant; however, the Code requires that standards should be attainable. All surface waters in the Upper Choptank River watershed are designated Use I for Water Contact Recreation, and Protection of Aquatic Life. Waters designated as Use II for Shellfish Harvesting in the Choptank River are located in estuarine waters downstream of the Upper Choptank River watershed.

Stabilizing the proposed Project with a combination of grass and pollinator cover will substantively improve downstream water quality by eliminating active farming practices on this large tract of land.

B. DESIGN FEATURES

Total generating capacity for the Project is anticipated to be 202 MW Alternating Current (AC) output. The Project will consist of approximately 499,806 First Solar Series 6 solar modules (or similar) as shown in the Solar Array Layout (see **Figure 4**). The array will be installed using a pile-driven post-supported racking system utilizing galvanized steel posts with galvanized steel or aluminum structures for mounting the modules. A typical Solar Panel Racking Detail depicts the array with portrait racking with one row of modules positioned vertically on each rack (see **Figure 5**). The space between rows will be approximately sixteen feet and ten inches (16' 10") from post to post. The solar arrays will continuously rotate around a horizontal axis, oriented North-South, to orient the solar modules at an optimal angle to the incoming solar insolation during the day. In this configuration, the minimum leading-edge height (bottom edge of the modules) will be approximately two feet (2') from grade, and the maximum (top-edge height of the modules) will be approximately eight (8') from grade, although other feasible configurations are possible with higher top-edge heights. The solar arrays will be designed to withstand a snow load of twenty-five (25) pounds per square foot (psf) and wind of one hundred (100) miles per hour (mph) (risk category I per IBC 2012 for Caroline County).

There will be eighty-one (81) separate power stations where the direct current from the arrays will be converted to alternating current as transmitted by the electric grid. Each power station will include an inverter pad with one (1) inverter and one (1) liquid AC transformer. Each power station will make up 1/81 of the array AC capacity or approximately 2.5 MW. The nameplate capacity of the facility will be of 202 MW. The onsite facilities will also include a project substation and switch gear.

A six-foot (6') high chain link perimeter fence will be installed around the Project with multiple entrances from roads fronting the identified parcels as reflected in **Figure 4** above. To the extent possible, exiting farm lanes and property entrances will be used. There is limited need for water and no need for sewer at the Project site because there will be no operations and/or maintenance facilities as part of this Project and no full-time personnel located at this Site. The only water use associated with the operation of this solar generation facility will be relatively infrequent cleansing of the solar modules. Typically, this cleansing utilizes only water sprayed at relatively high speeds to remove dirt and dust from the solar modules. Washing of a plant this size would consume much less water than the irrigation requirements for an active farm. Water to accommodate these needs will be provided using tanker trucks, which will obtain water from a County and/or Municipal water supply.

1. Environmental Site Design (ESD)

a. ESD Components

i. Land Use and Cover

The Sites primarily consist of agricultural fields and have been farmed for conventional agricultural crops by landowners for several decades. The Applicant is in communication with the agricultural lease tenants and will provide notice consistent with Md. Real Property Article § 8-402(b)(3)(i).

ii. Soils and Steep Slopes

According to the Critical Area Commission, the Site is outside the Critical Area and contains soils with widely varying characteristics including poor, moderate, and well-draining. As stated above, the Upper Choptank watershed lies within the Coastal Plain physiographic region, which is a wedge-shaped mass of primarily unconsolidated sediments of the Lower Cretaceous, Upper Cretaceous

and Pleistocene Ages covered by sandy soils. The Coastal Plain Region is characterized by lower relief, and is drained by slowly meandering streams with shallow channels and gentle slopes.

Soils typically found in the Upper Choptank River watershed include Sassafras, Fallsington, Galestown, Matapeake, Westbrook, and Othello series. The Sassafras series consist of very deep, well drained soils on sandy marine and old alluvial sediments. The Fallsington series consist of very deep poorly drained on coastal plain flatlands. Saturated hydraulic conductivity is high in the subsoil and high to very high in the substratum. The Galestown series consist of very deep, somewhat excessively drained soils formed in sandy marine sediments and glacial outwash on glacial terminal moraine. The Matapeake series consist of very deep, well drained soils in silty eolian sediments underlain by coarser fluvial or marine sediments. The Westbrook series consist of very deep, very poorly drained soils formed in organic deposits over loamy mineral material. The Othello series consist of very deep, poorly drained soils, with saturated hydraulic conductivity being moderately high.

The full soils report and prime farmland classification can be found in **Appendix 2**. As confirmed in the geotechnical report (**Appendix 7**), these soils are suitable to support solar modules, inverters, switch gear, grass covered aisle ways, access roads, and associated drainage and stormwater management. For the sixteen (16) properties associated with the proposed utility scale solar project, the following soil characterizations are provided.

Upper Section:

- Property 1 – the slopes range between zero percent (0%) and five percent (5%) with the three most prominent soil classifications being Ingleside Sandy Loam, Hambrook Sandy Loam, and Lenni Loam. This is one of the better soil groupings for all of the sixteen (16) properties. These soils are moderately to well-draining soils.
- Property 2 – the slopes for most of the property range between two percent (2%) to five percent (5%). Less than two (2) acres are on steeper grades which will be avoided. These slopes range from ten percent (10%) to thirty percent (30%). The primary soils for the useable portion of the property Evesboro Sand and Hambrook Sandy Loam. Both are well-draining.
- Property 3 – the majority of the slopes range between zero percent (0%) and five percent (5%) with eleven (11.4) acres falling in the five percent (5%) to ten percent (10%) range. The prominent soil series are Ingleside Sandy Loam, Hambrook Sandy Loam, and Rosedale Sandy Loam. These soils are moderately to well-draining soils.
- Property 4 – the majority of the slopes range between zero percent (0%) and five percent (5%) with approximately six (6.0) acres out of approximately one hundred twenty-six (126) acres falling in the five percent (5%) to ten percent (10%) range. The prominent soil series are Ingleside Sandy Loam and Hambrook Sandy Loam. These soils are moderately to well-draining soils.
- Property 5 – the majority of the slopes range between zero percent (0%) and five percent (5%). The majority of soils on this property are Fallsington Sandy Loams, Hambrook Sandy Loams, and Woodstown Sandy Loams. These soils are moderately to well-draining soils.
- Property 6 – the majority of the slopes range between zero percent (0%) and five percent (5%). The majority of soils on this property are Ingleside Loamy Sand, Hammonton-

Fallsington-Corsica Complex, and Hambrook Sandy Loams. These soils are moderately to well-draining soils.

As indicated in the Project Overview these six (6) properties in the Upper Section have by far the best soil characteristics. Although one would expect these better draining properties to have fewer drainage ditches/wetlands, several of the properties had more ditches than one might expect for these better soils. These soils also include Prime Farmland Ratings of mainly "All areas are prime farmland" and "Farmland of statewide importance".

Middle Section:

- Property 7 – the slopes are generally quite flat at zero percent (0%) to two percent (2%). The Corsica and Fallsington soil series are deep and very poorly drained. The Woodstone and Hambrook are moderately well draining.
- Property 8 – the slopes are zero percent (0%) to five percent (5%). The primary soils are Fallsington Loam, Woodstown Loam, and Hambrook Loam; each is moderately to poorly draining.
- Property 9 – the slopes are zero percent (0%) to five percent (5%). The primary soils are Fallsington Sandy Loam, Woodstown Sandy Loam, and Hambrook Sandy Loam; each moderately to well-draining. Sands were mixed in with these loamy soils, which makes them somewhat better draining than Property 7 and Property 8.

This grouping had poorer draining soils than the Upper Section, which is expected because the sand content is far less and the soils are loamier in these areas. These soils also include Prime Farmland Ratings of mainly "All areas are prime farmland" and "Farmland of statewide importance".

Lower Section:

- Property 10 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hambrook Sandy Loam, Ingleside Sandy Loam, and Galestown-Rosedale soils. The Galestown-Rosedale soils will be avoided as they are fifteen percent (15%) to thirty (30%) percent slopes, which are also made up of marine sediments and are excessively well-draining.
- Property 11 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Ingletown Sandy Loam, Hambrook Sandy Loam, and Woodstown Sandy Loam. These are moderate to well-draining soils.
- Property 12 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hambrook Sandy Loam, Fallsington Loam, and Ingleside Sandy Loam. The Fallsington soils are poorly drained. The Hambrook and Ingleside are moderate to well-draining.
- Property 13 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex and Hambrook Sandy Loam. The Hammonton-Fallsington-Corsica Complex is moderate to poorly drained. Hambrook Sandy Loam is moderate to well-draining.
- Property 14 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex, Ingleside Sandy Loam, and Fallsington

Sandy Loam. The drainage characteristics on this site are mixed with half the site being poorly drained and the other half being moderate to well-draining.

