CONDITIONAL USE PERMIT APPLICATION
KINGLET SOLAR
STAFFORD COUNTY, VIRGINIA

Submitted By:
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Submitted To:
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Planning and Zoning Department
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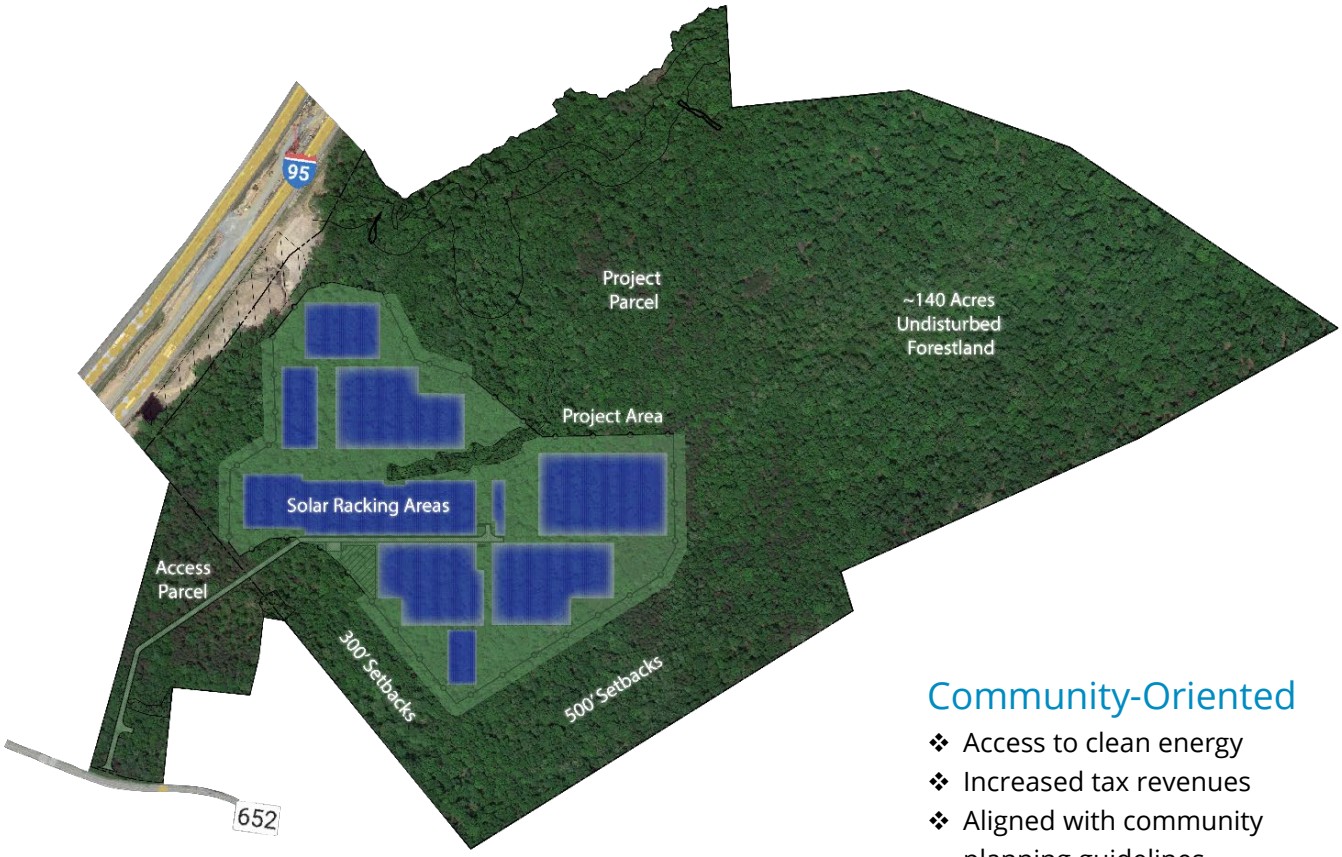
TABLE OF CONTENTS

EXECUTIVE SUMMARY

This application is for a conditional use permit to construct a five megawatt (MW) alternating current (AC) photovoltaic solar energy system (**Kinglet Solar** or the Project) on parcels 45-220L (the Project Parcel) and 45-146 (the Access Parcel) in the Falmouth District of Stafford County (the County). It is submitted to the County by **Kinglet Solar, LLC** (the Applicant), a subsidiary of **Cypress Creek Renewables, LLC**.

Low-Impact

- ❖ Appropriately sited and scaled
- ❖ Extensive setbacks
- ❖ No viewshed or noise impacts



Community-Oriented

- ❖ Access to clean energy
- ❖ Increased tax revenues
- ❖ Aligned with community planning guidelines

Figure 1. Kinglet Solar Conceptual Design

ABOUT CYPRESS CREEK RENEWABLES

Cypress Creek is a leading national developer, owner, and operator of utility- and community-scale solar farms. With more than 11.5 gigawatts (GW) of solar developed across 800 projects in 23 states, we offer a proven development process that delivers the highest value to partner landowners, local governments, and the communities where we work. In Virginia, we're a committed partner in the effort to lower energy prices, improve energy security, strengthen the local economy, and build a decarbonized and more resilient electric grid. Our current community-scale Virginia portfolio features 12 projects. We understand that the success of these projects rest on the strength of our local relationships. We look forward to contributing to Stafford County's success by being a good neighbor, a good corporate citizen, and a trusted community partner. For more information on Cypress Creek, please visit ccrenew.com.

PROJECT OVERVIEW

Kinglet Solar is a proposed 5MWac community-scale solar farm located approximately 1.8 miles north of Falmouth. It is anticipated to be placed-in-service in the fall of 2024. Kinglet is being developed for intended inclusion in Dominion Energy's Shared Solar Program and will provide low-cost, emissions-free electricity for approximately 660 single-family homes, or an equivalent mix of residential, commercial, or industrial Dominion customers.[1] The Project will be built on parcel 45-220L (Project Parcel) with access provided from Truslow Road (Rte. 652) via parcel 45-146 (Access Parcel). Together, the Project and Access Parcels total 183.07 acres (see Appendix A: Boundary Survey Map). Kinglet's Project Area (i.e., area of land inside the Project's perimeter fencing) will cover approximately 36 to 40 acres. Within the Project Area, Kinglet's solar racking area will cover approximately 16 acres. The Project's total limit of disturbance (i.e., area of land impacted by the Project) will cover approximately 40 to 44 acres. The final project area and disturbance acreages will be set within these ranges in coordination with County staff following subsequent site diligence findings, engineering planning, and design reviews. Kinglet's conceptual layout is shown on Appendix B: General Development Plan. The Project Parcel is bordered by I-95 to the northwest, Chichester Park and Stafford High School to the north, additional property owned by the Project landowner's family to the southeast, and six single-family residential properties to the southwest.

At a Glance: Dominion Energy's Shared Solar Program

Dominion Energy's Shared Solar Program is designed to provide low-cost, emissions-free solar energy to customers who would otherwise not have access to it (e.g., renters, customers who can't afford the high up-front costs of solar, etc.). The program works by allowing Dominion customers to purchase "subscriptions" to energy generated by a designated shared solar facility (e.g., Kinglet Solar) and receive a corresponding bill credit for their subscription amount. On average, these bill credits allow participating customers to save 10 percent on their electric bills. As required by law, 30 percent of Shared Solar Program participants will be low-income customers, who are at the greatest risk of rising energy prices. For additional information, please see https://www.dominionenergy.com/virginia/renewable-energy-programs/shared-solar-program.

[1] National Renewable Energy Laboratory, Jobs and Economic Development Impact Model, https://www.nrel.gov/analysis/jedi/

BACKGROUND

The plans for Kinglet began in May 2021 with conversations between the Applicant, several prospective landowners in Stafford County, and Dominion Energy. Through these informal discussions, the Kinglet project site was chosen for development based on several key advantages it offered. First, its location and characteristics ensured the project would be well-aligned with the values of Stafford County and the community's vision for growth as outlined in the County's Zoning Ordinance and Comprehensive Plan 2016-2036. Second, the site's characteristics and location for proposed improvements provide for natural compatibility with all surrounding land uses. Third, no restrictive environmental, natural, or cultural resources were identified on-site during initial diligence studies. Fourth, the site is uniquely positioned in proximity to the required utility infrastructure. Lastly, the landowners were excited to partner with us by providing authorization for the Project through a 20-year ground lease agreement with four additional five-year renewal terms (see Appendix C: Ground Lease Agreement).

ZONING AND LAND USE

The Project Parcel (45-220L) is zoned Agricultural (A-1). The Access Parcel (45-146) is zoned Suburban Residential (R-1). Solar generating facilities are permitted in both A-1 and R-1 districts by a conditional use permit under the public utilities use definition per Ordinance Sec. 28-35, Table 3.1, A-1 Agricultural, b and Sec. 28-35, Table 3.1, R-1 Suburban Residential, b.[2]

The site's current land use is designated as Agricultural/Forestry, but it falls within the County's Urban Services Area extending out from the I-95 corridor. The western portion of the site is designated for Business and Industry future land use—where solar energy facilities are encouraged in the Comprehensive Plan 2016-2036. The eastern portion of the site is designated for Suburban use. The site falls outside of all Targeted Development Areas, Sewer Service Areas, Water Service Areas, the Military Influence Area, and the Airport Impact Zone.

SITE OVERVIEW

The following section provides an overview of the Kinglet site and surrounding area.

Current Condition and Use. Kinglet's Project and Access Parcels are currently unimproved forested tracts with no connected utilities. The Project Parcel was previously used for timbering. The Access Parcel was once cleared in the 1960s, but never developed. The westernmost portion of the Project Parcel was recently cleared and developed for I-95 improvements. In its current condition, the parcel's existing, mature vegetation will aid in screening all off-site viewsheds.

Slopes and Topography. Kinglet's Project Area features gentle to moderately sloping topography that is ideal for solar development. Over 90 percent of the Project Area's slopes are under 10 percent, with an elevation ranging from 216 to 242 feet above mean sea level (AMSL). Outside of the Project Area are areas of steeper slopes, all of which will remain undisturbed by the Project. The site generally slopes to the north.

[2] Use fully defined as "Public facilities/utilities for generating facilities, substations, switching stations and wastewater treatment facilities (except for the expansion or modification to a wastewater treatment facilities existing prior to October 17, 2006)."

Wetlands. A wetlands delineation of Kinglet completed by TNT Environmental identified several wetland features on site (see Appendix D: Wetlands Delineation Map). As described in the Impacts Section below, Kinglet's Project Area will avoid all wetland features, but there are three areas of note. First, a portion of the norther property boundary is formed by Claiborne Run, a palustrine forested wetlands that's part of the Lower Rappahannock watershed. It is protected by a 100' Resource Protection Area (RPA) buffer. At its closest point, Kinglet's Project Area is set back an additional 150' from the RPA buffer. Second, a small, 1,297 linear foot intermittent stream runs to the interior of the Project Parcel. A minimum 20' buffer will be provided around this feature to avoid impacts. Third, there's a 0.2 acre area of forested wetlands near the site access point. The wetland delineation report identified a 45' gap between this feature and the nearest property line to the west. A 20' wide drive aisle will run through this passage. If an impact cannot be avoided at this area, it will be minimized to the greatest extent possible, and all necessary permits will be obtained.

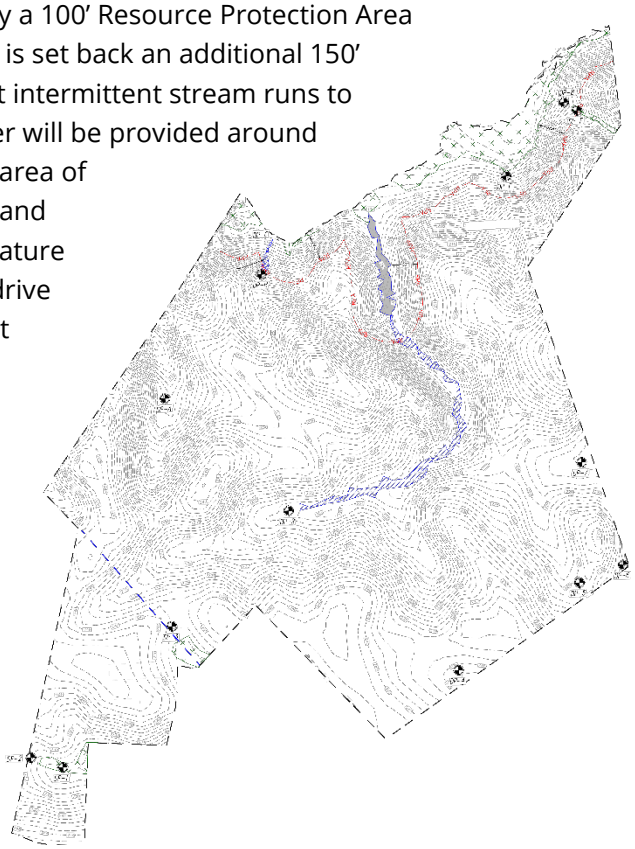


Figure 2. Wetlands Delineation Excerpt

Soils. There are four soil types within the Project Area and six additional soil types on the Project Parcel (see Appendix E: Soil Survey). All of the soil types within the Project Area are suitable for solar construction.

Surrounding Area. As a low-intensity land use with appropriate buffering and substantial setbacks (e.g., average 350'), Kinglet is well-aligned with its surrounding area, which includes a mix of single-family residential, preserved agricultural, and public uses (see Appendix F: Area Zoning and Land Use Maps).

Road Conditions. The project will be accessed from Truslow Road, Route 652, which is one of 85 corridors the County has identified as a "Strategic Roadway Corridor" and flagged for future transportation upgrades such as road widening or safety improvements. In its current condition, Rte. 652 is sufficient to support the Project's transportation needs, which are minimal and primarily associated with the construction phase of the Project.

Utility Infrastructure. Kinglet will interconnect with Dominion Energy's existing infrastructure along Truslow Road, from which point it will be transmitted 1.4 miles to the Crane's Corner substation. Interconnection studies completed to date have identified minimal distribution or substation upgrades required to accommodate the electricity generated by the facility.

Environmental Conditions. Based on preliminary findings from a Phase I Environmental Site Assessment (ESA), no recognized, controlled, or historical environmental conditions have been identified on site or within the vicinity of Kinglet. Discarded items were noted on the southern portion of the site including tires and other household materials.

Taxes. A Commitment for Title Insurance completed by Fidelity National Title confirmed all real estate taxes for parcels 45-220L and 45-146 are posted as being paid through the year 2021 (Appendix G).

PROJECT DESIGN

Kinglet features best-practice designed standards informed by Cypress Creek's 11GW of solar development experience.

> ***At a Glance: Kinglet***
>
> ***Appropriately Scaled***
> - ***36-40*** *acre Project Area*
> - ***139-143*** *undisturbed acres*
>
> ***Low Impact***
> - ***Extensive setbacks: 350'*** *avg,* ***450'*** *to nearest residence,* ***900'*** *to access roadway*
> - *Fully-screened by existing forest and vegetation*
>
> ***Well-Sited***
> - *Low-intensity land use compatible with surroundings*
> - *Proximity to utility infrastructure*

Key Components. The Project will feature approximately 11,610 bifacial **solar panels**, two **inverters**, one medium voltage **transformer**, and **interconnection equipment** along with **access and safety infrastructure**. The panels will be mounted on steel piles set in the ground and supported by single-axis tracking rack systems. The electricity generated by the panels will be transmitted to the project's inverters where it will be converted from direct current (DC)—what a solar panel generates—to alternating current (AC)—what the electrical grid uses. From the inverters, the electricity will be transmitted to the transformer, which increases the voltage to match the voltage of electricity on the electrical grid at the Project's point of interconnection (POI). Both the inverters and transformer will be mounted on concrete pads. From the transformer, the electricity will be transmitted to the POI with Dominion's existing infrastructure along Truslow Road. The POI will feature six new utility poles for switches, reclosures, and meters. Additional equipment will be installed at Dominion's Crane's Corner substation located approximately 1,100' from the Project Parcel per the findings of an Interconnection Study currently underway. All cabling between the system's components up to the POI will be buried at a depth of 36 to 48 inches and protected by conduit. All Project equipment will meet or exceed National Electric Code safety standards.

Site Access. A 20' wide gravel road will run to the Project Area from the Project's point of access on Truslow Road. The drive aisle will continue inside the Project Area to provide access to all equipment.

Fencing and Security. A 6' chain-link fence topped with barbed-wire will be installed along the perimeter of the Project Area with gate access provided to authorized personnel, including local emergency responders and County officials.

Screening. The fenced area will be fully screened from view on all sides by existing vegetation between the Project Area and property line. All vegetation outside of the Project's limit of disturbance will remain undisturbed in its current condition to aid in screening.

