



DEPARTMENT OF PLANNING &
INSPECTIONS
116 W. BEVERLEY STREET | P.O. BOX
58 | STAUNTON, VA 24402
540.332.3862 (OFFICE)
540.332.3807 (FAX)

APPLICATION FOR SPECIAL USE PERMIT

DATE: January 13, 2023

NAME OF APPLICANT: Staunton PV-UT, LLC and Staunton PV-CS, LLC

ADDRESS OF APPLICANT: c/o Oikos Solar System, Inc., 11011 Richardson Rd., Ashland, VA 23005

PHONE #: c/o Lori H. Schweller, Williams Mullen, 323 2nd St. SE, Ste 900, Charlottesville, VA 22902
434-951-5728

E-MAIL ADDRESS: LSchweller@williamsmullen.com and Oikos.danny@gmail.com

IF APPLICANT IS **NOT** THE OWNER OF THE PROPERTY IN QUESTION, EXPLAIN. A COPY OF A PENDING CONTRACT OR OPTION AGREEMENT MUST BE ATTACHED HERETO AND MADE A PART OF THIS APPLICATION. The property owner is Flying Rock Property, LLC, an affiliate of Oikos Solar System, Inc.

LOCATION OF PROPERTY: 801 Commerce Road, Staunton, Virginia

MAP PROVIDED: YES ☒ NO ☐ SITE PLAN PROVIDED: YES ☒ NO ☐

FEE PAID: YES ☒ NO ☐ *check or cash only

PRESENT ZONING OF THE PROPERTY: I-1 Light Industrial

APPLICABLE SECTION OF ZONING CODE STATING USE IS PERMITTED ON REVIEW:
Chapter 18.75 and Chapter 18.10

ARE PUBLIC UTILITIES AVAILABLE AND ADEQUATE FOR PROPOSED USE? IF **NO**, EXPLAIN HOW UTILITIES WILL BE PROVIDED:

yes

LEGAL DESCRIPTION OF PROPERTY: Please see attached legal description; the parcels have been combined, as shown on the attached consolidation plat.

DETAILED DESCRIPTION OF PROPOSED USE (DRAWINGS MUST BE INCLUDED IF NEW CONSTRUCTION, ADDITIONS, OR CHANGES TO THE EXTERIOR OF THE PROPERTY ARE PROPOSED).

Please see attached Special Use Permit Application Narrative for PIN 10413 with exhibits.

SIGNATURE: _____

Oikos Staunton Utility Solar Project and Oikos Staunton Community Solar Project

Special Use Permit Application Narrative

Parcel ID Number 10413

INTRODUCTION

Staunton PV-UT, LLC and Staunton PV-CS, LLC (collectively, the “Applicant”) are affiliates of Oikos Solar Systems, Inc., based in Ashland, Virginia. Oikos Solar Systems, Inc. introduced a zoning ordinance amendment to Staunton City Code (“SCC”) Chapter 18.75 to make Solar Energy Facilities permitted by Special Use Permit in the I-1 Light Industrial District and I-2 Heavy Industrial District and to add a definition for Solar Energy Facility to SCC Chapter 18.10. Staunton City Council approved the amendments on July 28, 2022. Flying Rock Property, LLC, a Virginia limited liability company, an affiliate of the Applicant, has purchased property on Commerce Road in the City of Staunton in order to develop and operate Solar Energy Facilities.

PROJECT PROPOSAL

The Applicant proposes two Solar Energy Facilities (collectively, the “Project”) within the 95.1-acre Project property:

1. A 15.75 MW utility scale solar facility with estimated 5.5 MW battery storage¹; and
2. A 5 MW community solar facility²

The point of interconnection with the Dominion power lines is located in the Dominion easement within the railroad right-of-way that runs alongside Commerce Road. The point of connection is also part of the Solar Energy Facilities submitted for approval under the special use permit.

The Project property (the “Property”) is a single parcel (PID 10413) with the address of 801 Commerce Road. The Property was created by consolidating three parcels, as shown on the plat prepared by EGS

¹ To be finalized following 100% design.

² The term “community solar” is used interchangeably with the term “shared solar.” The Community Solar project will be developed under the Shared Solar program per Virginia State Code Section 56-594.3 and related regulations.

& Associates, Inc., dated September 13, 2022, recorded in the City of Staunton land records with a deed of consolidation as Instrument No. 220003442 (See Exhibit A).

Enclosed as Exhibit B to this Special Use Permit Application is a Concept Plan prepared by Timmons Group, dated January 6, 2023, which depicts the perimeter of the Project area, screening, setbacks, fencing, access, panel areas, points of interconnection, inverters, collector station, and environmental features. The Project area will include the following fenced areas:

1. Utility Scale Solar Array Area of approximately 59.4 acres (43.4 acres*);
2. Community Scale Solar Array Area of approximately 30.5 acres (13.6 acres);
3. Utility Scale Battery Energy Storage System Area of approximately 2.1 acres (0.866 acre); and
4. Collector Substation Area of approximately 3.1 acres (0.77 acre).

*The acreage in parentheses is the fenced area for such component.

The Community Solar project is being developed to participate in the Shared Solar Program, adopted by the General Assembly in 2020. This program allows Dominion Energy customers the opportunity to subscribe to shared solar facilities to reduce their energy bills. A minimum of 30% of the initial Shared Solar Program's megawatts must be allocated to low-income customers. The Applicant plans to subscribe as many low-income subscribers as are interested in the program, up to 100% of its subscribers. Staunton's electricity is provided by Dominion Energy and Shenandoah Valley Electric Cooperative. Currently, the Shared Solar Program operates in conjunction with Dominion Energy, and discussions are ongoing to expand it to other electric power providers. For further information, below is a description of the Shared Solar Program from [Dominionenergy.com](https://www.dominionenergy.com):

"During its 2020 Session, the Virginia General Assembly enacted Chapters 1238 (HB 1634) and 1264 (SB 629) of the 2020 Virginia Acts of Assembly. These Acts of Assembly added a new section to the Virginia Code numbered [56-594.3](#). The section established the Shared Solar Program, which provides customers of Dominion Energy Virginia the opportunity to participate in shared solar projects.

Under the program, retail customers may purchase subscriptions in a shared solar facility owned by a subscriber organization (SO). The Code defines shared solar facility as a facility that, among other things, generates electricity by means of a solar photovoltaic device with a nameplate capacity that does not exceed 5,000 kilowatts of alternating current, is located in Dominion Energy's service territory in Virginia, and is located on a single parcel of land. Customers that purchase a subscription will receive a bill credit for the proportional output of the shared solar facility attributable to that subscriber, subject to a minimum bill notwithstanding the bill credit. Subscriptions must be sized such that the estimated bill credits do not exceed the subscriber's average annual bill for the account to which the subscription is attributed."

The Applicant intends to construct the Utility Scale and Community Solar projects at the same time, following site plan approval and necessary permitting from the Department of Environmental Quality.

CHARACTER AND USE OF SURROUNDING PARCELS

The surrounding land uses include agricultural, Virginia Department of Transportation (VDOT) offices and facility, Virginia State Police offices and facility, Gaie Lea event property, and single family

residential. The operation of solar facilities in this area would not affect the viability of these existing uses, nor future uses within the area as further discussed below.

CONSISTENCY WITH THE COMPREHENSIVE PLAN

Like much of the property in the northeast quadrant of the City annexed from Augusta County in 1986, the Property is designated as Planned Farm Development within the Comprehensive Plan. The parcel is zoned I-1 Light Industrial.

The proposed Project meets the following specific goals and objectives of the City's Comprehensive Plan:

Planning

Goal: Encourage appropriate new development that is well-planned, compatible, incorporates mixed uses when appropriate, and contributes to the resource base of the city.

Public Service and Government

Goal: Ensure quality and effective public services that meet the needs of citizens and the business community that is balanced with the City's economic base and resources.

Objective: Utilities and Infrastructure

- *Encourage green and sustainable initiatives and integrate emerging technologies that promote use of efficient and renewable energy.*

PUBLIC NEED AND BENEFIT

Economic Development and Direct Revenue to the City

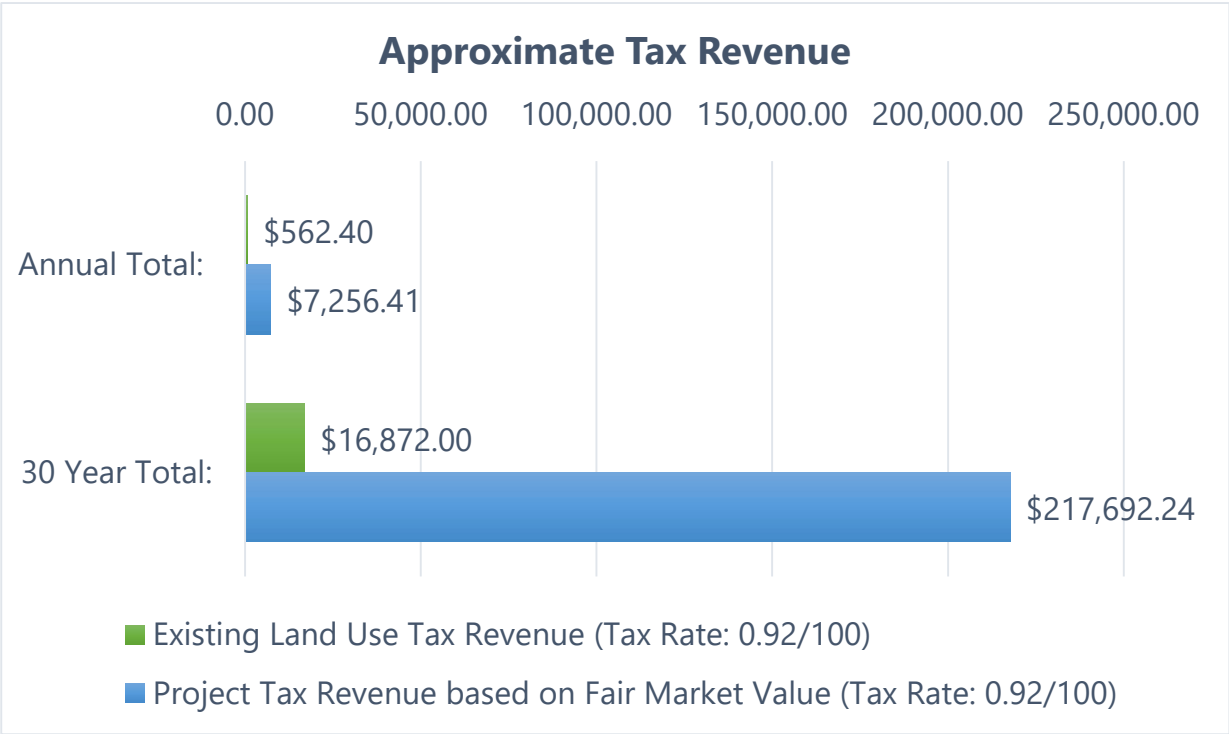
The City will benefit directly from the Project in the form of increased tax revenue, both from real property tax and from personal property taxation. In addition to direct revenue from taxes, there are other economic benefits to consider. The largest of these is jobs directly attributable through the construction of the Project. Upon reaching construction, the Project would contribute to support local jobs by sourcing local contractors and subcontractors wherever possible, from fence installers, to panel electricians, civil engineers, and construction laborers.

After construction of the solar project, it is anticipated that the real property taxation will increase due to the increased value placed on the Project. Below is the current estimate of the approximate revenue that will be provided to the City from the Project:

- \$52,437.98 one-time rollback tax after removal of the property from land use
- \$6,694.01 in additional annual tax revenue (\$200,820.36 over 30 years)*

*This figure is simply the difference in 2022 taxes between land use and fair market value assessments at the 2022 tax rate. Real estate property assessments and tax rates are subject to change annually.

Therefore, the estimated difference between land use and fair market value taxes over a 30 year period are for illustrative purposes only.



Another consideration is the amount of public services that accompany this additional tax revenue base. While the Project will increase the tax base provided to the City, it will not have any significant draw on public resources such as schools, sewer and water, roads, or other public services and facilities.

POTENTIAL IMPACTS OF THE PROPOSED PROJECT

Visual Impact to Adjacent Properties and Vegetative Screening

The Project will be sited and screened so as to not impact adjacent landowners. The western boundary of the Property lies along the railroad right-of-way where existing trees create an approximately 200’ wide buffer between Commerce Road and the Property. Single-family residential lots are located across Commerce Road further to the west. To mitigate further any visual impact to these residential property owners and to travelers on Commerce Road, an entrance corridor, the Applicant will plant an additional 10’ wide vegetative buffer within the 25’ front setback required by Sec. 18.75.030(1) along the entirety of the western property boundary to screen visibility of the Project from views from the west.

To the north of the Property is the Gaie Lea event venue. The home and event areas are over 1,500 feet away from the Project. There is existing screening by mature trees along the stream comprising the Property’s northeast property boundary, as well as along the south side of the existing pond on the Gaie Lea property. Also immediately north of the Project east of Commerce Road is a Virginia Department of Transportation office and a Virginia State Police office, with multiple buildings and parking lots.

To the west and south are existing agricultural parcels, some containing farmhouses. The southern parcel boundary has trees along Lewis Creek, but the Applicant will plant a 10' vegetative buffer within the 50' setback between the Project and the common boundary line with the YMCA parcel, which is zoned A-1 Agricultural, as well as along the southwest boundary in order to further mitigate any impact to the adjacent owners. The nearest residence to the west is approximately 2,000 feet from the Project.

Pursuant to the standards of Section 18.175.060, the 10'-wide landscaped buffer may consist of a double staggered row of evergreen trees.

Access to the Project

As shown on the plat (Exhibit A), the Property has appurtenant easements of right-of-way for access at both the northern and southern boundaries. Primary access to the Project will be from Commerce Road on the VDOT/State Police driveway, over which the Property owner has an easement. If needed, access is available from New Hope Road over three access easements.

Real Estate

When properly screened and set back from surrounding residences and properties, studies have shown that solar arrays have no negative impact on property values across the Commonwealth of Virginia. Oikos will provide screening, and the Project is not anticipated to have any negative impact on surrounding property values. In fact, studies have shown that solar arrays can mildly increase property values given that they are quiet, do not generate traffic, and reduce further residential development.

Glint and Glare

Solar panels are designed to absorb light, rather than reflect it and therefore produce less glint and glare than snow or concrete.

Lighting

All lighting will comply with the City's Zoning Ordinance requirements and will be kept to the minimum necessary to ensure the safe operation of the facility.

Noise Analysis

Solar facilities produce negligible noise when operating, such that any noise produced becomes inaudible at approximately one hundred (100) feet from the noise producing components. These components include inverters that produce decibel levels that will not be heard from adjacent properties. The solar inverters have a manufacturer listed noise rating of sixty-five (65) decibels at one meter away from the inverter. The CDC reports this level of noise as comparable to an air conditioner, washing machine, or dishwasher. The inverters on the site will be setback at least one hundred (100) feet from property lines. At one hundred (100) feet away from the inverter the noise is reduced to approximately thirty-five (35) decibels which is comparable to the noise of a refrigerator hum.

There will be some noise increase during construction of the facility. It is estimated that the construction will last approximately 6-12 months.

Vegetative Buffer

A representative of City Planning & Zoning met with a representative of the Applicant at the site to discuss required and suggested screening. The concept plan incorporates vegetative buffering where required along the southwest and southeast boundaries bordering on parcels zoned A-1 and B-3 and a corner abutting an R-1 designated district. As recommended, additional buffering is proposed along the entire western boundary with Commerce Road to mitigate potential impacts along the entrance corridor. Existing mature vegetation along the Property boundaries will provide additional screening. The proposed vegetative screening and species descriptions are provided on Sheet C4.0 of the Concept Plan.

Security

The Project components will be completely enclosed in perimeter fencing of not less than 6 feet and will include barbed wire at the top. The fencing will serve to prevent unauthorized persons from entering the Project site and will protect the system components from damage from wildlife. Locked gates will be installed to allow for ingress and egress of authorized personnel.

Temporary fencing will be installed, as necessary for safety and security, during construction. Access will be limited to authorized personnel, including designated City officials.

Public Facilities & Public Infrastructure

As stated above, the Project will not have any impacts to roads or schools. Timmons Group representatives have met on-site with Virginia Department of Transportation officials to review the proposed project and access location. See Exhibit C for a summary of this discussion. Site access will be from the existing entrance and access that serves the Virginia Department of Transportation offices. Temporary traffic control measures that meet VDOT and the City's best management practices, will be employed during construction. Once operational, there will be no daily staff at the Project site and site visits are expected to be limited to approximately one or two times per week or less.

It is not anticipated that the Project would impact other City services such as Fire/Rescue and Police. All project gates will have a Knox Box that will be accessible to Fire/Rescue and Police should the need to access the project area arises.

Environmental Resources

An Environmental Resource Impact Analysis, dated November 22, 2022, prepared by Timmons Group, is provided as Exhibit D.

Streams, Flood plain, and Wetlands

The Project has been designed to ensure that there will be minimal impact on any identified streams, ponds, flood plain, or wetlands within the Special Use Permit Area. The Project will be located outside of the 50-foot Riparian buffer and designated flood plain. The Project will not impact any flood plain or wetlands, with minor impact to the streams for the designated crossings, and will be developed and constructed in conformance with all applicable federal, state, and local laws and regulations including

the Clean Water Act, and VA-DEQ Stormwater Management Program Regulations. During the site planning phase of the project, a wetland delineation will offer more precise wetland and stream locations, as well as their classifications.

Grading and Stormwater Management

All stormwater management plans will be in conformance with all applicable local laws and regulations, as well as with the VA-DEQ Stormwater Management Program Regulations.

Prime Agricultural Soils

Enclosed as Exhibit E is a map showing the types of farmland soils on the Property. The majority of the Project (93%) is located on non-prime agricultural soils.

DECOMMISSIONING PLAN

Each solar energy facility within the Project will be decommissioned at the end of its useful life, which will be the earlier of when (a) the Project Owner determines the solar energy facility is at the end of its useful life, or (b) the facility generates no electricity for a continuous period of one year. At least 60 days prior to the commencement of decommissioning activities, the Project Owner will notify the City of Staunton officials. The Project Owner (the "Owner") will perform decommissioning activities for that solar energy facility pursuant to the respective decommissioning plan included with the application as Exhibit F. Decommissioning includes the removal and disposal of all equipment and materials relating to the operation of a solar energy facility including:

- Removal of all racking, panels, and electrical equipment
- Removal of all cabling above 36" below grade
- Removal of all above ground cabling
- Removal of all concrete foundations
- Removal of all internal roadways and fencing

Any existing vegetation and buffering will remain in place, and disturbed areas will be covered with topsoil. Minimal grading as necessary will be completed, though virtually none is anticipated except for areas where access roads are removed, and the soil will be decompacted to allow for productive agricultural use. All refuse and materials will be removed from the site and disposed of according to applicable laws and regulations. Where possible, materials will be recycled, salvaged, or reused. The decommissioning plan is designed to restore the property to allow for a productive agricultural use.