- Property 15 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex and Ingleside Sandy Loam.
- Property 16 – the slopes are two percent (2%) to five percent (5%). The predominate soils are Ingleside Sandy Loam and Hurlock Sandy Loam. Both of these soils are moderate to well-draining.

Similar to the Middle Section, the soils are a mix between moderate to well-draining and poorly draining. The mix between the soil types, however, is more evident with higher acreage on the poorly draining soils. These soils also include Prime Farmland Ratings equally weighted between “All areas are prime farmland” and “Farmland of statewide importance”.

In summary, the slopes in all areas are predominately in the zero percent (0%) to five percent (5%) range. There are a few areas with fifteen percent (15%) to thirty percent (30%) slopes, which will be avoided. More than fifty percent (50%) of the soils have moderate to well-draining soils. However, there is a large area with poorer draining soils that also has a higher percentage of drainage ditches and wetland areas, some of which will be avoided. The Maryland Department of the Environment (MDE) has guidelines for stormwater management that govern Environmentally Sensitive Design (ESD) for utility scale solar projects. If slopes within the LOC are less than ten percent (10%) non-rooftop disconnection credits are allowed and no stormwater structures are required except for level spreaders on areas with grades between five percent (5%) and ten percent (10%). Generally, areas within the LOC where solar panels will be installed are in areas where grades are ten percent (10%) or less.

Land disturbance for this Project will require very little grading or site disturbance. There will be less than one percent (1%) of impervious surface added. Impervious areas will be associated with some improvements at entrances to the properties, inverter pads, piles for the solar panel and fencing, and associated improvements. See **Table 2a**, **Table 2b**, and **Table 2c** – Impervious Area Tabulation below.

**Table 2a – Impervious Area Tabulation
Upper Section**

Impervious Area Description	Length (FT)	Width (FT)	Area (SF)	Quantity	Total Area (SF)	Comments
Invert/Equipment Pads (Concrete)	22.60	15.25	344.65	19	6,548.35	Inverter Pad Site
Racking Posts	-	-	0.03080	19,385	597.06	Array Piers & Motor Piers (W6x15 Max Size)
Array Field Access Ways – Grass Aisles	-	-	-	-	-	Grass Only, No Improvements
Proposed Entrance Improvements	-	-	-	2	2,400	Conceptual / Approximate
On-Site Substation Equipment Pad/Area (Private)	100	100	10,000	1	10,000	Equipment Pads
Total Impervious Area					19,545.41	SF
					0.449	Acres

**Table 2b – Impervious Area Tabulation
Middle Section**

Impervious Area Description	Length (FT)	Width (FT)	Area (SF)	Quantity	Total Area (SF)	Comments
Invert/Equipment Pads (Concrete)	22.60	15.25	344.65	13	4,480.45	Inverter Pad Site
Racking Posts	-	-	0.03080	10,099	311.05	Array Piers & Motor Piers (W6x15 Max Size)
Array Field Access Ways – Grass Aisles	-	-	-	-	-	Grass Only, No Improvements
Proposed Entrance Improvements	-	-	-	2	2,400	Conceptual / Approximate
On-Site Substation Equipment Pad/Area (Private)	100	100	10,000	1	10,000	Equipment Pads
Total Impervious Area					17,191.50	SF
					0.395	Acres

Table 2c – Impervious Area Tabulation
Lower Section

Impervious Area Description	Length (FT)	Width (FT)	Area (SF)	Quantity	Total Area (SF)	Comments
Invert/Equipment Pads (Concrete)	22.60	15.25	344.65	49	16,887.85	Inverter Pad Site
Racking Posts	-	-	0.03080	41,814	1,287.87	Array Piers & Motor Piers (W6x15 Max Size)
Array Field Access Ways – Grass Aisles	-	-	-	-	-	Grass Only, No Improvements
Proposed Entrance Improvements	-	-	-	4	4,800	Conceptual / Approximate
On-Site Substation Equipment Pad/Area (Private)	100	100	10,000	1	10,000	Equipment Pads
Total Impervious Area					32,975.72	SF
					0.757	Acres

The only grading/earth moving expected will be associated with the improved entrances as shown in **Figure 3**. Also, there may be minor grading in areas of the inverter pads and switchgear. All of the internal aisle ways will be unpaved grass roads. The proposed ESD practice (non-rooftop disconnection), screening, and other vegetative cover are expected to more than offset these minor increases to impervious areas. Any improvement to the site entrances from the access roads will be constructed with impervious material in order to stabilize this area for construction traffic to the site and will be included in the impervious calculation for the SWM report.

It is also important to note that as part of construction there will be little disturbance to the Site since the construction method includes installation of the solar modules on a pile system with minimal contact to the ground.

Because of the onsite soil characteristics and lack of steep slopes, the Site qualifies for non-rooftop disconnection credits consistent with MDE's SWM Guidelines for Solar Projects. The entire Site will be planted and maintained in low cover grass vegetation in accordance with site plans approved by the Caroline County Soil Conservation District Office and included as part of the CPCN submittal process. (The landscape buffer plans prepared by a licensed landscape architect will be submitted to the County for review and approval.) In addition to the mixture of grass seed, and pursuant to recommendations from the PPRP, the Applicant is also proposing to incorporate wild flower seed mixes with the selected grasses in order to promote the health of honey bees and other pollinators. The purpose of this project design feature would be to improve the quality and quantity of overall acreage for pollinators. Solar energy generation facilities are ideal opportunities to increase healthy habitats for pollinators.

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iii. Stream Buffers and Floodplains

The Properties in the Upper, Middle, and Lower Sections of the Project are all located within three (3) FEMA FIRMs. **Table 3** below identifies the Properties, Latitude, Longitude, and applicable FEMA information.

Table 3 – FEMA FIRM Information

Property	FEMA FIRM Number	Panel	Map Date	Property Impacts	Latitude	Longitude
1	24011C0095D	95 of 375	January 16, 2015	None	39°02'29.0"N	75°45'34.2"W
2	24011C0095D	95 of 375	January 16, 2015	None	39°02'26.2"N	75°45'08.7"W
3	24011C0095D	95 of 375	January 16, 2015	Special Flood Hazard	39°02'16.5"N	75°45'20.3"W
4	24011C0095D	95 of 375	January 16, 2015	Special Flood Hazard	39°02'16.8"N	75°45'51.1"W
5	24011C0095D	95 of 375	January 16, 2015	None	39°02'06.3"N	75°46'16.4"W
6	24011C0095D	95 of 375	January 16, 2015	Special Flood Hazard	39°02'14.5"N	75°46'24.1"W
7	24011C0095D	95 of 375	January 16, 2015	None	39°02'10.0"N	75°48'22.0"W
8	24011C0095D	95 of 375	January 16, 2015	None	39°01'52.9"N	75°48'36.1"W
9	24011C0095D	95 of 375	January 16, 2015	Special Flood Hazard	39°01'43.3"N	75°48'04.4"W
10	24011C0095D 24011C0094D	95 of 375 94 of 375	January 16, 2015	Minor Impacts	9°01'09.8"N	75°46'58.1"W
11	24011C0095D 24011C0094D	95 of 375 94 of 375	January 16, 2015	None	39°00'52.9"N	75°47'00.1"W
12	24011C0095D	95 of 375	January 16, 2015	None	39°00'37.1"N	75°47'10.1"W
13	24011C0095D	95 of 375	January 16, 2015	None	39°00'24.8"N	75°47'33.2"W
14	24011C0156D	156 of 375	January 16, 2015	Minor Impacts	38°59'59.8"N	75°47'53.8"W
15	24011C0156D	156 of 375	January 16, 2015	None	38°59'15.1"N	75°47'01.2"W
16	24011C0156D	156 of 375	January 16, 2015	None	38°59'14.3"N	75°48'34.1"W

Of the three (3) FEMA FIRMs and various panels for the individual Properties (see **Appendix 8**) very few reflect impacts to the Properties. Adjusting the base plans to incorporate appropriate setbacks, buffers, steep grades, and wooded areas that are not to be cut resulted in no flood plains within the proposed LOC's.

The Upper Choptank is located entirely in the Mid-Atlantic coast of Maryland's Eastern Shore. The watershed is predominantly rural and agricultural with significant forest, small towns and pockets of suburban development. Open waters of the Upper Choptank mainstem exhibit limited tidal influence. They receive fresh water input from numerous sluggish tributaries including many that are ditched and most likely many of these properties are typical of the inputs to the Choptank. There are many water restoration programs and ongoing initiatives to improve water quality by minimizing new rural housing and additional farm ditches from entering the tributaries causing further water quality

impairments. Programs to stabilize as many as sixteen (16) properties in this watershed can have a positive impact and minimize runoff, drainage ditch impacts to waters subject to flooding, and other nutrient impacts that are associated with farming operations

As mentioned above, the Site is outside the Critical Area (see **Appendix 9**) and contains soils which include poor, moderate, and well-draining. These types of soils/grades qualify for non-rooftop disconnection credits.