Setbacks. The average setback from the Project Area's perimeter to the Project Parcel's property line will be over 350'. The northeast and southeast boundaries will feature a minimum 500' setback. The southwest boundary will feature 180' to 300' setbacks. The northwest border along I-95 will feature a 100' setback. The setback to the northern property line will be 250' at its closest point. Beyond property line setbacks, the distance from the Project Area to the nearest residence will be over 450' and over 900' to the access roadway.

Table 1. Setbacks[1]

Kinglet Setbacks		Stafford Co Setbacks		Virginia Setbacks	
Average	Smallest	A-1	R-1	Average	Most Common
350'	180'	30' Front 10' Side 35' Rear	50' Front 20' Side 35' Rear	125'	150'

[1] Setbacks measured from project area to property line. Data based on internal research of VA Counties with a solar ordinance or who have passed solar under an alternative land use.

Signage. There will be no signage on site except for that required by the County and Dominion Energy.

Lighting. There will be no lighting on site.

CONFORMITY WITH THE COMPREHENSIVE PLAN

Pursuant to Va. Code § 15.2-2232, unless a public utility facility is already shown on a locality's comprehensive plan, the facility may not be constructed "unless and until the general location or approximate location, character, and extent thereof has been submitted to and approved by the [planning] commission as being substantially in accord with the adopted comprehensive plan or part thereof."

The "location, character and extent" of Kinglet Solar is "substantially in accord with the adopted comprehensive plan or part thereof." Objective 5.5 of the County's Comprehensive Plan 2016-2036 expressly "support[s] the expansion of electric…utilities in a manner that minimizes…visual impacts and environmental hazards…". More specific solar guidelines are provided for utility-scale solar facilities. Although Kinglet is a community-scale facility—and thus poses fewer potential impacts than a utility-scale facility—it is still fully aligned with the utility-scale guidelines as shown on Table 2.

Table 2. Comprehensive Plan Solar Guidelines

Reference	***#Guideline*** *#Kinglet Compliance*	Compliance
Solar-Specific Guidelines		
Obj 5.5	**Minimize Visual Impacts and Environmental Hazards of Electric Utilities** Kinglet's Project Area will not be visible from any point outside the Project Parcel and the Project poses no risk of environmental hazards.	✓
Plcy 2.6.7 Plcy 5.5.7	**Use Natural Buffers for Screening** Existing forested area will be preserved for natural screening.	✓
Plcy 2.6.7 Pg 3-61	**Avoid Proximity to Residential Development** The nearest residence to the Project Area will be 450'.	✓
Plcy 2.6.7 Plcy 5.5.7 Pg 3-61	**Avoid Proximity to Drinking Water Source** Stafford County sources drinking water from the Smith Lake and Lake Mooney reservoirs, which are located 9.5-miles and 3.4-miles from Kinglet.	✓
Plcy 2.6.7	**Avoid Siting on Prime Agricultural Soils** Only 4.4 acres of the Project Area are classified as Prime Farmland, representing 14% of the Project Area and .000216% of the County's total prime farmland.	✓
Plcy 2.6.7	**Avoid Siting on Forested Tract** Approx. 76% of the forested acreage on site will be undisturbed by the Project.	✓
Plcy 5.5.4	**Electromagnetic Fields** Kinglet will pose no electromagnetic impacts on residences, schools, or businesses.	✓
Plcy 5.5.5	**Underground Transmission Lines** Kinglet's gen-tie line from the Project Area to the POI will be trenched underground at a depth of 36 to 48 inches to avoid visual impacts.	✓

Table 2. Comprehensive Plan Solar Guidelines

Reference	*#**Guideline*** *#Kinglet Compliance*	Compliance
Plcy 5.5.7	**Site Within 1000' of Electrical Transmission Lines** Kinglet will interconnect with Dominion's existing 3-phase distribution line along Truslow Road on the Project's Access Parcel.	✓
Plcy 5.5.7	**Adequate Setbacks and Screening for Viewshed Compatibility** Extensive setbacks will provide for full screening and minimize all viewshed impacts.	✓
Pg 3-61	**Site to Support Local Business and Industry** Local businesses and industry will be eligible to subscribe to the electricity generated by Kinglet.	✓
Pg 3-61	**Proximity to High Voltage Transmission Corridors** As a community-scale project, Kinglet will interconnect with a 34.5kV distribution line and not a higher voltage transmission line.	N/A
Pg 3-61	**Security of Facility** The site will be secured by fencing topped by barbed wire with a controlled access gate.	✓
Pg 3-61	**Suitable for Commercial/Industrial Use Post-Decommissioning** Given the site's partial Business and Industry future land use designation, it will be suitable for a commercial or industrial use post-decommissioning.	✓

In addition to the solar-specific items, the Comprehensive Plan 2016-2036 features a number of general guidelines relevant to the Project and the community's vision for growth as outlined in Table 3.

Table 3. Comprehensive Plan General Guidelines

Reference	*#**Guideline*** *#Project Notes*	Compliance
General Guidelines		
Goal 1	**Support the economic vitality of Stafford County through land use policies** Kinglet will drive job creation and local spending during construction, generate new tax revenues, deliver cost savings to subscribers, attract businesses that value clean energy, and promote diversity in development as the County's first solar project.	✓
Goal 2	**Manage growth and development in a smart and sustainable manner** Kinglet will deliver increased function and value to the property along with increased tax revenues to support essential County services.	✓
Goal 3	**Ensure Fiscally Responsible Growth** Kinglet will provide low-cost clean energy to local homes and businesses, helping to accommodate the power needs of the increasing population. New tax revenues will support additional growth within the County.	✓
Goal 4	**Preserve and protect Stafford's natural and environmental resources** Extensive due diligence studies have been completed with findings to date confirming Kinglet poses no negative impacts to cultural, ecological, and environmental resources.	✓
Obj 4.2	**Preserve and Improve Air Quality** Kinglet will generate electricity without producing air pollution or greenhouse gas emissions, which damage environmental and public health.	✓
Obj 4.5	**Conserve Tree Cover on Developed and Developing Sites** Approx. 76% of the forested acreage on site will be undisturbed by the Project.	✓
Obj 4.8	**Minimize light emissions** Kinglet features no on-site lighting and poses no impact from glint or glare.	✓
Goal 5	**Ensure the health, safety, and well-being of Stafford County residents.** Kinglet will generate electricity without producing air pollution or greenhouse gas emissions, which damage environmental and public health.	✓

Table 3. Comprehensive Plan General Guidelines

Reference	*#**Guideline*** *#Project Notes*	Compliance
Obj 5.4	**Minimize the impacts of flood hazards, storm surges, and highwater levels** The project will adhere to all local and state stormwater and erosion control guidelines.	✓
Obj 9.1	**Protect and preserve historical and cultural resources** Survey and online records conclude that the Project is State Historic Preservation Office (SHPO) compliant and that there are no historical or cultural protected areas on site.	✓

IMPACTS STATEMENT

As a community-scale project, Kinglet is uniquely positioned to deliver the benefits of solar energy while minimizing the potential adverse impacts sometimes associated with larger transmission-scale facilities. As described below, the Project will:

- Provide numerous public benefits including new tax revenues to fund essential county services;
- Pose no viewshed or noise impacts with existing mature vegetation and extensive setbacks;
- Utilize setbacks, vegetation, and best-practice controls to protect from stormwater runoff;
- Leverage the value of Dominion's on-site infrastructure and nearby substation; and
- Safeguard the land for future uses following decommissioning and site restoration.

PUBLIC BENEFITS

Kinglet offers a number of public benefits to Stafford County, the local community, and beyond.

Community Access to Clean Energy. Through Dominion Energy's Shared Solar Program, Kinglet will address energy equity issues by offering emissions-free, low-cost solar electricity to customers who would otherwise not have access to it. These are groups that have historically been left out of the clean energy transition such as renters, customers with homes or businesses that aren't conducive to solar, customers who can't afford the high up-front cost of solar, and low-income households. A minimum of 30% of Kinglet's subscribers will be low-income. As previously mentioned, Kinglet will produce enough electricity to power roughly 660 homes.[3]

Tax Revenues. Based on internal projections developed with guidance from Ryan, LLC, a global tax services and technology firm, Kinglet will deliver $1.84 million in tax revenues to Stafford County over its 40-year effective life while posing no corresponding burdens on County services such as water, wastewater, schools, or other infrastructure. Under its current use, the property would generate an estimated $856,000 in tax revenues over this period. Thus, the Project presents a $984,000 net increase in tax revenues. These calculations were completed based on best available guidance from the State Corporation Commission, VA Administrative Code, and the County. A full tax memo will be prepared in coordination with County staff pending confirmation of calculation methodologies.

Economic Activity. Local materials and labor will be used for Kinglet's construction and maintenance to the extent that they are available. Industry standard modeling, which aligns with internal projections, estimates Kinglet will create 50 construction jobs during its initial construction phase—10 of which will

[3] National Renewable Energy Laboratory, Jobs and Economic Development Impact Model, https://www.nrel.gov/analysis/jedi/

be local—and generate $4,100,000 in local spending during construction.[4] This spending will directly benefit other businesses in the community (e.g., hotels, restaurants, entertainment, material suppliers, etc.). Once operational, Kinglet will support one local maintenance job and provide $42,000 in local annual spending.[5]

Education and Workforce Development. Cypress Creek has a long track record of developing partnerships in the communities where we work. Previous efforts have centered around environmental sustainability, STEM education and workforce development, economic development, and veterans initiatives. For information on these efforts, please visit ccrenew.com/partners/communities. We look forward to learning more about partnership opportunities in Stafford County.

Economic Development. Along with promoting the growth of a diversified economy, Kinglet Solar will serve as an economic development asset in Stafford County's efforts to attract businesses such as data centers and smart technology firms who often value access to clean energy assets.

Grid Modernization. In order for Kinglet to interconnect with Dominion's existing grid, Cypress Creek is required to improve local infrastructure to ensure the additional generation can be safely and reliably handled. These upgrades help modernize outdated grid components, improve stability to support future load, increase resiliency to power outages, and ultimately provide cost savings for customers who would otherwise bear the burden of these infrastructure upgrades. The specific upgrades required for Kinglet's interconnection are pending the results of the Project's Interconnection Study.

Environmental Benefits. Kinglet's anticipated annual energy production is 9,887 MW hours, which will offset an estimated 3,900 tons of carbon dioxide (CO2) per year. That is the equivalent of removing 750 cars from the road for one year or the amount of carbon sequestered by over 8,000 acres of forest in one year.[6]

PUBLIC HEALTH

The Project will pose no adverse impacts on public health, safety, or welfare. It will be constructed according to required building and electrical codes and safety measures and Cypress Creek will coordinate with the County's emergency services staff to provide materials, education, and/or training on the equipment as requested.

Panel Materials. We plan to use bifacial Boviet BVM7612M-545-H-HC modules, or an equivalent module based on technological advancements between permitting approval and the procurement of equipment. These will consist of PERC monocrystalline silicon solar cells, a low-iron and AR-coated tempered glass, and an aluminum alloy frame. All modules will be cadmium free and meet ISO 14001 (Environmental Management System) and ISO 45001 (Occupational Health and Safety Management System) safety certifications.[7]

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[4] Ibid

[5] Ibid

[6] EPA's Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

[7] Boviet Solar's BVM7612M-545-H-HC Datasheet, https://bovietsolar.com/wp-content/uploads/Boviet-Solar_4.-Vega-Series_Mono_Bifacial_CI_PV-Module_Transparent-Back_360-370W_052322.pdf

Electromagnetic Fields. The International Commission on Non-Ionizing Radiation Protection has established 833 milli-Gauss (mG) as the limit for prolonged exposure to electromagnetic fields (EMFs). As an unmanned facility, prolonged exposure is not a concern for Kinglet. Furthermore, the Project's inverter, which is the strongest source of magnetic fields in a solar facility, will only produce levels varying from 150 to 500 mG within one to two feet. The level of EMFs noticed one to two feet away from our equipment pad is similar to standing next to your television. At 150', the inverter's magnetic field levels drop below 0.5 mG or less, often falling to the background level of earth's magnetic field of 0.2 mG. Kinglet's inverter will be centrally located in the Project Area approximately 800' from the nearest property line. No other solar PV component emits EMFs that are measurable above the earth's magnetic field and no EMFs are emitted at night.

VISUAL IMPACTS

Great care was taken during the initial site selection process to identify a location that would allow the facility to be fully screened from all surrounding properties, residences, and roadways. The Kinglet site was chosen in part because of the extensive setbacks it affords and existing, mature vegetation within this buffer zone. In-field verification completed by Timmons Group confirmed that Kinglet's Project Area will be fully screened from all ground level vantage points outside of the Project Parcel. There is ongoing construction along I-95 that encroaches onto the Project Parcel. An initial photo simulation was completed at this point, which confirms that viewsheds will be fully obstructed by an existing berm (Figure 4). If VDOT's construction was to impact that location in a manner that enabled the Project Area to be visible from I-95, buffer plantings will be utilized to block all viewsheds. An additional photo simulation was completed at the Project's access point along Truslow Road (Figure 3).

Figure 3. Truslow Road Entrance

Figure 4. I-95 Photo Simulation Observation Point

NOISE

Once operational, a solar farm has minimal moving parts and only two components that make noise during peak production hours typically from 10am-2pm—inverters and transformers. In general, from 30' away, the sound of the inverters and transformers is equivalent to that of a normal conversation and from 150' away, it is inaudible above natural ambient noise in a rural area. Kinglet's inverters and transformer will be centrally

located within the Project Area approximately 800' from the closest property line and 1,200' from the closest residence. As such, the Project poses no risk of noise pollution.

TRAFFIC

A Traffic Memo (Appendix H) completed by Timmons Group confirmed adequate carrying capacity and roadway conditions along Truslow Road and found that traffic volumes are below the thresholds required for additional analysis.

Traffic Volumes and Carrying Capacity. Rte. 652 currently averages 2,600 daily trips (ADT). The carrying capacity of a two-lane road is 10,000 ADT. Kinglet will generate 120 daily trips during peak construction, leaving sufficient carrying capacity for Rte. 652 and no need for additional analysis per the County's 150 VDT threshold for a full Traffic Impact Analysis (TIA) and Virginia DOT's 1,000 vehicle trips per hour (VPH) threshold for a scope of work meeting. Once operational, Kinglet will generate one to three trips quarterly for inspections and maintenance and five to 10 trips from spring to early fall for landscaping.

Roadway Conditions. At a minimum of 18', Rte. 652's road surface widths are sufficient to accommodate delivery vehicles. Additionally, Rte. 652 is adequate to handle heavy loads associated with delivering solar components and other materials for construction.

ENVIRONMENTAL IMPACTS

Vegetation and Landscaping. Kinglet's 40- to 44-acre area of disturbance will be cleared, grubbed, and graded to allow for system construction; however, the remaining 139- to 143-acres of forest will remain undisturbed to serve as a natural viewshed and noise buffer for adjacent properties, aid in stormwater management, and preserve the character of the area. Within the Project Area, a mix of low-growing native grasses will be planted underneath and in proximity to solar arrays. A mix of higher-growing native grasses and wildflowers will be used in areas without potential shading impacts (e.g., along fence lines) to ensure the site features a diverse array of plantings that are beneficial foraging habitat to songbirds and pollinators. All plantings will be native and pollinator friendly to the extent possible per guidelines of the Virginia Pollinator Smart Program and all landscaping will be monitored to full stabilization to maintain compliance of E&SC Plans and related criteria.

Grading and Critical Slopes. Land disturbance for construction of a solar facility is far less than most other types of development and Kinglet's layout was carefully designed to require the least land disturbance possible. The location for the racking area was selected to avoid all areas of slopes greater than 15 percent and all wetlands. Some grading will be required to create a finished grade suitable for racking installation (see Appendix I: Preliminary Grading Plan). Where disturbance will occur, grading will be thoughtfully designed to minimize overall changes in the site's hydrology and allow for optimal stormwater management.

Wetlands. Kinglet has been designed so that no part of the facility will impact wetlands. At its closest point, the Project Area is setback approximately 150' from the Resource Protection Area (RPA) boundary along Claiborne Run. A 20' setback will be maintained from the intermittent stream that cuts into the interior of the Project Area. Based on the wetland delineation findings, there is a 45' gap between the forested wetland on the Access Parcel and the property line to the west to accommodate the 20' gravel drive aisle. If engineering analysis completed at a subsequent design stage determines that an impact

cannot be avoided in this area, it will be minimized to the greatest extent possible, and all necessary permits will be obtained.