For details, please see the two Decommissioning Plans, prepared by Timmons Group, enclosed as Exhibit F(a) and Exhibit F(b).

EXHIBITS

- A. Consolidation Deed and Plat for Flying Rock Properties, LLC, dated September 13, 2022
- B. Concept Plan dated January 6, 2023
- C. Timmons Group Transportation Overview Memorandum, dated January 5, 2023

- D. Environmental Resource Impact Analysis, dated November 22, 2022
- E. Farmland Soils Map
- F. (a) Decommissioning Plan for Utility-Scale Facility, dated January 2, 2023
 - (b) Decommissioning Plan for Community Solar Facility, dated January 2, 2023

(101643387.4)

Sale

XXXXXXXXXXXX5937
VISA

Entry Method: Chip

Total: \$

33.00

11/10/22

11:15:41

Inv #: 0000000003

App Code: 062560



OFFICIAL RECEIPT
STAUNTON CIRCUIT COURT
DEED RECEIPT

DATE : 11/10/2022

TIME : 11:16:44

RECEIPT # : 22000008055

TRANSACTION # : 22111000006

CASE # : 790CLR220003442

CASHIER : MBM

REGISTER # : H452

INSTRUMENT : 220003442

BOOK :

PAGE :

FILING TYPE : DOC-PL

PAYMENT : FULL PAYMENT

GRANTOR : FLYING ROCK PROPERTY LLC

AT : 11:15

GRANTEE : FLYING ROCK PROPERTY LLC

EX : N

LOC : CI

RECEIVED OF : FLYING ROCK PROPERTY LLC

EX : N

PCT : 100%

ADDRESS : 13407 WESTWELL DRIVE MIDLOTHIAN, VA 23113

CREDIT/DEBIT CARD : \$33.00

PAGES : 006

OP : 0

NAMES : 0

CONSIDERATION : \$0.00

A/VAL : \$0.00

PIN OR MAP :

ACCOUNT CODE	DESCRIPTION	PAID
035	VIRGINIA OUTDOOR FOUNDATION	\$3.00
106	TECHNOLOGY TRST FND	\$5.00
145	VSLF	\$3.50

ACCOUNT CODE	DESCRIPTION	PAID
301	CLERK RECORDING/INDEXING FEE	\$14.50
423	E-RECORDING DEED PAPER FILING	\$5.00
407	CONVENIENCE FEE	\$2.00

TENDERED : \$ 33.00

AMOUNT PAID : \$ 33.00

Prepared by:
Shaheen Law Firm, P.C.
Victor A. Shaheen VSB # 24677
8890 Three Chopt Road
Richmond, VA 23229

Consideration \$0.00
Parcel ID #'s: 10418, 10413, & 10140
Insured By: N/A

THIS DEED OF CONSOLIDATION made and entered into this 9th day of November 2022, by **FLYING ROCK PROPERTY, LLC**, a Virginia limited liability company, **“Grantor”** party of the first part, and **FLYING ROCK PROPERTY, LLC**, a Virginia limited liability company, **“Grantee”** party of the second part.

W I T N E S S E T H:

That for the purpose of consolidating three separate parcels of land owned by the party of the first part into one parcel, the party of the first part does hereby consolidate the three parcels of land described on Schedule “A” hereto attached into one parcel of land described on Schedule “B” hereto attached; and in that regard, the party of the first part does hereby grant and convey unto themselves, as party of the second part, the property described on Schedule “B” hereto attached.

This conveyance is made expressly subject to all restrictions, reservations, conditions, covenants and easements of record affecting the aforesaid property to the extent that they may lawfully apply.

**GRANTEE’S ADDRESS: 13407 Westwell Drive
Midlothian, Virginia 23113**

WITNESS the following signature and seal:

Flying Rock Property, LLC

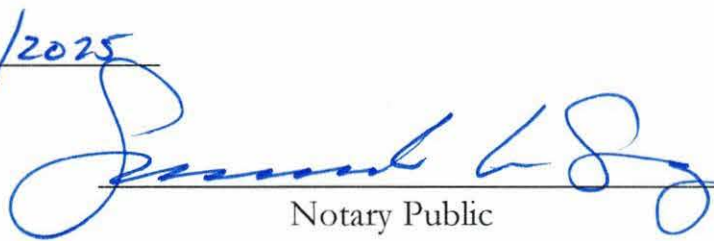
By: 
Shin M. Kwak, Manager

STATE OF VIRGINIA
COUNTY OF HENRICO, to-wit:

The foregoing instrument was acknowledged before me this 9th day of November 2022, by Shin M. Kwak in his capacity as Manager of Flying Rock Property, LLC.

My Commission Expires: 7/31/2025




Notary Public

SCHEDULE "A"

Tract D (PID: 10418):

ALL of that certain tract or parcel of land with all improvements thereon and all appurtenances thereunto belonging, situate in the City of Staunton, Virginia (formerly situate in Beverly Manor District, Augusta County, Virginia, prior to annexation effective Midnight on December 31, 1986), containing 30.104 acres, more or less, designated and described as Tract D as more particularly set forth on a map entitled "Plat of Tract D, Moore Trust (Marital Trust One)", dated October 15, 2012, made by Stephen W. Ellinger of EGS & Associates, recorded in Instrument No. 120003177 in the Clerk's Office, Circuit Court, City of Staunton on December 21, 2012.

TOGETHER WITH an appurtenant variable width Right of Way for ingress and egress set out on the plat referenced above and described in instruments of record in the Augusta County Circuit Court Clerk's Office in Deed Book 210, Page 5, and Deed Book 290 (previously erroneously recited as Book 295), Page 109.

AND FURTHER TOGETHER WITH an appurtenant right-of-way for ingress and egress as shown on the "Proposed 50' Right of Way" depicted on the Plat of Tract D (referenced above) and the Plat of Tract E (referenced below).

Tract E (PID: 10413):

ALL of that certain tract or parcel of land with all improvements thereon and all appurtenances thereto belonging situate, lying and being in the City of Staunton, Virginia (formerly in Beverley Manor District, Augusta County, Virginia, prior to Annexation effective Midnight on December 31, 1986), and lying to the east of Route 11 Bypass (Commerce Way), containing 126.621 acres, more or less, designated and described as Tract E as more particularly set forth on a map entitled "Plat of Tract E, Moore Trust (Marital Trust One)", dated October 15, 2012, revised December 4, 2012, made by Stephen W. Ellinger of EGS & Associates, recorded in Instrument No. 120003177 in the Clerk's Office, Circuit Court, City of Staunton on December 21, 2012.

TOGETHER WITH a non-exclusive right-of-way for ingress and egress across the public way on Tract F as more fully set out on the plats referenced herein.

LESS AND EXCEPT 61.12 acres, more or less, conveyed in Instrument No. 190003225.

Tract F (PID: 10140):

ALL of that certain tract of land with all improvements thereon and all appurtenances thereto belonging, situate in the City of Staunton, Virginia (formerly in Beverley Manor District, Augusta County, Virginia, prior to Annexation effective

Midnight on December 31, 1986), and lying to the east of Route 11 Bypass (Commerce Way), containing 1.245 acres, more or less, designated and described as Tract F as more particularly set forth on a map entitled "Plat Of Tract F. Moore Trust (Marital Trust One)", dated October 15, 2012, made by Stephen W. Ellinger of EGS & Associates, recorded in Instrument No. 120003177 in the Clerk's Office, Circuit Court, City of Staunton on December 21, 2012.

TOGETHER WITH the rights to the agreement of the Commonwealth to dedicate, or cause to be set apart, an access roadway for general public use over 0.53 acre, more or less, all as more particularly set forth and described in a certain deed dated November 27, 1953, between the Commonwealth of Virginia acting by and through the State Highway Commissioner, Grantor, and P.W. Moore and Dorothy Baughan Moore, his wife, Grantees, of record in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 399, page 329.

BEING A PART OF the same property conveyed to Anne B. Moore Corp by Deed of Distribution from P. W. Moore, Jr., Trustee and Elizabeth M. Schreiber, Substitute Trustee under Agreement dated January 10, 1992, between P. W. Moore, Trustor, and P. W. Moore, Jr., Dorothy B. Moore and Benham M. Black, Trustees (Marital Trust One), dated December 14, 2012, and recorded December 21, 2012, in the Clerk's Office, Circuit Court, City of Staunton, Virginia in Instrument No. 120003177.

SCHEDULE "B"

ALL of that certain lot or parcel of land with improvements thereon and appurtenances thereto lying, being and situate in the City of Staunton, Virginia, containing 96.823 acres, and designated as "Tract D", "Tract E", and "Tract F" on a plat hereto attached entitled, "COMPLIED PLAT COMBINING THE FLYING ROCK PROPERTY, LLC PROPERTIES" dated September 13, 2022 and revised prepared by Thomas W. Dorr of EGS & Associates, Inc. a copy of said plat is attached hereto and made part hereto and to which plat reference is hereby made for a more particular description.

BEING a consolidation of Parcel ID numbers 10418, 10413, and 10140 described on Schedule "A" of this DEED OF CONSOLIDATION.

STAUNTON, VA

SCALE 1" = 200' SEPTEMBER 13, 2022

EGS & ASSOCIATES, INC.
15 TERRY ST., STAUNTON, VA

THE BOUNDARY SHOWN HEREON IS BASED ON PREVIOUSLY
RECORDED SURVEYS, SEE I.N. 120003177, I.N. 160001791,
AND I.N. 190003225.

THIS SURVEY WAS PERFORMED WITHOUT A TITLE REPORT AND
MAY NOT INDICATE ALL ENCUMBRANCES UPON THE PROPERTY.

NO GRAVES OR PLACES OF BURIAL WERE NOTED DURING THIS
SURVEY.

TRACT D, 30.104 ACRES (PID #10418), TRACT E, 65.501 ACRES (PID #10413), AND TRACT F, 1.218 ACRES (PID #10140) ARE HEREBY COMBINED FOR THE PURPOSE OF ADJUSTING THE BOUNDARY LINES OR ADDING LAND TO THE EXISTING TRACT, WITH THE RESULTING COMBINED TRACT, 96.823 ACRES, TO BE TREATED AS ONE TRACT, TRACT E REVISED.

A PORTION OF THE SURVEY PREMISES IS LOCATED IN FLOOD ZONE AE (SPECIAL FLOOD HAZARD AREAS SUBJECT INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, BASE FLOOD ELEVATIONS DETERMINED) ACCORDING TO FIRM FOR THE COUNTY OF AUGUSTA, VIRGINIA, COMMUNITY #510013, AND THE CITY OF STAUNTON, VIRGINIA, COMMUNITY #510155, MAP NUMBER 51015C0341D AND MAP NUMBER 51015C0343D, BOTH WITH AN EFFECTIVE DATE OF SEPTEMBER 28, 2007.

TRACT D	30.104 ACRES
TRACT E	65.501 ACRES
TRACT F	1.218 ACRES
96.823 ACRES TOTAL	
TRACT E REVISED	

TRACT D
30.104 ACRES
I.N. 220002665
PID #10418

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	S 34°38'19" E	179.40	L18	N 95°29'12" E	33.99
L2	N 55°21'41" E	201.24	L19	S 25°53'28" E	46.30
L3	S 55°21'41" W	141.06	L20	S 52°52'35" E	46.97
L4	S 47°17'23" E	72.07	L21	S 14°14'08" E	62.73
L5	S 58°45'46" E	480.44	L22	S 30°52'08" E	75.03
L6	S 34°28'25" E	443.58	L23	S 15°19'01" E	57.37
L7	S 61°04'27" E	424.49	L24	S 18°07'28" E	74.66
L8	S 43°40'23" E	7.79	L25	S 46°19'30" E	19.52
L9	S 56°55'44" E	80.86	L26	S 83°40'22" E	23.38
L10	S 53°16'51" E	58.75	L27	S 05°09'52" W	74.07
L11	S 10°42'38" E	24.07	L28	S 56°00'48" W	45.59
L12	S 62°42'22" E	84.60	L29	S 00°38'02" E	107.58
L13	S 17°37'04" S	30.64	L30	S 15°59'21" E	116.84
L14	S 76°18'02" E	72.50	L31	S 08°30'21" E	83.77
L15	S 38°35'02" E	67.82	L32	S 25°07'37" E	117.86
L16	S 76°01'52" E	38.33	L33	S 16°49'06" E	110.63
L17	S 43°27'38" E	126.25			

CURVE	S	X 4327.36	E	Y 126.20	TAN	CHORD BRG	CHORD
				ARC			
C1	16'44.31"	1015.00	296.58		149.36	N 21°21'58" E	296.53
C2	07'39.01"	4850.00	647.58		32.24	N 16°49'13" E	647.10
C3	28'03.41"	333.10	163.14	83.24	S	46°39'54" E	161.51
C4	01'42.58"	5679.58	170.14	85.08	N	23°36'24" E	170.13
C5	09'28.26"	400.00	66.14	33.15	S	52°01'36" E	66.06
C6	02'19.24"	1000.00	40.55	20.28	S	56°36'07" E	40.55
C7	06'18.02"	3000.00	294.53	180.36	S	26°18'54" E	292.84
						S 16°52'31" E	165.82

200 0 200 400
GRAPHIC SCALE

IF THIS PLAT IS NOT RECORDED WITHIN 6 MONTHS
THE SUBDIVISION AGENT APPROVAL IS VOID.

SUBDIVISION AGENT _____

Timothy Q Hawthorn 9-30-2022

OIKOS STAUNTON UTILITY SOLAR PROJECT & OIKOS STAUNTON COMMUNITY SOLAR PROJECT

15.75 MWAC UTILITY SCALE SOLAR AND BATTERY STORAGE ELECTRIC POWER GENERATION FACILITY & 5 MWAC COMMNUITY SOLAR ELECTRIC POWER GENERATION FACILITY

SPECIAL USE PERMIT STAUNTON, VIRGINIA

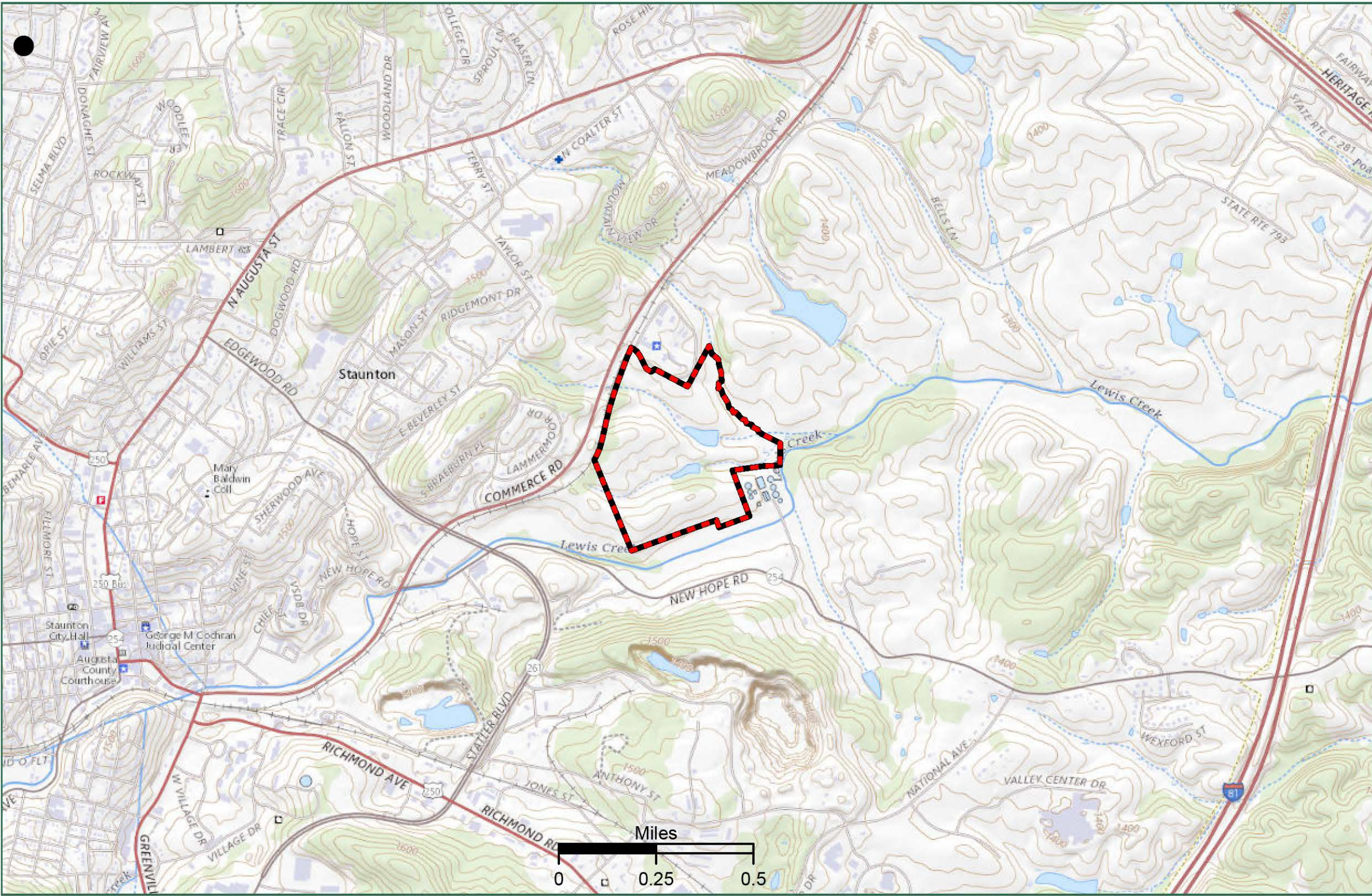


TABLE OF CONTENTS	
SHEET	DESCRIPTION
C1.0	COVER SHEET
C2.0	PARCEL AND ZONING MAP
C3.0	CONCEPT PLAN
C4.0	AERIAL TOPOGRAPHY MAP
C5.0	LANDSCAPING DETAILS

**STAUNTON PV-UT, LLC
STAUNTON PV-CS, LLC**

DEVELOPER

Oikos Solar System, Inc.
11011 Richardson Rd.
Ashland, VA 23005-3418

TIMMONS GROUP

ENGINEER

1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6538

PROPERTY OWNER

Flying Rock Property, LLC
13407 Westwell Drive
Midlothian, Virginia 23113

PRELIMINARY CONCEPT PLANS PREPARED BY TIMMONS GROUP

JANUARY 6, 2023



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Richmond, VA 23225
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www.timmons.com

