



# Jasper County Planning and Building Services

358 Third Avenue - Post Office Box 1659  
Ridgeland, South Carolina 29936  
Phone (843) 717-3650 Fax (843) 726-7707

Lisa Wagner, CFM  
Director of Planning and Building Services  
lwagner@jaspercountysc.gov

## Jasper County Planning Commission Staff Report

<b>Meeting Date:</b>	July 16, 2024
<b>Project:</b>	Zoning Map Amendment - Solar Farm Floating Zone
<b>Applicant:</b>	Moffett Solar II, LLC
<b>Tax Map Number:</b>	TMS# 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003 and 059-00-01-033
<b>Submitted For:</b>	Action
<b>Recommendation:</b>	Staff Recommends Approval

**Description:** This agenda item was reviewed and tabled at the June 18, 2024 Planning Commission Meeting. Some of the Commissioners expressed environmental concerns about the use of herbicides for controlling weeds and killing grass around the solar panels as opposed to mowing the grass. Staff was asked to contact SCDHEC to obtain information about the solar farm across the street to make sure there were no issues with chemicals being used that could result in contamination of surface and groundwater, creating an adverse impact on the environment. Staff has called SCDHEC 4 times and left messages and also followed up with an email but has not received any response. Staff has also reached out to Dominion Energy with no response yet.

Moffett Solar II, LLC is requesting that the Solar Farm Floating Zone (SFFZ) be applied to the subject properties as depicted on the Concept Map prepared for Moffett Solar II, LLC, which consists of approximately 740 acres. The site itself is bounded by Grays Highway to the east, Firetower Road to the north, and Langfordville Road to the west. Moffett Solar II, LLC is proposing a 74.9 megawatt (MW) solar farm. The electricity that will be generated from the photovoltaic (PV) solar panels, which will interconnect into Santee Cooper's existing electrical grid. The anticipated project life is 40 years.

**Analysis:** In accordance with the SFFZ Ordinance, a concept plan has been prepared which depicts the setbacks, buffers, access roads, areas of wetlands, areas where the solar panels will be located, and areas to be fenced. A project narrative illustrating how the ordinance will be met to secure the SFFZ designation has been included.

As shown on the concept plan, a 100' vegetated buffer is proposed along Grays Highway, Firetower Road, and Langford Road. Where the property abuts residential properties, a 200' vegetated buffer is proposed and a 50' vegetated buffer is proposed along properties that are zoned Rural Preservation, which are all heavily forested.

Other buffers include a 50' riparian buffer around all wetlands. In addition to the buffers, a 25' setback will be established along the interior of the bufferyards. The solar farm will have approximately 5 pods of solar panels. Each pod will be fenced in creating a wildlife corridor and leaving the wetlands undisturbed, except for the 3 wetland crossings that currently exist.

**Other Information:** Moffett Solar II entered into a Purchase Option Agreement with the property owner, TRR Real Estate, LLC on December 18, 2017, for the purpose of developing a solar farm. TRR Real Estate intends to retain a portion of parcel number 059-00-01-002, which will be subdivided at the time of purchase or contemporaneous with the purchase of the property. The buyer and the seller have also agreed through a Memorandum of Understanding (MOU), that the bufferyard and setback requirement will be reduced to 0' once the new boundary line is created for parcel number 059-00-01-002. Although security fencing will be constructed, both parties agree solar panels will not need to be screened from view for the remaining TRR Real Estate property.

Zoning application signs have been posted in various areas of the project site. Two (2) on Grays Highway, one (1) on Firetower Road, and two (2) on Langfordville Road. Notices have been sent to all property owners within 500' of the project site.

**Staff Recommendation:** Staff recommends approval of the Solar Farm Floating Zone to be applied to parcel numbers 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003 and 059-00-01-033

#### **Attachments**

1. Application provided by the applicant
2. Authorization Letter from the property owner
3. Purchase Option Agreement
4. Project Narrative
5. Conceptual Plan – Moffett Solar II, prepared by Wood.
6. Glint and Glare Study
7. Decommissioning Plan
8. Memorandum of Understanding
9. Ordinance
10. Article 8:7 of the Jasper County Zoning Ordinance, Solar Farm Floating Zone regulations



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10. Article 8:7 of the Jasper County Zoning Ordinance, Solar Farm Floating Zone regulations



**Katherine E. Ross**

**Partner**

t: 919.835.4671

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katherineross@parkerpoe.com

Atlanta, GA  
Charleston, SC  
Charlotte, NC  
Columbia, SC  
Greenville, SC  
Raleigh, NC  
Spartanburg, SC  
Washington, DC

May 28, 2024

**Via Electronic Mail**

Lisa Wagner, CFM  
Director of Planning and Building Services  
Jasper County Planning Department  
358 Third Avenue  
Ridgeland, SC 29936

*Re: Moffett Solar II Application*

Dear Lisa,

Enclosed please find the Zoning Map Amendment application of Moffett Solar II, LLC. The submission consists of the application form, project narrative, memorandum of purchase option, property owner authorization letter, conceptual plan, Glint and Glare Report, and Decommissioning Plan (the "Rezoning Application"). A check in the amount of \$1,500 was overnighted via FedEx and received by your office today (tracking number: 776518609334).

The proposed development is a 74.9 megawatt (MW) alternating current (AC) photovoltaic solar facility (the "Project"). The Project is located on privately-owned land located between Langfordville Road to the West, Firetower Road to the North, and Grays Highway (U.S. 278) to the East. The Project, as reflected on the conceptual plan, is designed to comply with or exceed all applicable requirements of the Jasper County Zoning Ordinance, including the development standards for solar farms set forth in Section 8:7.

Thank you for your attention to this Rezoning Application. We request that the application be placed on the agenda for the June 18, 2024 Planning Commission meeting. Please let us know if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads 'Katherine E. Ross'.

Katherine E. Ross

Enclosures

Giacomo Cernjul (via email)

PPAB 11034403v1

Parker Poe Adams & Bernstein LLP PNC Plaza 301 Fayetteville Street Suite 1400 Raleigh, NC 27601

t 919.828.0564 f 919.834.4564 www.parkerpoe.com




## Jasper County Planning Department

358 Third Avenue - Post Office Box 1659  
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 Phone (843) 717-3650 Fax (843) 726-7707

### Zoning Map Amendment Application

<b>Owner or Owner-Authorized Applicant:</b>	Moffett Solar II
<b>Address:</b>	Moffett Solar II Attn: Giacomo Cernjul 300 Spectrum Center Dr, Suite 500 Irvine, CA 92618
<b>Telephone:</b>	(561) 945-1491
<b>Email:</b>	giacomo.cernjul@qcells.com
<b>Property Address or Physical Location:</b>	The project is proposed on parcels located between Langfordville Road to the west, Firetower Road to the North, and Grays Highway (U.S. 278) to the east.
<b>Tax Map Number(s)</b>	Portions of parcels: 059-00-01-002; 059-00-01-003; 050-00-06-002; 059-00-01-033; and 050-00-06-005.
<b>Gross Acreage:</b>	+/- 740 acres
<b>Current Zoning</b>	RED and RP
<b>Proposed Zoning:</b>	Solar Farm Floating Zone
<b>Administrative Fee: (\$300 per lot) except for PDD applications</b>	\$1,500.00
<b>Date Mailed or Hand Delivered:</b>	Delivered May 28, 2024
<b>Reason for Request: (attach narrative if necessary)</b>	The Applicant requests that the solar farm floating zone be overlaid on the above listed properties to allow for the development of a solar farm, as defined in the County zoning ordinance.


May 24, 2024  


---

 Signature of Owner or Owner-Authorized Applicant Date  
 (Proof of owner-authorization required)

#### Internal Use Only

<b>Date Received:</b>	
<b>Amount Received:</b>	
<b>Staff Member:</b>	

Lisa Wagner  
Director of Planning and Building Services  
Jasper County, SC  
PO Box 1659  
Ridgeland, SC 29936

Re: Authorization of applications for Moffett Solar II  
Parcels: 059-00-01-002; 059-00-01-003; 050-00-06-002; 059-00-01-033; and  
050-00-06-005.

Dear Ms. Wagner:

TRR Real Estate LLC ("TRR") is the owner of the above - referenced parcels that are the subject of a Zoning Map Amendment Application, and on which the Moffett Solar II solar facility is proposed to be developed. TRR has entered into purchase options for the subject property with Moffett Solar II LLC, and authorizes Moffett Solar II LLC, its consultants, and its attorneys to submit any applications necessary to obtain approvals for the development and construction of the Moffett Solar II solar facility.

Please contact me at 704-661-5251 or [tomr@seas-tr.com](mailto:tomr@seas-tr.com) if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Tom Rochester". The signature is written in a cursive, flowing style.

Thomas R. Rochester, Manager  
TRR Real Estate, LLC

OR BK 1128 PG 1249 - 1252 (4)  
202300003748 07/05/2023 11:27:00 AM  
eFiled for Record in JASPER COUNTY, SC ROD  
AMND Fee: \$10.00  
State Tax: \$0.00 Local Tax: \$0.00  
Vanessa Wright, Registrar

RECORDING REQUESTED BY AND  
WHEN RECORDED RETURN TO:

Moffett Solar II, LLC  
c/o Leeward Renewable Energy Development, LLC  
6688 N. Central Expressway, Suite 500  
Dallas, Texas 75206  
Attn: Legal Department

**AMENDMENT TO SHORT FORM MEMORANDUM OF PURCHASE OPTION AGREEMENT**

**THIS AMENDMENT TO SHORT FORM MEMORANDUM OF PURCHASE OPTION AGREEMENT** (this "**Amendment**") is entered into as of the 28 day of June, 2023, but shall be deemed effective as of March 17, 2023 (the "**Effective Date**"), by and between TRR REAL ESTATE LLC, a North Carolina limited liability company ("**Seller**"), and GEORGETOWN SOLAR I, LLC, a Delaware limited liability company ("**Purchaser**");

- Recitals**
- A. Seller and Purchaser executed that certain Purchase Option Agreement dated as of December 18, 2017, as amended by that certain First Amendment to Purchase Option Agreement dated as of March 17, 2021 between Seller and Purchaser, as amended by that certain Second Amendment to Purchase Option Agreement dated as of March 31, 2022 (collectively, the "**Agreement**"), a memorandum of which was recorded on March 27, 2018, in the real estate records of Jasper County, South Carolina, in Book 97 at Page 169-175, as amended by Amendment to Short Form Memorandum of Purchase Option between Seller and Purchaser recorded on May 16, 2022, in the real estate records of Jasper County, South Carolina, in Book 1102 at Page 246 - 249 (collectively, the "**Original Memorandum**"), relating to certain real property more particularly described in the Agreement (the "**Property**");
- B. Contemporaneously herewith, the parties have entered into a Third Amendment to Purchase Option Agreement (the "**Third Amendment**") to amend various terms as more specifically set forth therein, including, without limitation, to extend the term of the Agreement and to otherwise reinstate, ratify, and affirm the other terms of the Agreement ; and
- C. The parties desire to execute this Memorandum and cause the same to be recorded in the real estate records of Jasper County, South Carolina for the purposes of amending the Original Memorandum and providing third parties with notice of the Third Amendment.