MDE's Mr. Alan Kampmeyer of the Nontidal Wetlands Program, Ms. Anna Allie of ECS Mid-Atlantic, representatives of H&B Solutions, and a consultant from Versar, Inc. conducted a joint site visit on December 7, 2017 to confirm the details of ECS's *ECS Mid-Atlantic Wetland Field Assessment Report*. An additional field visit was held with representatives from MDE (Mr. Alan Kampmeyer and Mr. Ace Adkins), ECS, and Versar to further evaluate a few areas with differing characteristics to confirm locations of wetlands in these areas. ECS's report of findings is included as **Appendix 10**. MDE's response to ECS's finding is included as **Appendix 11**. To summarize, wetlands on the site have been identified, the constraints map has avoided these areas for solar design, and appropriate setbacks and buffers have been located. Any required approvals from MDE for minor disturbances, if needed, will be obtained through the Notice of Intent (NOI) process.

b. Impacts to Stormwater During Construction

COMAR 26.17.02.01-1B(1) requires that stormwater quality and quantity controls be implemented for the Project. Guidelines for Water Quality and Quantity through ESD techniques and Best Management Practices (BMPs) are included in the 2000 Maryland Stormwater Design Manual, Volumes I and II (2000) with Supplement No. 1. The specific ESD practice to be employed on the Site, as referenced above, will be the use of non-rooftop disconnection credits. This practice was selected due to application of the MDE ESD Guidelines which do not require stormwater structures for properties with less than ten percent (10%) slopes and using designs where the disconnection length is the same as the distance between rows and is greater than the width between rows. The only structures required will be level spreaders for any sloped areas within the LOC that exceed five percent (5%).

c. Impacts to Stormwater During Operations

COMAR 26.17.02.01-1B(1) requires that stormwater quality and quantity controls be implemented for the Project. Guidelines for Water Quality and Quantity through ESD techniques and BMPs are included in the 2000 Maryland Stormwater Design Manual, Volumes I and II (2000) with Supplement No. 1. The specific ESD techniques to be employed on the Site as referenced above in more detail will consist of non-rooftop disconnection credits and level spreaders.

For the ESD Storm Event, the Site will mimic a forested site in good conditions under the post-development scenario. This will improve the water quality leaving the Site versus the current crop and agricultural production being conducted. The installation of the solar array will incorporate the use of piles with platforms erected above the ground surface, thereby minimizing any need to treat or capture stormwater that is resulting from the construction operations. As a result of the proposed design and elevated panel system, vegetation will grow under the solar modules and essentially the entire field will continue to be pervious vegetative cover. Consistent with the approved SCD Sediment and Erosion Control for the project, grasses that grow to a minimum height and can be easily maintained will be selected.

2. Noise and Vibration

a. Impacts of Noise During Construction

Maryland noise pollution standards as referenced in COMAR 26.02.03 provide certain exceptions for noise sources and noise generating activities. During construction of this facility, all noise shall be maintained below the average daily ninety decibel (90 dB) rating at the property lines. **Table 4** lists the maximum allowable noise levels specified in the State regulations.

Table 4: Maximum Allowable Noise

Zoning Designation			
	<i>Industrial</i>	<i>Commercial</i>	<i>Residential</i>
<i>Day</i>	75	67	65
<i>Night</i>	75	62	55

Source: COMAR 26.02.03

Note: Day refers to the hours between 7 AM and 10 PM.

Night refers to the hours between 10 PM and 7 AM.

b. Impacts of Noise During Operation

The Project, once constructed, will have no exposed moving parts, except for the slowly rotating tracker mechanisms. The only noise generated from the electrical equipment at the facility will be from the enclosed transformers and inverters. As utility scale solar generating power facilities become more common, more studies have been done demonstrating the low impact of noise during operation. Typical transformers used for a solar facility have a 50dB rating at one hundred feet (100'). The Project anticipates a low-level of noise interior to the perimeter fence. Noise dissipates at 6dB for every one hundred feet (100') of added distance from the source. Consistent with the Solar Ordinance, the closest distance between any residential dwelling and an inverter pad will be approximately two hundred feet (200'). The dB levels at this distance will be well below the sixty-five/fifty-five (65/55) dB levels identified above.

3. Lighting

Although there are minimal lighting needs for the Project, the Applicant will comply with local lighting requirements per the Solar Ordinance.

4. Glare Analysis

The Applicant utilized the ForgeSolar PV Planning and Glare Analysis tool to conduct a desktop analysis of the proposed solar generation facility. Based on the results included in **Appendix 12** there will be no glare effects to any nearby airports. The closest airports to the sites are Spiering Airport, Ridgely Airpark, Marble Head Farm Airport, Carmean Airport, and Gary Field Airport.

Additionally, the Applicant has completed the Federal Aviation Administration (FAA) notice criteria tool, which indicated an application should be filed. The Applicant has submitted this application and is awaiting confirmation from FAA that there are no glare impacts. Once the expected confirmation is received, the Applicant will provide it to PSC/PPRP as a supplemental filing.

Among other design considerations, the licensed landscape architect will prepare the landscape buffer plans with sufficient detail to identify the planting areas with appropriate dimensions and details. This plan will be reviewed with Caroline County as part of the local review process. The Applicant will also provide this plan to PPRP and the PSC via a supplemental filing. This plan will fully address the results of the glare analysis as part of the design to ensure vehicular traffic and neighboring properties are not impacted by glare.

5. Fencing and Buffering

The solar modules will be enclosed and protected using a six foot (6') high chain link fence with an access gate on the proposed entrances. A buffer/landscape plan will be provided as appropriate and depicted on the site plan submitted as part of this Application. As referenced above, the buffer/landscape plan will be included along with other site stabilization and landscaping required for the Project. This plan will be reviewed/approved by the Caroline County Department of Planning and Codes, Caroline County Department of Public Works, and the Soil Conservation District Office.

As mentioned above, it is anticipated that the Project will have four (4) voluntary standard screening options with slight variations as noted below. The size of the buffers for three (3) of the options will be twenty feet (20') and be comprised of different mixes and densities of trees, shrubs, pollinators, and other planting materials. The fourth option will include a robust fifty foot (50') wide landscape buffer. This voluntary more robust fifty foot (50') landscape buffer is proposed in addition to the two hundred foot (200') setback where the Project abuts residences. The four (4) levels of buffering/screening are currently proposed as follows, will be consistent with the Caroline County Solar Ordinance, and will be presented to Caroline County as part of the site plan review process.

1. Option 1 "Full Screening" – Standard twenty-foot (20') buffer which includes two (2) rows of trees varied in height between five feet (5') to seven feet (7') comprised of evergreens and deciduous trees, shrubs, pollinators, and ornamental grasses.
2. Option 2 "Moderate Screening" – Modified twenty-foot (20') buffer somewhat less robust than Option 1 to include more shrubs, pollinators, and ornamental grasses with fewer trees.
3. Option 3 "Intensive Screening" – Twenty-foot (20') buffer with a mixture of ornamental grasses and pollinators.
4. Option 4 "Full Pollinator Habitat" – Fifty-foot (50') buffer with more intensive buffer plantings. This Option would be limited to very few highly impacted residential neighbors to be defined during the local site plan process.

In determining which landscape buffer plan will be recommended in each of the areas to be screened, consideration will be given to proximity of the Project to roads and residences, visibility, glare analysis, natural wooded areas, historic property locations, and other factors defined by Caroline County during the local site plan review process. The Applicant will also provide this plan to PPRP and the PSC via a supplemental filing.

6. Vegetative Stabilization

The Project will employ turf style grasses that are conducive to growing in partial shade, so that vegetation can be maintained beneath and around the arrays, will be indigenous to the area and those typically recommended for use by Caroline County Soil Conservation District Office. This will also include a type and seed mix that provides low growth and low maintenance.

As noted above, the Applicant is also proposing to plant wild flowers that will promote the health of honey bees and other pollinators. Solar energy generation facilities present excellent opportunities to increase healthy habitats for pollinators. Appropriate planting plans and plant maintenance plans will be submitted to local jurisdictions for review and approval.