OIKOS SOLAR SYSTEM, INC.
8435 GLAZEBROOK AVENUE
RICHMOND, VA 23228

PROJECT NAME & LOCATION

STAUNTON SOLAR PROJECT

STAUNTON, VIRGINIA

DATE
01/06/2023

PROJECT NUMBER
49034.004

PROJECT NAME
STAUNTON SOLAR PROJECT

DESIGNED BY / DRAWN BY
W. HART

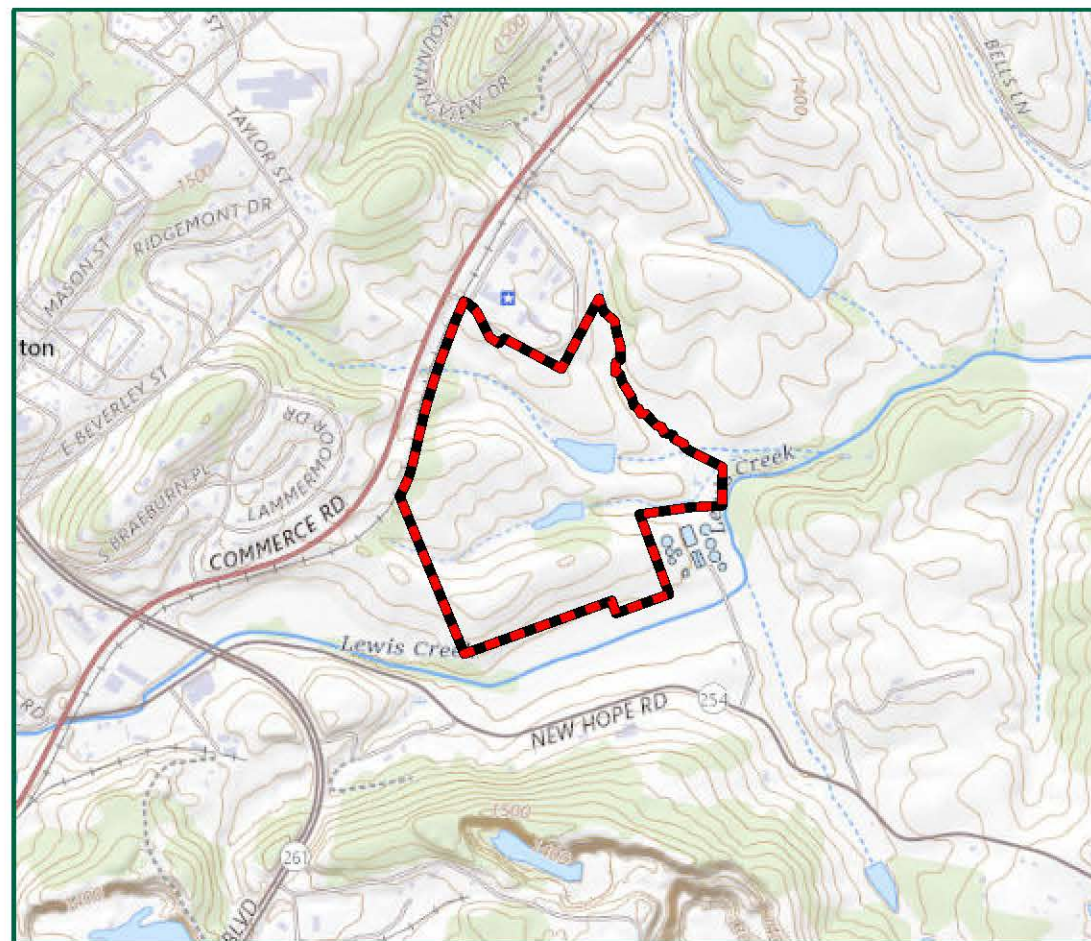
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REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION
COVER SHEET

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
	C1.0



Legend

-
- Project Study Limits - 95.1 Acres

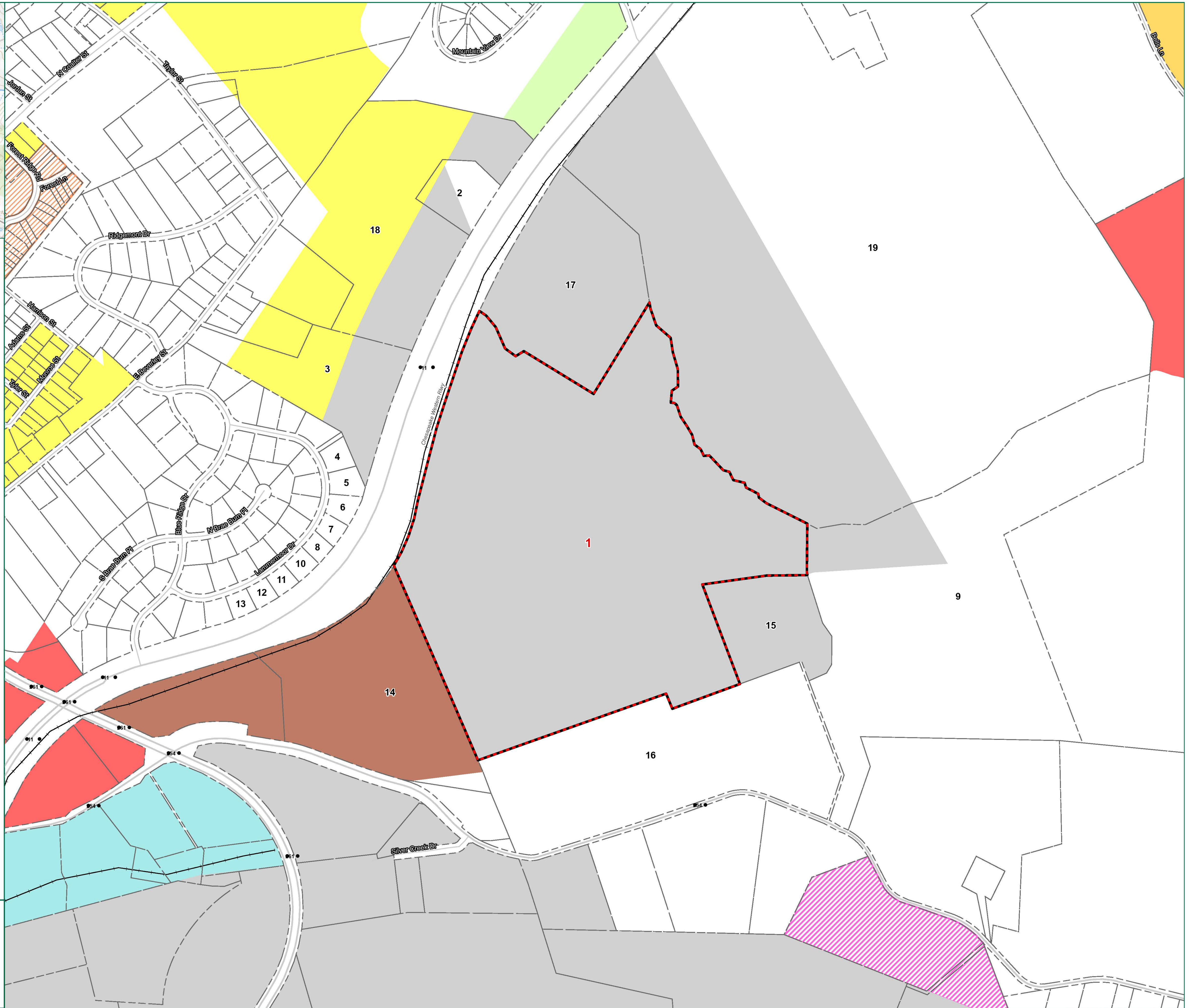
- City of Staunton Tax Parcels

Parcel Zoning Code

-
- Legend:
- B-1
 - B-1(conditional)
 - B-2
 - B-3
 - B-5 outline
 - HE-1
 - I-1
 - I-2
 - P-1
 - R-1
 - R-2
 - R-3
 - R-3(conditional)
 - R-4

Staunton Solar Project Parcels	
Map Identifier	Parcel Identifier
1	10413
Staunton Solar Adjacent Parcels	
Map Identifier	Parcel Identifier
2	11356
3	6460
4	5154
5	1532
6	8435
7	5455
8	6197
9	10410
10	1533
11	6198
12	1534
13	6199
14	10420
15	10456
16	10377
17	10180
18	6461
19	10146

NOTES:
Project Limits have been previously surveyed.
Site layout is for design purposes only.
Not for construction.
Zoning Map from City of Staunton GIS.
Parcel limits from City of Staunton GIS.



VIKUS SOLAR SYSTEM, INC.

0433 CLAREBROOK AVENUE
RICHMOND, VA 23228

STAUNTON SOLAR PROJECT
STAUNTON, VIRGINIA

01/06/2023

PROJECT NUMBER
49034.004

PROJECT NAME	STAUNTON SOLAR PROJECT
--------------	------------------------

DESIGNED BY / DRAWN BY
W. HART

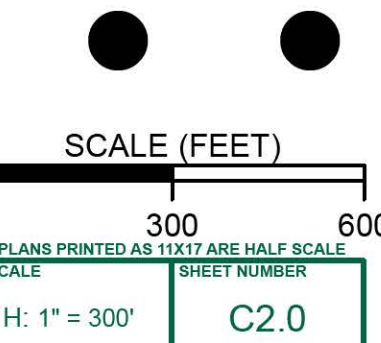
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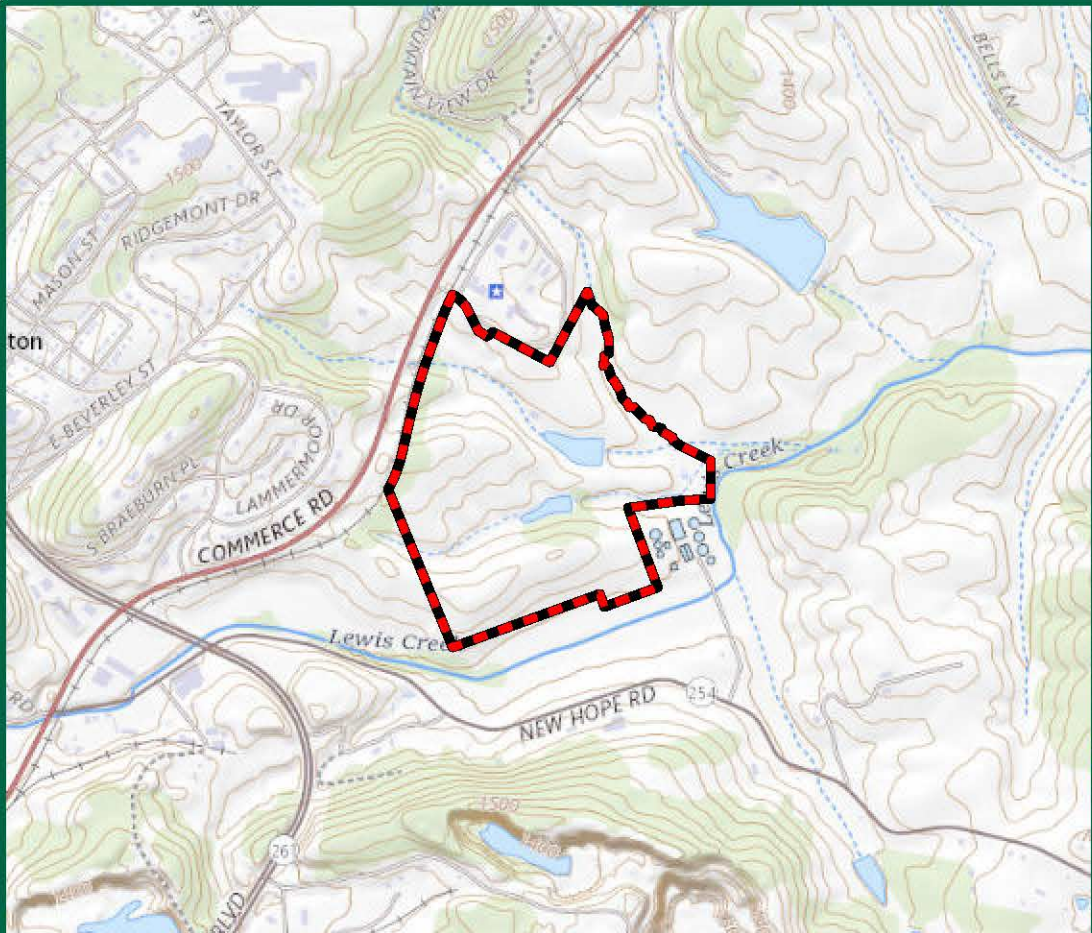
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[illegible]

RAWING DESCRIPTION

PARCEL & ZONING MAP





Legend

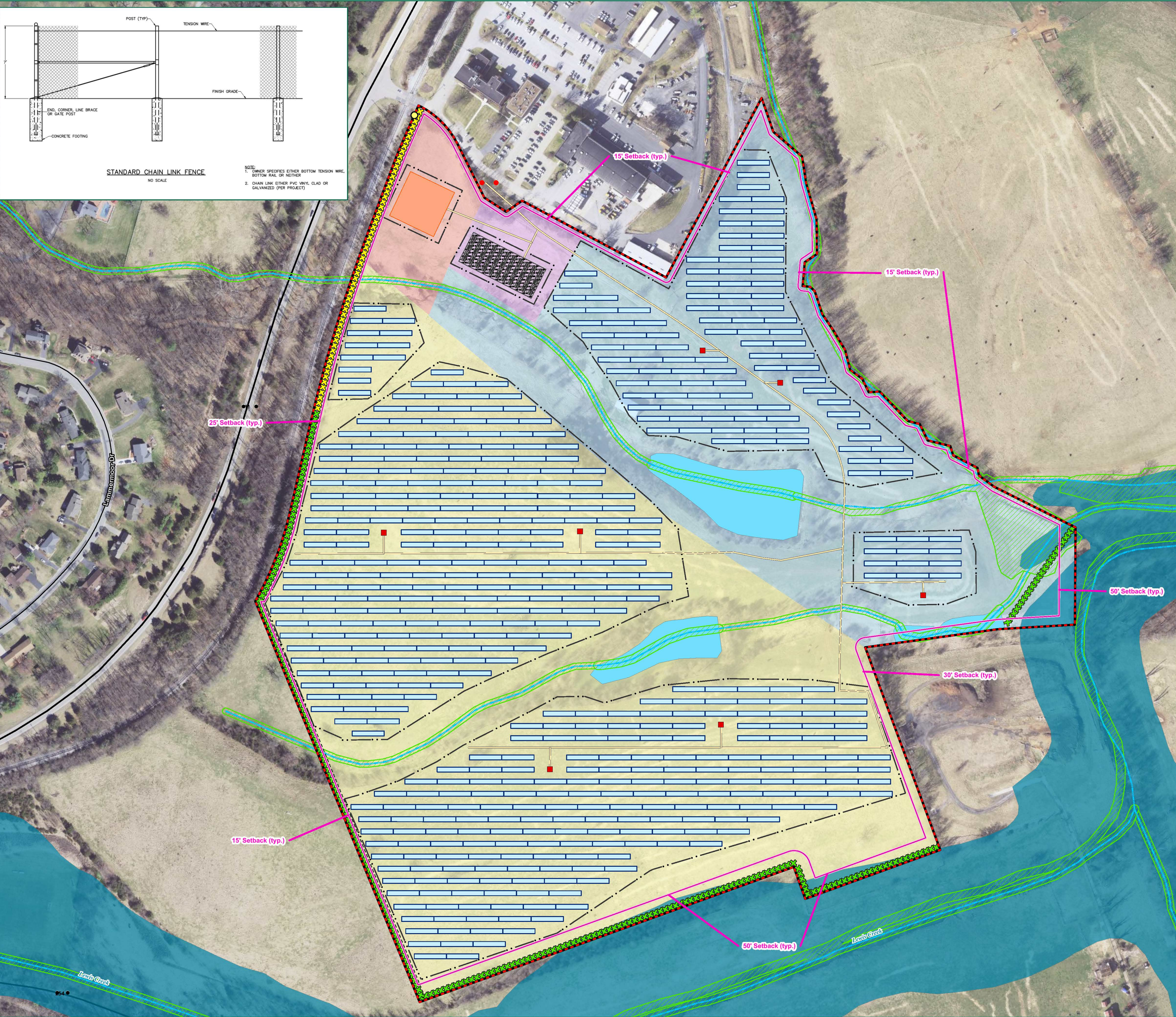
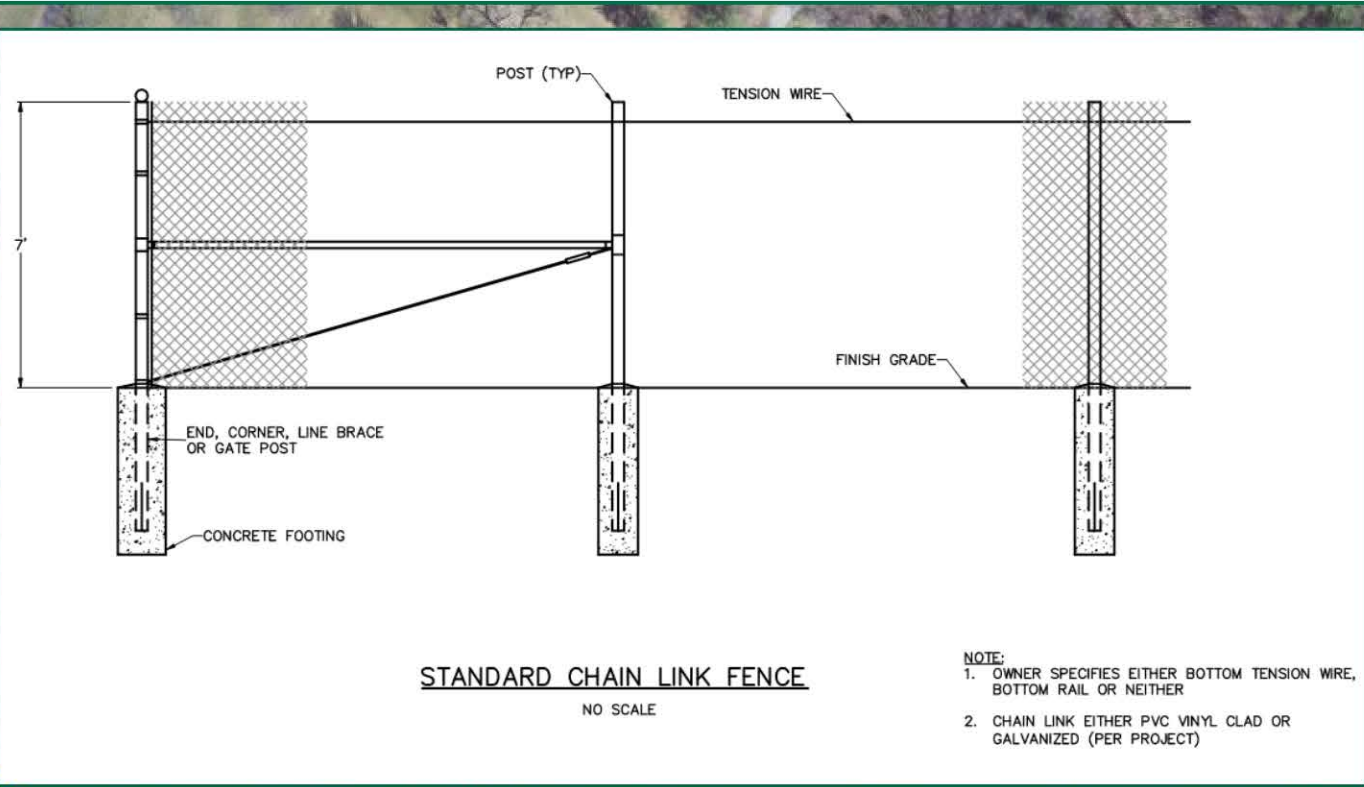
- Project Study Limits - 95.1 Acres
- Property Setbacks 15' / 25' / 30' / 50'
- Project Entrance
- Point of Interconnection
- Inverters
- Internal Roads
- 10' Additional Vegetative Screening
- 10' Required Vegetative Screening
- National Hydrography Dataset - Streams
- Fence - 58.6 Acres
- Solar Arrays
- Collector Substation
- Battery Energy Storage System
- 50' Riparian Buffer
- National Wetlands Inventory
- National Hydrography Dataset - Waterbodies
- FEMA Flood Zone

Operating Sections

- Utility Scale Solar Array Area - 15.75 MWac - 59.4 Acres
- Community Scale Solar Array Area - 5.5MWac - 30.5 Acres
- Collector Substation Area - 3.1 Acres
- Utility Scale Battery Energy Storage System Area - 2.1 Acres

NOTES

1. PROJECT LIMITS HAVE BEEN SURVEYED.
2. CONCEPT PLAN IS FOR DESIGN PURPOSES ONLY. NOT FOR CONSTRUCTION.
3. PROPERTY SETBACKS ARE AS FOLLOWS: 15' LF SETBACK FROM ALL SIDES, 25' LF SETBACK FROM STREET / FRONT YARD, 30' LF SETBACK FROM REAR AND 50' LF SETBACK FROM ALL ADJACENT RESIDENTIAL ZONED PARCELS
4. STREAMS AND WATERBODIES FROM NATIONAL HYDROGRAPHY DATASET.
5. FLOOD ZONE FROM FEMA NATIONAL FLOOD ZONE LAYER.
6. WETLANDS FROM NATIONAL WETLANDS INVENTORY.
7. AERIAL IMAGERY FROM VGIN.