**NOW THEREFORE**, in consideration of the above recitals, the mutual covenants and conditions contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Seller and Purchaser hereby agree as follows:

1. **Recitals; Capitalized Terms.** The foregoing recitals are incorporated herein by reference. For purposes of this Amendment, all capitalized terms not specifically defined in this Amendment shall have the same meaning as in the Agreement.



2. **Amendment.** The second paragraph of the Original Memorandum hereby deleted in its entirety and replaced with the following:

"NOW, THEREFORE, for and in consideration of the sum of Five and 00/100 Dollars (\$5.00) and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties do hereby confirm that Seller has granted to Purchaser the right and option to purchase that certain real property described in Exhibit A attached hereto and incorporated herein, as more fully set forth in the Option Agreement, which shall expire on the date that is three (3) years after the Effective Date, unless exercised or terminated by Purchaser, as more fully set forth in the Option Agreement. All the terms of the Option Agreement are incorporated herein by reference as if set forth verbatim."

3. **Ratification.** Except as expressly modified and amended by the provisions of this Amendment, all terms, covenants and conditions of the Agreement (except to the extent otherwise amended by the Amendment) shall remain in full force and effect in accordance with their terms.

4. **Miscellaneous.** The Agreement is incorporated herein by reference as though fully set forth herein, which Agreement may be found in the files of Landowner or Grantee at the address set forth in the recitals of this Amendment.

[Signatures on Following Page]

CONFIDENTIAL  
Downloaded by:  
Henry Peltz  
Hanwha Q Cells  
Project Thunderbird  
7/6/2023 4:28:43 PM EDT

IN WITNESS WHEREOF, Seller and Purchaser have caused this Amendment to be executed as of the day and year as first above written.

Witness #1:

By: [Signature]  
Name: Peter B. Hennessy

TRR REAL ESTATE LLC

By: [Signature]  
Name: Tom Rochester  
Title: President

Witness #2:

By: [Signature]  
Name: Jody Lewis

STATE OF Massachusetts  
COUNTY OF Barnstable

CONFIDENTIAL  
Notarized by:  
Mary C. Siler, Notary Public  
7/6/2023  
South Carolina Drivers of TRR REAL ESTATE LLC, a North Carolina limited liability company, and that he/she as such President, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the MyCSL by himself/herself as such Notary

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

[Signature]  
Notary Public

My Commission Expires:  
3/30/2028



IN WITNESS WHEREOF, Seller and Purchaser have caused this Amendment to be executed as of the day and year as first above written.

Witness #1:

By: [Signature]  
Name: Kevin Chen

MOFFETT SOLAR II, LLC, a Delaware limited liability company

By: [Signature]  
Name: Omar Aboudaher  
Title: Authorized Signatory

Witness #2:

By: [Signature]  
Name: Keegan Burtkus

STATE OF TX  
COUNTY OF Harris

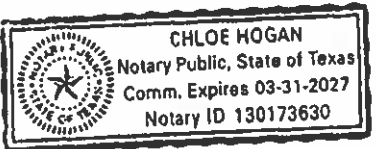
ss:

On this the 21<sup>st</sup> day of Nov, 2023, before me, the undersigned officer, a Notary Public, personally appeared Omar Aboudaher, known to me (or satisfactorily proven) to be the Authorized Signatory of MOFFETT SOLAR II, LLC, a Delaware limited liability company, and that he/she as such Omar Aboudaher being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited liability company by himself/herself as such Omar Aboudaher.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

[Signature]  
Notary Public

My Commission Expires:



CONFIDENTIAL  
Project: [illegible]  
7/6/2023 4:20 PM EDT

# MOFFETT SOLAR II ZONING MAP AMENDMENT APPLICATION FOR SOLAR FARM FLOATING ZONE

## PROJECT NARRATIVE

Moffett Solar II, LLC ("Applicant") proposes to develop the Moffett Solar II Project ("Project"), on five parcels, 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003, and 059-00-01-033, which are located between Langfordville Road to the West, Firetower Road to the North, and Grays Highway (U.S. 278) to the East (the "Site").

The Site, which consists primarily of timberland, is currently owned by TRR Real Estate, LLC. The Applicant has entered options to purchase the property on which the solar facility will be constructed. The proposed Project has a generating capacity of up to 74.9 megawatts alternating current (MWac) and includes photovoltaic (PV) solar panels (modules) mounted on a single-axis horizontal tracker racking system, inverters, a Project owned substation (the "Project Substation"), and a 115 kV utility owned switchyard. Underground collection lines transmit the electricity generated by the arrays to the Project substation where the generation is stepped up from 34.5 kV to 115 kV. The Project will interconnect to the existing electrical grid at the utility owned switchyard by a 115 kV transmission line (known as a gen-tie line).

As reflected on the Conceptual Plan, the Project is designed to meet or exceed all requirements of the Jasper County Zoning Ordinance (the "Ordinance"). In further support of its request, the Applicant provides the following:

Bufferyards, Screening, and Setbacks

The Project meets or exceed the bufferyard requirements set forth in the Ordinance, which are

**Table 8:7-1**

Bufferyard Requirements							
<i>Proposed Use</i>	<i>Existing Use of Adjacent Properties</i>						
	Agricultural	Single-Family Dwelling	All Other Residential Uses	Office / Institutional	Commercial/ Non-Effluent Industry	Effluent Producing Industries	Street
<b>Solar Farm</b>	50'	*200'	*200'	50'	25'	25'	*100'

As reflected on the Conceptual Plan, the Project is designed with the following bufferyards:

- 200-foot vegetative bufferyard from adjacent properties zoned residential
- 100-foot vegetative bufferyard from streets
- 50-foot vegetative bufferyard from adjacent properties zoned rural preservation/agricultural, all of which are heavily forested.
- 50-foot riparian buffer along wetland edges. The project proposes to supplement the riparian buffer with a cleared, grassed setback to allow maximum sunlight exposure in conformance with applicable shading guidance and for maximum stormwater runoff filtration.

Existing vegetation, which is largely forest, will be preserved within the bufferyard to provide a mature vegetative screen. If there is no existing vegetation, or if the existing vegetation is inadequate to serve

as an effective screen, native tree and shrub species will be planted to provide a visual screen where required. In providing buffers and screening to meet applicable Ordinance requirements, careful thought will be used in determining vegetation types and ultimate height of growth over the 40 year project life.

The Project meets or exceeds the setback requirements set forth in the ordinance, which are 25' larger than the required bufferyard, pursuant to Ordinance § 8:7.3-3.

#### Fencing, Security, and Wildlife Corridors

Access to the solar arrays and Project Substation will be secured by a 6 to 7 foot chain link fence, and in no case less than 6 feet as required by the Ordinance. The required bufferyard will extend from the fence outward to adjoining property lines, and thus the fence will be screened from adjoining properties by the bufferyard.

The Project is designed such that the solar modules are in five (5) pods, also known as arrays. Each solar array is fenced. The corridors between the arrays allows for the movement of wildlife. As reflected on the Conceptual Plan, the Site is bisected, roughly north to south, by two existing transmission lines, which are not fenced and create wildlife corridors that will be undisturbed by the Project. In addition, wetlands on the Site provide a naturally existing corridor running east to west through the Project. The Project is designed to have minimal impacts to streams and wetlands. The Conceptual Plan has been developed using field verified data for wetland and water features. Where underground electrical lines and/or an access road crossing is necessary, existing roads are proposed to be used. The Project will obtain the permits required for the minimal impacts from improving the existing roads.

#### Height

The height of the modules on the trackers at maximum tilt will not exceed the Ordinance maximum of ten (10) feet.

#### Glare

The proposed solar modules are designed with anti-reflective coating that minimizes glare. The Project is designed and located to minimize impacts of glare on adjoining properties. Enclosed with the rezoning application is a Glint/Glare Report prepared by the Applicant's technical consultant Wood Group USA, LLC, which concludes that no glint or glare will be visible on adjacent properties with residences or on adjacent roadways.

#### Driveways

There are four proposed site entrances. Access roads include a dog leg/ meander to obscure vision from the roadway, as required by the Ordinance.

#### Sound

The Project is designed to avoid average/constant noise levels exceeding 50dBA at the property line, except during construction.

#### Transmission Lines

On-site electrical interconnections and powerlines shall be placed underground to the extent feasible.

Signage

A warning sign concerning voltage will be placed at the main gate and will display the site address, name of the solar farm operator, and a local phone number for the solar farm operator in the case of an emergency.

Decommissioning Plan

Enclosed with the Rezoning Application is a Decommissioning Plan that meets the requirements of the Ordinance at section 8:7.6. Furthermore, the Applicant understands that, prior to issuance of a development permit for the Project, the Applicant must provide a performance guarantee as set out in the Ordinance.

Comprehensive Plan Consistency

The Jasper County Comprehensive Master Plan's ("Plan") Future Land Use Map designates the Site as a Rural Conservation area. *Plan p. IV-19*. The preferred development characteristics for this area include preservation of key landscape features and thoughtful placement of new development within the existing landscape, with non-residential development in the area being appropriately buffered. *Plan p. IV-17*. Specifically, the Plan states that solar farms "are not inherently incompatible in this district but should require significant heavily vegetated buffers in order to maintain the rural landscape from the road." *Plan p. IV-18*. As shown on the Conceptual Plan and described above, the Project is designed with bufferyards that meet, and in many instances exceed, the Ordinance requirements. The Site is forested and the Applicant, who has options to purchase the property, will preserve the existing vegetation in the bufferyard. The Project has been designed to minimize or avoid impacts to the environment and to the characteristic of the area.