7. Transportation

a. Transportation During Construction

Major material and equipment will be delivered by tractor-trailers and offloaded by construction vehicles (tulls, tracked vehicles, and front loading equipment). Appropriately sized laydown areas, as depicted on the site plan, will be utilized for unloading of equipment and materials. Daily construction traffic will include cars, pickup trucks, and other personnel vehicles. Excavation and other equipment will be utilized during construction of the Project, which may include dump trucks, trenching equipment, concrete trucks, front loaders, backhoes, post installation equipment, excavators, and other equipment.

b. Transportation During Operation

There will be limited traffic to and from the solar array during operation. Traffic will mostly be limited to maintenance crews for mowing and vegetation control. Quarterly to yearly maintenance of the solar array components will be necessary, along with site visits for any operational issues that may arise during normal operation.

C. OPERATIONAL FEATURES

The operational features will be controlled through a Project Operations & Maintenance Agreement to track performance and monitor the health and safety of the solar field. Typical duties and features of this plan are:

- Local and remote control over key features of the Solar Fields Electrical System to assure compliance with the Interconnect Agreement and safety of the plant.
- Scheduling, control, and reporting of all onsite maintenance activities.
- Operations Center with remote monitoring of performance data and physical systems 365 days a year.
- Immediate dispatch of fire, police, or contractors in the event of emergency or force outage.

D. SCHEDULE FOR ENGINEERING, CONSTRUCTION, AND OPERATION

Engineering documents are being prepared and programmed for submittal as part of the CPCN joint review process with Caroline County representatives. The engineering and construction documents will include pertinent information regarding the solar modules, inverter pads, construction methods, electrical requirements, ingress and egress, stormwater management, sediment and erosion control, electrical connection to the grid/substation, fencing within the setback, landscaping and screening, and grading. Following CPCN approval, construction is anticipated to be initiated in November, 2019 with completion and operational startup prior to October, 2020.

E. SITE SELECTION AND DESIGN

1. Project Design

See description in Section 5.B.1 above.

The design and associated energy output at the Project Site was modeled using PVSYST v6.53 shown in **Table 5** below. PVSYST is a photovoltaic solar project modeling software that is widely used in the solar power industry to stimulate energy output. The energy output simulated by PVSYST is based on the meteorological data at the project site, models of the system equipment such as the inverter and the solar modules, and project design specifications such as the number of solar modules in series (string sizing), system DC size, array type (fixed tilt or tracking), rack orientation, including azimuth and tilt, DC and AC wiring length, transformer losses, etc. PVSYST v6.53 was used to simulate the predicted energy output from the Project at approximately 360,774 MWhrs in the first full year of project operation.

Table 5 – PVSyst Inputs

Location:	Greensboro, MD
Time Zone:	UT-5
Nominal DC Rating (STC):	219,598 kW DC
Nominal AC Rating:	202,000 kW AC
Operating Power (50° C)	182,250 kW AC
Array Tilt:	Single-axis tracking
Array Azimuth:	0°
Inverters:	81 SMA Sunny Central 2500-US
Modules:	499,086 x 440W First Solar Series 6
Stringing:	6 modules in series

2. Solar Resource Data

A key input in simulating the power output from the project is the local solar resource data or insolation. Solar resource data is typically obtained from third party resources that provide long-term average meteorological data.

The weather file used in the production analysis was from Solar Anywhere, version 3.2. This is a tool created by Clean Power Research to provide information for solar projects within the continental United States. The data is satellite based and includes the following variables: Global Horizontal Irradiance (GHI), Direct Normal Irradiance (DNI), Diffuse Irradiance, Ambient Temperature, and Wind Speed.

The Solar Anywhere data was chosen over other common resources, such as NREL's TMY3 Class I sites, because there are no class I data sets located near the site. The site is on a peninsula of Maryland while the closest TMY3 class I sites are across the Chesapeake Bay on the mainland. Washington DC would be the closest one (over 100 miles away), followed by Baltimore (nearly 120 miles away). Proximity to large bodies of water can have noticeable effects on weather data sets. There are two NREL TMY3 Class II data sets from locations on the same peninsula, however Class II data sets are considered less accurate. Since Solar

Anywhere is satellite based, it is not restricted to information from a limited number of ground measurement equipment locations.

3. Modeling

PVSYST v6.53 uses a manufacturer-provided, independently certified model for the panel, inverter, and other components to simulate the output of the plant given racking orientation, row spacing, and other design variables. This output simulation degrades over the lifetime of the plant due to degradation in panel performance. The main design variables and related settings are described in **Table 6** and **Table 7**.

Table 6 - PVSyst Modeling Assumptions

Meteo Data:	Solar Anywhere v3.2 39.05N, 75.75W
Albedo:	0.20
Thermal Loss Factor:	30.7 / 0 (per First Solar)
Wiring Ohmic Loss (DC):	1.5%
Array Soiling Loss:	Varies by month, 2.1% annual avg.
Module Quality Loss:	Gain of 1.1% (FS spectral shift calc.)
Module Mismatch Loss:	1.5% (includes 0.5% for tree shade)
Light Induced Degradation:	NA for First Solar modules
Incidence effect, ASHRAE parameterization (bo parameter)	Table of values per First Solar, see below
AC loss, wires:	1.0%
External transformer iron loss:	0.2%
Resistive/Inductive losses	1.8%
Collector Width:	2.005 meters
Collector Pitch:	5.01 meters

Table 7 – Incidence Effect Profile

0°	30°	50°	60°	65°	70°	75°	80°	90°
1.00	1.00	0.99	0.96	0.94	0.89	0.82	0.69	0.00

a. Soiling and Albedo Losses

Dust, snow, and other particles that settle on the array can attenuate the radiation that arrives at the panel and are referred to as soiling. To account for both occasional winter snow and rainfall frequency, we modeled monthly soiling values that have an annual impact of approximately two percent (2.1%) loss. With First Solar modules there is an additional monthly spectral shift calculation, that results in further modifications to the monthly soiling values and the module quality input. In the event that the plant does not receive rainfall over an extended period, the solar modules may be washed to ensure that soiling is not exacerbated.

The albedo is the fraction of sunlight that is reflected from the ground and other surfaces surrounding the PV array. Albedo contributes slightly to the diffuse irradiance incident. The energy model for the Project

uses twenty percent (20%) as the albedo model parameter, which is a typical value suitable for most situations.

b. Shading

If any structure blocks the sunlight falling on the solar modules in the array, output from the shaded panel can be significantly attenuated due to the electrical characteristics and design of the solar modules. Blockage may arise from objects such as hills or undulating terrain in the distance, transmission structures, trees, and buildings. The array can also create mutual shading between the rows of solar modules, particularly when the sun is low in the sky, i.e., in the morning or evening.

Given site constraints, array design can minimize the impact of mutual shading. However, location-specific factors will result in near and horizon shading from other objects. PVSYST includes built-in, sophisticated modeling of mutual shading between rows given the size of the solar modules and spacing between rows. For locations in which near and horizon shading are unavoidable, the impact of this shading should be accounted for, but in the case of this Project located on the Eastern Shore of Maryland, this is assumed to be minimal. The model accounts for row-to-row shade between the trackers early and late in the day, and includes a minimal assumption of one half percent (0.5%) tree shade loss within the mismatch loss input.

4. Production Estimate Results

PVSyst Energy production results with estimated solar irradiation are included in **Tables 8a** and **8b** below. **Table 8a** summarizes total plant production for Year 1. **Table 8b** summarizes the detailed production statistics for the first year of operations.

Table 8a – Total Plant Production Estimate Results in Year 1

Parameter	Preliminary Estimate
Annual Generation	360,774 MWh
DC Capacity Factor	18.8%
AC Capacity Factor	20.4%

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Table 8b- PVSyst Modeling Monthly Energy for a Full System in Year 1

202 MWac Tracker Thin Film 39GCR 109 ILR 1-12-18 DLG

Balances and main results

	GlobHor kWh/m ²	DiffHor kWh/m ²	T Amb °C	GlobInc kWh/m ²	GlobEff kWh/m ²	EArray MWh	E_Grid MWh	PR
January	66.3	28.25	0.60	97.6	80.1	17580	16651	0.777
February	84.6	42.42	-1.25	117.8	98.2	21834	20807	0.805
March	129.3	54.38	5.59	174.1	155.1	33496	31925	0.835
April	152.5	62.12	11.97	197.7	180.5	37801	35989	0.829
May	178.0	73.11	18.16	225.8	210.4	43337	41296	0.833
June	183.6	81.72	22.64	228.4	216.0	43986	41991	0.837
July	190.6	81.50	23.68	239.5	226.0	46071	44003	0.837
August	168.7	67.68	24.93	217.6	203.2	41204	39338	0.823
September	133.0	58.36	20.29	178.2	163.1	33724	32203	0.823
October	101.5	39.59	13.73	140.9	125.8	26511	25239	0.816
November	71.0	32.14	5.83	100.2	85.5	18518	17583	0.799
December	58.0	26.43	5.81	80.9	67.7	14573	13749	0.774
Year	1517.1	647.70	12.75	1998.6	1811.5	378633	360774	0.822

Legends: GlobHor Horizontal global irradiation
DiffHor Horizontal diffuse irradiation
T Amb Ambient Temperature
GlobInc Global incident in coll. plane
GlobEff Effective Global, corr. for IAM and shadings
EArray Effective energy at the output of the array
E_Grid Energy injected into grid
PR Performance Ratio

F. IMPACTS ON THE ECONOMICS OF THE STATE

Based on 2012 reports, Maryland continues to import approximately forty-one percent (41%) of its generation power. This Project will provide some measurable offset to these generation import numbers.