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OIKOS SOLAR SYSTEM, INC.
8435 GLAZEBROOK AVENUE
RICHMOND, VA 23228

STAUNTON SOLAR PROJECT
STAUNTON, VIRGINIA

DATE	01/05/2023
PROJECT NUMBER	49034.004
PROJECT NAME	STAUNTON SOLAR PROJECT
DESIGNED BY / DRAWN BY	W. HART

NOTES

Project Limits have been surveyed. Concept plan is for design purposes only.

Not for construction.

15' setback from all sides. 25' setback from street / front yard. 30' setback from rear. 50' setback from all adjacent residential zoned parcels

Streams and waterbodies from National Hydrography Dataset.

Flood Zone from FEMA National Flood Zone Layer.

Wetlands from National Wetlands Inventory.

Aerial imagery from VGIN.

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#	DATE	DESCRIPTION

DRAWING DESCRIPTION
CONCEPT PLAN

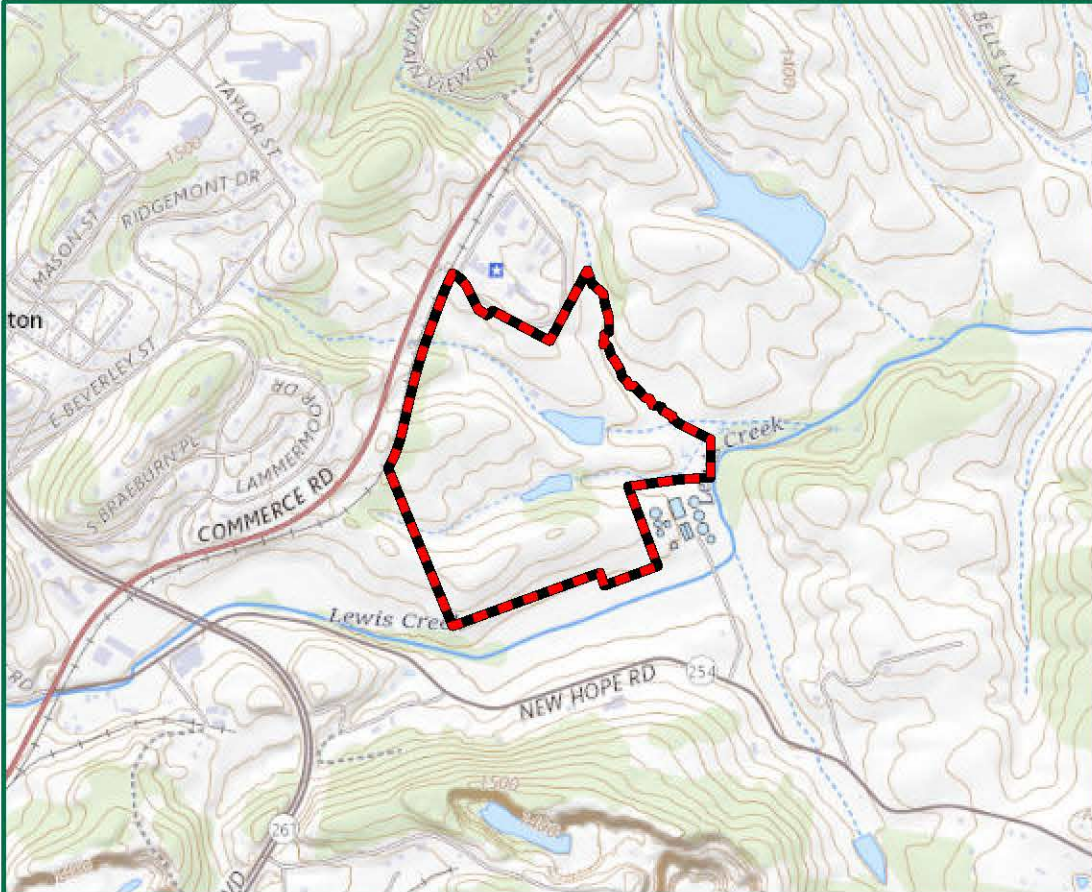
SCALE (FEET)

0 150 300

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE SHEET NUMBER

H: 1" = 150' C3.0



Legend

Project Study Limits - 95.1 Acres

Limits of Disturbance - 59.5 Acres

10' Topographic Contours

Major

Minor

NOTES

1. THE LIMITS OF DISTURBANCE IS CONCEPTUAL AND WILL BE FINALIZED DURING THE SITE PLAN STAGE. STORMWATER FACILITIES WILL ALSO BE FINALIZED AT THE SITE PLAN STAGE.

2. SPECIFIC LOCATION OF TOPSOIL TO BE REMOVED AND PRESERVED WILL BE IDENTIFIED ON THE FINAL CONSTRUCTION EROSION AND SEDIMENT CONTROL/STORMWATER MANAGEMENT PLANS THAT WILL BE REQUIRED FOR THIS PROJECT. TOPSOIL STRIPPED DURING GRADING SHALL BE STOCKPILED, STABILIZED, AND REPLACED DURING FINAL GRADING AND PRIOR TO THE INSTALLATION OF PANELS. SOIL STOCKPILES WILL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH 9VAC25-840-40.

A. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS.

B. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.



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OKOS SOLAR SYSTEM, LLC
8405 GLAZEBROOK AVENUE
RICHMOND, VA 23228

PROJECT NAME & LOCATION

STAUNTON SOLAR PROJECT
STAUNTON, VIRGINIA

DATE 01/06/2023

PROJECT NUMBER 49034.004

PROJECT NAME STAUNTON SOLAR PROJECT

DESIGNED BY / DRAWN BY W. HART

#	DATE	DESCRIPTION

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#	DATE	DESCRIPTION

DRAWING DESCRIPTION

AERIAL TOPOGRAPHY MAP

SCALE (FEET)

0 150 300

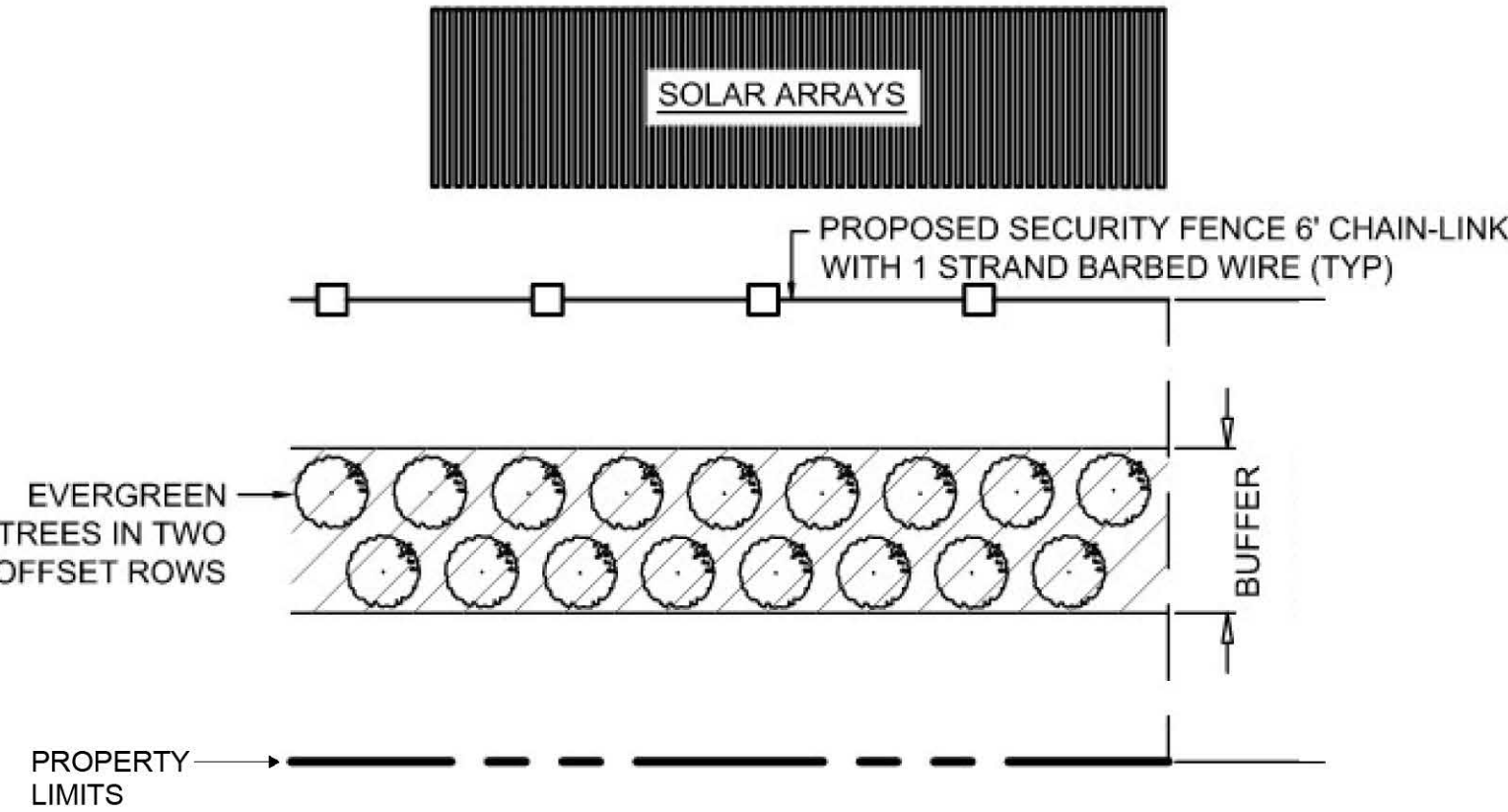
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1" = 150'	C4.0

VEGETATIVE BUFFER NOTES

- SCREENING SHALL CONSIST OF A PLANTING STRIP, EXISTING VEGETATION, A SLIGHTLY OPAQUE WALL OR FENCE, OR COMBINATION THEREOF.
- WHERE ONLY VEGETATIVE SCREENING IS PROVIDED, SUCH SCREENING STRIP SHALL NOT BE LESS THAN FIVE (5) FEET WIDE IN THE BUSINESS AND PROFESSIONAL DISTRICTS AND 10 FEET WIDE IN THE INDUSTRIAL DISTRICTS.
- VEGETATIVE SCREENING MAY CONSIST OF A DOUBLE STAGGERED ROW OF EVERGREEN TREES PLANTED 15 FEET ON CENTER, OR DOUBLE STAGGERED ROW OF EVERGREEN SHRUBS PLANTED 10 FEET ON CENTER.
- WHERE A FENCE OR A WALL IS PROVIDED, IT SHALL BE A MINIMUM OF SIX FEET IN HEIGHT.
- PLANTINGS SHALL BE REQUIRED AT INTERVALS ALONG SUCH A FENCE OR WALL.

VEGETATIVE BUFFER PLANTING TEMPLATE
GENERAL BUFFER



RECOMMENDED BUFFER PLANT LIST

SUPPLEMENTAL PLANTING: EVERGREEN TREES

BOTANICAL NAME / COMMON NAME
KALMIA LATIFOLIA / MOUNTAIN LAUREL
PHYSOCARPUS OPULIFOLIUS / NINEBARK
SAMBUCUS CANADENSIS / COMMON ELDERBERRY
VIBURNUM DENTATUM / SOUTHERN ARROW-WOOD VIBURNUM

GROUNDCOVER PLANTING NOTES

- FOLLOWING INITIAL IMPLEMENTATION OF NOXIOUS WEED AND INVASIVE SPECIES MANAGEMENT PLAN, PREPARE SITE SOIL CONDITIONS FOR SEEDING.
- SEED DISTURBED AREAS WITHIN THE PROJECT AREA, DISTURBED AREAS WITHIN THE SETBACK, AND INSTALLED VEGETATIVE BUFFERS WITH APPROPRIATE POLLINATOR-FRIENDLY NATIVE PLANTS, SHRUBS, GRASSES, FORBES, AND WILDFLOWERS.
- FOLLOWING COMPLETION OF CONSTRUCTION, THE POLLINATOR-SMART DESIGNATED AREA OF THE PROJECT AREA SHALL RECEIVE PROMPT SEEDING WITH APPROPRIATE POLLINATOR-FRIENDLY NATIVE PLANTS, SHRUBS, TREES, GRASSES, AND WILDFLOWERS AND IN SUCH A MANNER AS TO REDUCE INVASIVE WEED GROWTH AND TRAP SEDIMENT WITHIN THE PROJECT AREA. AT THE BEGINNING OF THE NEXT PLANTING SEASON OVERSEED THE PROJECT AREA, SETBACKS AND BUFFERS WITH APPROPRIATE POLLINATOR-FRIENDLY NATIVE PLANTS, SHRUBS, TREES, GRASSES, FORBS AND WILDFLOWERS, FOLLOWING VIRGINIA POLLINATOR-SMART PROGRAM BEST PRACTICES OR ANY SUCH OTHER PROGRAM AS APPROVED BY COUNTY STAFF IN CONSULTATION WITH THE DEPARTMENT OF ENVIRONMENTAL QUALITY NATIVE PLANT FINDER SYSTEM.
- SEED DISTURBED AREAS WITH A TEMPORARY MIXTURE AS NEEDED TO MEET STATE REGULATIONS FOR EROSION AND SEDIMENT CONTROL.
- DURING THE NEXT SUITABLE SEEDING PERIOD (SPRING OR FALL), SOW GROUNDCOVER TO ESTABLISH PERMANENT VEGETATIVE COVER. OPTIMAL SEED GERMINATION OCCURS AFTER OCTOBER 15 AND BEFORE APRIL 15. IF SEEDING IS CONDUCTED OUTSIDE OF OPTIMAL SEED GERMINATION PERIODS, PAIR A SEASONALLY-APPROPRIATE COVER CROP WITH PERMANENT SEED MIXTURE TO SUPPORT SOIL STABILIZATION AND EROSION AND SEDIMENT CONTROL DURING SEED ESTABLISHMENT PERIOD.
- USE RECOMMENDED SEEDING RATES (SPECIFIC TO MIXTURE) AND PROPER SEED PACKING FOR OPTIMAL GERMINATION AND SEED ESTABLISHMENT.
- ONCE ESTABLISHED, MOWING OF THE POLLINATOR HABITATS SHALL OCCUR AFTER THE END OF EVERY MIGRATORY SEASON IN ORDER TO RESEED THESE AREAS. THE INTENT OF THIS PROVISION IS TO ENSURE AT LEAST TEN PERCENT OF THE TOTAL ACREAGE OF THE FACILITY IS CULTIVATED IN SUCH A MANNER TO ENCOURAGE POLLINATOR HABITATS IN ORDER TO HELP MAINTAIN THE RURAL, AGRICULTURAL NATURE OF THE COUNTY.

NOXIOUS WEED AND INVASIVE PLANT SPECIES
MANAGEMENT PLAN

GENERAL NOTES

- ONGOING MONITORING IS REQUIRED TO MANAGE WEEDS AND INVASIVE SPECIES.
- USE PROPER EQUIPMENT FOR ALL CONTROL MEASURES:
 - TRACTOR MOUNTED BRUSH HOG FOR HEAVY MOWING (MINIMUM PLANT HEIGHT ≥3"-4") AND HIGH MOWING (MINIMUM PLANT HEIGHT ≥6"-8")
 - TRACTOR-MOUNTED, TRUCK-MOUNTED, OR ATV- MOUNTED SPRAYER FOR BROADCAST APPLICATIONS
 - BACKPACK STYLE SPRAYER OR OTHER DEVICE FOR SPOT SPRAYING APPROPRIATE TO THE CLASS OF PESTICIDE
 - AREAS UNDER AND DIRECTLY ADJACENT TO SOLAR ARRAYS MAY REQUIRE USE OF HAND-HELD EQUIPMENT
 - GRAZING BY RUMINANTS (USUALLY GOATS OR SHEEP) WHERE PRACTICAL AND APPROPRIATE TO PLANT SPECIES PRESENT
- REMOVE SHRUBS AND WOODY VINES BY THEIR ROOT SYSTEMS. ALTERNATIVELY, PRUNE THESE PLANTS AT GROUND LEVEL.
- REMOVE PROBLEMATIC PLANTS WITH FLOWERS OR SEEDS MANUALLY, PLACE HEAD FIRST IN HEAVY PLASTIC BAG, AND TRANSPORT TO A DESIGNATED DISPOSAL SITE. DO NOT DISPOSE OF AT LOCAL TRANSFER STATION, UNLESS THERE IS A DESIGNATED AREA FOR INVASIVE PLANT SPECIES DISPOSAL.
- PERFORM ALL CHEMICAL CONTROL TREATMENTS UNDER THE DIRECT SUPERVISION OF A VIRGINIA CERTIFIED PESTICIDE APPLICATOR OR REGISTERED TECHNICIAN.
- DO NOT APPLY HERBICIDE WHEN RAINFALL IS EXPECTED WITHIN 48 HOURS OR WIND SPEEDS EXCEED 10 MPH.