**wood.**

# **Glint & Glare Study**

**Moffett Solar II**

**Project No. 262154**

**28 May 2024**



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**Figure 1: Vicinity Map with KOPs and 0.25-mile buffer**

**Figure 2: Model Inputs for PV-Array Areas within the Project Site**

**Figure 3: Existing Vegetation Buffers within the Project Site**

**Tables**

**Table 1: Residence- and Road-Based Key Observation Point Details**

**Appendices**

**Appendix A: ForgeSolar Glint & Glare Model Analysis**

**Summary**

Wood has been commissioned by Moffett Solar II, LLC. (the Client) to carry out a Glint & Glare study in accordance with the requirements stipulated in Section 8:7:3 of Jasper County's Zoning Ordinance for the Moffett Solar II project (the Project) in Jasper County, South Carolina. The proposed Project is located directly west of U.S. Hwy 278 and south of State Road S-27-87 (Figure 1). The Project site will consist of a series of monocrystalline silicon photovoltaic (PV) modules fixed to a single-axis solar tracker. It will be built on approximately 740 acres of land and have a generating capacity of 74.9 MWac. The purpose of this study is to summarize the results of solar glare analysis, if any glare is detected from resident- or road-based key observation points (KOPs), the intensity of that glare and, if applicable, eventual mitigation measures. A total of nine road-based and residential-based KOPs were identified within 0.25 mile to the north, east, west, and south of the proposed Project. These included 4 road-based KOPs along Highway 278, Langfordville Road, and Firetower Road, and a total of 5 residence based KOPs to the south, west, and north of the Project Site. Results of the study determined that no glint or glare would be visible at any of the nine residential- or road-based KOPs.

**Definitions**

Glint: Also known as spectacular reflections, produces as a direct reflection of the sun in the surface of the PV solar panel. This is the potential source of the visual issues regarding viewer distraction (Solargen 2010). This is a momentary flash of bright light associated with reflection off a moving surface.

Glare: A continuous source of brightness, relative to diffuse lightning. This is not a direct reflection of the sun, but rather a reflection of the bright sky around the sun. Glare is significantly less intense than glint.

**Approval Record**

	Name	Job Title	Signature
Prepared by:	Erika Mendoza	Renewable Energy Consultant	
Reviewed by:	Brad Norling	Senior Energy Consultant	
Date of issue:	22 May 2024		

## 1 Introduction and Project Overview

Wood has been commissioned by Moffett Solar II, LLC. (the Client) to carry out a Glint & Glare study in accordance with the requirements stipulated in Section 8.7.3 of The County's Zoning Ordinance for the Moffett Solar II project (the Project) in Jasper County, South Carolina. The proposed Project is located directly west of U.S. Hwy 278 and south of State Road S-27-87 (**Figure 1**). The Project site will consist of a series of monocrystalline silicon photovoltaic (PV) modules fixed to a single-axis solar tracker. It will be built on approximately 740 acres of land and have a generating capacity of 74.9 MWac. The purpose of this study is to summarize the results of solar glare analysis, if any glare is detected from resident- or road-based key observation points (KOPs), the intensity of that glare and, if applicable, eventual mitigation measures. Results of the study determined that no glint or glare would be visible at any of the nine residential- or road-based KOPs. The inputs and results of the model are described below.

## 2 Key Observation Points

Representative residences and roadways within 0.25 miles of the Project Boundary were evaluated as potential key observation points (KOPs). The locations of residence- and road-based KOPs were determined from an examination of the direct line-of-sight between each of the residence and the solar array and representative locations along area roadways. A total of 4 road-based KOPs and 5 residential-based KOPs were identified within 0.25 mile of the proposed Project. For each KOP, a height of 4.5 feet was added to the overall ground height to simulate the average viewing height from a vehicle or the ground floor of residence. The details regarding the identification of KOPs are presented in **Table 1**, and the locations of the KOPs are shown in **Figure 1**.

**Table 1: Residence- and Road-Based Key Observation Point Details**

KOP	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Total Elevation (feet)	Distance from Nearest PV Arrays (Feet)	Direction from KOP to Array	Type of KOP
1	32.617719° N	-81.001916° W	76.5	1,525	Southeast	Residential
2	32.622825° N	-81.023069° W	86.5	520	Southwest	Residential
3	32.630236° N	-81.015908° W	86.5	370	Northwest	Residential
4	32.642800° N	-81.006161° W	96.5	1,280	Northwest	Residential
5	32.637208° N	-81.008986° W	89.5	680	Northwest	Residential
6	32.627396° N	-80.999435° W	73.5	215	East	Road-based
7	32.618135° N	-81.016452° W	79.5	1,410	Southwest	Road-based
8	32.613780° N	-81.011457° W	76.5	135	Southwest	Road-based
9	32.635753° N	-81.012380° W	89.5	1,610	North	Road-based

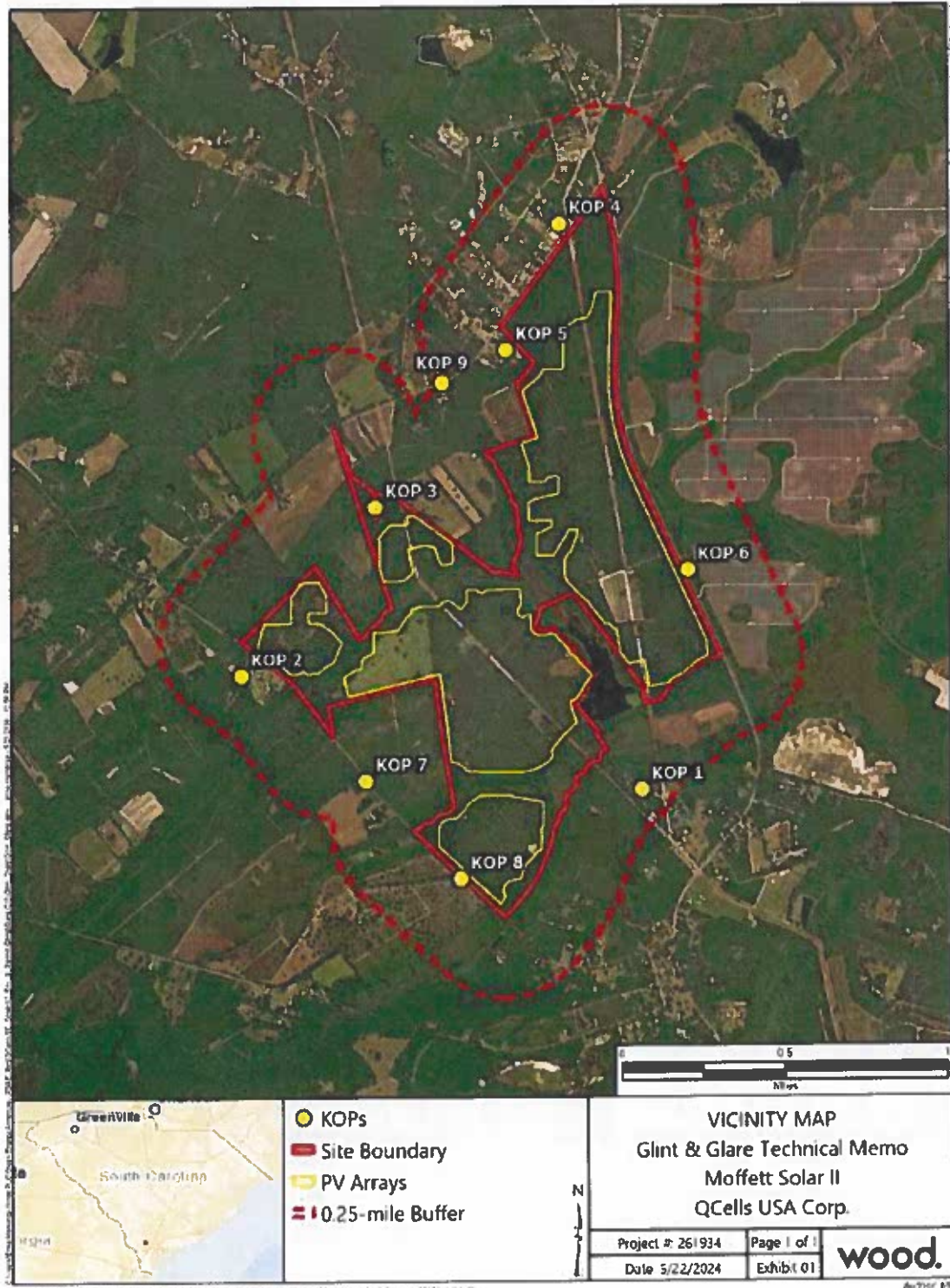


Figure 1: Vicinity Map with KOPs and 0.25-mile buffer

### 3 Glint and Glare Assessment Methodology

To evaluate the timing and intensity of potential Project-related glare, Wood used Forge Solar's GlareGauge solar glare analysis software (formerly the Solar Glare Hazard Analysis Tool (SGHAT)). GlareGauge is a web-based tool that determines when and where solar glare can occur throughout the year from a PV array as viewed from specified observer locations. GlareGauge uses an interactive Google Maps interface together with a few user-specified parameters such as orientation and tilt of the modules to quickly locate a site, outline the proposed array, and calculate the occurrence, intensity, and size of the potential glare throughout the year.

If glare is found, the tool calculates the retinal irradiance and subtended angle (size/distance) of the glare source to predict potential ocular hazards, ranging from a temporary after-image to retinal burn. It produces a color-coded display of the potential for glare to result in an ocular impact.

Once the area of the solar project is located and its design characteristics recorded, information on each of the glare-sensitive receptors must be input. Each of the residence-based OPs is identified on the same map as the solar arrays as an observation point, and the height of the observer is inserted. For purposes of analysis, the Project was divided into five distinct array areas as shown in **Figure 2**. The inputs to the ForgeSolar model are described below.

#### **PV Array Parameters**

Each array consisted of single-axis modules that contain shade-slope backtracking with smooth glass panels coated in antireflective material (ARC). Details of PV array parameters are as follows:

*Tilt of Tracking Axis* – Elevation angle of the tracking axis in degrees, where 0° is facing up and 90° is facing horizontally. The Modules rotate about the tracking axis. 0° was chosen as the modules will be facing up.

*Orientation of Tracking Axis* – Orientation of the tracking axis in degrees, measured clockwise from true north. In this case the value was determined to be 180°.