Significant economic benefits will result from the Project, including a capital investment of up to \$200M and approximately two-hundred fifty to three-hundred fifty (250-350) design, management, and construction personnel working remotely or on the Site at the height of construction during the period from November, 2019 to August, 2020.

The Applicant utilized the services of Beacon (Business Economic and Community Outreach Network at Salisbury University) to prepare a preliminary economic impact estimate for the Cherrywood Solar Project. As part of the assessment the preliminary impact estimates were developed using Social Accounting Matrix multipliers calculated by the Minnesota IMPLAN Group. Some highlights of the results and findings are listed below. The complete Beacon report can be found in **Appendix 13**.

- Through construction (2019-2020) annual jobs supported will include 505 direct, 50 indirect, and 73 induced for a total of 628.
- Operation and Maintenance jobs supported during the estimated 35 years of operation would be 49.5 per year.
- The annual personal property taxes would be \$2,626,000.

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- The capital expenditures per MW would be \$1,300,000.

By connecting with the electric distribution system serving Maryland, the Project will contribute towards compliance with the Renewable Portfolio Standard, which mandates that all suppliers that sell electricity at retail in Maryland accumulate solar renewable energy credits in an incrementally increasing percentage.

The Project will not detract from the value or diminish the characteristics of adjacent properties. PPRP has stated in its environmental review for similar projects that vegetative screening mitigates the impact of solar PV projects on neighboring property values. For instance, PPRP's environmental review in Case No. 9451 states that:

"Limited evidence from real estate appraisal methods has not revealed any influence on property values from solar farm development. Expert opinion from a past siting case in Massachusetts, for example, concluded that utility scale photovoltaic energy systems that are not visible from surrounding properties would have no impact on their market values (Franklin County 2014). A paired comparison of market values of residential and agricultural properties near solar farms in North Carolina came to a similar conclusion (Kirkland Appraisals 2014)."

PPRP Assessment of the Proposed Chesapeake Solar Project, Case No. 9451, 32-33 (October 20, 2017).

The Project will feature various levels of vegetative screening and it will produce no noise or vibration perceptible on neighboring properties. As a result, the Project will not have an impact on neighboring property values.

G. IMPACT ON THE STABILITY AND RELIABILITY OF THE ELECTRIC SYSTEM

In 2016 the Applicant initiated a process to be interconnected to the electric transmission system serving Maryland by filing an Interconnection Request with PJM in conjunction with DPL. The results of the Generation Interconnection Feasibility Report and System Impact Study show no potential adverse impact to the stability or reliability of the electrical system due to the addition of the Project to the grid.

H. LOCATION AND MAJOR DESIGN FEATURES OF ELECTRIC SYSTEM UPGRADE

Cherrywood Solar I, LLC has completed the PJM Generation Interconnection Feasibility Study and System Impact Study Reports, see **Appendix 4**. The Project will include a new three breaker 230 kV ring bus substation to be constructed adjacent to the Keeney-Steele 230 kV circuit. Two of the positions on the ring bus will be transmission line terminals for the tie-in of Line 23009 to the substation. The other position will be a terminal configured for the interconnection of a generator. The project has been assigned Queue Position AB2-037.

The new substation will be built on Property 12 in such a manner so as to minimize any viewshed concern and so as to minimize noise impacts to neighboring properties. As mentioned above, the Applicant is also evaluating the option to provide a battery storage facility on the same property comprising an approximately twenty (20) to thirty (30) acres.

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Based on the findings from the Generation Interconnection Feasibility Study and System Impact Study Reports, the estimated cost to build the substation is \$6,491,000 with an estimated construction time of twenty-four (24) months. The substation will be located near the transmission line on Parcel 0011-0020-0051.

I. IMPLEMENTATION SCHEDULE FOR THE PROJECT

The Project schedule includes the following approximate milestones:

- Engineering and Permitting: September, 2017 through September, 2018
- State of Construction: November, 2019
- Start of Commercial Operation: October, 2020

SECTION 6 – COMAR 20.79.03.02 ENVIRONMENTAL INFORMATION

A. GENERAL INFORMATION

1. General Description of the Site and Adjacent Areas

The Caroline County, Maryland Solar Project (the "Project") is located on a plain of properties that run from southwest to northeast between the Towns of Greensboro and Goldsboro just west of the Choptank River. The Project will consist of sixteen (16) parcels, some of which are contiguous, and approximately four (4) other additional parcels will be used for easements to accommodate the various connector lines. The Project will be approximately two hundred megawatts (200.00 MW) single axis tracking alternating current (AC) solar polycrystalline photovoltaic (PV) project proposed by Cherrywood Solar I, LLC. It is anticipated that the Project will include a development envelope of approximately one thousand eighty-three (1,083.62) acres once buffers and setbacks have been established in addition to avoidance from environmental constraints. As shown in **Figure 3**, the proposed Project for purposes of this Report includes three (3) sections.

The Upper Section consists of Tax Map 0011, Grid 0004, Parcel 0052 ("Property 1"), Tax Map 0011, Grid 0005, Parcel 0158 ("Property 2"), Tax Map 0011, Grid 0004, Parcel 0053 ("Property 3"), Tax Map 0011, Grid 0009, Parcel 0056 ("Property 4"), Tax Map 0011, Grid 0009, Parcel 0058 ("Property 5"), and Tax Map 0011, Grid 0003, Parcel 0005 ("Property 6") and is comprised of approximately five hundred five (505.68) acres of which the LOC includes approximately two hundred ninety-five (295.72) acres.

The Middle Section consists of Tax Map 0010, Grid 0011, Parcel 0034 ("Property 7"), Tax Map 0011, Grid 0017, Parcel 0025 ("Property 8"), and Tax Map 0010, Grid 0018, Parcel 0011 ("Property 9") and is comprised of approximately two hundred sixty-eight (268.47) acres of which the LOC includes approximately one hundred fifty-four (154.07) acres.

The Lower Section consists of Tax Map 0011, Grid 0020, Parcel 0007 ("Property 10"), Tax Map 0011, Grid 0020, Parcel 0051 ("Property 11"), Tax Map 0015, Grid 0001, Parcel 0066 ("Property 12"), Tax Map 0015, Grid 0007, Parcel 0067 ("Property 13"), Tax Map 0014, Grid 0012, Parcel 0008 ("Property 14"), Tax Map 0014, Grid 0024, Parcel 0016 ("Property 15"), and Tax Map 0014, Grid 0023, Parcel 0038 ("Property 16") and is comprised of approximately one thousand one hundred forty-six (1,146.07) acres of which the LOC includes approximately six hundred thirty-three (633.83) acres.

The total acreage of the parcels evaluated consists of approximately one thousand nine hundred twenty (1,920.22) acres. However, as noted above, not all will be used for the Project and appropriate areas have been excluded based on environmental constraints mapping. The total LOC for this Project is approximately one thousand eighty-three (1,083.62) acres. The site characteristics relative to soils, wetlands, forest conservation, etc. have been tabulated in an excel spreadsheet and included in **Appendix 1**.

The Properties are all actively farmed with typical crops including soy bean, corn, wheat, etc. The sites are relatively flat with very little grade (the few excessive slopes have been eliminated) and more than fifty percent (50%) of the soils are moderate to well-draining. Once the final crop harvests have been completed, it will be relatively easy for the appropriate stabilization to take place prior to construction.

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There are no wetland impacts associated with the proposed project layout/design. MDE has confirmed that the solar array does not impact any jurisdictional waters. No forest cutting or clearing will occur. There are no FEMA flood plains located at the Site and the Project is outside the Critical Area. There are no other environmental issues associated with the Site or project development.

Site information contained in this report has been discussed and reviewed with various regulatory agencies including the Maryland Department of the Environment, Maryland Department of Natural Resources, Maryland Historic Trust, Caroline County Department of Planning and Codes, Caroline County Soil Conservation District Office, and representatives from the Critical Areas Commission. This review process confirmed the information that was found online and reflected on various resource maps.