IDENTIFICATION AND CONTROL MEASURES PRE-CONSTRUCTION AND DURING CONSTRUCTION

- COMPLETE SITE INVENTORY OF NOXIOUS WEED SPECIES AND INVASIVE SPECIES.
- DEVELOP A MANAGEMENT PLAN THAT PRIORITIZES CONTROL OBJECTIVES.
- IMPLEMENT REMOVAL AND CONTROL MEASURES ACCORDING TO MANAGEMENT PLAN.
- REMOVAL AND CONTROL STRATEGIES SHOULD BE IMPLEMENTED TO BEGIN MANAGEMENT PRIOR TO SEEDING.

ESTABLISHMENT AND ONGOING MAINTENANCE SCHEDULE

- WINTER
 - REVIEW AND REVISE MANAGEMENT PLANS FOR THE UPCOMING YEAR BASED ON OBSERVATIONS FROM THE PRIOR YEAR.
 - PRUNE AS NECESSARY AND SEASONALLY APPROPRIATE.
 - DURING THE ESTABLISHMENT PERIOD, YEARS 1, 2, AND 3: DURING LATE WINTER OR EARLY SPRING, MOW SEEDED AREAS WHEN VEGETATION GROWS TO 18 INCHES BENEATH THE PANELS OR 2 TO 2.5 FEET ELSEWHERE. MOW TO A HEIGHT OF 12 INCHES. AFTER THE ESTABLISHMENT PERIOD, THIS SHOULD BECOME THE ONCE-A-YEAR MOWING OR AN AS NEEDED MOWING.
- SPRING
 - WEED MANUALLY OR SPOT SPRAY TO TREAT WEEDS, IDEALLY ONCE PER MONTH.
 - DURING THE ESTABLISHMENT PERIOD, YEARS 1, 2, AND 3: IF NOT DONE IN WINTER, MOW SEEDED AREAS WHEN VEGETATION GROWS TO 18 INCHES BENEATH THE PANELS OR 2 TO 2.5 FEET ELSEWHERE. MOW TO A HEIGHT OF 12 INCHES.
 - WATER AS NEEDED, ESPECIALLY DURING PERIODS OF DROUGHT.
 - REMOVE AND DISPOSE OF DISEASED AND DAMAGED PLANT MATERIAL, PARTICULARLY THOSE THAT CONTAIN OR COULD CONTAIN PESTS.
- SUMMER
 - WEED MANUALLY OR SPOT SPRAY TO TREAT WEEDS, IDEALLY ONCE PER MONTH.
 - WATER AS NEEDED, ESPECIALLY DURING PERIODS OF DROUGHT.
 - REMOVE AND DISPOSE OF DISEASED AND DAMAGED PLANT MATERIAL, PARTICULARLY THOSE THAT CONTAIN OR COULD CONTAIN PESTS.
- FALL
 - DURING THE ESTABLISHMENT PERIOD, YEARS 1 AND 3: IF NOT DONE IN WINTER, MOW SEEDED AREAS WHEN VEGETATION GROWS TO 18 INCHES BENEATH THE PANELS OR 2 TO 2.5 FEET ELSEWHERE. MOW TO A HEIGHT OF 12 INCHES. THE SECOND OR LAST MOWING SHOULD BE IN OCTOBER.
 - REMOVE AND DISPOSE OF DISEASED AND DAMAGE PLANT MATERIAL, PARTICULARLY THAT WHICH CONTAINS OR COULD CONTAIN PESTS.
 - LEAVE GROUNDCOVER ALONE FOR THE PURPOSE OF CREATING SEASONAL INTEREST IN THE LANDSCAPE AND WINTER HABITAT AND FOOD SOURCES FOR WILDLIFE. DO NOT DEADHEAD OR CUT DOWN STANDING VEGETATION, INCLUDING GRASSES AND FORBS. AN EXCEPTION IS ANY SPECIES THAT SEEDS AGGRESSIVELY; IN THAT CASE, DEADHEAD TO PREVENT THESE PLANTS FROM SELF-SOWING. IF A DECISION IS MADE TO CUT DOWN ANY VEGETATION, LAY THE CLIPPINGS ON THE GROUND TO SERVE AS MULCH (EXCEPT FOR AGGRESSIVE, NOXIOUS, OR INVASIVE PLANTS, WHICH SHOULD BE PROPERLY REMOVED FROM THE SITE).
 - IDENTIFY PROBLEM AREAS AND CHALLENGES FROM THE PRIOR GROWING SEASON TO INCORPORATE INTO MAINTENANCE AND MANAGEMENT PLANS FOR THE UPCOMING SEASON. PLAN OUT AND SCHEDULE SPECIFIC MAINTENANCE TASKS.

RECOMMENDED COVER CROPS (TEMPORARY SEEDING)

BOTANICAL NAME	COMMON NAME	SEEDS RATE: POUNDS PER ACRE
AVENA SATIVA	GRAIN OATS	50-100
SETARIA ITALICA	GERMAN MILLET	50
SECALE CEREALE	GRAIN RYE	50-100

RECOMMENDED GROUNDCOVER SEED MIXES

SOLAR FARM SEED MIX

FOR USE IN PANEL ZONE

ERNST SOLAR FARM SEED MIX - ERNMX 186



Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Ernst Solar Farm Seed Mix - ERNMX-186					
Botanical Name		Common Name			
45.50 %	<i>Festuca rubra</i>	Creeping Red Fescue			
15.00 %	<i>Festuca ovina</i> var. <i>duriuscula</i> , 'Jetty'	Hard Fescue, 'Jetty'			
15.00 %	<i>Festuca ovina</i> var. <i>duriuscula</i> , <i>Gladiator</i>	Hard Fescue, <i>Gladiator</i>			
10.00 %	<i>Festuca rubra</i> ssp. <i>commutata</i>	Chewings Fescue			
5.00 %	<i>Poa pratensis</i> , 'Kelly'	Kentucky Bluegrass, 'Kelly'			
5.00 %	<i>Poa pratensis</i> , 'Maverick'	Kentucky Bluegrass, 'Maverick'			
4.50 %	<i>Trifolium repens</i> , <i>Dutch</i>	White Clover, <i>Dutch</i>			

SHORT NATIVE GRASS SEED MIX

FOR USE IN OPEN AREAS WITHIN THE PROPERTY SETBACK

CUSTOM MIX BY ERNST



Ernst Conservation Seeds Inc
8884 Mercer Pike
Meadville, PA 16335-9275
Phone (814) 336-2404; (800) 873-3321; Fax (814) 336-5191
www.ernstseed.com; sales@ernstseed.com

QUOTE
Quote Number Q247897
Quote Date 7/30/2021
Page Number 1 of 1

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Timmons Group
1001 Boulder's Parkway
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Richmond, VA 23225
Phone 804-200-6500
Fax 804-560-1648
Email ben.sagara@timmons.com

SHIP TO:
Timmons Group
1001 Boulder's Parkway
Suite 300
Richmond, VA 23225
Phone: 804-200-6500

Customer PO#	Customer ID	Shipping Method	UPS Shipper #	Terms	Salesperson ID	
EM 073021 KK	TIMM002	UPS GROUND		Credit Card		
Bulk Qty	PLS Qty	UOM	Item Number	Description	Unit Price	Ext. Price
0.000		EACH	NATIVE SEED MIX		\$0.00000	\$0.00
2.343	2.178	LB PLS	PANSPH01	Roundseed Panicgrass	\$32.00000	\$69.70
1.493	1.227	LB PLS	BOUCUR02	Sideoats Grama, Butte	\$14.00000	\$17.18
5.259	4.356	LB PLS	SCHSC001	Little Bluestem, 'Camper'	\$16.00000	\$69.70
0.000		EA	TOTAL	MIX NOTES	\$0.00000	\$0.00
\$21.18 per PLS lb with a 5% custom mixing fee included						
7.761 lb total						

Price quotes guaranteed for 30 days.
All prices are FOB Meadville, PA.
Please check our web site at www.ernstseed.com for current pricing when placing orders.

DETENTION BASIN SEED MIX

FOR USE IN STORMWATER BASINS

VA SOUTHERN PIEDMONT DETENTION BASIN MIX - ERNMX-864

VA Southern Piedmont Detention Basin Mix - ERNMX-864

Botanical Name		Common Name	
30.00 %	<i>Panicum virgatum</i> , <i>NJ Ecotype</i>	Switchgrass, <i>NJ Ecotype</i>	
20.00 %	<i>Elymus virginicus</i> , <i>PA Ecotype</i>	Virginia Wildrye, <i>PA Ecotype</i>	
17.00 %	<i>Panicum clandestinum</i> , <i>Tioga</i>	Deertongue, <i>Tioga</i>	
15.50 %	<i>Panicum rigidulum</i> , <i>PA Ecotype</i>	Redtop Panicgrass, <i>PA Ecotype</i>	
5.00 %	<i>Carex vulpinoidea</i> , <i>PA Ecotype</i>	Fox Sedge, <i>PA Ecotype</i>	
5.00 %	<i>Chusmanthium latifolium</i> , <i>WV Ecotype</i>	River Oaks, <i>WV Ecotype</i>	
2.00 %	<i>Agrostis perennans</i> , <i>Albany Pine Bush-NY Ecotype</i>	Autumn Bentgrass, <i>Albany Pine Bush-NY Ecotype</i>	
2.00 %	<i>Juncus effusus</i>	Soft Rush	
2.00 %	<i>Juncus tenuis</i> , <i>NC Ecotype</i>	Path Rush, <i>NC Ecotype</i>	
0.40 %	<i>Helenium autumnale</i> , <i>Northern VA Ecotype</i>	Common Sneezeweed, <i>Northern VA Ecotype</i>	
0.40 %	<i>Helenium flexuosum</i> , <i>VA Ecotype</i>	Purplehead Sneezeweed, <i>VA Ecotype</i>	
0.40 %	<i>Vernonia noveboracensis</i> , <i>PA Ecotype</i>	New York Ironweed, <i>PA Ecotype</i>	
0.30 %	<i>Scirpus cyperinus</i> , <i>PA Ecotype</i>	Woolgrass, <i>PA Ecotype</i>	

VIRGINIA POLLINATOR BUFFER SEED MIX

FOR USE AS SUPPLEMENTAL PLANTING IN PROPERTY SETBACK

VA SOLAR POLLINATOR BUFFER MIX - ERNMX-620

VA Solar Pollinator Buffer Mix	
Mix Composition	
36.4%	<i>Schizachyrium scoparium</i> , 'Camper' (Little Bluestem, 'Camper')
36.5%	<i>Rousselia curtispennis</i> , Butte (Sideoats Grama, Butte)
4.0%	<i>Chamaecrista leucocaula</i> , PA Ecotype (Partridge Pea, PA Ecotype)
4.0%	<i>Coreopsis lanceolata</i> (Lanceleaf Coreopsis)
4.0%	<i>Echinacea purpurea</i> (Purple Coneflower)
3.3%	<i>Rudbeckia hirta</i> (Black-eyed Susan)
2.3%	<i>Helianthus bellinoides</i> , PA Ecotype (Ozeye Sunflower, PA Ecotype)
2.0%	<i>Asclepias tuberosa</i> (Butterfly Milkweed)
1.1%	<i>Penstemon digitalis</i> , PA Ecotype (Tall White Beardtongue, PA Ecotype)
1.0%	<i>Liatris spicata</i> (Marsh Blazing Star)
0.7%	<i>Scirpus holcoccus</i> , VA & WV Ecotype (Wild Senna, VA & WV Ecotype)
0.5%	<i>Aster laevis</i> , NY Ecotype (Smooth Blue Aster, NY Ecotype)
0.5%	<i>Aster novae-angliae</i> , PA Ecotype (New England Aster, PA Ecotype)
0.5%	<i>Eupatorium coelestinum</i> , VA Ecotype (Milkflower, VA Ecotype)
0.5%	<i>Geum canadense</i> , PA Ecotype (White Avens, PA Ecotype)
0.5%	<i>Lespedeza capitata</i> , RI Ecotype (Roundhead Lespedeza, RI Ecotype)
0.5%	<i>Monarda fistulosa</i> , Fort Indiantown Gap-PA Ecotype (Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
0.5%	<i>Zizia aurea</i> (Golden Alexander)
0.3%	<i>Baptisia australis</i> , Southern WV Ecotype (Blue False Indigo, Southern WV Ecotype)
0.3%	<i>Tradescantia virginiana</i> , PA Ecotype (Ohio Spiderwort, PA Ecotype)
0.2%	<i>Penstemon hirsutus</i> (Hairy Beardtongue)
0.2%	<i>Pycnanthemum tenuifolium</i> (Narrowleaf Mountainmint)
0.1%	<i>Oenothera fruticosa</i> var. <i>fruticosa</i> (Gumdrop)
0.1%	<i>Rudbeckia fulgida</i> var. <i>fulgida</i> , Northern VA Ecotype (Orange Coneflower, Northern VA Ecotype)
0.1%	<i>Solidago juncea</i> , PA Ecotype (Early Goldenrod, PA Ecotype)
0.1%	<i>Veronicastrum virginicum</i> , PA Ecotype (Culver's Root, PA Ecotype)



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OIKOS SOLAR SYSTEM, INC.
8435 GLAZEBROOK AVENUE
RICHMOND, VA 23228

PROJECT NAME & LOCATION

STAUNTON SOLAR PROJECT
STAUNTON, VIRGINIA

DATE 01/06/2023

PROJECT NUMBER 49034.004

PROJECT NAME STAUNTON SOLAR

DESIGNED BY / DRAWN BY W. HART

NOTES

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REVISIONS	
REV	DESCRIPTION

DRAWING DESCRIPTION

LANDSCAPING DETAILS

PLANS PRINTED AS 11X17 ARE HALF SCALE

SHEET NUMBER C4.0

To: Lori Schweller (Williams Mullen)
From: W. Scott Dunn, AICP, PTP
RE: Oikos Staunton Solar Project, Staunton, VA – Transportation Overview
Date: January 5, 2023
Copy: Rick Thomas (TG); Lauren Wheeler (TG)

Staunton PV-UT, LLC and Staunton PV-CS, LLC are pursuing the development of a solar facility in Staunton, VA. Oikos Staunton Solar is located on the east side of US Route 11 (Commerce Road), immediately south of the Virginia Department of Transportation (VDOT) Staunton District and Virginia State Police (VSP) offices. The project encompasses a total of 95 acres and will be served by one (1) entrance off the existing public right-of way that serves the aforementioned VDOT/VSP offices; this entrance will serve both construction-related traffic and operations/maintenance activities.

A pre-application meeting was held on November 16, 2022 with representatives from the City of Staunton. At this meeting, no traffic concerns were raised related to the construction of the site or operations/maintenance activities. It was recommended that the owner/applicant coordinate with VDOT prior to project submission.

A subsequent project meeting was held on December 16, 2022 with VDOT representatives (Adam Campbell, Kevin Linhares, Jeff Lineberry) to introduce the project and receive comments. The following was discussed:

- There are no VDOT requirements associated with the site for the CUP process. VDOT will comment on the site plan when it is forwarded by the City.
- With respect to site access:
 - The entrance should be located prior to the access gate at the front entrance.
 - The preferred entrance location is opposite the VSP parking area.
 - The site layout should accommodate traffic freely entering the site and accessing a staging/parking area; the objective is to avoid congestion on the public ROW and across the RR tracks.
- VDOT will inform VSP of this project; no direct coordination from solar team is required.
- The site plan should include a truck wash area to minimize debris on the road.
- The railroad (RR) is a Buckingham Branch short line that runs between Staunton and Harrisonburg:
 - There are no signals/arms present at the crossing.
 - There are 3-4 trains/day.
 - There has been one (1) accident at the crossing; no one was injured.
- Documents indicate ROW is public, but it is recommended to coordinate with RR on the solar project and associated traffic.

Following the meeting with VDOT, Williams Mullen coordinated with Tom Dorr of EGS Surveying on Flying Rock's consolidation plat. Mr. Dorr agreed that the northern access easement was reserved for future dedication as a public right-of-way but that it has not been taken into a public street system. He reiterated that it will be important to check with the RR regarding the crossing.

Timmons Group attempted to contact a representative from Buckingham Branch Railroad (Brandon Shumaker, Supervisor of Projects, and Grant Administration) by both phone and email. Messages provided a brief description of the project and requested Buckingham Branch's input. To date, no response has been received.

MEMORANDUM

TO: City of Staunton Planning and Zoning Department

FROM: Timmons Group on behalf of Staunton PV-UT, LLC and Staunton PV-CS, LLC

DATE: November 22, 2022

RE: Staunton Solar Environmental Resource Impact Analysis

Timmons Group, on behalf of Staunton PV-UT, LLC and Staunton PV-CS, LLC (Staunton Solar), has conducted a limited environmental review of resources that may be present in the vicinity of the proposed project location. This environmental review includes national and state forests, national and state parks, wildlife management areas, conservation easements, recreational areas, and cultural and historic resources.

Federal, State, and Local Conservation and Recreation Lands

Staunton Solar does not intersect any federal, state, or recreational lands. Staunton Solar does intersect with one conservation easement that is managed by the Valley Conservation Council (VCC). There are 2 other conservation easements that are located within one mile of the proposed project location. These two are managed by the Department of Historical Resources (DHR) and the VCC. See Attachment 1: Protected Lands Map.

Wetlands and Streams

Wetlands and streams are present on site. As the project progresses, more precise locations of wetlands and streams will be delineated and verified by the United States Army Corps of Engineers (USACE). If wetland or stream impacts are unavoidable, the Applicant will obtain the appropriate USACE permit for any unavoidable impacts to USACE jurisdictional wetlands and streams.

Wetlands and streams form a natural wildlife corridor, and as they will generally not be impacted by the project, will remain as interior corridors for wildlife utilization. Wetlands and streams are generally outside the fenced area so free passage of wildlife will be allowed for the duration of the project. The Virginia Department of Wildlife Resources advises that interior passages through solar projects helps reduce potential impacts to wildlife, to which this project will adhere. See Attachment 2: Environmental Inventory Map.

Cultural and Historical Resources

The Project is not expected to have any impacts to cultural and historical resources due to the amount of cultural work required at the state permitting level. In-depth cultural surveys conducted by qualified professionals will be submitted for approval and concurrence by the Virginia Department of Historic Resources (VDHR).

There are three previously recorded architectural resources within one-half mile of the project. All three architectural resources (DHR ID # 007-5086, 007-0414, and 007-005) have been evaluated by VDHR and have been listed as Not Eligible for the National Register of Historic Places (NRHP) and the Virginia Landmarks Register (VLR). See Attachment 3: Cultural Resources Review.

Landscaping

The Virginia Department of Conservation and Recreation (VDCR) recommends the development of an invasive species management plan for the project and the planting of Virginia native pollinator species.