*Offset angle of Module* – The vertical offset angle between the tracking axis and the panel. No offset was chosen for the single-axis tracker.

*Maximum tracking angle* – The maximum angle the panel will rotate in both the clockwise and counterclockwise directions from the zenith (upward) position. The tracker racking will have a rotation limit of ±60°.

*Rated Power (kW)* – kW power of Solar PV plant. The DC size was used for inputs to this field. DC size of the solar array for the proposed Project is 95,000 kW in total, with that rated power divided between the five PV Arrays. The rated power of each panel can be found in **Figure 2**.

*Module Surface Material* – Type of PV material used and surface finish of panel. Optical surfaces are coated with thin-film anti-reflective coatings (ARC) to diminish reflection. According to specifications from the module manufacturer, it was determined that the input 'Smooth Glass with ARC' would be the most accurate option.

*Reflectivity of PV module* – The near-normal specular reflectance of PV glass (e.g., with AR coating) can be as low as 2%, the reflectance can increase as the incidence angle of the sunlight increases (glancing angles).

**Name:** PV array 1  
**Footprint area:** 234.6 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 43000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

**Name:** PV array 4  
**Footprint area:** 31.8 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 4300.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

**Name:** PV array 2  
**Footprint area:** 176.4 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 30000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



**Name:** PV array 5  
**Footprint area:** 27.3 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 4300.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

**Name:** PV array 3  
**Footprint area:** 47.0 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 13000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



**Figure 2: Model Inputs for PV-Array Areas within the Project Site**



Slope error – Mirror-like surfaces that produce specular reflections will have a slope error closer to zero, while rough surfaces that produce more scattered (diffuse) reflections have higher slope errors. Based on ForgeSolar's recommendation, a varying mrad value was used.

Latitude and Longitude – Latitude and Longitude of the PV array boundary vertices. Used to define the area covered by proposed PV Array. Latitude and longitude correspond to vertex ID's. ForgeSolar creates a reflective plane using these values for the glint and glare assessment.

Ground Elevation – Elevation of vertices above sea level. Values are pulled into the table once the vertex is located. This is the point's base elevation. This value is used to 'shape' the reflective plane used to estimate glint and glare.

Height above Ground – User input to modify/correct vertex elevation above ground. This point can be defined as 'PV array installation height above ground'. Since this project uses a single-axis tracker system an average value of 4.5 feet was used. Actual height varies from 3 to 9 feet above ground.

Total Elevation – Is calculated after adding the 'Ground Elevation' and "Height above Ground". All units are in feet.

Ground Elevation – Elevation of KOPs above sea level. Values are pulled into the table once the KOP is located. This is the point's base elevation.

Eye level Height above ground – User input to modify/correct observer's elevation above ground. Input values used were 5 feet added to the overall ground height to simulate the average viewing height from a vehicle and ground floor of a residence.

### **PV Array Vertices Parameters**

Latitude and Longitude – Latitude and Longitude of PV array boundary vertices. This information is used to define the area covered by the proposed PV arrays. Latitude and longitude correspond to vertex ID's for each of the 5 array areas. ForgeSolar creates a reflective plane using these values for the glint and glare assessment for each of the arrays.

Ground Elevation – Elevation of vertices above sea level. Values are pulled into the table once the vertex is located. This is the point's base elevation. This value is used to 'shape' the reflective plane used to estimate glint and glare.

Height above Ground – User input to modify/correct vertex elevation above ground. This point can be defined as 'PV array installation height above ground'. Since this project uses a system, an average value of 4.5 feet was used. Actual height varies from 3 to 9 feet above ground.

Total Elevation – Is calculated after adding the 'Ground Elevation' and "Height above Ground". All units are in feet.

### Residential- and Road-based KOP Parameters

Ground Elevation – Elevation of KOPs above sea level. Values are pulled into the table once the KOP is located. This is the point's base elevation.

Eye Level Height Above Ground – User input to modify/correct observer's elevation above ground. Input values used were 4.5 feet. A 4.5-foot average for observer's height above ground is used for residences and highways.

## 4 Glint and Glare Results

Results of the ForgeSolar glare analysis determined that no glint or glare would be visible at any of the nine residential or road-based KOPs. The absence of glare seen from any of the KOPs is due to the difference in the location and direction of the KOPs relative to nearby arrays, the angle of the sun, and the presence of vegetative screening between the each of the KOPs and nearby arrays. A minimum 200-foot buffer of existing mature vegetation from the property line of adjacent residential uses will be maintained and a minimum 100-foot buffer of existing mature vegetation will be maintained from public roadways (**Figure 3**). If there is no existing vegetation or if the existing vegetation is inadequate to serve as an effective screen, native tree and shrub species would be planted to provide a visual screen where required.

## 5 References

- Pfaff J., Solargen Energy Panoche Valley Solar Farm Project Glint and Glare Study, Power Engineers Inc. Accessed May 2024.
- Caddington PV Solar Farm. 2010. Review of the PV reflection studies in the public domain. Garrad Hassan & Partners Ltd. Accessed May 2024.
- ForgeSolar: PV Planning and Glare Analysis. *ForgeSolar*, [www.forgesolar.com/help/](http://www.forgesolar.com/help/). Accessed May 2024.



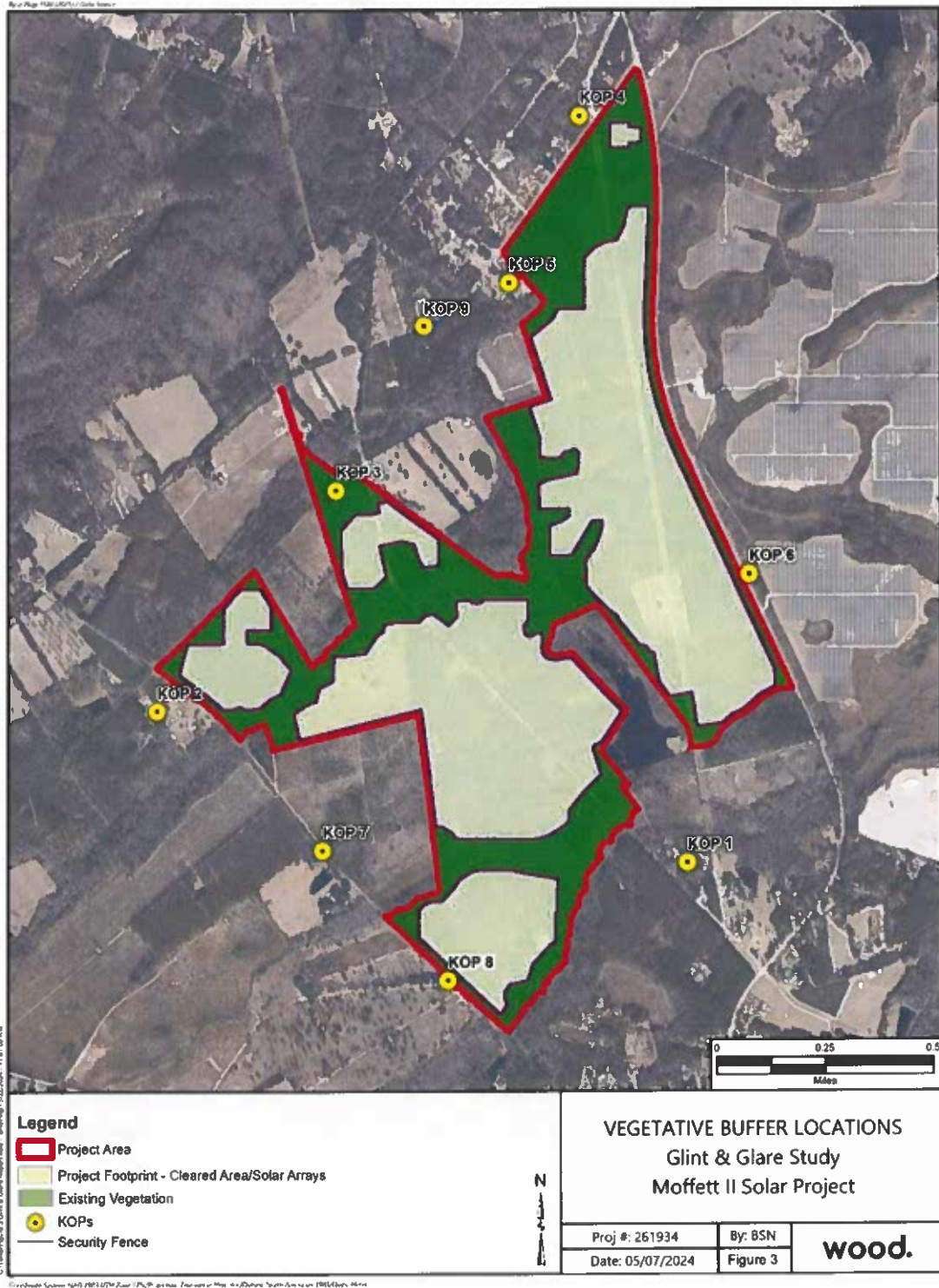


Figure 3: Existing Vegetation Buffers within the Project Site

# Appendix A



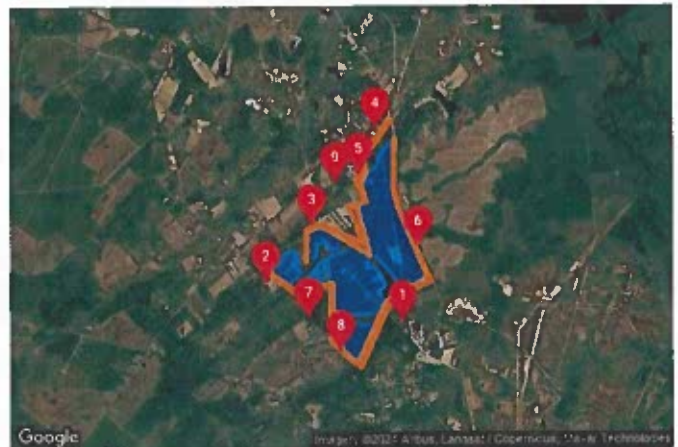
# Moffet

## Moffet 1

Client: QCells

Created May 01, 2024  
 Updated May 22, 2024  
 Time-step 1 minute  
 Timezone offset UTC-4  
 Minimum sun altitude 0.0 deg  
 Site ID 118685.20288