As discussed elsewhere in this Report, the Properties have historically been used for agricultural purposes. The farms are primarily comprised of agricultural fields used to grow conventional crops. Because some of the farms are prior converted wetlands, there are a few farm ditches that will be avoided as part of the design. ECS performed the wetlands field assessment (**Appendix 10**) and MDE confirmed the findings (**Appendix 11**). Because of the continuous disturbance of the Site associated with farming operations, all of the habitat is outside the LOC in the wooded areas on the fringe of the property and will not be disturbed. In summary, the Properties are not located within a Chesapeake Bay Critical Area, or within any stream buffer, special planning area, protected watershed, reservoir, or other impoundment drainage area.

a. Geology/Soils.

As noted above, according to the Critical Area Commission, the Sites are outside the Critical Area and contains soils with widely varying characteristics including poor, moderate, and well-draining.

Soils typically found in the Upper Choptank River watershed include Sassafras, Fallsington, Galestown, Matapeake, Westbrook, and Othello series. The Sassafras series consist of very deep, well drained soils on sandy marine and old alluvial sediments. The Fallsington series consist of very deep poorly drained soils on coastal plain flatlands. Saturated hydraulic conductivity is high in the subsoil and high to very high in the substratum. The Galestown series consist of very deep, somewhat excessively drained soils formed in sandy marine sediments and glacial outwash on glacial terminal moraine. The Matapeake series consist of very deep, well drained soils in silty eolian sediments underlain by coarser fluvial or marine sediments. The Westbrook series consist of very deep, very poorly drained soils formed in organic deposits over loamy mineral material. The Othello series consist of very deep, poorly drained soils with saturated hydraulic conductivity being moderately high.

The full soils report and prime farmland classification can be found in **Appendix 2**. As confirmed in the geotechnical report (**Appendix 7**), these soils are suitable to support solar modules, inverters, switch gear, grass covered aisle ways, access roads, and associated drainage and stormwater management features. For the sixteen (16) properties associated with the proposed utility scale solar project, the following soil characterizations are provided.

Upper Section:

- Property 1 – the slopes range between zero percent (0%) and five percent (5%) with the three most prominent soil classifications being Ingleside Sandy Loam, Hambrook Sandy Loam, and

Lenni Loam. This is one of the better soil groupings for all of the sixteen (16) properties. These soils are moderately to well-draining.

- Property 2 – the slopes for most of the property range between two percent (2%) to five percent (5%). Less than two (2) acres are on steeper grades and will be avoided. These slopes range from ten percent (10%) to thirty percent (30%). The primary soils for the useable portion of the property are Evesboro Sand and Hambrook Sandy Loam. Both are well-draining.
- Property 3 – the majority of the slopes range between zero percent (0%) and five percent (5%) with eleven (11.4) acres falling in the five percent (5%) to ten percent (10%) range. The prominent soil series are Ingleside Sandy Loam, Hambrook Sandy Loam, and Rosedale Sandy Loam. These soils are moderately to well-draining.
- Property 4 – the majority of the slopes range between zero percent (0%) and five percent (5%) with approximately six (6.0) acres out of approximately one hundred twenty-six (126) acres falling in the five percent (5%) to ten percent (10%) range. The prominent soil series are Ingleside Sandy Loam and Hambrook Sandy Loam. These soils are moderately to well-draining.
- Property 5 – the majority of the slopes range between zero percent (0%) and five percent (5%). The majority of soils on this property are Fallsington Sandy Loams, Hambrook Sandy Loams, and Woodstown Sandy Loams. These soils are moderately to well-draining.
- Property 6 – the majority of the slopes range between zero percent (0%) and five percent (5%). The majority of soils on this property are Ingleside Loamy Sand, Hammonton-Fallsington-Corsica Complex, and Hambrook Sandy Loams. These soils are moderately to well-draining.

As indicated in the Project Overview these six (6) properties in the Upper Section are by far the best as to soil characteristics. Although one would expect these better draining properties to have fewer drainage ditches/wetlands, several of the properties had more ditches than one might expect for these better soils. These soils also include Prime Farmland Ratings equally weighted between “All areas are prime farmland” and “Farmland of statewide importance”.

Middle Section:

- Property 7 – the slopes are generally quite flat at zero percent (0%) to two percent (2%). The Corsica and Fallsington soil series are deep and very poorly drained. The Woodstone and Hambrook are moderately well draining.
- Property 8 – the slopes are zero percent (0%) to five percent (5%). The primary soils are Fallsington Loam, Woodstown Loam, and Hambrook Loam; each is moderately to poorly draining.
- Property 9 – the slopes are zero percent (0%) to five percent (5%). The primary soils are Fallsington Sandy Loam, Woodstown Sandy Loam, and Hambrook Sandy Loam; each moderately to well-draining. Sands were mixed in with these loamy soils which makes them somewhat better draining than Property 7 and Property 8.

This grouping had poorer draining soils than the Upper Section, which is expected because the sand content is far less and the soils are loamier in these areas. These soils also include Prime Farmland Ratings equally weighted between “All areas are prime farmland” and “Farmland of statewide importance”.

Lower Section:

- Property 10 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hambrook Sandy Loam, Ingleside Sandy Loam, and Galestown-Rosedale soils. The Galestown-Rosedale soils will be avoided as they are fifteen percent (15%) to thirty (30%) percent slopes, which are also made up of marine sediments and are excessively well-draining.
- Property 11 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Ingletown Sandy Loam, Hambrook Sandy Loam, and Woodstown Sandy Loam. These are moderate to well-draining soils.
- Property 12 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hambrook Sandy Loam, Fallsington Loam, and Ingleside Sandy Loam. The Fallsington soils are poorly drained. The Hambrook and Ingleside are moderate to well-draining.
- Property 13 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex and Hambrook Sandy Loam. The Hammonton-Fallsington-Corsica Complex is moderate to poorly drained. Hambrook Sandy Loam is moderate to well-draining.
- Property 14 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex, Ingleside Sandy Loam, and Fallsington Sandy Loam. The drainage characteristics on this site are mixed with half the site being poorly drained and the other half being moderate to well-draining.
- Property 15 – the slopes are zero percent (0%) to five percent (5%). The predominate soils are Hammonton-Fallsington-Corsica Complex and Ingleside Sandy Loam.
- Property 16 – the slopes are two percent (2%) to five percent (5%). The predominate soils are Ingleside Sandy Loam and Hurlock Sandy Loam. Both of these soils are moderate to well-draining.

Similar to the Middle Section, the soils are a mix between moderate to well-draining and poorly draining. The mix between the soil types, however, is more evident with higher acreage on the poorly draining soils. These soils also include Prime Farmland Ratings equally weighted between “All areas are prime farmland” and “Farmland of statewide importance”.

In summary, the slopes in all areas are predominately in the zero percent (0%) to five percent (5%) range. There are a few areas with fifteen percent (15%) to thirty percent (30%) slopes which will be avoided. More than fifty percent (50%) of the soils have moderate to well-draining soils. However, there is a large area with poorer draining soils that also has a higher percentage of drainage ditches and wetland areas; some of which will be avoided. The Maryland Department of the Environment (MDE) has guidelines for stormwater management that govern Environmentally Sensitive Design (ESD) for utility scale solar projects. If slopes within the LOC are less than ten percent (10%) non-rooftop disconnection credits are allowed and no stormwater structures are required except for level spreaders on areas with grades between five percent (5%) and ten percent (10%). Generally, areas within the LOC where solar panels will be installed are in areas where grades are ten percent (10%) or less.

b. Land Use and Cover

The Sites primarily consists of agricultural fields and have been farmed for conventional agricultural crops by landowners and leases for several decades. As noted above, there are no internal environmental

constraints which cannot be easily avoided through setbacks or buffers. To the extent possible, the primary entrances for the solar generation facility will be from existing improved farm entrance.

There are no other unique land uses or covers which would create any type of conflict or impairment for the proposed Project.

c. Stream Buffers and Floodplains

All of the Properties are in close proximity and drain directly to the Upper Choptank River. The Upper Choptank River watershed is predominantly rural with significant agricultural areas, as well as forest, small towns and pockets of suburban development. Large areas of land, which had poorly drained soils, were able to be developed because lands were drained by Public Drainage Association ditches. Maintenance of these ditches is central to continuation of much of the current economic activity in the watershed. About fifty-six percent (56%) of the Upper Choptank Watershed in Maryland is prime farmland. According to the Chesapeake Bay Program's Phase 5.2 Model, the land use distribution in the watershed is approximately fifty-three percent (53%) agricultural, thirty-five percent (35%) forest, and twelve percent (12%) urban.