Attachments

- Attachment 1 Public Lands and Easements Map
- Attachment 2 Environmental Inventory Map
- Attachment 3 Cultural Resources Review

Attachment 1: Public Lands and Easements Map



Legend

Project Study Limits - 95.1 Acres

One Mile Buffer

VCRIS Historical Resources

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PROJECT NAME & LOCATION

STAUNTON SOLAR
SATUNTON, VIRGINIA

DATE	11/14/2022
PROJECT NUMBER	49034.003
PROJECT NAME	STAUNTON SOLAR
DESIGNED BY / DRAWN BY	W. HART

NOTES:
Project Limits have been surveyed.
Cultural Resources from VCRIS, Protected Areas of the USA from ESRI.
Aerial imagery from VGIN.

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PUBLIC LANDS & EASEMENTS MAP

SCALE (FEET)

07501,500

PLANS PRINTED AS 1X17 ARE HALF SCALE

SCALE

SHEET NUMBER

H: 1" = 750'

1

Attachment 2: Environmental Inventory Map



Legend

Project Study Limits - 95.1 Acres

National Hydrography Dataset - Streams

National Wetlands Inventory

National Hydrography Dataset - Waterbody

FEMA Flood Zone

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PROJECT NAME & LOCATION

STAUNTON SOLAR

SAUNTON, VIRGINIA

DATE	11/14/2022
PROJECT NUMBER	49034.003
PROJECT NAME	STAUNTON SOLAR
DESIGNED BY / DRAWN BY	W. HART

NOTES:
Project Limits are have been surveyed.
NWI from US Fish and Wildlife Service.
National Hydrography Dataset from USGS.
Flood Zone from FEMA's National Flood Hazard Layer.
Aerial imagery from VGIN.

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REVISIONS	
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ENVIRONMENTAL INVENTORY MAP

SCALE (FEET)

0150300

PLANS PRINTED AS 11X17 ARE HALF SCALE

H: 1" = 150'

1

Attachment 3: Cultural Resources Review



Legend

Project Study Limits - 95.1 Acres

Half Mile Buffer

Architecture Resources

Archaeological Resources

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PROJECT NAME & LOCATION

STAUNTON SOLAR

STAUNTON, VIRGINIA

DATE

11/14/2022

PROJECT NUMBER

49034.003

PROJECT NAME

SATUNTON SOLAR

DESIGNED BY / DRAWN BY

W. HART

NOTES:

Project Limits have been surveyed.

Cultural resource data from VDHR.

Aerial imagery from VGIN.

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REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION

CULTURAL RESOURCE MAP

SCALE (FEET)

0 500 1,000

PLANS PRINTED AS 1X17 ARE HALF SCALE

SCALE SHEET NUMBER

H: 1" = 500' 1

Property Information

Property Names

Name Explanation	Name
Historic	Bellefont

Property Evaluation Status

DHR Staff: Not Eligible

Property Addresses

- Rt 254

County/Independent City(s): Augusta (County)

Incorporated Town(s): No Data

Zip Code(s): No Data

Magisterial District(s): No Data

Tax Parcel(s): No Data

USGS Quad(s): STAUNTON

Additional Property Information

Architecture Setting: No Data

Acreage: No Data

Site Description:

No Data

Surveyor Assessment:

No Data

Surveyor Recommendation: No Data

Primary Resource Information

Resource Category: Domestic

Resource Type: Single Dwelling

NR Resource Type: Building

Historic District Status: No Data

Date of Construction:

Date Source: No Data

Historic Time Period: No Data

Historic Context(s): Domestic

Other ID Number: No Data

Architectural Style: No Data

Form: No Data

Number of Stories: 0.0

Condition: No Data

Threats to Resource: No Data

Cultural Affiliations: No Data

Cultural Affiliation Details:

No Data

Architectural Description:

No Data

Secondary Resource Information

Historic District Information

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

CRM Events

Event Type: DHR Staff: Not Eligible

DHR ID: 007-0005
Staff Name: DHR
Event Date: 12/10/1982
Staff Comment
No Data

Bibliographic Information

Bibliography:

No Data

Property Notes:

No Data

Property Information

Property Names

Name Explanation	Name
Historic	Lewis, General Andrew, Boyhood Home
Historic	Lewis, John, House
Current	Bellefont

Property Evaluation Status

DHR Board: Eligible

Property Addresses

Current - Route 254, Off Of

County/Independent City(s):	Augusta (County)
Incorporated Town(s):	No Data
Zip Code(s):	No Data
Magisterial District(s):	No Data
Tax Parcel(s):	No Data
USGS Quad(s):	STAUNTON

Additional Property Information

Architecture Setting:	No Data
Acreage:	No Data
Site Description:	No Data
Surveyor Assessment:	see intensive survey.
Surveyor Recommendation:	No Data

Primary Resource Information

Resource Category:	Domestic
Resource Type:	Single Dwelling
NR Resource Type:	Building
Historic District Status:	No Data
Date of Construction:	Ca 1810
Date Source:	Site Visit
Historic Time Period:	Early National Period (1790 - 1829)
Historic Context(s):	Domestic
Other ID Number:	No Data
Architectural Style:	No Discernable Style
Form:	No Data
Number of Stories:	2.0
Condition:	Good
Threats to Resource:	None
Cultural Affiliations:	No Data
Cultural Affiliation Details:	No Data

Architectural Description:

Architecture Summary: Bellefont if one of a vluste of brick houses near Lewis Creek east of Staunton. Renovations in 1946 and additions in the late 1920s have considerably altered the exterior of the house. The original house consisted of the center block, with service rooms on the stone ground level and the main living rooms on the brick main level., see intensive survey.

Exterior Components

Component	Component Type	Material	Material Treatment
-----------	----------------	----------	--------------------

Windows	Sash, Double-Hung	Wood	Other
Roof	Gable	Unknown	Shingle
Chimneys	Interior End	Brick	<i>No Data</i>
Windows	Sash, Double-Hung	Wood	6/6
Porch	Portico	Unknown	Columns, Square
Roof	Gable	Wood	Other
Structural System and Exterior Treatment	Masonry	Brick	Bond, Flemish

Secondary Resource Information

Secondary Resource #1

Resource Category: Domestic
Resource Type: Spring/Spring House
Date of Construction: Ca
Date Source: *No Data*
Historic Time Period: *No Data*
Historic Context(s): Domestic
Architectural Style: *No Data*
Form: *No Data*
Condition: *No Data*
Threats to Resource: *No Data*
Cultural Affiliations: *No Data*
Cultural Affiliation Details:
No Data
Architectural Description:
No Data
Number of Stories: *No Data*

Secondary Resource #2

Resource Category: Domestic
Resource Type: Ice House
Date of Construction: Ca
Date Source: *No Data*
Historic Time Period: *No Data*
Historic Context(s): Domestic
Architectural Style: *No Data*
Form: *No Data*
Condition: *No Data*
Threats to Resource: *No Data*
Cultural Affiliations: *No Data*
Cultural Affiliation Details:
No Data
Architectural Description:
No Data
Number of Stories: *No Data*

Secondary Resource #3

Resource Category: Commerce/Trade
Resource Type: Blacksmith Shop
Date of Construction: Ca
Date Source: *No Data*
Historic Time Period: *No Data*
Historic Context(s): Domestic

Architectural Style: *No Data*
Form: *No Data*
Condition: *No Data*
Threats to Resource: *No Data*
Cultural Affiliations: *No Data*
Cultural Affiliation Details:
No Data

Architectural Description:
Architecture Summary: site of blacksmith shop
Number of Stories: *No Data*

Secondary Resource #4

Resource Category: Agriculture/Subsistence
Resource Type: Stable
Date of Construction: Ca
Date Source: *No Data*
Historic Time Period: *No Data*
Historic Context(s): Domestic
Architectural Style: *No Data*
Form: *No Data*
Condition: *No Data*
Threats to Resource: *No Data*
Cultural Affiliations: *No Data*
Cultural Affiliation Details:
No Data
Architectural Description:
No Data
Number of Stories: *No Data*

Secondary Resource #5

Resource Category: Domestic
Resource Type: Garage
Date of Construction: Ca
Date Source: *No Data*
Historic Time Period: *No Data*
Historic Context(s): Domestic
Architectural Style: *No Data*
Form: *No Data*
Condition: *No Data*
Threats to Resource: *No Data*
Cultural Affiliations: *No Data*
Cultural Affiliation Details:
No Data
Architectural Description:
No Data
Number of Stories: *No Data*

Historic District Information

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

CRM Events

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*
Investigator: McCleary, Ann
Organization/Company: Unknown (DSS)
Photographic Media: *No Data*
Survey Date: 8/1/1983
Dhr Library Report Number: *No Data*
Project Staff/Notes:
No Data

Event Type: DHR Board: Eligible

DHR ID: 007-0414
Staff Name: State Review Board
Event Date: 12/16/1982
Staff Comment
No Data

Event Type: DHR Staff: Not Eligible

DHR ID: 007-0414
Staff Name: Cote, Richard C.
Event Date: 12/14/1982
Staff Comment
No Data

Event Type: PIF

Project Review File Number: *No Data*
Investigator: Keller, Quinton C.
Organization/Company: Unknown (DSS)
Photographic Media: *No Data*
Survey Date: 10/17/1982
Dhr Library Report Number: *No Data*
Project Staff/Notes:
No Data

Event Type: Survey:Phase II/Intensive

Project Review File Number: *No Data*
Investigator: McCleary, Ann
Organization/Company: Unknown (DSS)
Photographic Media: *No Data*
Survey Date: 5/1/1982
Dhr Library Report Number: *No Data*
Project Staff/Notes:
No Data

Event Type: Survey:Phase II/Intensive

Project Review File Number: 007-0414
Investigator: McCleary, Ann
Organization/Company: Unknown (DSS)
Photographic Media: *No Data*
Survey Date: 9/1/1978
Dhr Library Report Number: *No Data*

Project Staff/Notes:

No Data

Event Type: NRHP Nomination

DHR ID: 007-0414

Staff Name: No Data

Event Date: No Data

Staff Comment

incomplete form, missing pages

Bibliographic Information

Bibliography:

No Data

Property Notes:

No Data

Property Information

Property Names

Name Explanation	Name
Current	Bridge #8002

Property Evaluation Status

DHR Staff: Not Eligible

Property Addresses

Current - Stp Entrance

County/Independent City(s):	Augusta (County)
Incorporated Town(s):	No Data
Zip Code(s):	No Data
Magisterial District(s):	No Data
Tax Parcel(s):	No Data
USGS Quad(s):	STAUNTON

Additional Property Information

Architecture Setting: Urban

Acreage: No Data

Site Description:

sewage treatment plant

Surveyor Assessment:

No Data

Surveyor Recommendation: No Data

Primary Resource Information

Resource Category:	Transportation
Resource Type:	Bridge
NR Resource Type:	Structure
Historic District Status:	No Data
Date of Construction:	Ca 1912
Date Source:	Written Data
Historic Time Period:	Reconstruction and Growth (1866 - 1916)
Historic Context(s):	Transportation/Communication
Other ID Number:	No Data
Architectural Style:	No Data
Form:	No Data
Number of Stories:	No Data
Condition:	Good
Threats to Resource:	None Known
Cultural Affiliations:	No Data
Cultural Affiliation Details:	No Data

Architectural Description:

Architecture Summary: This is a 1 span 25 foot concrete girder (102) bridge with pipe railing. It is inscribed in the concrete with the date "4/20/12"

Bridge Information

Structure Number:	No Data
VDOT Bridge ID:	No Data
Entity Crossed Name:	Lewis Creek

Entity Crossed Type: Water
Bridge Type: Girder
Current Use: Road
Number of Spans: 1
Number of Lanes: 1

Secondary Resource Information

Historic District Information

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

CRM Events

Event Type: DHR Staff: Not Eligible

DHR ID: 007-5086
Staff Name: DHR
Event Date: 10/23/1997
Staff Comment
No Data

Event Type: Other

Project Review File Number: No Data
Investigator: VTRC Bridge Committee
Organization/Company: Unknown (DSS)
Photographic Media: No Data
Survey Date: 1/1/1995
Dhr Library Report Number: No Data
Project Staff/Notes:
not eligible - score 17

Event Type: Survey:Phase I/Reconnaissance

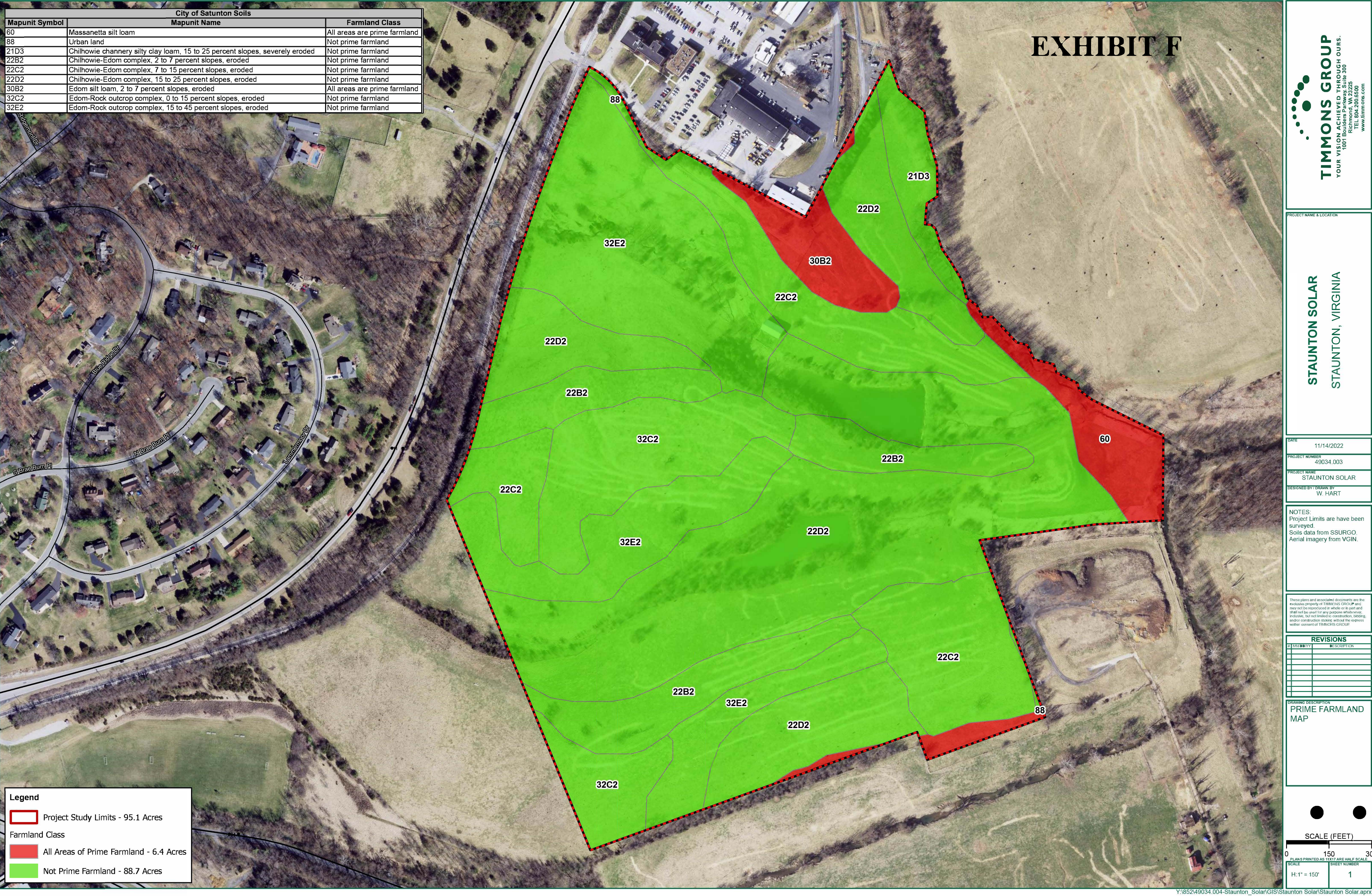
Project Review File Number: No Data
Investigator: VTRC
Organization/Company: Unknown (DSS)
Photographic Media: No Data
Survey Date: 1/1/1993
Dhr Library Report Number: No Data
Project Staff/Notes:
No Data

Bibliographic Information

Bibliography:
No Data

Property Notes:

Name: Unknown
Company 1: Commonwealth of Virginia
State: Virginia
Owner Relationship: Owner of property



City of Satuntion Soils		
Mapunit Symbol	Mapunit Name	Farmland Class
60	Massanetta silt loam	All areas are prime farmland
88	Urban land	Not prime farmland
21D3	Chilhowie channery silty clay loam, 15 to 25 percent slopes, severely eroded	Not prime farmland
22B2	Chilhowie-Edom complex, 2 to 7 percent slopes, eroded	Not prime farmland
22C2	Chilhowie-Edom complex, 7 to 15 percent slopes, eroded	Not prime farmland
22D2	Chilhowie-Edom complex, 15 to 25 percent slopes, eroded	Not prime farmland
30B2	Edom silt loam, 2 to 7 percent slopes, eroded	All areas are prime farmland
32C2	Edom-Rock outcrop complex, 0 to 15 percent slopes, eroded	Not prime farmland
32E2	Edom-Rock outcrop complex, 15 to 45 percent slopes, eroded	Not prime farmland

Legend

Project Study Limits - 95.1 Acres

Farmland Class

All Areas of Prime Farmland - 6.4 Acres

Not Prime Farmland - 88.7 Acres

EXHIBIT F

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Richmond, VA 23226
TEL: 804-200-6500
www.timmons.com

PROJECT NAME & LOCATION

STAUNTON SOLAR

STAUNTON, VIRGINIA

DATE	11/14/2022
PROJECT NUMBER	49034.003
PROJECT NAME	STAUNTON SOLAR
DESIGNED BY / DRAWN BY	W. HART

NOTES:
Project Limits are have been surveyed.
Soils data from SSURGO.
Aerial imagery from VGIN.

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REVISIONS	
NO.	DESCRIPTION

DRAWING DESCRIPTION

PRIME FARMLAND

MAP

SCALE (FEET)

0

150

300

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE

SHEET NUMBER

H: 1" = 150'

1

Prepared By:



Staunton PV-UT, LLC.

Decommissioning Plan

City of Staunton, Virginia

Date: 1/2/2023

This cost estimate was not based on detailed construction drawings, but is typical for a project of this size and type. The listed equipment quantities are subject to change based on the actual installed facilities.

Prepared For:

Oikos Solar System, Inc.