Project type Advanced  
 Project status: active  
 Category 100 MW to 1 GW



### Misc. Analysis Settings

DNI: varies (1,000.0 W/m<sup>2</sup> peak)  
 Ocular transmission coefficient: 0.5  
 Pupil diameter: 0.002 m  
 Eye focal length: 0.017 m  
 Sun subtended angle: 9.3 mrad

PV Analysis Methodology: Version 2  
 Enhanced subtended angle calculation: On

### Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
PV array 1	SA tracking	SA tracking	0	0	126,400,000.0
PV array 2	SA tracking	SA tracking	0	0	85,460,000.0
PV array 3	SA tracking	SA tracking	0	0	37,130,000.0
PV array 4	SA tracking	SA tracking	0	0	12,940,000.0
PV array 5	SA tracking	SA tracking	0	0	12,930,000.0

### PV Array(s)

Total PV footprint area: 516.1 acres

**Name:** PV array 1  
**Footprint area:** 233.6 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 43000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	32.637755	-81.003268	87.75	4.50	92.25
2	32.640628	-81.003493	90.34	4.50	94.84
3	32.641323	-81.003336	87.92	4.50	92.42
4	32.641178	-81.004334	87.97	4.50	92.47
5	32.640681	-81.004194	90.80	4.50	95.30
6	32.639290	-81.005814	112.01	4.50	116.51
7	32.638648	-81.005777	119.49	0.00	119.49
7	32.638648	-81.005777	119.49	0.00	119.49
8	32.638368	-81.005825	114.44	4.50	118.94
9	32.636950	-81.007423	91.77	4.50	96.27
10	32.635964	-81.006966	76.33	4.50	80.83
11	32.635621	-81.008360	81.47	4.50	85.97
12	32.633362	-81.007545	77.47	4.50	81.97
13	32.632981	-81.008840	65.96	4.50	70.46
14	32.627017	-81.007037	58.35	4.50	62.85
15	32.622423	-81.002202	69.25	4.50	73.75
16	32.622712	-81.001258	56.62	4.50	61.12
17	32.623507	-80.998082	56.34	4.50	60.84
18	32.627845	-81.000228	77.58	4.50	82.08
19	32.632398	-81.002545	77.76	4.50	82.26
20	32.634896	-81.003389	83.49	4.50	87.99

**Name:** PV array 2  
**Footprint area:** 178.4 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 30000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	32.621671	-81.018423	77.85	4.50	82.35
2	32.622864	-81.012801	80.20	4.50	84.70
3	32.618346	-81.012543	69.87	4.50	74.17
4	32.618129	-81.011685	68.38	4.50	72.88
5	32.618635	-81.010097	73.05	4.50	77.55
6	32.618635	-81.006449	56.29	4.50	60.79
7	32.619394	-81.006106	52.23	4.50	56.73
8	32.620587	-81.004690	53.26	4.50	57.76
9	32.621454	-81.005677	57.75	4.50	62.25
10	32.621924	-81.005076	52.27	4.50	56.77
11	32.622575	-81.004604	46.50	4.50	51.00
12	32.624888	-81.006149	67.62	4.50	72.12
13	32.624743	-81.007393	67.21	4.50	71.71
14	32.625900	-81.007565	69.90	4.50	74.40
15	32.626948	-81.008380	65.81	4.50	70.11
16	32.627382	-81.009067	56.40	4.50	60.90
17	32.626442	-81.012801	62.40	4.50	66.90
18	32.625430	-81.014775	66.71	4.50	71.21

**Name:** PV array 3  
**Footprint area:** 47.0 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 13000.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	32.615745	-81.012515	83.92	4.50	88.42
2	32.616703	-81.011807	71.32	4.50	75.82
3	32.617372	-81.010605	60.58	4.50	65.08
4	32.617552	-81.009596	70.41	4.50	74.91
5	32.617245	-81.008030	63.16	4.50	67.66
6	32.617516	-81.007172	61.58	4.50	66.08
7	32.616251	-81.006850	53.22	4.50	57.72
8	32.615221	-81.007300	57.96	4.50	62.46
9	32.613865	-81.008094	57.79	4.50	62.29
10	32.613341	-81.008802	64.78	4.50	69.28
11	32.612546	-81.009403	62.83	4.50	67.33
12	32.615203	-81.012729	82.50	4.50	87.00

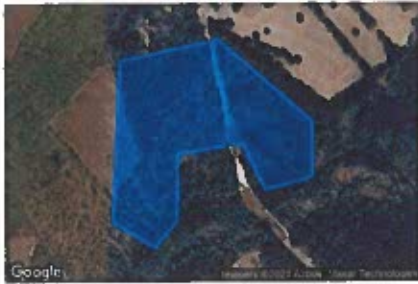
**Name:** PV array 4  
**Footprint area:** 31.8 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 4300.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	32.625270	-81.018973	97.25	4.50	101.75
2	32.624041	-81.017450	77.90	4.50	82.40
3	32.622468	-81.019853	98.26	4.50	102.76
4	32.622902	-81.020561	92.70	4.50	97.20
5	32.624420	-81.022857	102.21	4.50	106.71
6	32.625179	-81.021119	108.79	4.50	113.29
7	32.625866	-81.021055	116.52	4.50	121.02
8	32.626679	-81.020154	113.71	4.50	118.21
9	32.627095	-81.018888	101.07	4.50	105.57
10	32.626191	-81.018287	96.63	4.50	101.13
11	32.625342	-81.018051	105.29	4.50	109.79



**Name:** PV array 5  
**Footprint area:** 27.3 acres  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0 deg  
**Maximum tracking angle:** 60.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.41  
**Rated power:** 4300.0 kW  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	32.630064	-81.014261	78.44	4.50	82.94
2	32.628474	-81.012072	104.63	4.50	109.13
3	32.627371	-81.012072	70.60	4.50	75.10
4	32.627137	-81.013167	71.37	4.50	75.87
5	32.628040	-81.013682	80.10	4.50	84.60
6	32.627841	-81.015184	102.89	4.50	107.39
7	32.626522	-81.015205	84.61	4.50	89.11
8	32.626016	-81.015720	76.50	4.50	81.00
9	32.626504	-81.016707	81.02	4.50	85.52
10	32.629648	-81.016535	94.77	4.50	99.27

### Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	32.617719	-81.001917	70.02	4.50	74.52
OP 2	32.622826	-81.023069	86.89	4.50	91.39
OP 3	32.630236	-81.015908	81.45	4.50	85.95
OP 4	32.642800	-81.006162	96.70	4.50	101.20
OP 5	32.636864	-81.008728	83.53	4.50	88.03
OP 6	32.627396	-80.999435	69.41	4.50	73.91
OP 7	32.618135	-81.016452	74.62	4.50	79.12
OP 8	32.613780	-81.011446	71.95	4.50	76.45
OP 9	32.635753	-81.012380	82.87	4.50	87.37

### Obstruction Components

Name: Obstruction 1 - 100 foot Street buffer  
Upper edge height: 32.8 ft



Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.624428	-81.023324	91.39
2	32.621346	-81.018431	83.60
3	32.622437	-81.013135	76.90
4	32.615217	-81.013062	73.22
5	32.612250	-81.009319	58.68
6	32.612474	-81.009388	61.89
7	32.615226	-81.012792	80.89
8	32.622762	-81.012856	79.22
9	32.621606	-81.018413	78.36
10	32.624655	-81.023258	90.69

Name: Obstruction 2 - Existing Wetlands  
Upper edge height: 32.8 ft



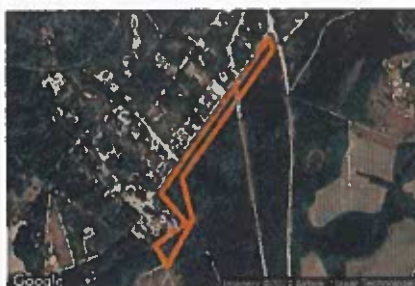
Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.611684	-81.008391	61.11
2	32.620188	-81.003810	43.57
3	32.621440	-81.001278	47.46
4	32.622998	-80.997341	56.56
5	32.623559	-80.997673	58.77
6	32.621842	-81.001332	53.57
7	32.620360	-81.004465	53.49
8	32.617658	-81.005935	41.97
9	32.612326	-81.008831	53.56
10	32.611689	-81.008418	60.86

Name: Obstruction 3 - 100 foot Natural Street Buffer  
Upper edge height: 32.8 ft



Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.630659	-81.001630	72.99
2	32.623441	-80.998009	54.14
3	32.623554	-80.997779	58.38
4	32.632393	-81.002454	79.22
5	32.634914	-81.003251	84.76
6	32.641780	-81.003127	89.88
7	32.641401	-81.003289	90.33
8	32.634902	-81.003352	84.07
9	32.632404	-81.002534	78.15
10	32.630649	-81.001622	72.84

Name: Obstruction 4 - 100 foot Natural Street Buffer  
Upper edge height: 32.8 ft



Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.644275	-81.004008	94.85
2	32.638312	-81.009029	95.71
3	32.637156	-81.007871	92.89
4	32.636288	-81.009330	84.05
5	32.635529	-81.008729	89.92
6	32.637264	-81.007549	96.51
7	32.638890	-81.008042	116.01
8	32.643823	-81.003815	94.63
9	32.644275	-81.004008	94.85

Name: Obstruction 5 - Existing Wetlands  
Upper edge height: 32.8 ft



Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.632905	-81.009146	67.19
2	32.632724	-81.010347	73.32
3	32.627936	-81.008116	63.83
4	32.630637	-81.014703	78.01
5	32.629779	-81.016827	94.71
6	32.625478	-81.016924	77.12
7	32.629707	-81.016634	95.14
8	32.630194	-81.014403	79.73
9	32.626436	-81.007043	45.29
10	32.632905	-81.009146	67.19

Name: Obstruction 6 - 50 foot Agricultural Buffer  
Upper edge height: 32.8 ft



Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	32.635553	-81.008409	78.74
2	32.635250	-81.008291	79.11
3	32.633362	-81.007567	77.21
4	32.632718	-81.010544	73.34
5	32.632806	-81.010550	73.88
6	32.633394	-81.007701	74.42
7	32.635485	-81.008656	88.10
8	32.635553	-81.008409	78.74



## Summary of PV Glare Analysis

*PV configuration and total predicted glare*

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
PV array 1	SA tracking	SA tracking	0	0	126,400,000.0	-
PV array 2	SA tracking	SA tracking	0	0	85,460,000.0	-
PV array 3	SA tracking	SA tracking	0	0	37,130,000.0	-
PV array 4	SA tracking	SA tracking	0	0	12,940,000.0	-
PV array 5	SA tracking	SA tracking	0	0	12,930,000.0	-

## PV & Receptor Analysis Results

*Results for each PV array and receptor*

### PV array 1 no glare found

Predicted energy output: 126,400,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0

*No glare found*

### PV array 2 no glare found

Predicted energy output: 85,460,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0

No glare found

### PV array 3 no glare found

Predicted energy output: 37,130,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0

No glare found

### PV array 4 no glare found

Predicted energy output: 12,940,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0

No glare found

### PV array 5 no glare found

Predicted energy output: 12,930,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0

No glare found

### Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographical obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.