Stormwater Management (SWM), Erosion & Sediment Control (E&SC), and Water Quality Protection. All SWM and E&SC measures will be designed to best-practice engineering standards to ensure full compliance with Stafford County and Virginia Department of Environmental Quality (DEQ) regulations. Temporary E&SC measures such as sediment basins and silt fencing will be utilized to prevent sediment-laden runoff during construction. After construction, permanent SWM measures will be implemented to further protect downstream properties and waterways from increased volumes and ensure off-site drainage patterns are unaffected by the Project. Full SWM and E&SC plans will be developed under County guidance following CUP approval in order to account for conditions of approval or design revisions and utilize pending geotechnical and topographic study results.

Threatened & Endangered (T&E) Species. Based on a T&E study completed by TNT Environmental, no threatened or endangered species will be impacted by the Project.

Wildlife. Large animals, such as deer, will be protected through the use of perimeter fencing to prevent access and avoid injury. Smaller animals, such as squirrels and birds, will be able to pass through fencing to access the Project Area. With its natural ground vegetation, significant amount of shade, and relative lack of human disruption, this environment is often conducive to a wildlife habitat. To prevent small animals from interfering with equipment, wires are protected by conduit and all equipment entry points are sealed by foam.

Soil Restoration. During the life of a solar farm, soils rest and rebuild while deeply-rooted native plants add organic matter to the soil, so that following decommissioning, land can come back richer and healthier.

CULTURAL, ARCHEOLOGICAL, AND HISTORICAL IMPACTS

No cultural, archeological, or historic resources will be impacted by the Project as there are none present on-site or within the near vicinity per preliminary Phase I ESA findings completed by TNT Environmental.

GLINT AND GLARE

Kinglet poses no impacts to glint (i.e., a momentary flash of light) or glare (i.e., a continuous source of excessive bright light). Solar panels are designed to absorb light from the visible spectrum, not to reflect it, although some upward reflection does occur. Naturally occurring ponds and streams, snow, and even certain kinds of soil and vegetation are similarly reflective. In fact, the sunlight that is reflected away from solar panels produces the same amount of glare as a flat pond or lake. To assist panels in light absorption they are treated with an anti-reflective coating. Additionally, solar panels are mounted at an angle that allows for maximum light to be absorbed throughout the year, which results in the panels facing the sky at shallow angles (typically less than 25 degrees). As a result, what little light is reflected is not visible to ground-level observers.

CONSTRUCTION IMPACTS

As with any type of development, Kinglet will pose temporary impacts to viewsheds, noise, dust, and traffic during construction. All possible measures will be taken to minimize these impacts and the majority of impacts will be limited to the one-month site preparation phase of construction. Activities during this phase include the use of heavy equipment for grading and preparation of the access road, flatbed trailers for delivery of equipment components, and hydraulic post drivers to set racking.

During construction, site grading is anticipated for installation of the facility components and for management of stormwater runoff. Stormwater management may include installation of diversion ditches, drainage channels, and stormwater basis where necessary. Temporary and permanent E&S BMPs will also be implemented to prevent the conveyance of sediment to offsite areas and preserve the quality of downstream receiving water resources.

SUMMARY OF CONSTRUCTION, OPERATIONS, AND DECOMMISSIONING

CONSTRUCTION

The construction of Kinglet will take approximately six months beginning in spring of 2024 and concluding in fall of 2024. Until construction begins, the site will remain in its current condition. Construction activities can be divided into 3 phases: site preparation, panel and equipment installation, and testing and electrical connections. The number of personnel and vehicles on site will vary by phase as shown below.

Table 4. Construction Activity

Construction Phase	Duration	Employees On-Site	Max Daily Vehicles: Non-CDL	Max Daily Vehicles: CDL
Site Preparation	1m	15	17	1
Panel and Equipment Installation	4m	30-50	32-52	2-6[1]
Testing and Electrical Connections	1m	15	17	1

[1] 2 daily CDL trips on avg with 6 on panel delivery days

OPERATIONS AND MAINTENANCE (O&M)

Once operational, Kinglet will require no personnel on-site aside from occasional maintenance. Electrical engineers will service the inverters and transformers and complete visual inspections of the site on a quarterly basis. Additional equipment monitoring will be done remotely. In the event of panel damage, which is rare (i.e., approximately 1 in 10,000 per year), modules will be replaced during the regularly scheduled visits. Local landscape maintenance crews will visit the site approximately 5 to 10 times per year to mow the grass and maintain weeds. The panels do not require cleaning. Natural weather conditions, such as rain and snow, occur frequently enough to minimize panel soiling.

Figure 5. Cypress Creek's O&M Team

Cypress Creek's Durham, NC based O&M team manages 3.7GW of solar across 429 projects in 20 states.

DECOMMISSIONING

At the end of its 40-year useful life, Kinglet Solar will be disassembled and the site restored to its pre-development condition per Appendix J: Decommissioning Plan. The goal of decommissioning is the safe and efficient removal of all solar energy facility components and reclamation of the site to conditions as close to pre-construction as possible. In addition to being a contractual obligation to the Project's landowner, this process provides significant value to Cypress Creek. Nearly all equipment will be recycled or salvaged. The solar panels contain semiconductor materials and rare metals such as silver. The racking and conduit contain

copper, aluminum, and steel. Inverters can be sold for refurbishment. Solar reclamation firms will pay to come and remove these materials. Access roads and infrastructure will be removed to the extent practical unless the landowner seeks to retain them. Lastly, after equipment and infrastructure removal, the following steps will be taken to restore the land: grading to maintain existing drainage patterns at the time of decommissioning, reseeding the land using local non-invasive grasses, and maintaining the grass for a total of three months after the seeding.

The decommissioning process is anticipated to take one to four months. Financial assurance for decommissioning will be provided to the County prior to the start of operation in the form of a letter of credit or other security based on the certified estimate of decommissioning costs, less the expected salvage value of equipment.

COMMUNITY ENGAGEMENT

Cypress Creek is committed to caring for and collaborating with communities where we develop and operate projects. We believe that care and collaboration are a key part of responsible development. We make all efforts, utilizing all-available tools to engage community members throughout the project planning and development process. Our goal is to ensure the community has every opportunity to provide input, ask questions, express concerns, and share support—all with the intention of informing and ultimately improving project outcomes. A full list of Kinglet's community engagement activities, materials, and critical findings will be presented at subsequent public hearings.

APPENDIX

GENERAL NOTES

1. THIS PLAT IS IS BASED ON AN EXITING PLATS, OF RECORD AND AN ACTUAL FIELD SURVEY PERFORMED BY SAM, LLC, LAST FIELD WORK WAS PERFORMED DURING FEBRUARY 2022.
2. THIS PLAT WAS PREPARED WITH THE BENEFIT OF TITLE A REPORT AND IS SUBJECT TO ENCUMBRANCES AND OR EASEMENTS DISCLOSED BY SUCH. TITLE REPORT ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY FILE# HT22-0107, DATED MARCH 25TH, 2022.
3. WETLAND LOCATIONS/DELINEATIONS WERE NOT PART OF THIS SURVEY.
4. BEARINGS ARE BASED ON VIRGINIA STATE PLANE COORDINATE STATE COORDINATE SYSTEM, NORTH ZONE, NAD 83/93 (CORS).
5. THERE WAS NO VISIBLE EVIDENCE OF THE PROPERTIES SHOWN HEREON BEING USED AS A SOLID WASTE DUMP.
6. NO ENVIRONMENTAL SITE ASSESSMENT WAS PERFORMED BY SURVEY AND MAPPING LLC (SAM).
7. FLOOD ZONES SHOWN HEREON WERE SCALED FROM FEMA FIRM PANELS AND HAVE NOT BEEN FIELD VERIFIED
8. WESTERN BOUNDARY LINE (INTERSTATE 95 RIGHT OF WAY LINE) MAY BE SUBJECT TO CHANGE, THIS AREA OF THE INTERSTATE IS CURRENTLY UNDER CONSTRUCTION.

FLOOD STATEMENT:

BASED ON GRAPHICAL DETERMINATION OF FEMA PANEL NO. 5101540202E, DATED FEBRUARY 4TH, 2005 THE SUBJECT PROPERTIES SHOWN HEREON LIE WITHIN FLOOD ZONE "X" & AND FLOOD ZONE "AE". THIS STATEMENT IS FOR INSURANCE PURPOSES ONLY AND IS NOT A GUARANTEE THAT THE PROPERTY WILL OR WILL NOT FLOOD.

LEGEND

- ⊘ IRF = IRON ROD FOUND
- ○ IRS = IRON ROD SET
- ◉ IPF = IRON PIPE FOUND
- ■ MON/F = MONUMENT FOUND
- STL = SURVEY TIE LINE
- (F) = FIELD MEASURED
- (P) = PLATTED MEASUREMENT

0 200' 400'
GRAPHIC SCALE

NUMBER	RADIUS	ARC LENGTH	CHD. BEARING	CHD. LENGTH
C1	1197.57'	158.67'	N84°29'13"W	158.55'
C2	734.37'	136.44'	N72°56'57"W	136.25'
C3	11572.16'	944.35'	N36°36'06"E	944.09'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L1	S17°26'25"E	160.25'
L2	N40°22'35"W	96.19'
L3	N40°29'51"W	67.74'
L4	S29°20'55"W	11.10'
L5	N76°43'50"W	79.84'
L6	S06°05'25"W	154.18'
L7	S16°24'10"W	152.39'
L8	N39°35'51"W	156.10'
L9	N52°27'28"E	160.15'
L10	S03°04'34"E	248.10'
L11	S03°11'47"E	151.71'

NAD 83

PID# 45-220K
COUNTY OF STAFFORD, VIRGINIA
INSTR# CONV0000000224746
#125 RALPH WILLIAMS DRIVE

IPF
ON LINE & 26.34'
FROM CORNER

PID# 45-227C
STAFFORD COUNTY SCHOOL BOARD
CONV0000001305 18
#33 STAFFORD INDIANS LANE

VDOT
R/W MON

N68°08'18"E 1512.03' (STL)

R=E CLAIBORNE RUN
1,801±

IPF
2.31' EAST
OF LINE

IRF
1.76' EAST
OF LINE

ROD/S

FOUND
FENCE
POST
(HELD)

IPF
S25°55'46"E
& 3.22
FROM CORNER

N84°33'57"E
515.90'

ROD/S N84°02'51"E
177.51'

IPF
(DISTURBED)

S71°29'13"E 664.97'

ROD/S

N=6,814,761.52
E=11,780,282.16

IPF
0.24' SOUTH
OF LINE

S56°07'44"E 1251.13'

45-226A
BARBARA M. GRANT - SUCCESSOR
INSTR# CONV0000001300434

IPF
0.14' SOUTH
OF LINE

IPF
0.64' SOUTH
OF LINE

FLOOD
ZONE AE

FLOOD ZONE X

IPF

U.S. ROUTE 1
(VARIABLE WIDTH R/W)

4' BARBED WIRE FENCE
ALONG PROPERTY LINE

S61°02'40"W 883.89'

IPF
N23°21'42"W
& 0.71'
FROM CORNER

279.40'

PID# 45-220
DANIEL MCCARTY CHICHESTER
INSTR# 010012785
#559 CAMBRIDGE STREET

S65°54'27"W 1269.26'
989.86'

ROD/S

IPF
S75°22'09"E
& 10.13
FROM CORNER

IPF
S89°52'11"E
& 0.64'
FROM CORNER

PID# 45-220J
DANIEL MCCARTY CHICHESTER, JR
INSTR# 190015001
#629 CAMBRIDGE STREET

IRF

IRF

EXISTING 200' WIDE
VEPCO EASEMENT
PB. 13 PG. 194

4' BARBED WIRE FENCE
ALONG PROPERTY LINE

S56°05'39"W 1145.80'

PID# 45-220E
DANIEL MCCARTY CHICHESTER, JR
INSTR# 19001567X

Ⓐ PID# 45-149D
REBECCA W. TAYLOR
INSTR# 190022225
#24 BEEJAY DRIVE

Ⓑ PID# 45-149C
GUY J. BOUTCHYARD
INSTR# 170002043

Ⓒ PID# 45-150D
MARK D. GARRAWAY
& DEBORAH L. GARRAWAY
INSTR# 970005487

PID# 45-220L
DANIEL MCCARTY CHICHESTER, JR
INSTR# 190015679
7,538,208 SQ FEET
OR 173.053± ACRES
*NO BUILDINGS

EXISTING I-95 R/W
(VDOT PROJ# 0095-088-106)

I-95 NBL

2685+00
164.00'R

2683+50
113.00'R

*SEE NOTE 8

IPF
ONLINE

VDOT
R/W MON

PID# 45-145
JUDITH M. KIRKLAND
INSTR# 210002000
#478 TRUSLOW RD

N=6,813,466.37
E=11,776,785.00

N39°37'45"W 700.63'

N12°29'10"E 1,189.30' (TOTAL)

PID# 45-146
DANIEL MCCARTY
CHICHESTER, JR
INSTR# 190019952
405,293.515 SQ. FEET
OR 9.304 ACRES

N39°01'05"W 978.86'

295.42'
N84°37'38"W

N=6,812,635.26
E=11,777,088.55

ROD/S

S05°35'02"W 399.25' (TOTAL)

PID# 45-146B
MARK BRINDIS
& OKHUI BRINDIS
INSTR# 110016472
#450 TRUSLOW ROAD

IPF
ON-LINE & 19.79'
FROM CORNER

IPF
ON-LINE
& 19.88'
FROM
CORNER

15'
PRESCRIPTIVE
EASEMENT

VEPCO EASEMENT
DB. 37 PG. 394
(APPROXIMATE)

TRUSLOW ROAD
STATE ROUTE 652
(30' PRESCRIPTIVE)

VEPCO EASEMENT
DB. 247 PG. 552
(APPROXIMATE)

PID# 45-147A
SAMANTHA SERAFIN
INSTR# 210005101

PID# 45-149F
SCOTTY LEE KITTS &
HOMER F. PIERCE
INSTR# 170018790
#436 TRUSLOW RD

PID# 45-149
JEFFREY W. BOUTCHYARD &
JOANN P. BOUTCHYARD
DB. 522 PG. 357
#428 TRUSLOW RD

Ⓐ
Ⓑ
Ⓒ

SITE

I-95

TRUSLOW ROAD

US ROUTE 1

VICINITY MAP 1"=1000'

SHEET 1
OF 1

BOUNDARY PLAT OF COUNTY PARCELS
45-146 & 45-220L AND CONTAINING
182.351± ACRES OF LAND

STAFFORD COUNTY VIRGINIA FALMOUTH MAGISTERIAL DISTRICT

PROJECT:
JOB NUMBER: 1021066486
DATE:
SCALE:1"=200'
SURVEYOR: SLW
TECHNICIAN:
DRAWING:
REVISED:
PARTYCHIEF:
FIELDBOOKS:

SAM™

4870 Sadler Road
Suite 300
Glen Allen, VA 23060
Ofc. 804.334.8278
email: info@sam.biz

COMMONWEALTH OF VIRGINIA
SCOTT L. WILLIAMS
LIC. NO. 003184
MAY 6, 2022
LAND SURVEYOR

CERTIFICATION:

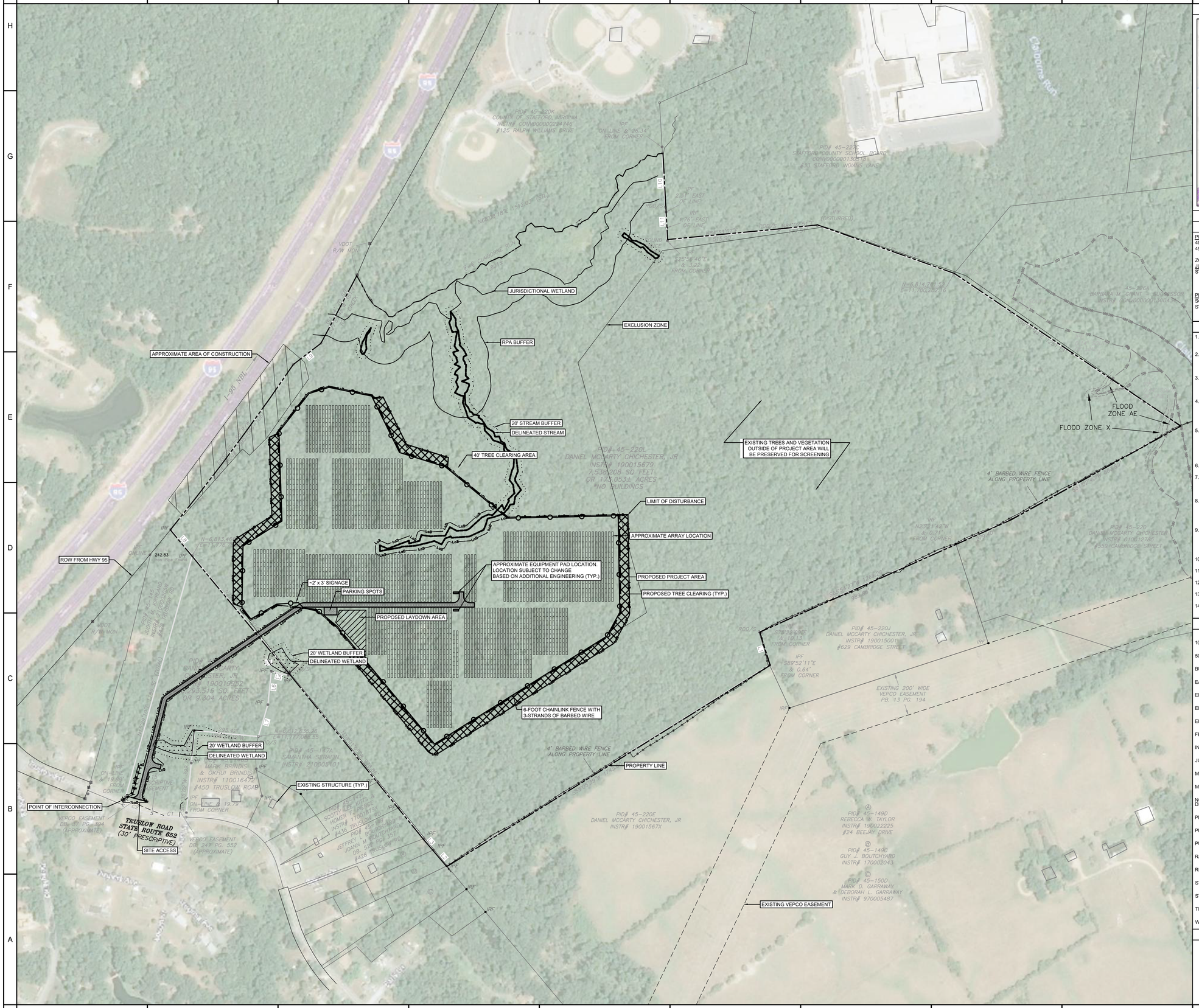
THIS BOUNDARY SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF, SCOTT L. WILLIAMS; FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED DURING THE MONTH OF APRIL & MAY 2022, AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED."