**Staunton PV-UT
Decommissioning Plan**

CLIENT NAME	Staunton PV-UT, LLC
PROJECT NAME	Oikos Staunton Utility Solar Project
LOCATION	801 & 809 Commerce Rd, 569 New Hope Road, City of Staunton, Virginia
PROJECT	Solar PV Electric Generating Facility and Energy Storage Facility

Rev.	Date	Description	Prepared	Checked	Approved
0	11/15/2022	Released for Client Use	NBF	KJ	LW
1	12/05/2022	Released for Client Use	NBF	KJ	LW
2	01/02/2023	Released for Client Use	NBF	KJ	LW

Table of Contents

1 INTRODUCTION 4

2 PROJECT COMPONENTS..... 4

3 REGULATORY COMPLIANCE 5

4 DECOMMISSIONING 5

5 MATERIALS, RECYCLING, AND DISPOSAL 6

6 SITE RESTORATION 6

7 DECOMMISSIONING COST ESTIMATE..... 7

 7.1 OPINION OF PROBABLE DECOMMISSIONING COST7

 7.2 OPINION OF PROBABLE SALVAGE VALUE COST9

 7.3 NET DECOMMISSIONING COST11

 7.4 DECOMMISSIONING ASSUMPTIONS.....11

8 FINANCIAL ASSURANCE 14

1 Introduction

Oikos Staunton Utility Solar (the “Project”) is a Solar Energy Facility, as defined by Section 18.75.040(2) of the Staunton Zoning Ordinance (the “Facility”) up to 15.75 MWac Solar plus 5.5 MWac Battery ESS with DC coupling proposed by Staunton PV-UT, LLC (the “Project Owner”). The Project will be located in the City of Staunton, at 801 & 809 Commerce Rd, Virginia. The project area will span approximately 61.5 acres and will connect to a 34.5 kV Transmission Distribution line owned by local Dominion Energy Virginia.

This Decommissioning and Restoration Plan (the “Plan”) has been prepared in conjunction with the special use permit application for a Solar Energy Facility in the City of Staunton, Virginia.

The Project will also comply with any applicable municipal, state and federal regulations. The Plan assumes decommissioning and restoration will occur at the end of the Project’s expected useful life of forty (40) years. An overview of all activities related to the removal of the Project’s equipment and panels, appurtenant structures, and for restoration of the site to its previous condition (as much as reasonably practicable) can be found in the Plan.

Within 12 months of initiating the decommissioning, the Project Owner will safely have the relevant components removed from the land and will then restore the site as described below.

This Plan lays out the procedures for restoring the site to its original use, based on the recent historical land use of the property or other economical land uses as desired by the relevant landowner, at the end of the Facility’s operational life. The Plan describes procedures for the removal of Facility components. The components of the Facility are described in detail in the Exhibit to the CUP application (the “Concept Plan”).

2 Project Components

The Conceptual Site Plan provides detailed information regarding the anticipated location and description of the Facility components. The Facility generally consists of the equipment and infrastructure listed below:

- Steel Piers and Racking
- PV Panels
- ESS Battery DC coupling
- Inverters
- Electrical Collection underground Feeder.
- Access Roads
- Fencing, Gating, and Safety Features
- Operations and Maintenance (O&M) Building (TBD)
- Weather Stations
- Project Point of Interconnection Switching Facility

3 Regulatory Compliance

Prior to the commencement of decommissioning, the Project Owner will perform the appropriate due diligence requirements and obtain the necessary City, County, state, and federal approvals to complete decommissioning activities. To mitigate any environmental impact from decommissioning, the Project Owner will assess the necessary permits and approvals in the future regulatory environment to maintain regulatory compliance. Anticipated types of evaluations may include the following:

- Review of on-site jurisdictional status and potential impacts to wetlands and waterbodies to comply with the Clean Water Act.
- Consultation with the United States Fish and Wildlife Service to evaluate compliance with the Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and any other relevant regulations at the time of decommissioning.
- Consultation with the Virginia Department of Environmental Quality for compliance with any pertinent state regulatory requirements.
- Completion of a Phase I Environmental Site Assessment in support of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) protection.
- Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP).
- City of Staunton building, road, discharge, or erosion control permits (as necessary).
- Special state or local hauling permits (as necessary).

4 Decommissioning

The Project will be decommissioned at the end of its useful life, which will be the earlier of when (a) the Project Owner determines the Project is at the end of its useful life, or (b) the facility generates no electricity for a continuous period of 1 year. At least 60 days prior to the commencement of decommissioning activities, the Project Owner will notify the City of Staunton officials. The following general decommissioning activities will occur:

Decommissioning Sequence

1. Obtain required site permits from Authority Having Jurisdiction (AHJ)
2. Disconnect all utility grid power
3. Move all disconnects to the off position
4. Disconnect all above ground wirings, cables, and electrical connections
5. Remove all PV Modules
6. Remove all ESS Battery DC coupling
7. Remove inverters, mounting equipment, and posts

8. Remove all electrical switchgear, transformers, and their foundations
9. Remove Data Acquisition System (DAS) equipment, feeders, and conduit
10. Remove all above ground mounting equipment components and posts
11. Excavate and remove Underground feeders and conduit
12. Remove all MV feeders and utility poles
13. Removal of Collector Substation
14. Removal of weather station
15. Remove access road
16. Remove all fencing
17. Fill/Grade/Seed as needed

Some components may be left in place under certain circumstances. Electrical lines that will not impact future use of the Project Area (at least 3 feet in depth) may be left in place per renewable industry practices. Steel piles, where full removal is unattainable, may be cut and left in place at a depth of 3 feet or greater below the ground surface. Additionally, landowners may desire that certain improvements such as fencing, or access roads remain in place for their use. The Project Owner will obtain a written request from the landowner for any improvement to remain in place.

5 Materials, Recycling, and Disposal

Many components of the Facility, such as racking, wiring, piles, and panels, retain value over time. Panels, while slightly less efficient than when installed, may be reused elsewhere, or their components may be broken down and recycled. Recycling of solar panels and equipment is rapidly evolving and can be handled through a combination of sources such as certain manufacturers, e.g., PV Cycle (an international waste program founded by and for the PV industry), or waste management companies. More than 90 percent of the semiconductor material and glass can be reused in new modules and products. Other waste materials that hold no value will be recycled or disposed of via a licensed solid waste disposal facility.

6 Site Restoration

Following the completion of decommissioning activities, it is anticipated that the site will primarily be converted back to the pre-construction land uses. The land will be graded as necessary, though minimal grading is expected to be required, and decompacted to allow for productive agricultural use. Following completion of the decommissioning activities, the site will be reseeded as necessary with native grasses. Decommissioning of the Facility, including the removal of materials followed by site restoration, should be completed in approximately 12 months.

7 Decommissioning Cost Estimate

7.1 OPINION OF PROBABLE DECOMMISSIONING COST

Detailed Project Description: The Project is a fixed tilt solar electric generating facility, consisting of 27 modules per string, that will be installed in City of Staunton, VA.

Table 7-1A: PV Estimated Decommissioning Cost:

PV Module Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
# Solar Panels 540 W	37,950	EA	\$5	\$189,750	Disassembly, Haul Offsite
SUBTOTAL				\$189,750	
Foundations Structural Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
# Panel Support Steel Piles	8,304	EA	\$12	\$99,650	Disassembly, Haul Offsite
# Panel Racks	1,406	EA	\$100	\$140,556	Disassembly, Haul Offsite
SUBTOTAL				\$240,205	
Electrical Equipment Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
Inverters Sungrow SG3150	5	EA	\$3,000	\$15,000	Disassembly, Haul Offsite
MV Transformers, 3200 KVA	5	EA	\$5,000	\$25,000	Disassembly, Haul Offsite
POI (Circuit Breaker, Disconnect/ Meter, Pad, Grounding System and Wiring)	1	LOT	\$15,000	\$15,000	Disassembly, Haul Offsite
55SUBTOTAL				\$55,000	
Electrical Wires Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
MV Conductor	16,800	FT	15	\$252,000	Removal, Non-Excavation
DC/LC Conductor	168,000	FT	\$1.0	\$168,000	Removal, Non-Excavation
SUBTOTAL				\$420,000	
Fence/Land, Removal/Restoration	QUANTITY	UNITS	Unit Cost	Total	Comment
Fence Perimeter	12,600	FT	\$1	\$12,600	Disassembly, Haul Offsite
Site Remediation	61.5	Acre	\$4,000	\$246,000	Disturbed Area Only
Storm Water Management Ponds	2	EA	\$5,000	\$10,000	Restoration
Engineering & permitting				\$70,000	Budgeted
SUBTOTAL				\$338,600	

PV Summary of Cost Estimates	
PV Module Removal	\$189,750
Foundations Structural Removal	\$240,205
Electrical Equipment Removal	\$55,000
Electrical Wires Removal	\$420,000
Fence/land, Removal/Restoration	\$338,600
SUBTOTAL TOTAL	\$1,243,555

Table 7-1B: BESS Estimated Decommissioning Cost:

BESS Module Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
# BESS Foundation Pad	5	EA	\$500	\$2,500	Disassembly, Haul Offsite
SUBTOTAL				\$2,500	
Electrical Equipment Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
Inverters (Coupled with PV)	0	EA			
Battery Skid (Four Hour Battery)	5	EA	\$4,000	\$20,000	Disassembly, Haul Offsite
SUBTOTAL				\$20,000	
Electrical Wires Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
MV Conductor (no Need)	0	FT	0	\$0	Removal, Non-Excavation
DC Conductor	2,500	FT	\$2	\$5,000	Removal, Non-Excavation
SUBTOTAL				\$5,000	

BESS Summary of Cost Estimate	
BESS Foundations Structural Removal	\$2,500
Electrical Equipment Removal	\$20,000
Electrical Wires Removal	\$5,000
SUBTOTAL	\$27,500

Data Sources:

1. Material List and Quantities: Based on schematic design.
2. Unit Price Values: Based on R.S. Means and typical quantities for various components.

7.2 OPINION OF PROBABLE SALVAGE VALUE COST

There should be opportunity to reclaim metal scrap value from electrical equipment. Yard equipment such as bus work, circuit breakers, and power transformers contain a significant amount of conductive material such as copper and aluminum. Dead-end and other steel structures contain a significant amount of steel. Rubble from the foundation demolition and all other materials would be sent to landfill at cost. The scrap value of the substation is presented in Table 7-2.

Timmons Group considers that there is a resale market for substation transformers. Therefore, the transformer could be sold as operational second-hand equipment instead of being scrapped. This scenario has been considered.

Table 7-2A PV Estimated Salvage Value:

PV Module (At: \$.3/W before Removal and Hauling)	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
# Solar Panels 540 W (\$.3W X450) =\$162	37,950	LOT	\$162	\$6,147,900	\$614,790
Foundations Structural (at:\$.20/LB before Removal and Hauling)	QUANTITY	UNITS	Estimated Weight LB- EA	Estimated Salvage Value	Estimated Salvage Value
# Panel Support Steel Piles	8,304	EA	100	\$0.20	\$166,083.15
#Rack Steel	1,406	EA	2,000	\$0.20	\$562,222.22
SUBTOTAL					\$728,305.37
Electrical Equipment	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 20% of New Cost
MV Transformers 3,200 KVA	5	EA	\$95,000	\$475,000	\$95,000
Electrical Wires/Cables	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
MV Conductor (only 10% of total)	16,800	FT	\$15	\$252,000	\$25,200
DC/LC Conductor	168,000	FT	\$2	\$336,000	\$33,600
SUBTOTAL					\$58,800
Fence	QUANTITY	UNITS	Estimated Weight LB.	Estimated Salvage Value	Estimated Salvage Value
Fence Perimeter (1.3 lb. per square ft, 6ft height)	12,600	FT	98,280	\$0.54	\$53,071.20
Fence Post every 10 ft (9 ft length, 2.3 lb.Ft)	1,260	FT	26,082	\$0.54	\$14,084.28
SUBTOTAL					\$67,155.48

PV Summary of Salvage Values Estimate	
PV Module	\$614,790
Foundations Structural	\$728,305
Electrical Equipment	\$95,000
Electrical Wires	\$58,800
Fence	\$67,155
SUBTOTAL TOTAL	\$1,564,051

Table 7-2B BESS Estimated Salvage Value:

BESS Equipment	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
Cubical/Batteries	5.5	MWdc/4h	\$350,000	\$1,750,000	\$175,000
Electrical Wires/cables	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
DC Conductor	2,500	FT	\$5	\$12,500	\$1,250
SUBTOTAL					\$1,250

BESS Summary of Salvage Values Estimate	
BESS Equipment	\$175,000
Electrical Wires	\$1,250
SUBTOTAL TOTAL	\$176,250

7.3 NET DECOMMISSIONING COST

The net decommissioning cost for the Project is calculated by subtracting the salvage value from the total of the disassembly and removal costs. As noted in Table 7-1A., 7-1B and Table 7-2A, 7-2B the total estimated decommissioning costs will be \$1,297,455 and Table 7-2 the total estimated salvage value of Project components will be \$1,740,301. The estimated net decommissioning cost will be a (\$442,846) negative return.

Summary of Estimate	
Estimated Decommissioning Cost PV	\$1,243,555
Estimated Decommissioning Cost BESS	\$27,500
Grand Total Decommissioning Cost	\$1,268,055
Estimated Salvage Value PV	\$1,564,051
Estimated Salvage Value BESS	\$176,250
Grand Total Salvage Value	\$1,740,301
ESTIMATED NET COST	(\$472,246)

Note: Negative values, in parenthesis, are positive returns to the Project.

7.4 DECOMMISSIONING ASSUMPTIONS

1. To develop a cost estimate for the decommissioning of the Project, Timmons Group made the following assumptions, with and costs were estimates based on current pricing, technology, and regulatory requirements. The assumptions are listed in order from top to bottom of the estimate spreadsheet. We developed time and materials-based estimates considering composition of work crews. When materials have a salvage value at the end of the project life, the construction activity costs, and the hauling/freight cost are separated from the disposal costs or salvage value to make future revisions to salvage values more transparent.
2. Decommissioning year is based on a 10-year initial period for the financial security. The projected life of the project is 40 years.
3. This Cost Estimate is based on the Timmons Group data request forwarded November 2022.
4. Common labor will be used for the majority of the tasks except for heavy equipment operation. Pricing is based on local Southeast US labor rates.
5. Permit applications required include the preparation of a Stormwater Pollution Protection Plan (SWPPP) and a Spill Prevention Control and Countermeasure (SPCC) Plan.
6. Road gravel removal was estimated on a time and material basis using a 16 foot width and an 8 inch thickness for the access roads. Substation aggregate is included in the substation quantities. Since the material will not remain on site, a hauling cost is added to the removal cost. Road aggregate can often be disposed of by giving to landowners for use on driveways and parking areas.

Many landfills will accept clean aggregate for use as “daily cover” and do not

charge for the disposal.

7. Grade Road Corridor reflects the cost of mobilizing and operating light equipment to spread and smooth the topsoil stockpiled on site to replace the aggregate removed from the road.
8. Erosion and sediment control along road reflects the cost of silt fence on the downhill side of the road and surrounding all on-site wetlands.
9. Topsoil is required to be stockpiled on site during construction, therefore this topsoil is available on site to replace the road aggregate, once removed. Subsoiling cost to decompact roadway areas is estimated as \$500 per acre (based on previous bid prices), and revegetation on removed road area, which includes seed, fertilizer, lime, and care until vegetation is established is \$2,500 per acre. The majority of the project area is "over-seeded" since the decommissioning activities are not expected to eliminate the existing grasses and vegetation under the arrays or heavily compact the soils. Over-seeding does not include fertilizer and lime and is estimated at \$4,000 per acre.
10. Fence removal includes loading, hauling, and recycling or disposal. Fences and posts weigh approximately 2.3 pounds per foot.
11. Array support posts are generally lightweight "I" beam sections installed with a piece of specialized tracked equipment. Crew productivity is approximately 240 posts per day, and the same crew and equipment should have a similar productivity removing the posts, resulting in a per post cost of approximately \$12. We assume a cost of \$12.00 per post to include hauling fees and contingencies.
12. A metal recycling facility (FEA Salvage and Recycling) is located in Orange, Virginia and is relatively close to the project site. Steel scrap pricing was acquired from www.scrapmonster.com.
13. The solar panels rated 540 watts can easily be disconnected, removed, and packed by a three-person crew at a rate we estimate at 12 panels per hour.
14. No topsoil is planned to be removed from the site during decommissioning and most of the site will not have been compacted by heavy truck or equipment traffic so the site turf establishment cost is based on RS Means unit prices for applying lime, fertilizer, and seed at the price of per acre plus an allowance for some areas to be decompact.
15. There is an active market for reselling and recycling electrical transformers and inverters with several national companies specializing in recycling. We have assumed a 20% recovery of these units based on field experience with used transformers as opposed to trying to break them down into raw material components.
16. The underground collection lines are assumed to be aluminum conductor.
17. Care to prevent damage and breakage of equipment, PV modules, inverters, capacitors, and SCADA must be exercised, but removal assumes unskilled common labor under supervision.

The estimated salvage values are derived from years of experience decommissioning and upgrading electric substations, overhead transmission and distribution hardware and underground distribution hardware that would include but not be limited to substation and pad mounted transformers, overhead and underground conductors, poles, fencing, ground grid conductors, control housings, circuit breakers (high and medium voltage), protective relaying, and other hardware items. These individual items have high salvage value either as stand-alone components to be reused or recycled and sold as used items. These items also have a relatively high salvage value as pure scrap for steel, copper and other commodities.

For all medium voltage transformers, breakers and other items, Southeastern Transformer Company in Dunn, NC provides complete repair, upgrading and recycling and resale for all items mentioned above. Their website is: <https://www.setransformer.com>. They have a national presence.

For any and all recycling and upgrading, Solomon Corporation offers the same set of services for transformer repair and recycling and complete substation decommissioning services. With seven different locations, Solomon is one of several vendors that can decommission and recycle the components as noted above. Their website is: <https://www.solomoncorp.com/>. Solomon Corporation is only one of many transmission and distribution recycle and decommissioning shops that do this mainly to harvest the components.

For recycling conductor, General Cable and Southwire both utilize extensive scrap procurement programs to reuse copper and aluminum conductor harvested from projects such as this one to supplement and reduce their raw material costs.

Here is the link to the General Cable program which only increases the salvage values found in this Plan: General Cable Recycling <https://es.generalcable.com/na/us-can/socialresponsibility/sustainability/recycling>

As for solar panels, they are in demand as salvageable items either in whole or for their raw material. According to the International Renewable Energy Agency (IRENA), more than 90% of all the materials are high grade silicon, aluminum and glass and are typically harvested to produce new panels. This is far less expensive than buying unprocessed raw materials for production.

The base industry assumption is that since solar panels are expected to retain about 75% of their production capability after 35 years of use, a salvage value of 10% of original cost is a low estimate of their expected value and as we note in assumption. This considers possible technology improvements and undervalues the anticipated salvage value of the panel's raw materials.

The Solar Energy Industries Association (SEIA) has an approved set of PV recycling vendors that specialize in doing this today and they can be found at: <https://www.seia.org/initiatives/seia-national-pv-recycling-program>.

First Solar, which has been active in the solar industry since its inception, takes solar

modules and recycles 90% of the semiconductor material which is then reused in new modules. 90% of the glass product can be reused as new glass products, including panels and fiber optic cable. We can conclude that realistically the estimated 10% salvage value is low and reflects a conservative figure. Information about First Solar's recycling program is at: <http://www.firstsolar.com/en/Modules/Recycling>.