**Project No. 262154**

**Revision 2**

# **Decommissioning and Reclamation Plan**

## **Moffett Solar II Project**

**Submitted to:**

Jasper County South Carolina  
Board of County Commissioners

**Submitted by:**

Moffett Solar II LLC

**Prepared by:**

Wood Group USA, LLC

Date: 5/28/24

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## 1.0 EXECUTIVE SUMMARY

Wood has prepared this Decommissioning and Reclamation Plan (the Plan) as part of an application for the proposed Moffett Solar II Project (the Project), in accordance with the Jasper County Zoning Ordinance 8:7.6. The purpose of this Plan is to describe the method for removing all facilities and equipment at the end of the Project duration, as well as provide a decommissioning cost and salvage value estimate. Wood's analysis shows that total estimated salvage cost of the Project, at approximately \$7,415,956, is greater than the decommissioning cost of the Project, at approximately \$6,576,853.

The decommissioning cost estimate includes disassembly and removal of major plant equipment such as modules, racking, posts and cabling, and to return the land to its predevelopment condition to the extent possible.

The salvage value estimate includes use of research of current scrap metal pricing as well as Wood's professional experience and understanding of the market.

Decommissioning and reclamation shall commence following a continuous 12-month period in which no electricity is generated by the facility other than for mechanical, repair, replacement and/or maintenance purposes, or per the approved schedule. This Plan has been developed using preliminary site layouts, designs, and equipment, which may be subject to change as the planning process matures. Moffett Solar II LLC shall notify the Zoning Administration in writing of the proposed date for shutting down the operations and facility prior to engaging in decommissioning.

The cost estimate of the Project provided in the following sections will be updated at a frequency of every five (5) years thereafter.

## **2.0 GENERAL PROJECT INFORMATION**

The Project will consist of a 74.9 MWac solar generation facility totaling approximately 740+/- acres in Jasper County, South Carolina. The Project consists of approximately 136,080 modules on single axis 1P trackers. The project also includes equipment typical to a solar generation facility such as Photo-Voltaic (PV) inverters, medium voltage transformers, a substation, AC and DC collection cables, high-voltage transformers, a 115 kV generation-tie (gen-tie) line, and other balance of system equipment. The Project will be contained within a 6' chain-link fenced area with barb wire surrounding the PV area.

The Project is located west of State Highway 278 and is approximately 75 miles west of the city of Charleston, South Carolina.

### **2.1 PHOTOVOLTAIC SOLAR MODULES**

The Project design comprises of 136,080 (690Wp) modules on single axis 1P trackers. The design includes approximately 4,536 strings of modules with 30 modules per string. The modules are arranged north to south on tracker tables containing either 2 or 3 strings per table.

The final quantity of PV solar modules and inverters will be finalized during the detailed engineering phase.

### **2.2 PV INVERTERS AND TRANSFORMERS**

There will be approximately 22 PV inverters with a rating of 4,200 kW. The PV inverters will be distributed across an array of solar modules. The inverters will be skid-mounted along with the medium voltage transformers (MVTs).

### **2.3 COLLECTION SYSTEM AND PROJECT SUBSTATION**

The proposed Project Substation will be located within the eastern perimeter of the Project. The proposed Project Substation will be located on approximately a 300' x 300' pad.

### **3.0 ANTICIPATED PROJECT LIFECYCLE**

The Project may have a useful life of 40 years, which is the estimated life span of typical PV modules. The Client may choose to upgrade site components to achieve an operational life of approximately 40 years.



## 4.0 DECOMMISSIONING

The decommissioning and reclamation operations will be compliant with the applicable federal, state, and local regulations.

The decommissioning and reclamation procedure encompasses several key steps including dismantling all structures above ground, removing underground structures, hauling the disassembled equipment off-site, and restoring the areas that have been disturbed. The approximate expenses associated with dismantling and properly disposing of the major components of the Project, as well as restoring the Project site, are listed in Table 6-1. On the other hand, there are several valuable scrap components to the electrical and mechanical equipment installed on site, that can be salvaged. This primarily includes scrap steel from tracker assemblies, scrap aluminum from DC and AC cable above and below ground, copper scrap from transformers and all grounding installed and electronic scrap from all other equipment such as control boxes and weather stations. The approximate salvage value of the components of the Project is listed in Table 6-2. Any materials that can be recycled will be recycled to the greatest extent possible, while materials that cannot be recycled will be disposed off in accordance with both state and federal regulations.

The process of structure removal involves assessing and grouping all components and materials for potential reconditioning and reuse, salvage, recycling, or disposal. To optimize efficiency and reduce transportation costs and time, components and materials may be temporarily stored on-site at a pre-approved location until there is enough similar components or materials ready for transport. Subsequently, these components and materials will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal.

### 4.1 PV MODULE REMOVAL

All equipment associated with the PV modules will be removed, including the string and module cables. Before disconnection and removal, the modules will be tested for functionality and inspected for damage. Modules in working condition will be packed for shipment and sent to an authorized facility for refurbishment or resale. Modules in non-working condition will be broken down into recyclable components, notably glass, and aluminum, and shipped to an off-site recycling facility. The recycling facilities may be involved with the transportation of materials to be recycled. All other module components will be properly disposed.

### 4.2 RACKING AND FENCING

The tracker assembly, including tracking hardware and torque tubes will be disassembled. This will be followed by the removal of tracker posts from the ground. This will be accompanied with removal of messenger wire and CAB hangers that carry the overground DC cables. The deconstructed components will form the bulk of steel scrap if salvageable. The tracker motors will be included as part of electronic scrap. The chain link fence, barbed wire and fence posts will be removed at the end of the decommissioning process to retain the security of the Project. These too will be part of the steel scrap if salvageable.

The recycling facilities may be involved with the transportation of materials to be recycled.

### **4.3 ELECTRIC WIRE (AC/DC) REMOVAL**

All DC electrical wiring, including DC feeder cable, string harnesses and module cables will be disassembled and removed from site. These will form part of Aluminum scrap if salvageable.

All AC cable which is overhead as well as that which is buried less than 4' below the ground will be removed along with its grounding wire. These will be scrapped for Aluminum and Copper respectively if salvageable.

### **4.4 ELECTRICAL COMPONENTS**

All inverter skids will be removed along with their MVTs. The skid concrete pads will be broken up and all remaining debris will be removed from the site. Oil from the transformers will be collected and transported to an approved disposal unit.

Additionally, all other electrical components such as Supervisory Control and Data Acquisition (SCADA) control boxes and Meteorological weather stations will be disassembled and removed from site.

All these components can be considered for re-sale or be part of electronic scrap if salvageable.

### **4.5 PROJECT SUBSTATION**

The substation components such as transformers, circuit breakers, bus pipes, control panel, capacitor bank, insulators, and other electrical structures will be disconnected, disassembled, and safely removed. The substation concrete pad will be broken up and all remaining debris will be removed from the site. Oil from the transformer will be collected and transported to an approved disposal unit. The medium voltage (MV) feeder lines that connect the project to the substation will be dismantled, disconnected, and removed from the site.

### **4.6 OVERHEAD GEN-TIE LINE**

The proposed 115 kV gen-tie line will be removed at the time of decommissioning if it is no longer required. All structures associated with the gen-tie line, such as support poles, electrical cabling and wiring, and conductors, will be removed and recycled as appropriate. The spots where poles are removed will be filled with native soil and compacted.

## 5.0 SITE RESTORATION

After all equipment, structures, and facilities have been removed from the project area, the site will be restored. Restoration activities aim to return the site as close as possible to the predevelopment condition including replanting the site with native vegetation as approved by the local environmental authority.

The project areas affected by the final removal of Project equipment, such as tracker posts, fence posts and inverter skid pads, will be recontoured to ensure that the topsoil density is consistent with the adjacent and surrounding land composition. The topsoil will be recompacted. Large rocks or obstructions will be removed from the recompacted topsoil before the topsoil is redistributed and compacted to establish the native contours and density of the site. Standard industry equipment will be used to grade the site, which will be contained to only the disturbed locations. Best Management Practices (BMPs) will be employed where applicable for erosion and sediment control, until native vegetation cover has stabilized the soil.

### 5.1 REVEGETATION

The disturbed areas of the project site will be restored to their native conditions as reasonably feasible through reseeded efforts. The reseeded composition will adhere to applicable standards. The reseeded effort aims to provide vegetative cover that is consistent with the adjacent vegetation density and composition. Materials such as mulch and terrace may be utilized to help stabilize the reseeded areas to prevent erosion and invasive weeds or other plants. Moffett Solar II LLC will monitor and continue the reseeded operations for 5 years from the removal or partial removal of structures on the Project site.

## 6.0 COST ESTIMATION

Moffett Solar II LLC is responsible for decommissioning of the Project site and shall commence decommissioning and reclamation activities approximately twelve (12) months after power production has permanently ceased, or per the approved schedule. Moffett Solar II LLC may contract with third parties to perform part or all of the decommissioning on its behalf.

The probable cost estimate for decommissioning including material salvage were prepared using equipment, labor, and salvage rates based on the project's commercial operating date of December 1, 2026. In accordance with Jasper County Zoning Ordinance 8:7.6., the cost estimate for decommissioning will be updated at a frequency of every five (5) years hereafter.

The total estimated cost of decommissioning the Moffett Solar II Project is approximately **\$6,576,853** (\$0.070/Wdc). The estimated salvage/resale/reuse value of the PV modules, steel, copper, aluminum, and other materials is approximately **\$7,415,956** (\$0.079/Wdc).