Although the significant ditching of farmed properties increased productivity and contributed significantly to farming viability in this watershed, it also contributed greatly to the degradation of water quality in the Upper Choptank River. Sixty-seven percent (67%) of degraded stream miles in the watershed are artificially straightened or channelized in some way. During channelization, trees in the riparian buffer zone are often cut and woody debris is removed from the stream channel to allow for efficient movement of water away from agricultural fields. As a result, heavily channelized streams are often shallow and offer little habitat diversity. The Delmarva Peninsula contains over eight hundred (808) miles of Public Drainage Association or tax ditches that drain over 143,311 acres of land. Caroline County, which is part of the Choptank River watershed, holds the greatest number of tax ditches in the Maryland Eastern Shore. The historical loss of wetlands in the Upper Choptank River watershed is estimated to be 48,169 acres which is a relatively large loss of wetlands compared with other similar Maryland watersheds and contributed to the degrading of water quality in the Upper Choptank River; and also explains why so many farms in the Project area contain many farm ditches.

As stated above, water quality in the Upper Choptank is poor. Sediment loads from the watershed to the non-tidal waters have increased, but phosphorus levels in nontidal waters have decreased. Still, nitrogen, phosphorus, and sediment levels in the tidal waters of the Upper Choptank are too high. Habitat for underwater grasses are poor because algal densities are too high and water clarity is poor. Only bottom dissolved oxygen levels are good. No underwater grass beds are found in the Upper Choptank and bottom dwelling animal populations are not healthy. The River itself is tidal for much of its length and includes an ecologically delicate estuarine ecosystem.

All waters of the State are assigned a "Designated Use" in regulation, COMAR 26.08.02.08, which is associated with a set of water quality criteria necessary to support that use. These designated uses may or may not be served now but they should be attainable. All surface waters in the Upper Choptank River watershed are designated Use I for Water Contact Recreation, and Protection of Aquatic Life. Waters designated as Use II for Shellfish Harvesting in the Choptank River are located in estuarine waters downstream of the Upper Choptank River watershed.

The history of the area clearly documents the degradation that occurred through drainage ditches, elimination of wetlands, and cutting of trees which created the farmland opportunity but impaired water quality. The Project will have a stabilizing impact on the environment by placing cover/grasses on over one thousand (1,000) acres, eliminating all future land disturbance, planting pollinators and landscape buffers, all which will improve water quality in the Upper Choptank River.

d. Flora Resources

There is no vegetation associated with wetlands in the Critical Area since there are no Critical Areas denoted on the Properties. There is very little vegetative diversity on the various Properties. As has been recorded in the DNR and MDE watershed documents, many of the natural wetlands in the immediate area have been lost over the years due to an abundance of farming practices along the Choptank River and poor draining soils which led to the institution of drainage ditches which essentially drained these previously prominent wetland areas. Currently the majority of wet areas are in wooded/forested locations and not internal to the active farming practices. The vegetation is typical of that found throughout the Delmarva region and is characterized by Evergreens, Red Maple, River Birch, Tulip Poplar, American Beech, American Holly, Sweetgum, etc. The understory is generally moderate and expected to be fair for wildlife habitat, providing some food sources and cover. In general, there is nothing remarkable regarding the flora characteristics of the site.

e. Fauna Resources

The Chesapeake Bay provides food, water, cover, and nesting or nursery areas to more than 3,000 migratory and resident wildlife species. The best known in the Bay is probably the Maryland Blue Crab. Crabs and oysters are indigenous to the area including the Choptank River. However, their numbers are dwindling. From the 1950s to the 1970s, the average annual oyster catch was about 25 million pounds per year. The blue crab harvest contributed to nearly a third of the nation's catch. Today, the Bay's oyster population is a mere two percent (2%) of its historic level. Reduced amounts of underwater grass habitat, in addition to low summer levels of dissolved oxygen, continue to keep the crab population well-below the average. This is the same characterization as found in the Choptank River, which has been documented as a microcosm of the Chesapeake Bay. The most valuable resource in the Choptank River and Upper Choptank River is the striped bass spawning areas and the large number of menhaden that support this fish population.

In the Delmarva Area, and very prominently in the Choptank River, waterfowl and other birds migrate annually and use the watershed for food and shelter in coves and marshes. The Chesapeake's tidal freshwater tributaries provide spawning and nursery sites for several important species of fish, such as white and yellow perch, striped bass, herring, American shad, and hickory shad. Turtles and snakes are the most common reptiles in the watershed. Species include the diamondback terrapin, loggerhead turtles, and many types of snakes. The watershed is habitat to numerous varieties of frogs, including the northern green frog, toads, salamanders, and newts.

It has been widely reported that much of the natural habitat in the watershed, which supported waterfowl, small mammals, reptiles, etc. was greatly diminished when 47,000 acres of wetlands was lost due to the conversion of large properties from their natural conditions to active farm practices. The associated drainage ditches not only dewatered these properties but resulted in higher sediment loads and lower dissolved oxygen levels to the main stem of the Choptank River. As a result, there is very little indigenous

wildlife habitat on these active farmlands except for the habitat that remains in fringe areas where wetlands and wooded areas remain.

Environmentally, a strong case can be made that using these active farmlands to utility scale solar generation facilities will improve the local environment and water quality. The solar use would place all active farmland under grass cover, stabilize the area, incorporate pollinators onsite, place these lands under maintenance programs, and essentially eliminate any type of land disturbance.

f. Other Sensitive Areas

According to the Department of Natural Resources, there are some wildlife protection considerations associated with the various Properties. Some of these species of plants and amphibians with rare, threatened, or endangered state status include: Harper's Fimbristylis, Coppery St. Jon's-wort, Black-fruit Spikerush, Featherfoil, Triangle Floater, Deciduous Holly, Sparkling Jewelwing, Blackwater Bluet, and Creeping Burhead. The complete list and agency review letter can be found in **Appendix 14**.

In general, the wildlife areas of concern are located in the woodlands on and surrounding the Project Properties, and/or are associated with downstream waterways. None of the forested areas will be cut and few hedgerows/fringe trees will be removed. Also, industry accepted BMPs will be used during construction to prevent runoff and sediment-laden water from leaving the site. During the life of the Project, impacts will essentially be absent compared to the continued use of these Properties for active farming since the entire site will be fully stabilized using an appropriate mix of grass seed and pollinators.

2. Summary of Environmental and Socioeconomic Effects

Pursuant to a response from MHT, a Phase I archeological investigation should be conducted within the LOC on Property 1, Property 3, Property 4, Property 9, Property 10, Property 11, Property 12, and Property 14. The complete MHT response letter is included in **Appendix 15**.

a. Environment Resources

The Project is extremely environmentally friendly. It is not located in the Critical Areas and does not impact jurisdictional waters, which have all been avoided. The Project has been reviewed by the MDE and a determination has been made that if the Applicant follows the avoidance plan prepared by ECS, that no wetland permits will be needed. The solar design incorporates a thirty-five foot (35') setback from the dripline of the trees. In summary, all mapped environmental constraints within the Project LOC have been avoided.

There are also no FEMA designated flood plain elevations per Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). The Project will result in little additional impervious area because the structures we be built on pilings and there are very few paved areas to be created with the exception of the inverter pads, switchgear, and the new substation.

b. Cultural Resources

The Applicant has communicated with MHT and received a response indicating the Project will require a Phase I. A copy of the Project Review Form and the MHT response is included (see **Appendix 15**). The

results of the Phase I study and completed DOE Forms will be provided to the PSC as a supplemental filing.

c. Historic Building Environment

As noted above, the Applicant has submitted the appropriate documents to the Maryland Historic Trust (MHT) and received its written response. MHT has required DOE forms be completed consistent with its criteria for the properties identified in **Appendix 15**. The results of the Phase I study and completed DOE Forms will be provided to the PSC as a supplemental filing.

d. Archeological

See items b and c above.

e. Consultation with Consulting and Interested Parties

The Applicant has consulted with Caroline County and various State Agencies, including PPRP, MHT, CAC, and DNR regarding this application.