THIS 6TH DAY OF MAY, 2022.

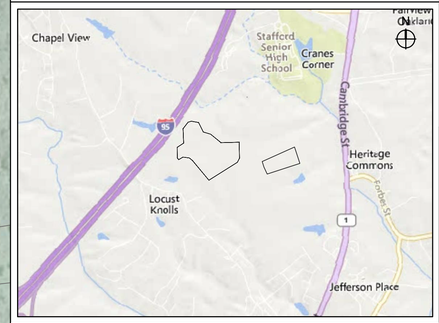
_____

SCOTT L. WILLIAMS L-0403003184
LAND SURVEYOR

PATH:\\SAMINC\COL\PROJECTS\1021066486\100\SURVEY\02BASE\1021066486_NEW.DWG



VICINITY MAP



SCALE 1" = 2000'

SITE DATA

PIN #	PROPERTY OWNER	SITE ADDRESS	
45 220L	CHICHESTER DANIEL	TRUSLOW RD	
45-146	MCCARTY JR	FALMOUTH VA 22405	
ZONING			
JURISDICTION	ZONING	CURRENT LAND USE	ACRES
STAFFORD CO	PROJECT: A1	RURAL/ VACANT	PROJECT:173.78AC
	ACCESS: R-1		ACCESS: 9.297 AC
	PRELIMINARY	PRELIMINARY	
PROPOSED USE	DISTURBED AREA	SOLAR AREA	
SOLAR ENERGY SYSTEM	± 39.48 AC	± 35.6 AC	

PRELIMINARY ARE SUBJECT TO CHANGE

GENERAL NOTES

1. THE PURPOSE OF THIS PLAN IS FOR ZONING REVIEW AND APPROVAL BY STAFFORD COUNTY TO CONSTRUCT A SOLAR ENERGY SYSTEM.
2. THIS PLAN WAS PRODUCED UTILIZING GIS RESOURCES AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING STAFFORD COUTNY AND ON-SITE WETLANDS DELINEATED PER THE TNT ENVIRONMENTAL WETLANDS REPORT DATED 3/17/22.
3. A PORTION OF THE SUBJECT PROPERTY DOES LIE WITHIN A SPECIAL FLOOD HAZARD AS SHOWN ON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL 5101540204E, DATED 02/04/2005) PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO; FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINES, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS.
5. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
6. ALL DIMENSIONS SHOWN ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
8. CONTRACTOR SHALL MAINTAIN ACCESS AND UTILITY SERVICES TO ANY REMAINING BUILDING(S) OR ADJACENT BUILDING(S) THROUGHOUT THE DEMOLITION AND CONSTRUCTION PHASES. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
9. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PROVIDE SIGNS, BARRICADES, WARNING LIGHTS, GUARD RAILS, AND EMPLOY FLAGGERS AS NECESSARY WHEN CONSTRUCTION ENDANGERS EITHER VEHICULAR OR PEDESTRIAN TRAFFIC. THESE DEVICES SHALL REMAIN IN PLACE UNTIL THE TRAFFIC MAY PROCEED NORMALLY AGAIN.
10. APPLICATION COVERS BOTH PROJECT AND ACCESS PARCELS
11. MAXIMUM STRUCTURE HEIGHT 15'
12. NO TRASH, LIGHTING, OR PEDESTRIAN WALKWAYS ON SITE.
13. NO PERMANENT SIGNAGE ON SITE OTHER THAN THAT REQUIRED BY SAFETY OFFICIALS.
14. NO COMMON SPACE, RECREATIONAL AREAS, OR BUFFER YARDS ON SITE

LEGEND

EXISTING CONDITIONS	PROPOSED CONDITIONS
100 YEAR FLOOD ZONE	EASEMENTS
500 YEAR FLOOD ZONE	EQUIPMENT PAD
BUILDING SETBACK	LIMIT OF DISTURBANCE
EASEMENTS	ELECTRICAL (OVERHEAD)
EDGE OF PAVEMENT	ELECTRICAL (UNDERGROUND)
ELECTRICAL (OVERHEAD)	PROJECT AREA
EPHEMERAL STREAM	SECURITY FENCE
FENCE	SHADE BUFFER
INTERMITTENT STREAM	SITE ACCESS
JURISDICTIONAL DITCH	TREELINE
MAJOR CONTOURS	VEGETATIVE BUFFER
MINOR CONTOURS	
NON-JURISDICTIONAL DITCH	
PERENNIAL STREAM	
PROPERTY LINES	
PUC (ORIGINAL AREA)	
RAILROAD	
RIGHT-OF-WAY	
STREET CENTERLINE	
STRUCTURES	
TREELINE	
WETLAND	

GRAPHIC SCALE

200' 0 200'

1" = 200'

NORTH

N

CYPRESS CREEK RENEWABLES
3402 PICO BOULEVARD ::: STE 215 ::: SANTA MONICA, CA 90405
5310 SOUTH ALSTON AVE. ::: BLDG. 300 ::: DURHAM, NC. 27713

SEAL

PERMIT DRAWING - NOT RELEASED FOR CONSTRUCTION

SEAL

CONSULTANT

NO.	DESCRIPTION	DATE

REVISIONS

PROJECT

KINGLET SOLAR, LLC
TRUSLOW RD
FALMOUTH VA 22405

DATE:	06-23-22
DRAWN BY:	ANNIE RASSER
CHECKED BY:	-

GENERALIZED DEVELOPMENT PLAN

Z 1.0

ANNIERASSER 6/23/2022 3:36 PM KINGLET_SITEPLAN_2022-06-23.DWG

OPTION TO LEASE

This option agreement (the "**Agreement**") is made on the date that this Agreement has been fully executed by both Optionor and Optionee as reflected on the signature page(s) ("**Effective Date**"), by Philip H. Chichester, having an address at 9 Argyle Hills Drive, Fredericksburg, VA 22405, Daniel M. Chichester, Jr., having an address at 559 Cambridge Street, Falmouth, VA 22405, and John B. Chichester, having an address at 559 Cambridge Street, Falmouth, VA 22405, all of whom own the Premises as Tenants in Common (collectively the "**Optionor**"), and Cypress Creek Land Holdings, LLC, a Delaware limited liability company, having an address at 3402 Pico Blvd., Ste. 215, Santa Monica, CA 90405, Attn: Asset Management, Email: assetmanagement@ccrenew.com (the "**Optionee"**), for the purpose of providing an exclusive option to Optionee to lease a portion of the real property described on **Exhibit A** (the "**Premises**") from Optionor on the terms and conditions set forth below (the "**Option**"). The total acreage of the Premises contained in Exhibit A is approximate and shall be subject to confirmation and adjustment when the Survey is completed (as provided for in Section 2 of the Agreement).

1. **Term of the Option.** The initial term of the Option (the "**Initial Option Term**") created by this Agreement shall commence on the Effective Date and shall expire three (3) years after the Effective Date. The Initial Option Term shall be automatically extended for the Extended Option Term (as defined below), without any action or notice required from Optionee, unless Optionee delivers a Termination Notice (as defined below) to Optionor prior to the expiration of the Initial Option Term. The following period shall be referred to as the "**Extended Option Term**": One (1) additional 12 month period after the expiration of the Initial Option Term. The Initial Option Term and the Extended Option Term, if exercised, shall be collectively referred to as the "**Option Term**". During the Option Term, Optionee may elect to terminate this Agreement at any time, for any reason or no reason in Optionee's sole and absolute discretion, by providing written notice to Optionor of such termination (a "**Termination Notice**"). Upon the expiration of the Option Term, this Agreement shall automatically terminate unless it has been exercised by Optionee as required by this Agreement.

2. **Exercise of the Option.** At any time during the Option Term, Optionee may exercise the Option by delivering to Optionor at any time before the expiration of the Option Term a written and executed notice (**"Exercise Notice"**). The parties hereto shall mutually execute the Lease Agreement and any other documentation required to be executed in connection therewith. Within five (5) business days following Optionor's receipt of the Exercise Notice, Optionor and Optionee shall mutually execute the Lease Agreement and Memorandum of Lease as set forth in Section 25 of the Lease Agreement.

3. **Consideration.**

a) [redacted]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the later of the dates indicated below, each party intending to be legally bound to the other hereby.

OPTIONOR:

DocuSigned by:

By: _____
8A30915961494A1...

Printed Name: Philip H. Chichester

Date: 3/15/2022

OPTIONOR:

DocuSigned by:

By: _____
EC232ABBE1A7434...

Printed Name: Daniel M. Chichester, Jr.

Date: 3/9/2022

OPTIONOR:

DocuSigned by:

By: John Chichester
0FE312A75060468...

Printed Name: John B. Chichester

Date: 3/10/2022

OPTIONEE:

Cypress Creek Land Holdings, LLC, a Delaware limited liability company

By: DocuSigned by: Noah Hyte FA1FD5869B40485...

Printed Name: Noah Hyte

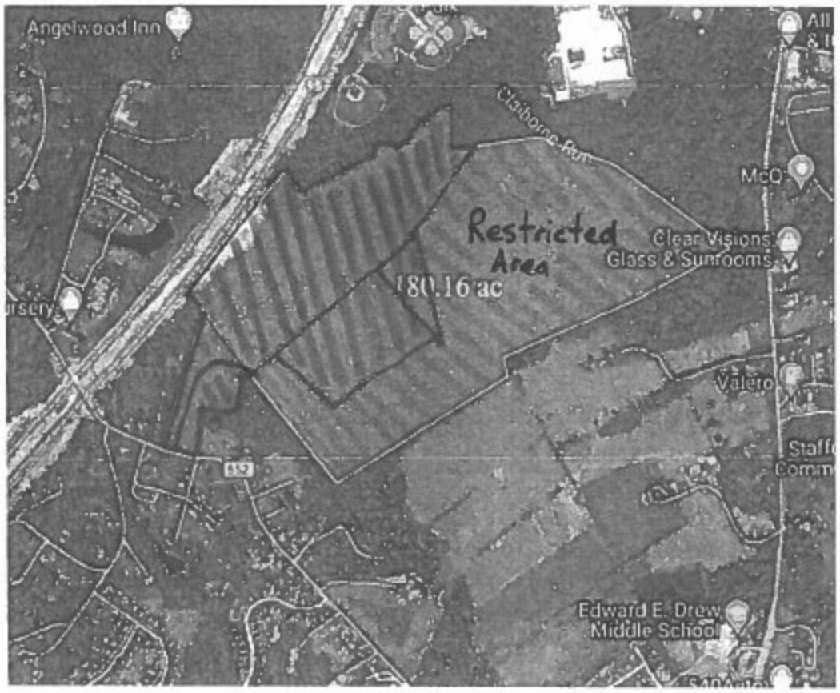
Title: Authorized Person

Date: 3/17/2022

Exhibit A

Premises

Up to 60 acres, plus or minus, of the real property located along Cambridge Street, Stafford County, Virginia, Tax ID Number 45-220L, as approximately depicted below. The final location of the Premises shall be determined in accordance with Section 8 of the Agreement and Section 2 of the Lease Agreement.

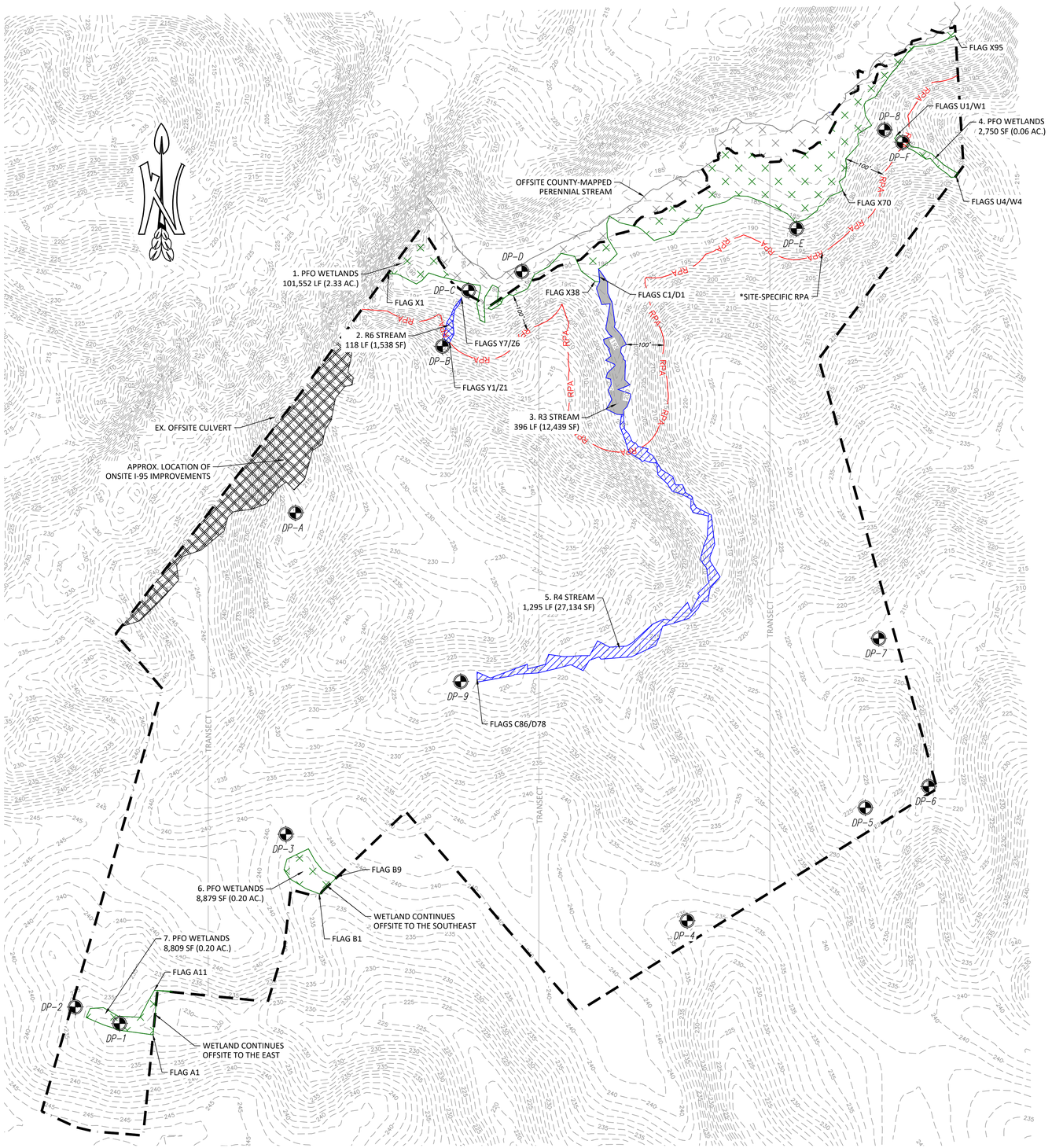


- Landlord retained easement
- Restricted Area
- Potential Lease Premises

GROUND LEASE AGREEMENT

BASIC LEASE TERMS SUMMARY

Effective Date	The date that this Lease has been fully executed by both Landlord and Tenant as reflected on the signature page(s).		
Landlord	Philip Henry Chichester, Daniel Chichester, John Chichester, collectively the "**Landlord**" who own the Premises as tenants in common		
Tenant	Cypress Creek Land Holdings, LLC, a Delaware limited liability company		
Land	The parcel(s) of the real property located along Cambridge Street in the County of Stafford (the "**County**"), Virginia, Tax Map Parcel Number 45-220L.		
Premises (Section 2)	An approximate 80 acre portion, plus or minus, of the Land, as approximately depicted on Exhibit A attached hereto, and includes the Premises as more particularly described and defined in Section 2. The total acreage of the Premises contained in Exhibit A shall be subject to confirmation and adjustment when the Survey is completed (as provided for in Section 8 of the Option Agreement and Section 2 of this Lease.		
Construction Period (Section 4)	The initial period of this Lease, commencing upon the Effective Date and expiring on the earlier of (i) the second (2nd) anniversary of the Effective Date, or (ii) the Operations Date.		
Operations Date (Section 4)	The date that on which any portion of the System being constructed on the Premises have passed their initial performance tests and have begun to commercially deliver electricity into the high-voltage electric transmission system.		
Initial Term (Section 4)	240 calendar months commencing upon the expiration of the Construction Period.		
Renewal Terms (Section 4)	Four (4) successive renewal terms of five (5) years each.		
Rent (Section 7)	[redacted]		
Rent Escalation Date (Section 7)	[redacted]		
Rent Escalation Percentage (Section 7)	[redacted]		
Landlord's Notice Address (Section 19)	Philip Henry Chichester 9 Argyle Hills Drive Fredericksburg, VA 22405 philchichester@gmail.com	Daniel M. Chichester, Jr. 559 Cambridge Street, Falmouth, VA 22405 dchichester@gmail.com	John B. Chichester 559 Cambridge Street, Falmouth, VA 22405 jaychiches@gmail.com