**Table 6-1: Decommissioning costs without salvage**

Item	Cost (\$)	\$/Wdc
General Requirements (Overhead costs including indirects, const. management, equipment, office trailers etc.)	317,368	0.003
Site Work (Backfill, re-seeding, spoils removal)	1,310,722	0.014
Fence Removal	218,101	0.002
Tracker Disassembly, Pile Removal	1,282,007	0.014
Module Removal	1,108,320	0.012
DC Electrical Removal (CAB and DC cable removal)	1,626,466	0.017
AC Electrical (MV cable and grounding removal)	713,868	0.008
<b>Total Decommissioning w/o Salvage</b>	<b>6,576,853</b>	<b>0.070</b>

**Table 6-2: Salvage Value**

Item	Type of Scrap	Unit	Cost (\$) /Unit	Disposal Quantity	Total Cost (\$)
Module Resale		Wdc	0.05		4,694,760
Inverter skids (incl. MV Transformers)	Electronic Scrap	lbs	0.24	578,394	138,815
Combiner boxes	Electronic Scrap	lbs	0.24	185,912	44,619
Fence (Chain fence and posts)	Steel Scrap	tons	313	155	48,394
Tracker and Inverter foundation piles	Steel Scrap	tons	313	1,937	606,201
Tracker motors	Electronic Scrap	lbs	0.24	131,453	31,549
Tracker Assembly	Steel Scrap	tons	313	2,629	822,898
DC CAB/Messenger Wire	Steel Scrap	tons	313	5	1,469
MV/HV Cable	Aluminum Scrap	lbs	0.60	65,727	39,436
Grounding	Copper Scrap	lbs	3.50	281,686	985,900
SCADA equipment/ MET Stations	Electronic Scrap	lbs	0.24	7,981	1,915
<b>Total Salvage Value</b>					<b>7,415,956</b>

## 6.1 PRICING ASSUMPTIONS

- 1) All pricing is in 2024 US Dollars (USD).
- 2) No inflation is assumed for the pricing at end of life of the Project.
- 3) Commodity salvage rates are based on 2024 scrap metal rates. Scrap metal pricing is volatile based on market conditions.
- 4) Commodity salvage rates are assumed as follows:
  - a. Metal salvage rates pricing<sup>1</sup> is as follows:  
Copper @\$3.50/lb, Aluminum @\$0.60/lb, Steel @\$313/ton<sup>2</sup>
  - b. Electronic scrap salvage rate<sup>3</sup> is valued @ \$0.24/lb
  - c. Aggregate scrap is crushed gravel material only (assume partial value<sup>4</sup> (50%))  
valued at \$7.5/CY
- 5) Photovoltaic Module salvage value is calculated at 20% of current module pricing (@\$0.25/Wdc) to be a credit of \$0.05/Wdc. This estimate will be re-evaluated based on current market conditions at the time of decommissioning<sup>5</sup>.
- 6) Copper transformers salvage value is priced at \$0.24/lb<sup>6</sup>

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<sup>1</sup> <https://www.reliablerecyclingcenter.com/pricing/>

<sup>2</sup> <https://www.statista.com/statistics/209362/iron-and-steel-prices-in-the-us/>

<sup>3</sup> <https://www.scrapmonster.com/scrap-yard/price/electronics-scrap/south-carolina/4/3405>.

<sup>4</sup> <https://homeguide.com/costs/gravel-prices#:~:text=Gravel%20cost%20per%20yard,to%20%2420%20per%20cubic%20yard>.

<sup>5</sup> <https://psc.ky.gov/case/viewcasefilings/2022-00115>

<sup>6</sup> <https://rockawayrecycling.com/metal/copper-transformers/>

## MEMORANDUM OF UNDERSTANDING

This MEMORANDUM OF UNDERSTANDING (the "Memorandum") is made and entered into as of the 30th day of May, 2024 (the "Effective Date"), by and between TRR Real Estate, LLC, a North Carolina limited liability company ("TRR") and Moffett Solar II, LLC, a Delaware limited liability company ("Moffett II"), collectively the "Parties."

WHEREAS, Moffett II entered into a Purchase Option Agreement dated December 18, 2017, by and between Moffett II and TRR, pursuant to which Moffett II has been granted an option to purchase that certain tract of real property located in Jasper County, South Carolina, consisting of all or portions of those parcels bearing tax map numbers 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003, and 059-00-01-033 (the "Property"), for the purpose of developing a solar farm (the "Project").

WHEREAS, Moffett II will purchase a portion of that parcel with the tax map number 059-00-01-002 and the property will be subdivided prior to or contemporaneous with the purchase.

WHEREAS, TRR currently owns that parcel with the tax map number 059-00-01-002, and TRR will continue to own the portion of that parcel on which the Project will be constructed after the property is subdivided and purchased by Moffett II (the "Remainder TRR Property").

The Parties now desire to enter into this Memorandum to set forth their understanding and good faith intentions with respect to certain conditions and restrictions related to the portion of the Project located adjacent to the Remainder TRR Property.

NOW, THEREFORE, the Parties hereby memorialize their understanding as follows:

1. Bufferyards, Setbacks, Fencing and Landscaping. TRR acknowledges that the Jasper County Zoning Ordinance (the "Ordinance"), and more specifically the Solar Farm Floating Zone (the "SFFZ"), requires certain bufferyards, setbacks, fencing and landscaping along a common boundary line between the Project and adjacent residential property, unless an agreement is made with the adjacent property owner to modify or reduce such requirements. The Parties intend this Memorandum to constitute such an agreement. In connection with the foregoing, TRR specifically acknowledges and agrees, with respect to the Project, as follows:

- a. The bufferyard and setback that would otherwise be required by the Ordinance will not be required for that portion of the Project adjacent to the Remainder TRR Property and the bufferyards and setbacks adjacent to the Remainder TRR Property shall be as follows:
  - i. Bufferyard: 0'
  - ii. Setback: 0'
- b. Security fencing will be constructed on the Property per the SFFZ; however, the security fencing will not be required to obstruct the solar panels and associated infrastructure from view of the Remainder TRR Property.
- c. Landscaping and screening as set forth in the Ordinance will not be required where the Project is adjacent to the Remainder TRR Property.

2. Entire Agreement. This Agreement constitutes the entire agreement between the parties concerning the subject matter hereof, and supersedes all previous communications, either

written or oral, that purport to describe or embody the subject matter hereof. There are no oral understandings, terms, or conditions and neither party has relied upon any representation, express or implied, not contained in this Agreement. This Agreement may not be amended except by written agreement of both parties.

3. Severability. Any part hereof that is or becomes invalid, illegal, or unenforceable may be severed from the remainder hereof, and to the extent possible, the parties will use reasonable efforts to replace any such part with provisions that preserve their original intent.

4. No Assigns. Neither this Memorandum nor any rights hereunder may be assigned, conveyed, or otherwise transferred by TRR.

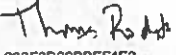
5. Counterparts. This Memorandum may be executed in any number of counterparts, which may be electronically transmitted to the originating office, all of which when executed and delivered shall have the force and effect of an original.

*[signature pages to follow]*



IN WITNESS WHEREOF, the undersigned have executed and delivered this Memorandum of Understanding as of the effective date written above.

TRR Real Estate, LLC,  
a North Carolina limited liability company

By:  \_\_\_\_\_  
DocuSigned by:  
236F3D098BEF4E3  
Name: Thomas R. Rochester  
Title: Manager

MOFFETT SOLAR II, LLC,  
a Delaware limited liability company

By: \_\_\_\_\_  
Name:  
Title:

IN WITNESS WHEREOF, the undersigned have executed and delivered this Memorandum of Understanding as of the effective date written above.

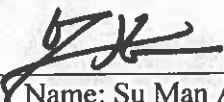
TRR Real Estate, LLC,  
a North Carolina limited liability company

By: \_\_\_\_\_  
Name: Thomas R. Rochester  
Title: Manager

MOFFETT SOLAR II, LLC,  
a Delaware limited liability company

By: HQC Solar Holdings 1, LLC  
a Delaware limited liability company  
Its Member

By: Hanwha Q CELLS USA Corp.,  
a Nevada corporation  
Its Manager

By:  \_\_\_\_\_  
Name: Su Man Ahn  
Title: Authorized Signatory

**STATE OF SOUTH CAROLINA  
COUNTY OF JASPER**

**ORDINANCE: 2024-\_\_\_\_\_**

**AN ORDINANCE  
OF JASPER COUNTY COUNCIL**

To amend the Official Zoning Map of Jasper County so as to apply the Solar Farm Floating Zone to properties bearing Jasper County Tax Map Numbers 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003, and 059-00-01-033, as shown on the Moffett Solar II Concept Plan, prepared by Wood., dated May 2024, located along Grays Highway, Firetower Road and Langfordville Road.

**WHEREAS**, Jasper County has adopted a Solar Farm Floating Zone to provide access to and use of solar energy systems; and

**WHEREAS**, the purpose of the Solar Farm Floating Zone is to set forth requirements for solar energy systems while promoting the general health, safety, and welfare of the community; and

**WHEREAS**, the Jasper County Planning Commission has reviewed the submitted Concept Plan for the Jasper Solar Farm and finds it to be compliant with the zoning district area requirements, setbacks, screening, buffering, landscaping, and fencing requirements as provided by the Solar Farm Floating Zone Ordinance as set forth hereafter;

**WHEREAS**, the Jasper County Planning Commission recommends approval by Council; and

**WHEREAS**, this matter is now before the Jasper County Council for determination;

**NOW THEREFORE BE IT ORDAINED**, by the Jasper County Council in council duly convened and by the authority of the same:

1. Jasper County Council finds that the proposed zoning is consistent with the requirements of the Solar Farm Floating Zone and is in harmony with the Jasper County Comprehensive Plan. Good cause having been shown for the request and as illustrated in the Moffett Solar II Concept Plan; parcels bearing Jasper County Tax Map Numbers 050-00-06-002, 050-00-06-005, 059-00-01-002, 059-00-01-003, and 059-00-01-033 consisting of approximately 740 acres, located along Grays Highway, Firetower Road and Langfordville Road, the Solar Farm Floating Zone is hereby applied to the property boundary and depicted on the Jasper County Official Zoning Map.

2. This ordinance shall take effect upon approval by Council.

\_\_\_\_\_  
**L. Martin Sauls IV**  
**Chairman**

**ATTEST:**

\_\_\_\_\_  
**Wanda Simmons**  
**Clerk to Council**

**ORDINANCE: # 2024-**\_\_\_\_\_

**First Reading:** \_\_\_\_\_

**Second Reading:** \_\_\_\_\_

**Public Hearing:** \_\_\_\_\_

**Adopted:** \_\_\_\_\_

\_\_\_\_\_  
Considered by the Jasper County Planning Commission at it's meeting on  
June 18, 2024 and recommended for approval.  
\_\_\_\_\_

Reviewed for form and draftsmanship by the Jasper County Attorney.