3. Environmental Studies

a. Routine Wetlands Delineation Study

MDE's Mr. Alan Kampmeyer of the Nontidal Wetlands Program, Ms. Anna Allie of ECS Mid-Atlantic, representatives of H&B Solutions, and a consultant from Versar, Inc. conducted a joint site visit on December 7, 2017 to confirm the details of ECS's *ECS Mid-Atlantic Wetland Field Assessment Report*. An additional field visit was held with representatives from MDE (Mr. Alan Kampmeyer and Mr. Ace Adkins), ECS, and Versar to further evaluate a few areas with differing characteristics to confirm locations of wetlands in these areas. ECS's report of findings is included as **Appendix 10**. MDE's response to ECS's finding is included as **Appendix 11**. To summarize, wetlands on the site have been identified, the constraints map has avoided these areas for solar design, and appropriate setbacks and buffers have been located. Any required approvals from MDE for minor disturbances, if needed, will be obtained through the Notice of Intent (NOI) process.

b. Natural Resources Inventory Plan

H&B Solutions, LLC prepared an Environmental Due Diligence and Site Feasibility Report for Cherrywood Solar I, LLC dated September 12, 2017. A summary of these findings follows:

- The Properties within the Project are all zoned Rural (R).
- The Properties within the Project are not within the Critical Area.
- Based on the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps, some Properties are free from wetlands; however other Properties have riverines, streams, and other wetlands throughout. The property characteristics have been identified within the body of the report.
- According to FEMA FIRM Maps the majority of the Properties are not affected by mapped flood plains in the area of the proposed Project's LOC. However, as shown in **Table I**, there are some minor impacts associated with Special Flood Hazard Zones as well as a few parcels affected by the 100-year flood zone. The Applicant will limit the LOC to avoid these designated areas.
- According to the Natural Resource Conservation Service (NRCS) soils maps, generally the soils fall into three (3) categories; well-draining sandy loams, moderate to poorly draining silt loams including some hydric soils, and marine sediments which can be found near riverines and stream

beds. Within these soils classifications there were few slopes that exceeded ten percent (10%) and the majority of the Properties had slopes between zero percent (0%) and five percent (5%).

- As indicated above, it is anticipated that some trees may need to be cut, but these would be incidental to the total site preparation effort and would not constitute cutting of any forest. The vast majority of the project LOC will be located in areas that have been actively farmed for years and no clearing will be required. Although the Project will meet the test of “no net loss” and afforestation will not be applicable, the Applicant will work with the County in defining how mitigation will be achieved for the few fringe trees to be cleared.
- There are several interconnections that will involve obtaining easements, ROW's, access permits, directional drilling under a Forest Stewardship parcel, a private lake, and abandoned railroad as discussed above.

All of the other environmental/regulatory considerations including habitat, flora/fauna, site plan, stormwater management, sediment and erosion control, etc. can be successfully addressed with careful consideration for the site constraints identified in this report.

In addition to the CPCN, the Project will require National Pollutant Discharge Elimination System (NPDES) Permit coverage and other State Regulatory Approvals including conformance with stormwater management and sediment and erosion control requirements. In the 2017 Maryland Legislative Session, the CPCN Law was amended to require solar projects obtain consistency determinations with local zoning.

c. Environmental Review Request

As indicated above, DNR's Natural Heritage program has reviewed the project site and identified the plant or animal species that need to be protected (see **Appendix 14**).

d. Cultural Resources Due Diligence Resources Investigation

As mentioned elsewhere in this report, MHT has identified several areas of interest. A Phase I study will be conducted, DOE forms will be prepared, and the results from both will be provided to the PSC/PPRP as a supplemental filing.

e. Geotechnical Investigations

The Applicant engaged ECS Mid-Atlantic to perform necessary geotechnical and seismic analysis to demonstrate the site is suitable to support the proposed solar generation facility. The Preliminary Geotechnical Assessment is included in **Appendix 7**. The findings indicate the soils onsite can support the proposed solar generation facility including the use of posts, pads to support inverters and switchgear, internal grass covered drive aisles, and related sediment and erosion controls. The seismic analysis will be performed as part of the construction document preparation.

4. Ability to Conform to Applicable Environmental Standards

The Project's design and construction will require review by state and local authorities through the CPCN process. The Project will also comply with various federal and state environmental regulatory requirements as applicable. Based on preliminary analysis the Project has avoided identified environmental constraints and it is expected that the final design will meet applicable federal, state, and local regulations. It should be

noted that the State's limitation of twenty (20) acres of disturbance at any time during construction has been recently modified to be less restrictive.

B. AIR QUALITY

1. Compliance with Federal or State Air Quality Standards

As a solar generation facility, the Project will emit no pollutants, and the below listed standards, provisions, and requirements will not be applicable.

a. Air Quality During Construction

The primary air-quality issue during construction will be dust from non-point sources such as earthwork and construction traffic on unpaved roads. This type of dust is described as fugitive dust. Fugitive dust is expected to be less than a normal construction project since this Project will not require excessive earthwork activities. Other potential sources of pollutants during construction are mobile internal combustion engines from earthwork equipment and an increase in vehicle traffic by workers. Emissions from these sources should have little impact.

b. Air Quality During Operation

The Project, like all solar generation facilities, will generate no air pollution emissions during its operation.

2. Impact on Deterioration Areas and Nonattainment Areas

The Project will have no impact on any attainment or nonattainment areas of the State.

3. Requirements Under COMAR 26.11

Generally, the provisions of COMAR 26.11 will not be applicable to the Project as the facility will not emit pollutants.

C. WATER QUALITY AND APPROPRIATION

1. Availability of Surface Water and Groundwater

As a stand-alone, unmanned facility, the Project will be monitored remotely. There will be limited water and no sewer requirements for the Project. The Project will not require surface or groundwater for construction or operation. Normal rain events will keep manual cleanings of the solar modules to a minimum. Occasional water for quarterly/semi-annual cleanings may be required. Water tank trucks may be used to manage dust during construction if required.

2. Affected Streams and Aquifers

As mentioned above MDE, with input from ECS, has determined wetland locations can be avoided during the design. Wetlands within the wooded areas onsite will not be disturbed and the Project will be located thirty-

five feet (35') from the drip line of these wooded areas. Any wetlands interior to the Project will also be avoided and similar buffers established. The Site is located in the Upper Choptank watershed. No impacts to streams or aquifers are anticipated as a result of the Project design.

3. Impact on Other Water Users

No impact to other water users is anticipated as a result of the Project.

a. Impacts to Other Water Users During Construction

It is assumed that there will not be a need to use water during construction. If water is needed to control dust, a tanker truck will be provided.

b. Impacts to Other Water Users During Operation

Stormwater facility approvals, sediment and erosion control permits, grading permits, and NOI coverage under the NPDES Program will all be obtained as controls on the water quality leaving the Site. As an unmanned facility, there will be no ongoing water consumption requirement. Any other interim water consumption required will be fairly intermittent and provided as identified above.

4. Mitigation and Minimization Techniques Evaluated

No impacts to water quality or appropriation are anticipated. As a result, mitigation and minimization techniques are not warranted.

5. Requirements Under COMAR 26.17.06.07 and 26.17.07

It is assumed that there is no reason for permits to be issued under COMAR 26.17.06.07 and 26.17.07 since no water use or appropriation is required for the Project.

D. DESCRIPTION OF EFFECT ON STATE OR PRIVATE WETLANDS

1. Public Health and Welfare

The Project's operation will not produce, emit, or discharge any significant noise, air pollutants, or water pollutants, which may have an effect on public health or welfare. Additionally, the Project will not generate, transport, store, treat, and/or dispose of hazardous waste.

2. Marine Fisheries

The Project will not impact marine fisheries.

3. Shell Fisheries

The Project will not impact shell fisheries.

4. Wildlife

The Project is not anticipated to significantly affect any wildlife habitat. The Project is not anticipated to impact critical habitats.

5. Protection of Life and Property from Flood, Hurricane, or other Natural Disaster

This Project is unique in that, during a natural disaster, there would only be destruction to the panel array itself. Total destruction of the panel array and the transformers would not release harmful gases or liquids and would have no adverse effects on surrounding property or life. All components of the Project will be designed per the local and state building codes.

6. Mitigation and Minimization or Replacement Land Acquisition

Mitigation and minimization or replacement land acquisition is not applicable to the Project.

7. License for use of State Tidal or Nontidal Wetlands

The information and forms required by the MDE regulations relating to a license for use of State tidal wetlands or nontidal wetlands under COMAR 26.23 and 26.24 are not required for this Project.

E. WASTE HANDLING

1. Waste Handling During Construction

During construction, the contractor will collect any waste material and remove it from the Site to an approved waste handling facility. Large amounts of waste during construction are not anticipated. Waste material will mainly consist of packaging materials from the framing and electrical equipment that will be delivered to the Site.

2. Waste Handling During Operation

During operation, there will be little or no waste material generated at the Site. Any waste that is generated from maintenance and/or repair operations will be removed from the Site and disposed of at an approved waste handling facility. There will be no sanitary sewer waste generated at the Site.

3. Waste Handling During Decommissioning

Waste associated with decommissioning and deconstruction of the Project will be handled appropriately pursuant to a Decommissioning Plan provided to the Commission and Power Plant Research Program. Once the life of the Project is complete, the land will revert back to its original condition.