LEGEND

- PERENNIAL WATERS (R3)
- INTERMITTENT WATERS (R4)
- EPHEMERAL WATERS (R6)
- PALUSTRINE FORESTED (PFO) WETLAND
- OFFSITE PERENNIAL WATERS (R3)
- OFFSITE PALUSTRINE FORESTED (PFO) WETLAND
- DP– APPROX. DATAPOINT LOCATION
- STUDY AREA
- RPA *SITE-SPECIFIC RESOURCE PROTECTION AREA (RPA)
- APPROX. LOCATION OF ONSITE I-95 IMPROVEMENT

NOTES:

1. THE WETLAND DELINEATION WAS CONDUCTED BY TNT ENVIRONMENTAL, INC. (TNT) ON MARCH 15, 2022. WETLAND DELINEATORS INCLUDED A. SAREEN, T. PAYNE, M. MEDNIKOVA, AND D. DELLAPENNA. EXISTING TOPOGRAPHY WAS RETRIEVED FROM ONLINE SOURCES. WETLAND FLAGS WERE SURVEY LOCATED BY A GARMIN GPS RECEIVER.

2. THE WETLAND AND OTHER WATERS BOUNDARIES DEPICTED HEREON ARE PRELIMINARY UNTIL CONFIRMED DURING A JURISDICTIONAL DETERMINATION WITH THE US ARMY CORPS OF ENGINEERS (USACE). THE FEATURES HAVE NOT BEEN VERIFIED BY USACE OR THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ). ALL FEATURES ONSITE WILL LIKELY BE REGULATED BY BOTH DEQ AND USACE.

3. *THE STREAM CLASSIFICATIONS AND SITE-SPECIFIC RESOURCE PROTECTION AREA (RPA) BOUNDARY SHOWN HEREON SHOULD BE CONSIDERED PRELIMINARY UNTIL APPROVED BY STAFFORD COUNTY.

4. THE SITE CONTAINS A RPA BUFFER (100' OFFSET FROM PERENNIAL STREAMS AND ADJACENT WETLANDS) THAT WILL REQUIRE SPECIALS PERMITS FOR DEVELOPMENT WITH STAFFORD COUNTY. A WATER QUALITY IMPACT ASSESSMENT (WQIA) WILL BE REQUIRED FOR STAFFORD COUNTY IF DEVELOPMENT OCCURS WITHIN THE RPA BUFFER. THERE ARE NO 100-YEAR FLOODPLAINS LOCATED ONSITE (FEMA FLOOD MAP #5101540201E AND #5101540202E, DATED FEBRUARY 4, 2005); HOWEVER, IT SHOULD BE NOTED THAT IT APPEARS NO FLOODPLAIN STUDY HAS BEEN CONDUCTED FOR THE ADJACENT PERENNIAL STREAM ACCORDING TO THE MAP. FURTHER COORDINATION WITH STAFFORD COUNTY MAY BE REQUIRED. NO OTHER BUFFERS ARE LOCATED ONSITE.

5. THE STREAM ASSESSMENTS CONDUCTED ARE BASED ON THE NORTH CAROLINA DIVISION OF WATER QUALITY "METHODOLOGY FOR IDENTIFICATION OF INTERMITTENT AND PERENNIAL STREAMS AND THEIR ORIGINS" VERSION 4.11, DATED SEPTEMBER 1, 2010.

6. THIS DELINEATION WAS PERFORMED PER THE *CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL*, TECHNICAL REPORT Y-87-1 (1987 MANUAL) AND SUBSEQUENT GUIDANCE AND MODIFICATION BY THE *REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: ATLANTIC & GULF COASTAL PLAIN REGION* (VERSION 2) DATED NOVEMBER 2010 . THE STUDY AREA IS APPROXIMATELY 82 ACRES; AS SUCH THE ROUTINE ON-SITE WETLAND DETERMINATION METHOD FOR SITES GREATER THAN 5 ACRES WAS USED, WITH MULTIPLE TRANSECTS PERFORMED AS DEPICTED HEREIN.

7. SEVERAL DIRT LOGGING AND ATV TRAILS WERE OBSERVED THROUGHOUT THE SITE; HOWEVER, NONE OF THESE ARE DEVELOPED AND NO CULVERTS WERE OBSERVED ONSITE.

SUMMARY OF FEDERALLY JURISDICTIONAL WATERS (INCLUDING WETLANDS)

AR ID	PFO (SF)	PFO (AC)	R6 (LF)	R6 (AC)	R4 (LF)	R4 (AC)	R3 (LF)	R3 (AC)
1	101,552	2.33	-	-	-	-	-	-
2	-	-	118	0.04	-	-	-	-
3	-	-	-	-	-	-	396	0.29
4	2,750	0.06	-	-	-	-	-	-
5	-	-	-	-	1,295	0.62	-	-
6	8,879	0.20	-	-	-	-	-	-
7	8,809	0.20	-	-	-	-	-	-
Total	**121,990**	**2.80**	**118**	**0.04**	**1,295**	**0.62**	**396**	**0.29**

AR- Aquatic Resource, PFO - Palustrine Forested; R6 - Ephemeral Stream; R4 - Intermittent Stream; R3 - Upper Perennial Stream

Total Waters of the U.S. (Linear Feet):	**1,691**	**LF**
Total Wetlands (Acreage):	**2.80**	**Acres**

SCALE (IN FEET)
75 150
150 0

TNT ENVIRONMENTAL
4455 Brookfield Corporate Drive, Suite 100
Chantilly, VA 20151
PH: 703-466-5123 WWW.TNTENVIRONMENTALINC.COM

KINGLET SOLAR, LLC
STAFFORD COUNTY

SURVEYED WETLANDS & WATERS MAP

REVISIONS

DATE	COMMENTS
4/14/22	REV BY TNW

SHEET 1 OF 1

SCALE: 1" = 150'

PROJECT DATE: 3/23/22

DRAFT: TNW | CHECK: AMS

FILE NUMBER: 2788

WETLAND DELINEATION REPORT
KINGLET SOLAR, LLC
STAFFORD COUNTY, VIRGINIA

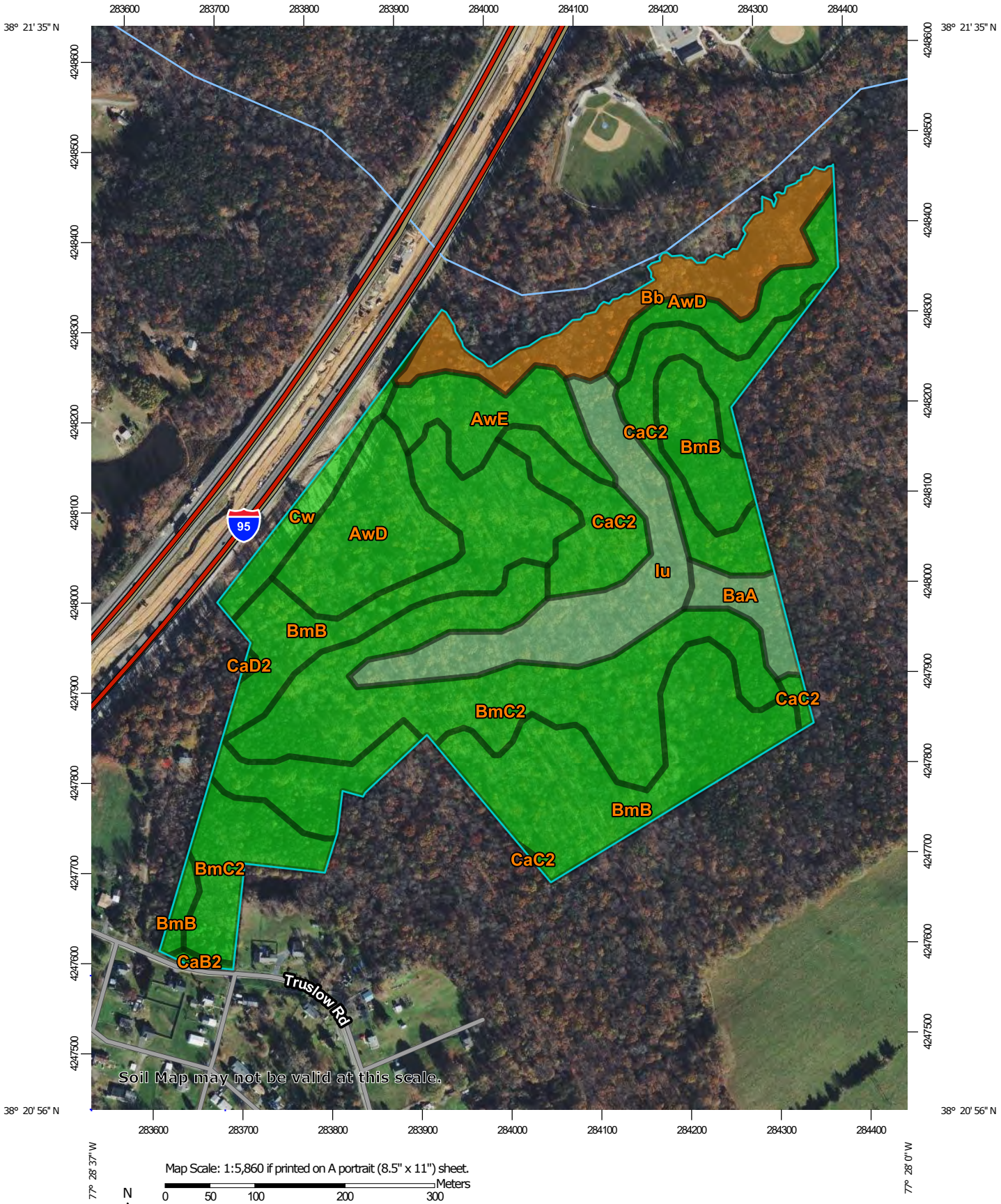
TNT PROJECT NO.: 2788

FOR

CYPRESS CREEK RENEWABLES, LLC
& KINGLET SOLAR, LLC

MARCH 23, 2022
REVISED: APRIL 14, 2022

Hydric Rating by Map Unit—Stafford and King George Counties, Virginia
(Kinglet Solar, LLC)



Map Scale: 1:5,860 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

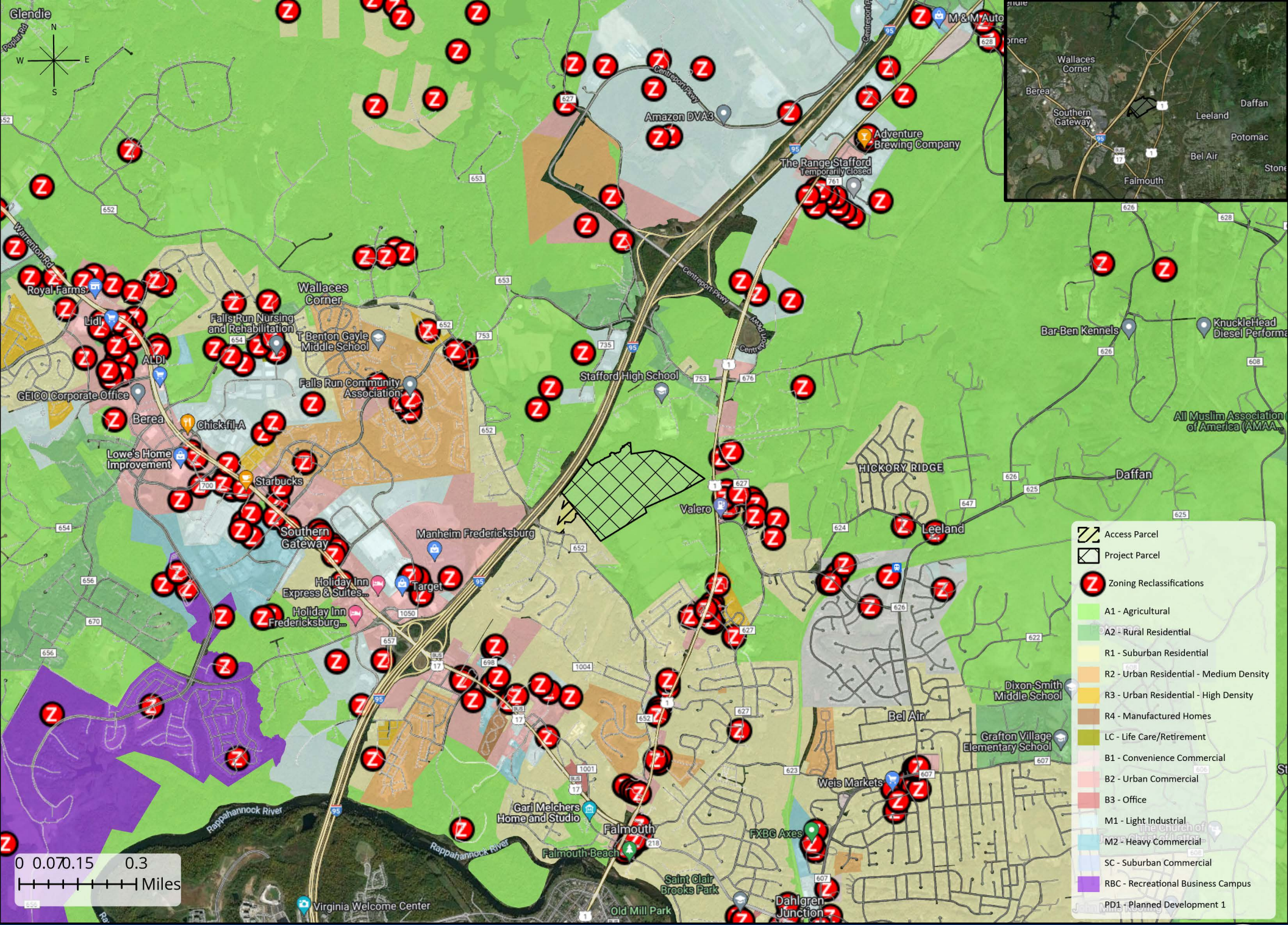
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Stafford and King George Counties, Virginia
Survey Area Data: Version 17, Sep 16, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