\_\_\_\_\_  
**David Tedder**

\_\_\_\_\_  
**Date**

## **Article 8:7 of the Jasper County Zoning Ordinance**

### **§ 8:7 SOLAR FARM FLOATING ZONE (SFFZ)**

#### **8:7.1 Purpose**

The purpose and intent of the Solar Farm Floating Zone (SFFZ) is to promote the use of solar energy as a source of electricity and facilitate the construction, installation, and operation of Solar Energy Systems (SES) in Jasper County in a manner that promotes economic development and ensures the protection of health, safety, and welfare while also avoiding adverse impacts to important areas such as agricultural lands, endangered species habitats, conservation lands, and other sensitive lands. The SFFZ adds an extra layer of land use regulation over the underlying zoning which adds safeguards to ensure the proper development of facilities that generate electricity by means of solar power. This ordinance is not intended to supersede regulations from local, state, or federal agencies. Some important examples of such regulations include, but are not limited to: International Building Code, International Fire Code, National Electric Code, South Carolina Department of Health and Environmental Control, and Jasper County Flood Damage Prevention Ordinance.

#### **8:7.2 Application**

A Solar Farm Floating Zone requires a zoning map amendment and requires a recommendation from the Planning Commission to County Council in accordance with Article 3.2 of the Jasper County Zoning Ordinance.

The Solar Farm Floating Zone (SFFZ) may be utilized in any zoning district except for the Resource Conservation District, provided:

1. The solar farm consists of a minimum of five (5) acres;
2. Any portion of the solar farm property boundary is within two (2) miles of an existing electrical transmission line; and
3. A conceptual plan which illustrates that the solar farm can meet the design and development standards set forth in Article 8:7.
4. Jasper County Council may require, at its sole discretion, a development agreement between the County and developers for properties developed as a SFFZ as a prerequisite to Development Plan Approval.

Unless a deviation from such restrictions are provided elsewhere in this Article 8:7, property within the SFFZ shall be required to adhere to all provisions of the Jasper County Zoning Ordinance and Land Development Regulations otherwise applicable within the underlying zoning district, including all subdivision plats and development plan applications.

### 8:7.3 Design and Development Standards

Unless otherwise addressed through private land covenants and agreements with adjacent property owners setting specific standards for setbacks, buffers, and fencing/landscaping requirements which are approved by Jasper County Council and recorded in the Jasper County Register of Deeds Office, the establishment and operation of a solar farm shall comply with the following design and development standards:

#### 8:7.3-1 Bufferyard

Table 8:7-1

Bufferyard Requirements							
<i>Proposed Use</i>	<i>Existing Use of Adjacent Properties</i>						
	Agricultural	Single-Family Dwelling	All Other Residential Uses	Office / Institutional	Commercial/ Non-Effluent Industry	Effluent Producing Industry	Street
<b>Solar Farm</b>	<b>50'</b>	<b>*200'</b>	<b>*200'</b>	<b>50'</b>	<b>25'</b>	<b>25'</b>	<b>*100'</b>

\* Single Family Dwelling and All Other Residential Use buffers may, at the Council's discretion, be increased, or reduced with an approved berm and or landscaping and screening plan, which will screen the solar farm equipment from being seen from the exterior of the property.

\* Street buffer may, at the Council's discretion, be reduced to 50' with an approved berm and or landscaping and screening plan, which will screen the solar farm equipment from being seen from the exterior of the property; see also §8:7-4(9)

This buffer is separate and distinct from the buffering requirements of Jasper County Zoning Ordinance, Article 12.8 and shall be measured from the property line. Only the following activities shall be permitted within the landscaped buffer:

1. Vehicular access drives which tie into approved access points as determined by SCDOT and/or Jasper County
2. Landscaping and landscaping fixtures
3. Lighting
4. Fencing
5. Signage

6. Underground utility lines
7. Overhead utility lines
8. Drainage or stormwater detention or retention areas

#### **8:7.3-2 Landscaping/Screening Requirements**

In addition to buffering, screening shall be required by providing landscape within the buffer which achieves a minimum height of ten feet (10') within three (3) years. The intent is to provide sufficient screening, through a combination of buffers, fencing, landscaping, and/or landscaped berms to obscure the solar equipment from exterior view from adjoining property owners and public right of ways.

A visually opaque screen shall be provided for any adjacent property that is zoned Residential, has an existing residential use, and/or is zoned Rural Preservation and has been subdivided to 5 acres or less (these are protected properties). An opaque screen is intended to exclude a visual contact with the solar equipment from any protected property, public street or public right of way. An opaque screen may be composed of a wall, fence, building, landscaping, landscaped berm, or combination thereof. Natural areas as detailed below may also be used to meet screening requirements.

Natural areas: An existing vegetated area located on the same property as the solar farm; is within or includes the required buffer; and is of sufficient height, length, and depth and contains adequate and sufficient healthy vegetation to provide a visually opaque screen where required. The Development Services Representative (DSR) may determine that further screening improvements shall not be required.

#### **8:7.3-3 Setbacks**

The setbacks for solar equipment associated with the solar energy system shall be 25' larger than the applicable bufferyard to allow for an access road around the perimeter of the property.

#### **8:7.3-4 Fencing**

A security fence shall be required at least six feet (6') in height to secure the solar equipment unless a taller fence is needed in order to obscure the solar equipment from exterior view (see also §8:7.3-2); the fence can be on top of the berm in order to achieve this goal. A chain link fence shall not be allowed unless it is screened from exterior view from adjoining property owners and public right of ways; screening may include plantings to create a "living fence", or to obscure the view of the fence. Breaks in fencing may be allowed or required by Council to facilitate wildlife needs where natural features provide appropriate barriers to access by humans for security and safety purposes.

### **8:7.3-5 Height**

The Solar Energy System shall not exceed ten feet (10') in height, as measured from the ground to the foremost/tip end of the solar collector, provided there is a demonstration that the screening prevents the system from being visible from the exterior of the property. Ancillary non solar collector structures, such as inverters, transformers, etc., may be taller than ten feet (10') in height, provided that such are not visible from the exterior of the property.

### **8:7.4 General Requirements**

1. Solar collectors shall be designed with anti-reflective coating to minimize glare. Mirrors are prohibited.
2. On-site electrical interconnections and powerlines shall be installed underground to the extent feasible. Existing above ground utility lines shall be allowed to remain in their current location.
3. A warning sign concerning voltage must be placed at the main gate that states the address of the site, the name of the solar farm operator, and a local phone number for the solar farm operator in the case of an emergency.
4. Access to the site must be controlled by a six foot (6') wooden fence or gate if the fencing is visible from the exterior of the property. If the fencing/gate is within the interior 25% of the buffer, or is not visible from the exterior of the property, chain link gate and fencing may be used.
5. Entrance roadway should include a dog leg or meander to obscure vision from the roadway.
6. If lighting is provided at site, lighting shall be shielded and downcast such that the light does not spill onto the adjacent parcel or the night sky. Motion sensor control is preferred.
7. Adequate provisions to reduce average/constant noise levels at the property boundary not to exceed 50dBA at the property line, except during construction.
8. A solar collection device or combination of devices are to be designed and located to avoid directing glare or reflection onto adjacent properties and adjacent roadways and shall not interfere with traffic or create a safety hazard.
9. Planning Commission may include special conditions in their recommendation to County Council to implement the public health, safety, morals, convenience, order, appearance, prosperity, and general welfare set forth in Article 1 of the Jasper County Zoning Ordinance. County Council may accept, modify, reject, or add additional conditions at its sole discretion.



### **8:7.5 Site Restoration/Stabilization**

Unless otherwise agreed by County Council in its concept plan or development agreement approval process, the applicant shall submit a ten percent (10%) Site Restoration/Stabilization Guarantee in the form of a bond, irrevocable letter of credit and agreement, or other financial security acceptable to the County prior to issuance of the Development Permit. The Site Restoration/Stabilization Guarantee shall insure satisfactory grading, seeding, and stabilization of the site in case of default by the applicant and/or if the applicant does not install the required site improvements in a timely fashion as determined by the DSR, including the costs of landscaping, screening, and or fencing for the site or such portion thereof being permitted. The Developer shall provide the County with an itemized engineer's estimate of the approved site improvements in conformity with Article 1.8 of the Jasper County Land Development Regulations for approval and calculation of the bond amount. The Site Restoration Guarantee may be refunded upon issuance of a Certificate of Project Close-Out for the site stabilization and improvements.

### **8:7.6 Decommissioning**

Unless otherwise agreed by County Council in its concept plan or development agreement approval process, the applicant must provide a decommissioning plan signed by the party responsible for decommissioning and the landowner (if different) that describes the anticipated life of the solar farm, the estimated decommissioning costs in current dollars, the method for ensuring that funds will be available for decommissioning and restoration, and the anticipated timeline and manner in which the solar farm project will be decommissioned and the site restored to its condition prior to the development of the solar farm or such other conditions approved in the concept plan or required in a development agreement. If the property has been timbered within two (2) years of re-zoning to the SFFZ, original condition means replanted with timber. Decommissioning will be required following a continuous period of twelve (12) months in which no electricity is generated by the facility other than for mechanical, repair, replacement and/or maintenance purposes.

1. The permit holder will have twelve (12) months to complete decommissioning of the solar farm. Decommissioning shall include removal of solar panels, foundations, structures, cabling, electrical components, conduit, and any other associated facilities as described in the decommissioning plan.
2. Prior to issuance of Development Permit, the applicant must provide the County with a performance guarantee in the form of a bond, irrevocable letter of credit and agreement, or other financial security acceptable to the County in the amount of 125% of the estimated decommission cost minus the salvageable value, or \$50,000, whichever is greater. Estimates shall be determined by an engineer licensed to practice in South Carolina.
3. Every five (5) years a new engineer's estimate of probable cost of decommissioning shall be submitted for approval in the same manner as the initial submission, and the bond,

letter of credit, or other financial security acceptable to the county shall be adjusted upward or downward as necessary.

4. Proof that the decommissioning plan has been recorded with the Jasper County Register of Deeds.