8 Financial Assurance

The Project Owner will post a financial surety if required by the City of Staunton zoning ordinance. Based on industry trends, the projected and actual costs of decommissioning are expected to go down over time based on improvements both to best practices in calculating these costs and the decommissioning process itself. The Project Owner will reevaluate decommissioning costs with a qualified engineering consultant every five years during the life of the Project.

Prepared By:



Staunton PV-CS, LLC.

Decommissioning Plan

City of Staunton, Virginia

Date: 1/2/2023

This cost estimate was not based on detailed construction drawings, but is typical for a project of this size and type. The listed equipment quantities are subject to change based on the actual installed facilities.

Prepared For:

Oikos Solar System, Inc.

**Staunton PV-CS
Decommissioning Plan**

CLIENT NAME	Staunton PV-CS, LLC
PROJECT NAME	Oikos Staunton Shared Solar Project
LOCATION	801 & 809 Commerce Rd, City of Staunton, Virginia
PROJECT	Solar PV Electric Generating Facility

Rev.	Date	Description	Prepared	Checked	Approved
0	11/15/2022	Released for Client Use	NBF	KJ	LW
1	12/5/2022	Released for Client Use	NBF	KJ	LW
2	01/02/2022	Released for Client Use	NBF	KJ	LW

Table of Contents

1 INTRODUCTION 4

2 PROJECT COMPONENTS..... 4

3 REGULATORY COMPLIANCE 5

4 DECOMMISSIONING 5

5 MATERIALS, RECYCLING, AND DISPOSAL 6

6 SITE RESTORATION 6

7 DECOMMISSIONING COST ESTIMATE..... 7

7.1 OPINION OF PROBABLE DECOMMISSIONING COST7

7.2 OPINION OF PROBABLE SALVAGE VALUE COST.....8

7.3 NET DECOMMISSIONING COST9

7.4 DECOMMISSIONING ASSUMPTIONS.....10

8 FINANCIAL ASSURANCE 12

1 Introduction

Oikos Staunton Shared Solar (the “Project”) is a Solar Energy Facility, as defined by Section 18.75.040(2) of the Staunton Zoning Ordinance (“Facility”) up to 5 MWac proposed by Staunton Solar, LLC (the “Project Owner”). The Project will be located in the City of Staunton, at 801 & 809 Commerce Rd, Virginia. The project area will span approximately 30.5 acres and will connect to a 34.5 kV Transmission Distribution line owned by local Dominion Energy Virginia.

This Decommissioning and Restoration Plan (the “Plan”) has been prepared in conjunction with the special use permit application for a Solar Energy Facility in the City of Staunton, Virginia.

The Project will also comply with any applicable municipal, state and federal regulations. The Plan assumes decommissioning and restoration will occur at the end of the Project’s expected useful life of forty (40) years. An overview of all activities related to the removal of the Project’s equipment and panels, appurtenant structures, and for restoration of the site to its previous condition (as much as reasonably practicable) can be found in the Plan.

Within 12 months of initiating the decommissioning, the Project Owner will safely have the relevant components removed from the land and will then restore the site as described below.

This Plan lays out the procedures for restoring the site to its original use, based on the recent historical land use of the property or other economical land uses as desired by the relevant landowner, at the end of the Facility’s operational life. The Plan describes procedures for the removal of Facility components. The components of the Facility are described in detail in the Exhibit to the CUP application (the “Concept Plan”).

2 Project Components

The Conceptual Site Plan provides detailed information regarding the anticipated location and description of the Facility components. The Facility generally consists of the equipment and infrastructure listed below:

- Steel Piers and Racking
- PV Panels
- Inverters
- Electrical Collection underground Feeder
- Access Roads
- Fencing, Gating, and Safety Features
- Operations and Maintenance (O&M) Building (TBD)
- Weather Stations
- Project Point of Interconnection Switching Facility

3 Regulatory Compliance

Prior to the commencement of decommissioning, the Project Owner will perform the appropriate due diligence requirements and obtain the necessary City, state, and federal approvals to complete decommissioning activities. To mitigate any environmental impact from decommissioning, the Project Owner will assess the necessary permits and approvals in the future regulatory environment to maintain regulatory compliance. Anticipated types of evaluations may include the following:

- Review of on-site jurisdictional status and potential impacts to wetlands and waterbodies to comply with the Clean Water Act.
- Consultation with the United States Fish and Wildlife Service to evaluate compliance with the Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and any other relevant regulations at the time of decommissioning.
- Consultation with the Virginia Department of Environmental Quality for compliance with any pertinent state regulatory requirements.
- Completion of a Phase I Environmental Site Assessment in support of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) protection.
- Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP).
- City of Staunton building, road, discharge, or erosion control permits (as necessary).
- Special state or local hauling permits (as necessary).

4 Decommissioning

The Project will be decommissioned at the end of its useful life, which will be the earlier of when (a) the Project Owner determines the Project is at the end of its useful life, or (b) the facility generates no electricity for a continuous period of 1 year. At least 60 days prior to the commencement of decommissioning activities, the Project Owner will notify the City of Staunton officials. The following general decommissioning activities will occur:

Decommissioning Sequence

1. Obtain required site permits from Authority Having Jurisdiction (AHJ)
2. Disconnect all utility grid power
3. Move all disconnects to the off position
4. Disconnect all above ground wirings, cables, and electrical connections
5. Remove all PV Modules
6. Remove inverters, mounting equipment, and posts
7. Remove all electrical switchgear, transformers, and their foundations

8. Remove Data Acquisition System (DAS) equipment, feeders, and conduit
9. Remove all above ground mounting equipment components and posts
10. Excavate and remove Underground feeders and conduit
11. Remove all MV feeders and utility poles
12. Removal of Collector Substation
13. Removal of weather station
14. Remove access road
15. Remove all fencing
16. Fill/Grade/Seed as needed

Some components may be left in place under certain circumstances. Electrical lines that will not impact future use of the Project Area (at least 3 feet in depth) may be left in place per renewable industry practices. Steel piles, where full removal is unattainable, may be cut and left in place at a depth of 3 feet or greater below the ground surface. Additionally, landowners may desire that certain improvements such as fencing, or access roads remain in place for their use. The Project Owner will obtain a written request from the landowner for any improvement to remain in place.

5 Materials, Recycling, and Disposal

Many components of the Facility, such as racking, wiring, piles, and panels, retain value over time. Panels, while slightly less efficient than when installed, may be reused elsewhere, or their components may be broken down and recycled. Recycling of solar panels and equipment is rapidly evolving and can be handled through a combination of sources such as certain manufacturers, e.g., PV Cycle (an international waste program founded by and for the PV industry), or waste management companies. More than 90 percent of the semiconductor material and glass can be reused in new modules and products. Other waste materials that hold no value will be recycled or disposed of via a licensed solid waste disposal facility.

6 Site Restoration

Following the completion of decommissioning activities, it is anticipated that the site will primarily be converted back to the pre-construction land uses. The land will be graded as necessary, though minimal grading is expected to be required, and decompacted to allow for productive agricultural use. Following completion of the decommissioning activities, the site will be reseeded as necessary with native grasses. Decommissioning of the Facility, including the removal of materials followed by site restoration, should be completed in approximately 12 months.

7 Decommissioning Cost Estimate

7.1 OPINION OF PROBABLE DECOMMISSIONING COST

Detailed Project Description: The Project is a fixed tilt solar electric generating facility, consisting of 27 modules per string, that will be installed in City of Staunton, VA.

Table 7-1: Estimated Decommissioning Cost:

PV Module Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
# Solar Panels 540 W	12,050	EA	\$5	\$60,250	Disassembly, Haul Offsite
SUBTOTAL				\$60,250	
Foundations Structural Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
# Panel Support Steel Piles	2,637	EA	\$12	\$31,641	Disassembly, Haul Offsite
# Panel Racks	446	EA	\$100	\$44,630	Disassembly, Haul Offsite
SUBTOTAL				\$76,271	
Electrical Equipment Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
Inverters Sungrow SG3150	2	EA	\$3,000	\$6,000	Disassembly, Haul Offsite
MV Transformers, 3200 KVA	2	EA	\$5,000	\$10,000	Disassembly, Haul Offsite
POI (Circuit Breaker, Disconnect/ Meter, Pad, Grounding System and Wiring)	1	LOT	\$15,000	\$15,000	Disassembly, Haul Offsite
SUBTOTAL				\$31,000	
Electrical Wires Removal	QUANTITY	UNITS	Unit Cost	Total	Comment
MV Conductor	5,600	FT	15	\$84,000	Removal, Non-Excavation
DC/LC Conductor	56,000	FT	\$1.0	\$56,000	Removal, Non-Excavation
SUBTOTAL				\$140,000	
Fence/Land, Removal/Restoration	QUANTITY	UNITS	Unit Cost	Total	Comment
Fence Perimeter	4,500	FT	\$1	\$4,500	Disassembly, Haul Offsite
Site Remediation	30.5	Acre	\$4,000	\$122,000	Disturbed Area Only
Storm Water Management Ponds	2	EA	\$5,000	\$10,000	Restoration
Engineering & permitting				\$45,000	Budgeted
SUBTOTAL				\$181,500	

Summary of Cost Estimates	
PV Module Removal	\$60,250
Foundations Structural Removal	\$76,271
Electrical Equipment Removal	\$31,000
Electrical Wires Removal	\$140,000
Fence/land, Removal/Restoration	\$181,500
ESTIMATED GRAND TOTAL	\$489,021

Data Sources:

1. Material List and Quantities: Based on schematic design.
2. Unit Price Values: Based on R.S. Means and typical quantities for various components.

7.2 OPINION OF PROBABLE SALVAGE VALUE COST

There should be opportunity to reclaim metal scrap value from electrical equipment. Yard equipment such as bus work, circuit breakers, and power transformers contain a significant amount of conductive material such as copper and aluminum. Dead-end and other steel structures contain a significant amount of steel. Rubble from the foundation demolition and all other materials would be sent to landfill at cost. The scrap value of the substation is presented in Table 7-2.

Timmons Group considers that there is a resale market for substation transformers. Therefore, the transformer could be sold as operational second-hand equipment instead of being scrapped. This scenario has been considered.

Table 7-2 Estimated Salvage Value:

PV Module (At: \$.3/W before Removal and Hauling)	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
# Solar Panels 540 W (\$.3W X450) =\$162	12,050	LOT	\$162	\$1,952,100	\$195,210
Foundations Structural (at:\$.20/LB before Removal and Hauling)	QUANTITY	UNITS	Estimated Weight LB- EA	Estimated Salvage Value	Estimated Salvage Value
# Panel Support Steel Piles	2,637	EA	100	\$0.20	\$52,735.23
#Rack Steel	446	EA	2,000	\$0.20	\$178,518.52
SUBTOTAL					\$231,253.75
Electrical Equipment	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 20% of New Cost
MV Transformers 3,200 KVA	2	EA	\$95,000	\$190,000	\$38,000

Electrical Wires/Cables	QUANTITY	UNITS	Estimated New Cost/Unit	Estimated New Total Cost	Estimated Salvage Value 10% of New Cost
MV Conductor (only 10% of total)	5,600	FT	\$15	\$84,000	\$8,400
DC/LC Conductor	56,000	FT	\$2	\$112,000	\$11,200
SUBTOTAL					\$19,600
Fence	QUANTITY	UNITS	Estimated Weight LB.	Estimated Salvage Value	Estimated Salvage Value
Fence Perimeter (1.3 lb. per square ft, 6ft height)	4,500	FT	35,100	\$0.54	\$18,954.00
Fence Post every 10 ft (9 ft length, 2.3 lb/Ft)	450	FT	9,315	\$0.54	\$5,030.10
SUBTOTAL					\$23,984.10

Summary of Salvage Values Estimate	
PV Module	\$195,210
Foundations Structural	\$231,254
Electrical Equipment	\$38,000
Electrical Wires	\$19,600
Fence	\$23,984
ESTIMATED GRAND TOTAL	\$508,048

7.3 NET DECOMMISSIONING COST

The net decommissioning cost for the Project is calculated by subtracting the salvage value from the total of the disassembly and removal costs. As noted in Table 7-1 and Table 7-2 the total estimated decommissioning costs will be \$467,021 and Table 7-2 the total estimated salvage value of Project components will be \$508,048. The estimated net decommissioning cost will be a (\$41,027) Negative return.

Summary of Estimate	
Estimated Decommissioning Cost	\$489,021
Estimated Salvage Value	\$508,048
ESTIMATED NET COST	(\$18,027)

Note: Negative values, in parenthesis, are positive returns to the Project.

7.4 DECOMMISSIONING ASSUMPTIONS

1. To develop a cost estimate for the decommissioning of the Project, Timmons Group made the following assumptions, with and costs were estimates based on current pricing, technology, and regulatory requirements. The assumptions are listed in order from top to bottom of the estimate spreadsheet. We developed time and materials-based estimates considering composition of work crews. When materials have a salvage value at the end of the project life, the construction activity costs, and the hauling/freight cost are separated from the disposal costs or salvage value to make future revisions to salvage values more transparent.
2. Decommissioning year is based on a 10-year initial period for the financial security. The projected life of the project is 40 years.
3. This Cost Estimate is based on the Timmons Group data request forwarded November 2022.
4. Common labor will be used for the majority of the tasks except for heavy equipment operation. Pricing is based on local Southeast US labor rates.
5. Permit applications required include the preparation of a Stormwater Pollution Protection Plan (SWPPP) and a Spill Prevention Control and Countermeasure (SPCC) Plan.
6. Road gravel removal was estimated on a time and material basis using a 16 foot width and an 8 inch thickness for the access roads. Substation aggregate is included in the substation quantities. Since the material will not remain on site, a hauling cost is added to the removal cost. Road aggregate can often be disposed of by giving to landowners for use on driveways and parking areas. Many landfills will accept clean aggregate for use as “daily cover” and do not charge for the disposal.
7. Grade Road Corridor reflects the cost of mobilizing and operating light equipment to spread and smooth the topsoil stockpiled on site to replace the aggregate removed from the road.
8. Erosion and sediment control along road reflects the cost of silt fence on the downhill side of the road and surrounding all on-site wetlands.
9. Topsoil is required to be stockpiled on site during construction, therefore this topsoil is available on site to replace the road aggregate, once removed. Subsoiling cost to decompact roadway areas is estimated as \$500 per acre (based on previous bid prices), and revegetation on removed road area, which includes seed, fertilizer, lime, and care until vegetation is established is \$2,500 per acre. The majority of the project area is “over-seeded” since the decommissioning activities are not expected to eliminate the existing grasses and vegetation under the arrays or heavily compact the soils. Over-seeding does not include fertilizer and lime and is estimated at \$4,000 per acre.

10. Fence removal includes loading, hauling, and recycling or disposal. Fences and posts weigh approximately 2.3 pounds per foot.
11. Array support posts are generally lightweight "I" beam sections installed with a piece of specialized tracked equipment. Crew productivity is approximately 240 posts per day, and the same crew and equipment should have a similar productivity removing the posts, resulting in a per post cost of approximately \$12. We assume a cost of \$12.00 per post to include hauling fees and contingencies.
12. A metal recycling facility (FEA Salvage and Recycling) is located in Orange, Virginia and is relatively close to the project site. Steel scrap pricing was acquired from www.scrapmonster.com.
13. The solar panels rated 540 watts can easily be disconnected, removed, and packed by a three-person crew at a rate we estimate at 12 panels per hour.
14. No topsoil is planned to be removed from the site during decommissioning and most of the site will not have been compacted by heavy truck or equipment traffic so the site turf establishment cost is based on RS Means unit prices for applying lime, fertilizer, and seed at the price of per acre plus an allowance for some areas to be decompacted.
15. There is an active market for reselling and recycling electrical transformers and inverters with several national companies specializing in recycling. We have assumed a 20% recovery of these units based on field experience with used transformers as opposed to trying to break them down into raw material components.
16. The underground collection lines are assumed to be aluminum conductor.
17. Care to prevent damage and breakage of equipment, PV modules, inverters, capacitors, and SCADA must be exercised, but removal assumes unskilled common labor under supervision.

The estimated salvage values are derived from years of experience decommissioning and upgrading electric substations, overhead transmission and distribution hardware and underground distribution hardware that would include but not be limited to substation and pad mounted transformers, overhead and underground conductors, poles, fencing, ground grid conductors, control housings, circuit breakers (high and medium voltage), protective relaying, and other hardware items. These individual items have high salvage value either as stand-alone components to be reused or recycled and sold as used items. These items also have a relatively high salvage value as pure scrap for steel, copper and other commodities.

For all medium voltage transformers, breakers and other items, Southeastern Transformer Company in Dunn, NC provides complete repair, upgrading and recycling and resale for all items mentioned above. Their website is: <https://www.setransformer.com>. They have a national presence.

For any and all recycling and upgrading, Solomon Corporation offers the same set of services for transformer repair and recycling and complete substation decommissioning services. With seven different locations, Solomon is one of several vendors that can decommission and recycle the components as noted above. Their website is: <https://www.solomoncorp.com/>. Solomon Corporation is only one of many transmission and distribution recycle and decommissioning shops that do this mainly to harvest the components.

For recycling conductor, General Cable and Southwire both utilize extensive scrap procurement programs to reuse copper and aluminum conductor harvested from projects such as this one to supplement and reduce their raw material costs.

Here is the link to the General Cable program which only increases the salvage values found in this Plan: General Cable Recycling <https://es.generalcable.com/na/us-can/socialresponsibility/sustainability/recycling>

As for solar panels, they are in demand as salvageable items either in whole or for their raw material. According to the International Renewable Energy Agency (IRENA), more than 90% of all the materials are high grade silicon, aluminum and glass and are typically harvested to produce new panels. This is far less expensive than buying unprocessed raw materials for production.

The base industry assumption is that since solar panels are expected to retain about 75% of their production capability after 35 years of use, a salvage value of 10% of original cost is a low estimate of their expected value and as we note in assumption. This considers possible technology improvements and undervalues the anticipated salvage value of the panel's raw materials. The Solar Energy Industries Association (SEIA) has an approved set of PV recycling vendors that specialize in doing this today and they can be found at: <https://www.seia.org/initiatives/seia-national-pv-recycling-program>.

First Solar, which has been active in the solar industry since its inception, takes solar modules and recycles 90% of the semiconductor material which is then reused in new modules. 90% of the glass product can be reused as new glass products, including panels and fiber optic cable. We can conclude that realistically the estimated 10% salvage value is low and reflects a conservative figure. Information about First Solar's recycling program is at: <http://www.firstsolar.com/en/Modules/Recycling>.

8 Financial Assurance

The Project Owner will post a financial surety if required by the City of Staunton zoning ordinance. Based on industry trends, the projected and actual costs of decommissioning are expected to go down over time based on improvements both to best practices in calculating these costs and the decommissioning process itself. The Project Owner will reevaluate decommissioning costs with a qualified engineering consultant every five years during the life of the Project.