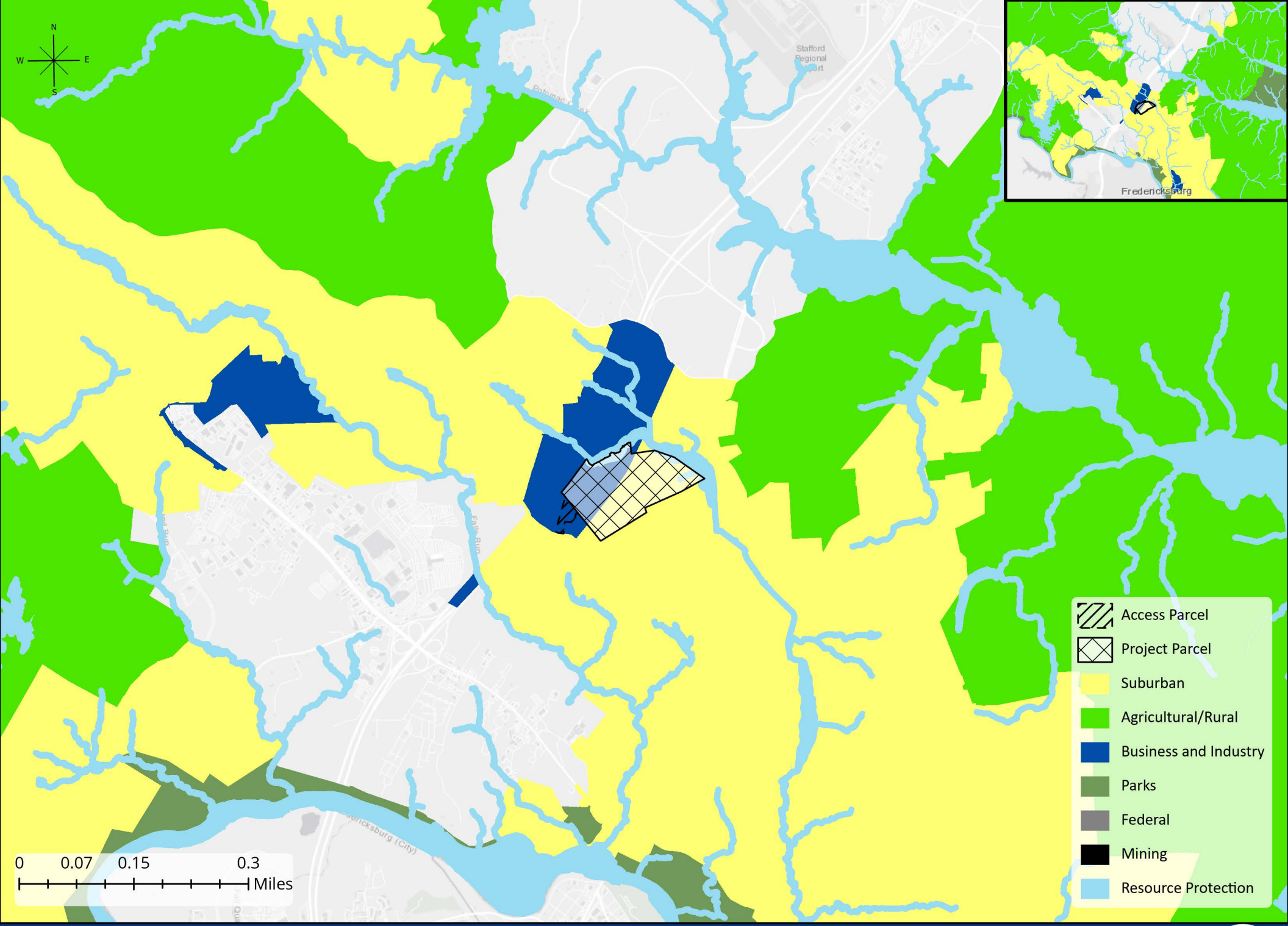
Date(s) aerial images were photographed: Nov 14, 2020—Nov 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



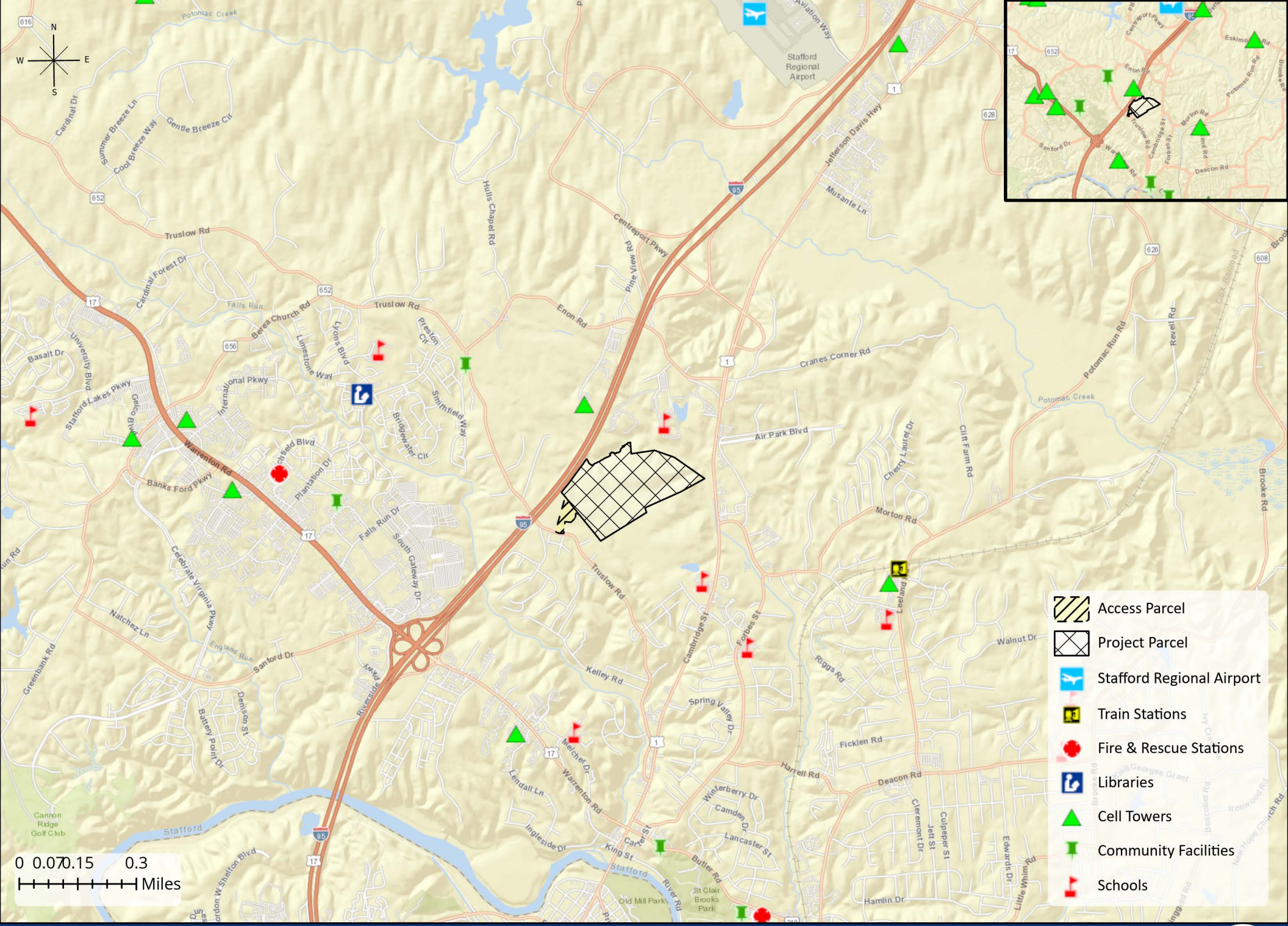
KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



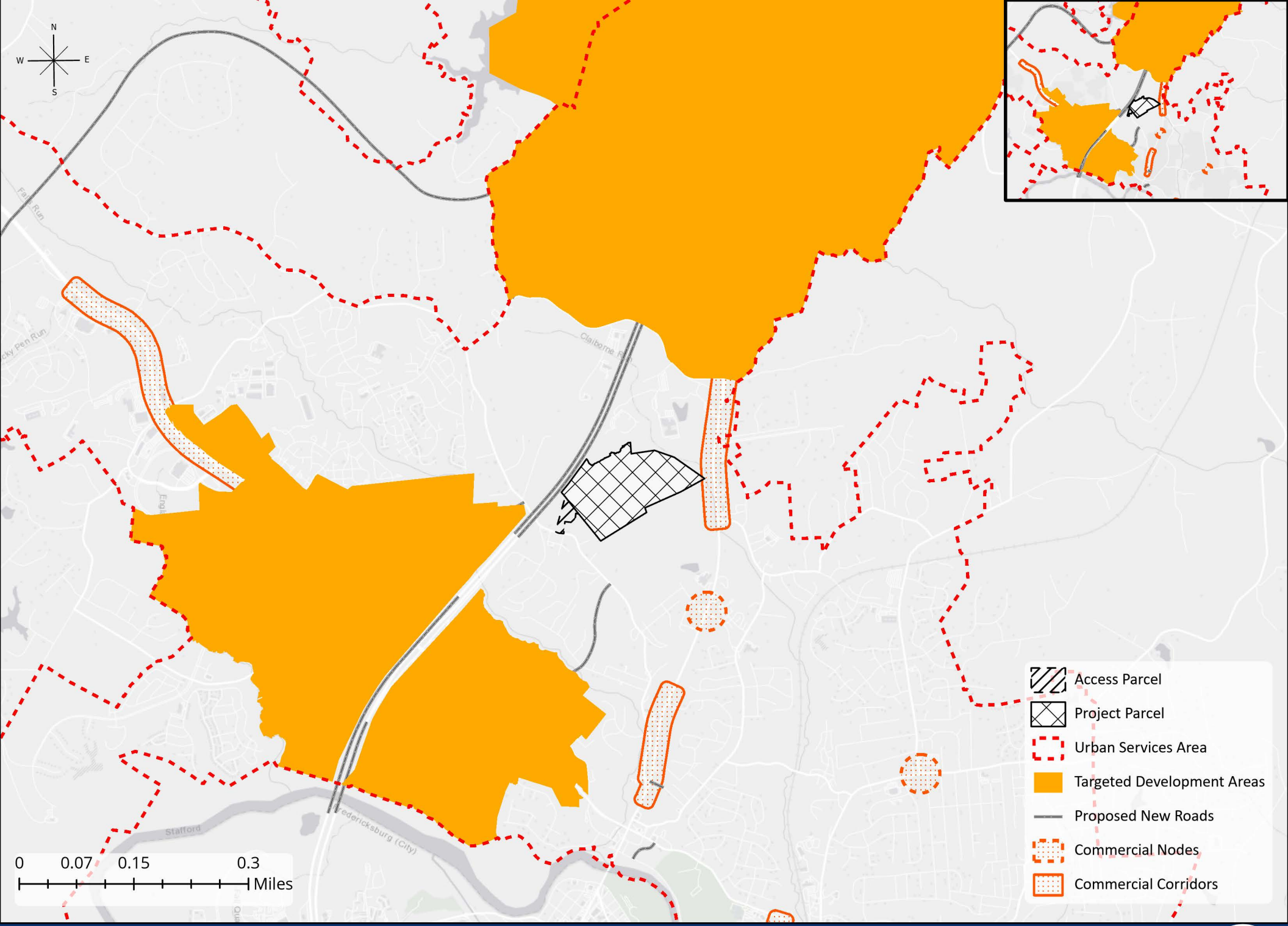
KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



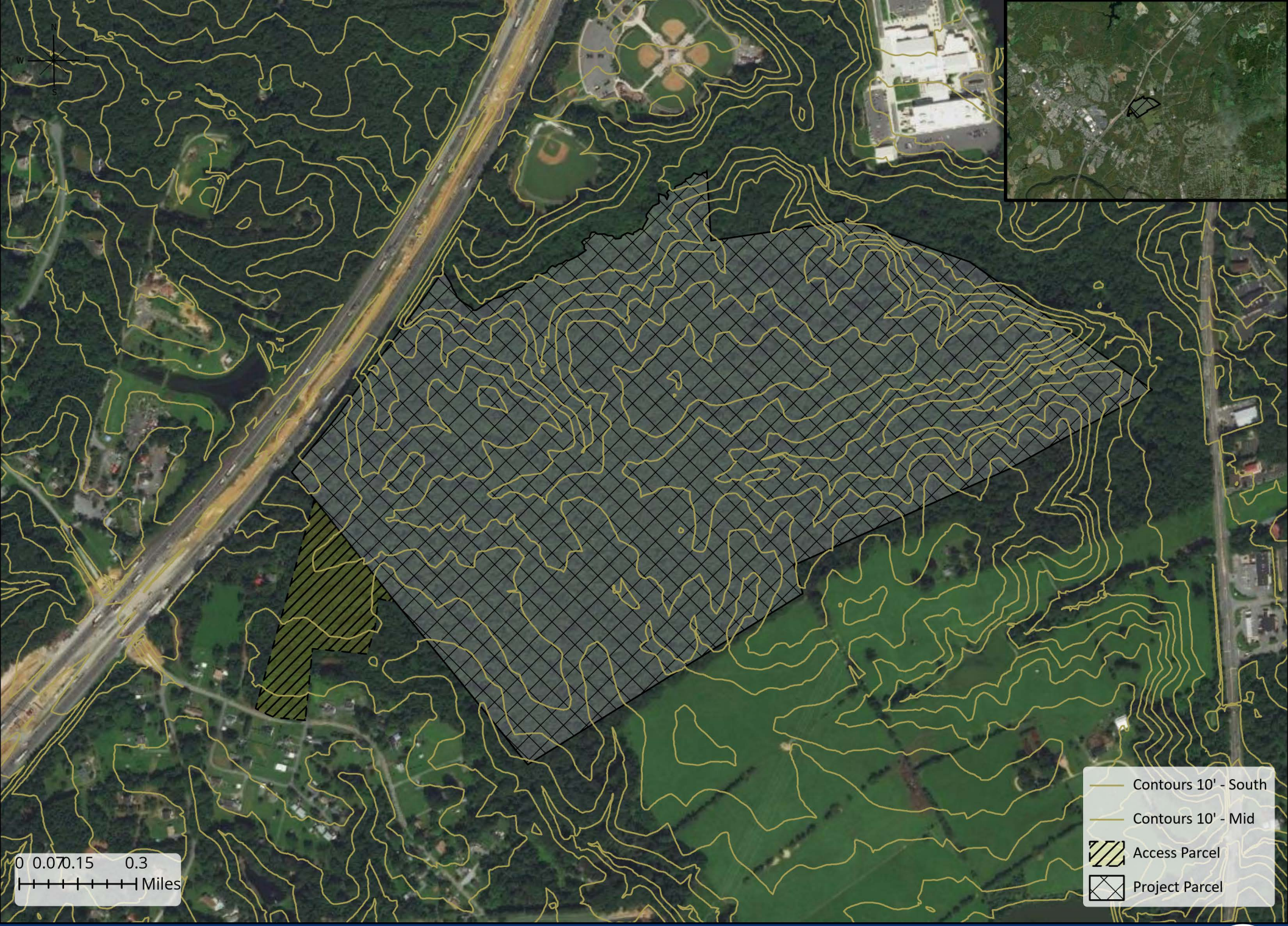
KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



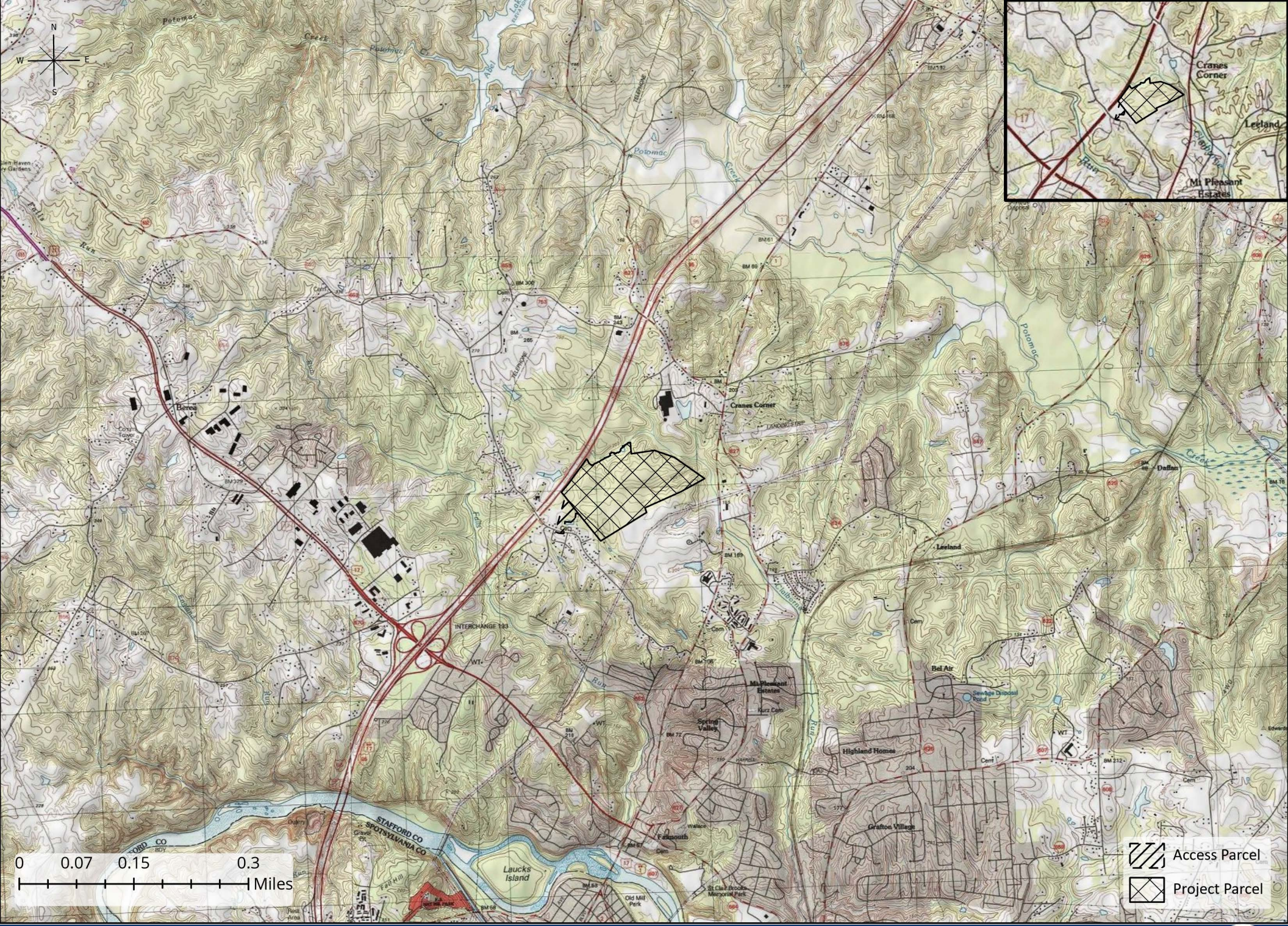
KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES

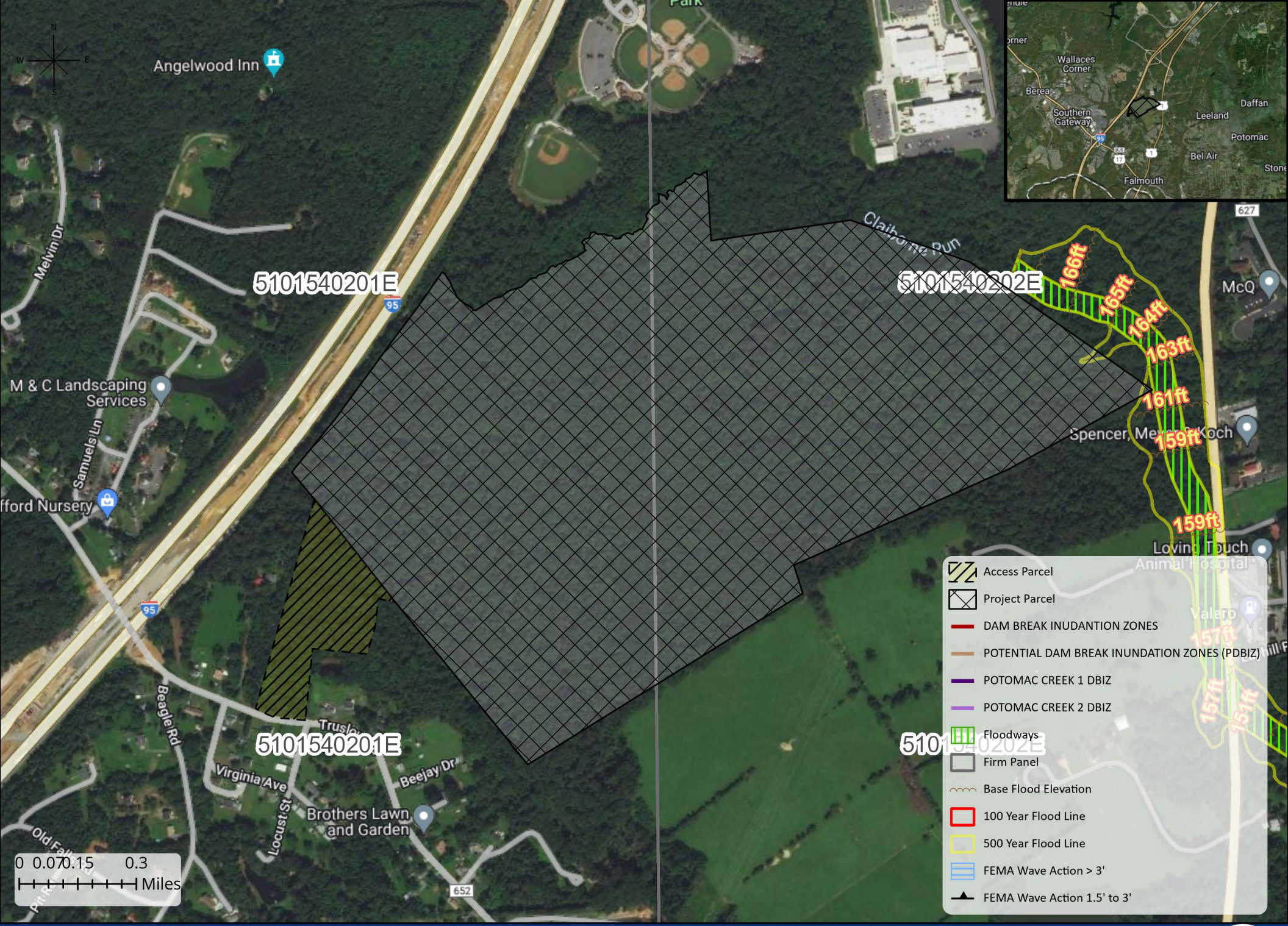


KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES

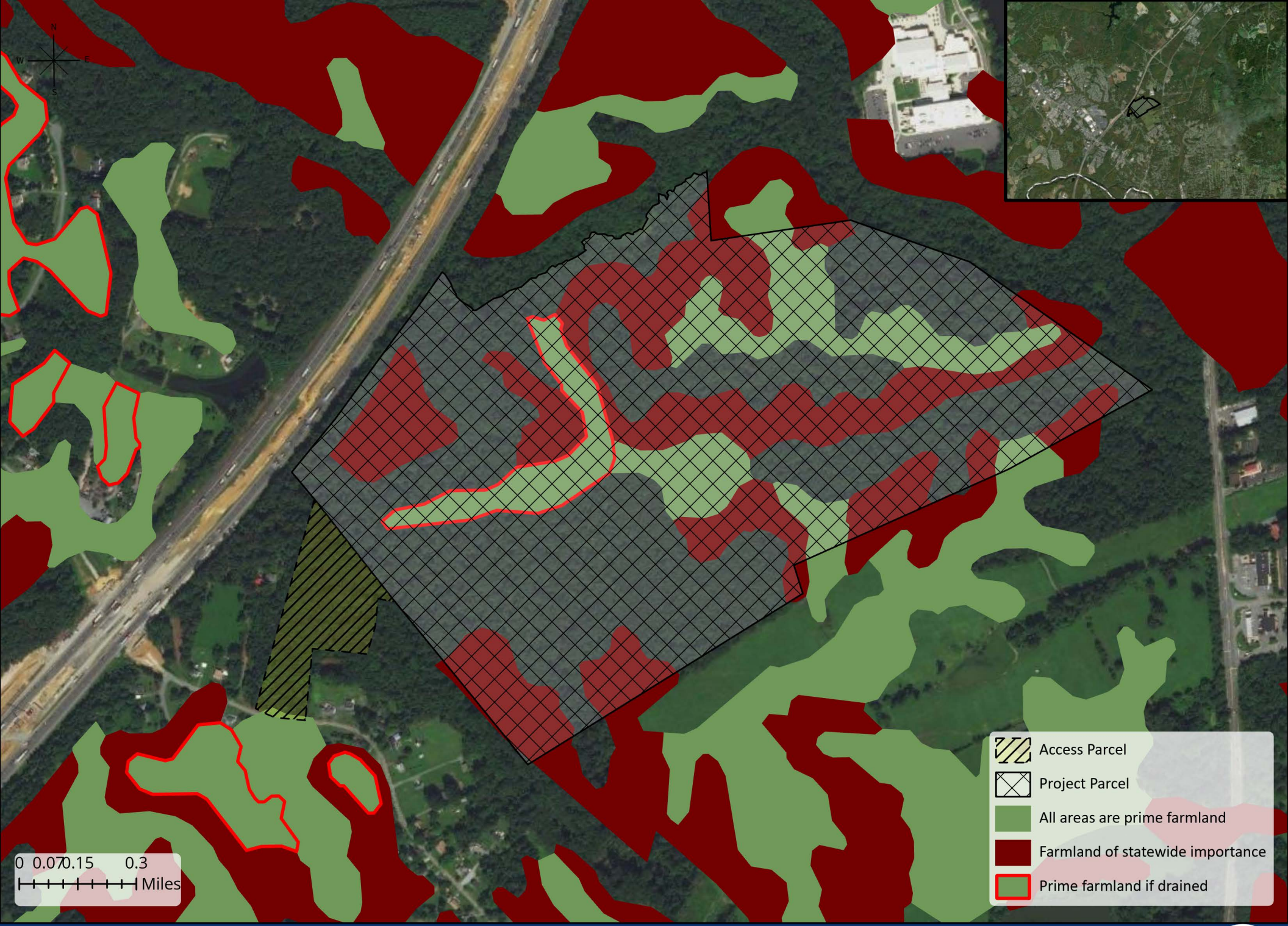
KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES



KINGLET SOLAR, LLC

CYPRESS CREEK RENEWABLES

Fidelity National Title Insurance Company

Transaction Identification Data for reference only:

Issuing Agent: Home Title Insurance Agency, Inc.
Issuing Office: 1407 Eastridge Road, Henrico, VA 23229
Issuing Office's ALTA® Registry ID: 1039918
Loan ID Number: N/A
Commitment Number: HT22-0107
Issuing Office File Number: HT22-0107
Property Address: 0 Truslow Road, Stafford County, VA

SCHEDULE A

1. Commitment Date: March 25, 2022 at 08:00 AM

2. Policy to be issued:
   (a) ALTA O/Policy Rev. 6-17-06
   Proposed Insured: Kinglet Solar, LLC
   Proposed Policy Amount: $NOT YET DETERMINED

3. The estate or interest in the Land described or referred to in this Commitment is Fee Simple.

4. The Title is, at the Commitment Date, vested in:

   Daniel McCarty Chichester, Jr. and John Bernard Chichester and Philip Henry Chichester

5 The Land is described as follows:

HOME TITLE INSURANCE AGENCY, INC.

By: _____
Home Title Insurance Agency, Inc.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Fidelity National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

13. The following is provided for information only and should be verified by the appropriate taxing authority.

Tax Assessment for 2021

PARCEL I, 173.7800 acres

Land: $1,590,400.00
Improvements: $0.00
Total: $1,590,400.00
Total Tax: $9,142.48
½ Tax: $379.76
GPIN/PARCEL ID NO: 45-220L
NOTE: Taxes are posted as being paid through the year 2021.

PARCEL II, 9.2970 acres

Land: $269,300.00
Improvements: $0.00
Total: $269,300.00
Total Tax: $494.30
½ Tax: $11.64
GPIN/PARCEL ID NO: 45-146
NOTE: Taxes are posted as being paid through the year 2021.

[redacted]

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

1001 Boulders Parkway
Suite 300
Richmond, VA 23225

P 804.200.6500
F 804.560.1016
www.timmons.com

To: Patrick Harper, AICP (Cypress Creek Renewables)
From: Scott Dunn, AICP, PTP
RE: Kinglet Solar – Traffic Evaluation
Date: May 24, 2022
Copy: Rick Thomas (TG); Lauren Wheeler (TG)

The following memo has been prepared at the request of Cypress Creek Renewables for the proposed Kinglet Solar Project.

Project Background

Kinglet Solar is a proposed 5 MWac project located in Stafford County, VA. The project is sited immediately north of Truslow Road (Route 652) and east of Interstate 95 (see Figure 1). Kinglet Solar will encompass approximately 183.07 acres of land, most of which is currently zoned agricultural. Of the 183.07 acres, 36.5 acres will be disturbed and only 16 acres will be used to accommodate solar panels; a zoning site plan is shown on Figure 2.

Existing Adjacent Road Network and Site Access

Access to the site will be provided via a single entrance with direct access to Truslow Road (see Figures 1 and 2). This access point will be utilized throughout construction and for operation/maintenance activities once the solar project is complete.

Truslow Road is a two-lane, undivided major collector that measures approximately 18' in width and has a posted speed limit of 35 mph. Based on recent (2019) VDOT traffic counts, Truslow Road has a traffic count of 2,600 vehicles per day (VPD) in the vicinity of the proposed solar project. Development along Truslow Road is residential in nature with multiple residences having direct access from their driveways.

Construction Schedule

Construction of the project is scheduled to last six (6) months, beginning spring 2024 and ending fall 2024. The respective phases and their durations are listed below:

- Site preparation – 1 month
- Panel/equipment installation – 4 months
- Testing/electrical connections - 1 month

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Site Generated Traffic

As indicated above, the construction of the Project is divided into three (3) phases. A summary of the daily traffic associated with each of the phases is summarized below:

- ***Site Preparation*** – During this phase there are anticipated to be 15 employees on-site daily. In addition, there will be 3 trucks visiting the site daily – two (2) non-CDL delivery trucks and one (1) heavy CDL vehicle. Total daily traffic for this phase is estimated at 40 trips
- ***Panel/Equipment Installation*** – During this phase there are anticipated to be 30-50 employees on-site daily. In addition, there will be 3 trucks visiting the site daily – two (2) non-CDL delivery trucks and one (1) heavy CDL vehicle. It should be noted that during this phase, there will be a limited time when there will be up to six (6) heavy CDL vehicles per day to accommodate solar panel delivery. Total daily traffic for this phase is estimated at 100 trips, with a limited time when daily traffic is estimated at 120 trips.
- ***Testing/Electrical Connections*** – During this phase there are anticipated to be 15 employees on-site daily. In addition, there will be 3 trucks visiting the site daily – two (2) non-CDL delivery trucks and one (1) heavy CDL vehicle. Total daily traffic for this phase is estimated at 40 trips

Following construction, there will be minimal traffic associated with the operations and maintenance of the site. One (1) vehicle trip is expected quarterly for inspections and five (5) to 10 additional trips are expected during the spring and early fall months for landscape maintenance. All of these vehicle trips will consist of light duty trucks and trailers.

Conclusions

The proposed 5 MWac Kinglet Solar Project will be located directly off Truslow Road (Route 652) in Stafford County, VA. Construction of the project is scheduled to last six (6) months, beginning spring 2024 and ending fall 2024, and is broken into three (3) phases – site preparation, panel/equipment installation, and testing/electrical connections.

The first and third phases are anticipated to be extremely low with respect to traffic generation. Each is expected to consist of 15 employees and three (3) daily truck deliveries which will result in approximately 40 daily trips. The second phase, panel/equipment installation, will be more traffic intensive with up to 50 employees and eight (8) daily truck deliveries (for a limited durations) which will result in up to 120 daily trips.

Traffic associated with operations and maintenance of the facility will be minimal with one (1) trip quarterly and a small number of visits during the spring and fall to provide landscape maintenance.

Truslow Road currently has 2,600 VPD, which is well below the 10,000 ADT carrying capacity of a two-lane road. The addition of site-generated traffic, 120 peak daily trips, still leaves a sufficient amount of capacity.

Given that the traffic generated by the site is below established County and VDOT thresholds for a traffic study and the adjacent state-maintained facility has the available carry capacity, no additional traffic analysis is required in connection with the Kinglet Solar Project.

N

NOT TO SCALE

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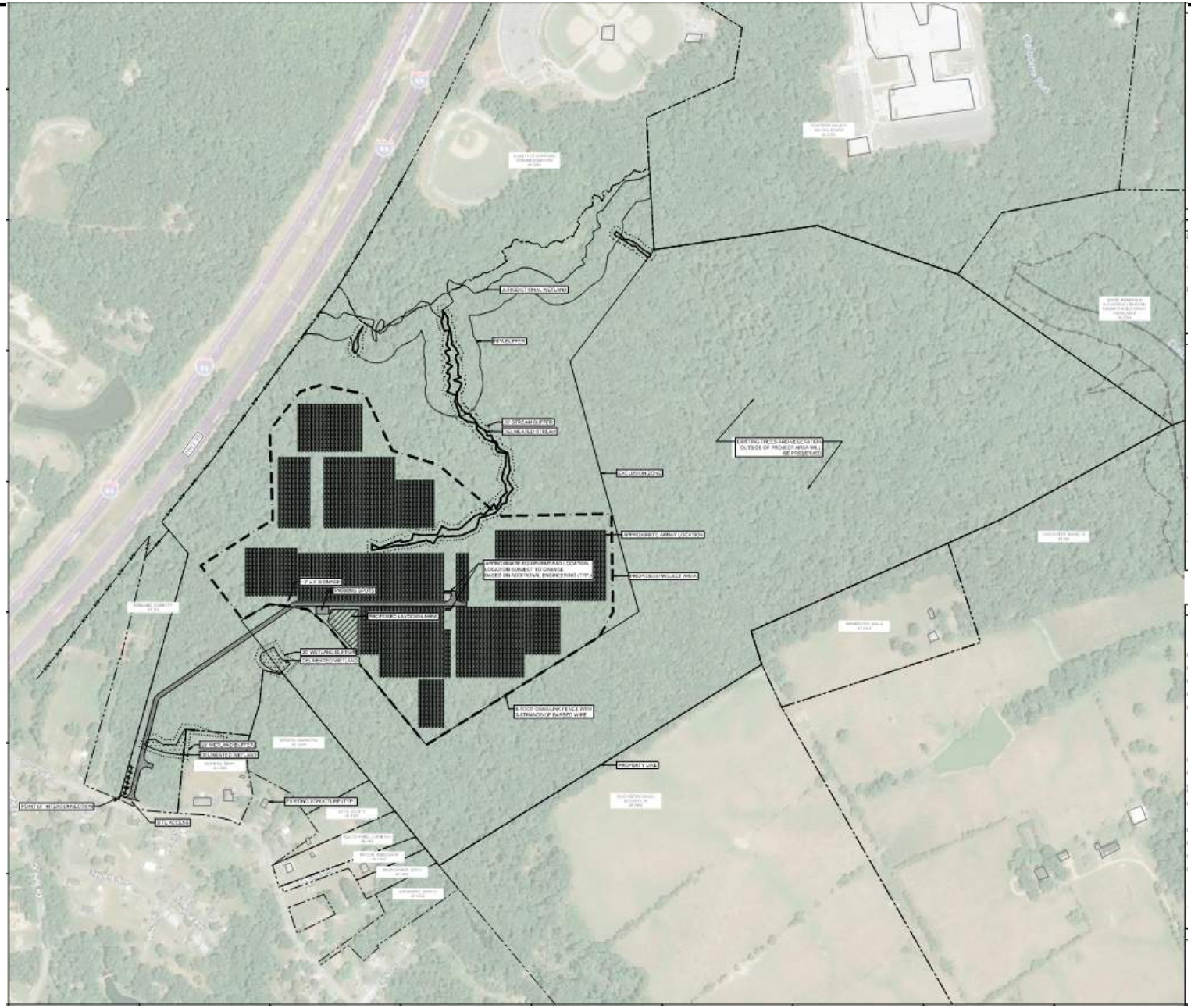
Surrounding Roadway Network and Site Location
Kinglet Solar
Stafford County, VA

Figure
1



NOT TO SCALE

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Zoning Site Layout
Kinglet Solar
Stafford County, VA

Figure
2

PRELIMINARY EARTHWORK		
	CUT (CY)	FILL (CY)
ESTIMATED RACKING EARTHWORK	17,000	15,000

NOTES

1. THE PURPOSE OF THIS PLAN IS FOR ZONING REVIEW AND APPROVAL BY STAFFORD COUNTY TO CONSTRUCT A SOLAR ENERGY SYSTEM.
2. THIS PLAN WAS PRODUCED UTILIZING GIS RESOURCES AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING STAFFORD COUTNY AND ON-SITE WETLANDS DELINEATED PER THE TNT ENVIRONMENTAL WETLANDS REPORT DATED 3/17/22.
3. A PORTION OF THE SUBJECT PROPERTY DOES LIE WITHIN A SPECIAL FLOOD HAZARD AS SHOWN ON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL 5101540204E, DATED 02/04/2005) PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINES, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS.
5. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
6. ALL DIMENSIONS SHOWN ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
8. CONTRACTOR SHALL MAINTAIN ACCESS AND UTILITY SERVICES TO ANY REMAINING BUILDING(S) OR ADJACENT BUILDING(S) THROUGHOUT THE DEMOLITION AND CONSTRUCTION PHASES. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
9. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PROVIDE SIGNS, BARRICADES, WARNING LIGHTS, GUARD RAILS, AND EMPLOY FLAGGERS AS NECESSARY WHEN CONSTRUCTION ENDANGERS EITHER VEHICULAR OR PEDESTRIAN TRAFFIC. THESE DEVICES SHALL REMAIN IN PLACE UNTIL THE TRAFFIC MAY PROCEED NORMALLY AGAIN.
10. IT IS ANTICIPATED THAT SITE EARTHWORK QUANTITIES (CUT/FILL) SHALL BALANCE
11. GRADES SHOWN ON THIS PLAN ARE PRELIMINARY AND APPROXIMATE THE ANTICIPATED FINAL GRADES. FINAL GRADES WILL BE ESTABLISHED BASED ON FINAL ARRAY LAYOUT, TRACKER SPECIFICATIONS, AND OTHER FINAL DESIGN CONSIDERATIONS.

IMPROVEMENT LEGEND

EXISTING CONDITIONS	PROPOSED CONDITIONS
PROPERTY LINE	RACKING
BUILDING SETBACK	SECURITY FENCE
MAJOR CONTOURS (250)	ACCESS ROAD
MINOR CONTOURS (251)	MAJOR CONTOURS (250)
WETLAND (JURISDICTIONAL)	MINOR CONTOURS (251)
WETLAND BUFFER	ELECTRICAL (OHE, UGE)

GRAPHIC SCALE

100' 0 100'

1" = 100'

NORTH

N

CYPRESS CREEK RENEWABLES

3402 PICO BLVD. :: SANTA MONICA, CA. 90405
5310 SOUTH ALSTON AVE. :: BLDG. 300 :: DURHAM, NC. 27713

SEAL

PERMIT DRAWING - NOT RELEASED FOR CONSTRUCTION

SEAL

CONSULTANT

NO.	DATE	DESCRIPTION

REVISIONS

PROJECT

KINGLET SOLAR, LLC
TRUSLOW RD
FALMOUTH, VA 22405
STAFFORD COUNTY

DATE:	5.24.22
DRAWN BY:	JTS
CHECKED BY:	-

PRELIMINARY GRADING PLAN

Z 2.0

MOTT MACDONALD

Project:	*Kinglet Solar*	Engineer:	*J. Lizalde*
Client:	*CCR*	Issue Date:	*5/4/22*
Location:	*Falmouth, VA*	Revision:	*1*

OPINION OF PROBABLE COST - PV PLANT DECOMMISSIONING - SAT - 5 Mwac

This opinion of probable costs is based on the engineer's experience in the design and construction of energy facilities and are subject to final engineering. This opinion is also based on our experience supervising the construction of PV plants and supervising the demolition of other non-PV facilities. The engineer accepts no liability for errors, omissions, or the accuracy and adequacy of this opinion. It is a violation of state law for any person, unless they are acting under direction of a licensed professional engineer to alter this document in any way. The engineer is unaware of a significant body of decommissioning PV plants with which to benchmark its opinion of cost. With the exception of the PV modules and inter-module wiring, none of the activities undertaken to disassemble a PV plant are unique to PV plants. Disassembly costs can be estimated similar to other types of facilities.

This opinion assumes a third-party contractor, experienced in the construction and decommissioning of PV facilities will lead the effort. The reported costs include labor, materials, taxes, insurance, transport costs, equipment rental, contractor's overhead, and contractor's profit. Labor costs have been estimated using regional labor rates and labor efficiencies from the Bureau of Labor Statistics. This opinion assumes open-shop labor rates.

This opinion of cost has been split between plant disassembly, site restoration, and salvage which reflects the overall decommissioning process. The PV plant will first be disassembled, with all above and below grade components removed to a depth of 3 feet. This includes all buried cables, conduits, and foundations. Costs for disassembly are overall less than those for original assembly of the facility. While PV modules will need to be removed by hand to retain their salvage value, the racks, buried cables, and concrete can be removed by machine to increase efficiency. It is assumed that concrete, gravel, and fiber optic cable do not have salvage value and will be disposed off site. Other materials are assumed to have salvage value and can be sold at market prices.

It is expected that the entire site will be re-seeded with native grasses and vegetation. Planting of trees, shrubs, and other woody vegetation (re-forestation) or other beautification is not included in the costs. It is assumed that mulching and stabilization of seeded areas will only be required where gravel roads or concrete foundations were removed. As all cables will be direct buried, excavation to remove the cables will not be required, and the disturbance to those areas will be minimal. The remainder of site will already be vegetated and disassembly activities will not significantly disturb the vegetation. Seeding in those areas is included as a precautionary measure.

It is assumed that re-grading of the site to remove diversion dikes and retention ponds is not required. The earth-moving required to remove these features would likely trigger a NPDES (or state/local equivalent) permit, which would in turn require those same features to be installed to control stormwater on the site. In addition, it is assumed no new erosion and sediment control measure will be required for disassembly. These would have been put in place during the original construction, and would be required to remain in place and properly maintained for the project life.

Salvage values, if included, have been estimated using publicly available data from http://www.scrapmonster.com (May 2022) and are subject to change at the time of decommissioning. Inverters were priced at the rate for Complete Computers, which is lower than what could be attained if they were disassembled on site. Transformers were priced at 80% of the market rate for Sealed Unit Transformers. PV modules may have residual value as functioning units, but were instead assumed to be priced a Low Grade Boards.

Inflation in this estimate has been projected based on the Producer Price Indices for Final Demand Construction. PPI is a more appropriate measure than CPI as it is targeted to the specific commodity. Detailed assumptions and the total opinion of cost for decommissioning is provided on the next sheets. Inflation has not been assumed for salvage values.

MOTT MACDONALD

Project:	*Kinglet Solar*	Engineer:	*J. Lizalde*
Client:	*CCR*	Issue Date:	*5/4/22*
Location:	*Falmouth, VA*	Revision:	*1*

PV PLANT ANTICIPATED DISASSEMBLY METHODS	
ITEM	DISASSEMBLY METHOD
PV Modules	Hand Removal. Place modules face down on pallets, tape wire ends, tied down and transport via skid-steer to staging location. Assumed 5% breakage, salvage value for crystalline, no salvage for thin-film. 1200 modules/day, 6-person crews
Inverters	Removal by crane and transport via flat-bed to staging location. Assume no disassembly. Assumed salvage value.
Transformers	Removal by crane and transport via flat-bed to staging location. Assume no disassembly. Oil removal performed by scrap facility. Assumed salvage value.
Racking Frame	Stabilize w/ machine. Cut legs and lower to ground level. Cut cross beams to appropriate size and transport via dump truck to staging location. Assumed salvage value.
Racking Posts	Remove via post-puller and transport via dump truck to staging location. Assumed salvage value.
Racking Wiring	Disconnect PV connectors, cut cable ties, and remove wires from cable tray. Transport via dump truck to staging area. Assumed salvage value.
Underground Cable	Excavate to cable depth at one end of trench. Use tractor or backhoe pull out all cables in common trench. Cables are direct buried so complete excavation of trenches is not required. Transport via dump truck to staging area. Assumed salvage value.
Fence	Machine roll fence fabric. Remove posts via post-puller and transport via dump truck to staging location. Assumed salvage value.
Concrete	Remove with excavator and jack hammer. Backfill and compact as needed. Transport via dump truck to staging area. Assumed offsite disposal.
Gravel	Remove with skid steer with sweeper. Transport via dump truck to staging area. Assumed offsite disposal.
Offsite Disposal	Assumed disposal at $95/ton or $45/CY including tipping fee.
Re-Seeding	Re-seed using an ATV-pulled drill seeder, at 5lbs bulk seed per acre of native grasses. Stabilize and mulch on areas where concrete or gravel was removed only.
Re-Grading	No bulk re-grading is included as this would alter site hydrology.
Erosion & Sediment Control	Install silt fence around project perimeter. Install tracking control at site entrance and replace once during disassembly. Remove at end of disassembly. We anticipate net soil disturbance is < 1 acre.
Energy Storage System	Assumes a containerized solution w/ up to 5MWh per container. Container has assumed salvage value. Batteries and racks have offsite disposal. Other components addressed as above.

MOTT MACDONALD

Project:	*Kinglet Solar*	Engineer:	*J. Lizalde*
Client:	*CCR*	Issue Date:	*5/4/22*
Location:	*Falmouth, VA*	Revision:	*1*

OPINION OF PROBABLE COST - PV PLANT DECOMMISSIONING - 5 MW - ANNUAL INFLATION=1.3% - END OF LIFE: YEAR 40

DISASSEMBLY & DISPOSAL

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
1.0	PV Modules (560 W)	11,610	$ 1.92	$ 22,291.20
2.0	PV Inverter(s) (2.8 MVA)	2	$ 1,207	$ 2,414.00
3.0	PV Transformer(s) (2.8 MVA)	2	$ 603	$ 1,206.00
4.0	ESS Inverter(s) (2MVA)	0	-	-
5.0	ESS Container(s)	0	-	-
6.0	ESS Transformer(s) (2MVA)	0	-	-
7.0	Racking Frame (Single Axis)	144	$ 154	$ 22,176.00
8.0	Racking Posts	1,880	$ 17	$ 31,960.00
9.0	Tracker Motors	144	$ 21	$ 3,024.00
10.0	Racking Wiring	140,935 LF	$ 0.08	$ 11,274.80
11.0	Underground Cable (LV, MV, Comm)	18,472 LF	$ 0.53	$ 9,790.16
12.0	PV Plant Fence	5,660 LF	$ 2.58	$ 14,602.80
13.0	Interconnection Facilities	1 LS	$ 8,385.00	$ 8,385.00
14.0	Concrete	7 CY	$ 81	$ 567.00
15.0	Gravel	620 CY	$ 30	$ 18,600.00
16.0	Offsite Disposal by Volume	628 CY	$ 45	$ 28,260.00
17.0	Offsite Disposal by Weight	7.01 TON	$ 95	$ 665.95
18.0	General Conditions	5 MW	$ 3,647	$ 18,235.00
			SUBTOTAL	$ 193,451.91

SITE RESTORATION

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
19.0	Re-Seeding	36 ACRES	$ 136	$ 4,896.00
20.0	Re-Grading	0 CY	$ 20	$ -
21.0	Erosion and Sediment Control	1 LS	$ 18,286	$ 18,286.00
			SUBTOTAL	$ 23,182.00

SALVAGE

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
22.0	PV Modules (560 W)	11,030	$ 14	$ 154,420.00
23.0	PV Inverter(s) (2.8 MVA)	2	$ 2,998	$ 5,996.00
24.0	PV Transformer(s) (2.8 MVA)	2	$ 4,032	$ 8,064.00
25.0	ESS Inverter(s) (2MVA)	0	$ 2,998	$ -
26.0	ESS Container(s)	0 LBS	$ 0.18	$ -
27.0	ESS Transformer(s) (2MVA)	0	$ 4,032	$ -
28.0	Racking Frame (Single Axis)	477,419 LBS	$ 0.18	$ 85,935.42
29.0	Racking Posts	310,200 LBS	$ 0.18	$ 55,836.00
30.0	Tracker Motors	7,776 LBS	$ 0.39	$ 3,032.64
31.0	Interconnection Steel Structures	0 LBS	$ 0.18	$ -
32.0	Interconnection Power & Instrument Transformers	2,912 LBS	$ 0.18	$ 524.16
33.0	Interconnection Disconnect Switches (1 & 3-Phase)	451 LBS	$ 0.81	$ 365.31
34.0	Interconnection Primary Conductor	0 LBS	$ 0.81	$ -
35.0	Interconnection Pre-Fab Steel Buildings	0 LBS	$ 0.18	$ -
36.0	Control Panels	0 LBS	$ 0.18	$ -
37.0	Electronic Controls	52 LBS	$ 0.25	$ 13.00
38.0	LV Wiring (PV Plant & Interconnection)	9,939 LBS	$ 1.86	$ 18,486.54
39.0	MV Wiring	26,565 LBS	$ 1.48	$ 39,316.20
40.0	Chain Link Fence (PV Plant & Interconnection)	86,670 LBS	$ 0.18	$ 15,600.60
			SUBTOTAL	$ 387,589.87

TOTAL DISASSEMBLY, DISPOSAL, & SITE RESTORATION COST	*$*	*216,633.91*
TOTAL SALVAGE VALUE	*$*	*387,589.87*
NET DECOMMISSIONING COST	*$*	*(170,955.96)*

Mott MacDonald

5/4/2022

John Miller, PE
Principal Project Manager - Renewables / Energy Storage
(919) 762-3732

Date