DEPARTMENT OF COMMUNITY DEVELOPMENT SERVICES

Planning Division

m e m o r a n d u m

TO: The Urbana Plan Commission

FROM: Marcus Ricci, Planner II

DATE: December 16, 2022

SUBJECT: **Plan Case 2465-SU-22**: A request by Scott Tess on behalf of the City of Urbana to allow the installation, operation, and maintenance of a solar energy system up to 25 acres in size, and generally located near 1210 East University Avenue, in the AG – Agriculture and CRE – Conservation-Recreation-Education zoning districts.

Introduction

Scott Tess, on behalf of the City of Urbana, requests a special use permit to allow TotalEnergies Renewable USA (TotalEnergies) to install, operate, and maintain a Solar Farm of up to 25 acres. The City of Urbana owns the closed landfill at 901 North Smith Road, which extends westward to the proposed site, which is generally located at 1210 East University Avenue. The City and TotalEnergies have entered into an agreement giving the company the option to lease all or part of the property to install, operate, and maintain a ground-mounted solar energy system at this site. According to Table V-1, Table of Uses, a Solar Farm is permitted with a special use permit in the AG – Agriculture and the CRE – Conservation-Recreation-Education zoning districts which make up the site.

The Plan Commission must review the special use permit application, hold a public hearing, and make a recommendation to the Urbana City Council. The Council must then approve, approve with certain conditions, or deny the request. Staff recommends that the Plan Commission forward the case to City Council with a recommendation of approval with one condition.

Background

Description of the Site and Surrounding Properties

The project site is located between East Perkins Road and Butzow Drive, west of Interstate 74 and east of the Landfill Recycling Center access drive. It is on a portion of the closed municipal landfill complex, which operated from the 1920's until it was closed in 1988 (Exhibit A). Table 1 on the following page identifies the current zoning, existing land uses, and Comprehensive Plan future land use designations of the site and surrounding properties (Exhibits A, B, and C).

Proposed Use

The proposed solar farm is the second phase of the development of solar energy systems at the closed City landfill. According to Scott Tess, Urbana's Sustainability and Resiliency Officer, the City solicits vendors to develop solar arrays on the closed landfill to help replace fossil fuels with clean, renewable energy. The State of Illinois has ambitious goals to expand renewable energy production, and closed landfills are ideal locations for such developments since they have few other uses. TotalEnergies would

design, install, operate, and maintain the solar farm, and put the electricity produced directly onto the electrical grid to be sold to the commercial electricity market. In 2018, Council approved a special use permit allowing the construction and operation of a twenty-acre solar farm approximately 500 feet east of the proposed project site (see Figure 1).[1] Construction of that solar farm is complete and it is fully operational.

	Zoning	**Existing Land Use**	**Future Land Use**
Site	AG, Agriculture (south) & CRE, Conservation-Recreation-Education (north)	Closed landfill	Heavy Industrial
North	AG, Agriculture; CRE, Conservation-Recreation-Education	Perkins Road Park; Judge Webber Park	Park; Heavy Industrial
East	AG, Agriculture	Landscape Recycling Center; solar fam	Heavy Industrial
South	IN-1, Industrial; IN-2, Heavy Industrial; B-3, General Business; County R-4, Multiple Family Residence	Guardian West/Flex-n-Gate manufacturing; undeveloped land	Heavy Industrial
West	AG, Agriculture	Municipal police firing range and fire services training range; undeveloped land	Heavy Industrial; then Institutional

Table 1. Zoning, Current Land Use, and Future Land Use Designation

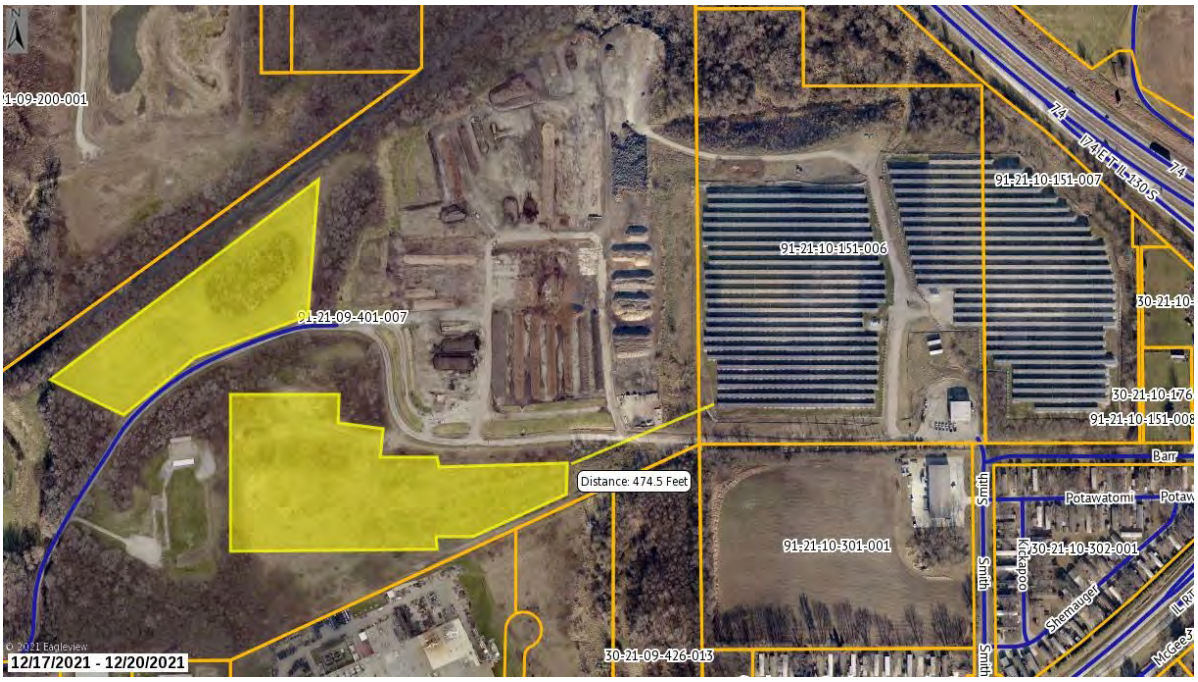


Figure 1. Proposed and Existing Solar Farms

[1] Ordinance No. 2019-01-008, Plan Case 2365-SU-18

The current special use permit request is for up to twenty-five acres. This area includes the total project site which includes two solar arrays designed to produce a total of approximately 4.3 MW DC (megawatts direct current) of electricity (Exhibit D – Site Plan):

- north array of 4.6 acres, 1.4 MW DC production, located north of the landfill access drive, with one inverter and transformers, and approximately 2,500 solar panels in nine-foot-tall strings
- south array of ten acres, 2.9 MW DC production, located south of the landfill access drive, with one inverter and transformers and 5,048 solar panels in nine-foot-tall strings
- seven eight-foot-tall perimeter chain-link fence around each array, with access gates around the panels and inverter cabinets
- access the two arrays from the LRC private access drive

The City passed a Solar Energy Text Amendment to the Urbana Zoning Ordinance on May 23, 2022, with the stated purpose to "encourage the use and development of solar energy systems as a clean, renewable energy source and to help promote local, clean jobs." The ordinance requires the following:[2]

- inverters shall be at least 150 feet from all property lines,
- compliance with State and local regulations including the Urbana Code of Ordinances,
- compliance with setback and height requirements of its zoning district.

Screening would not be required, as the proposed solar farm is more than 500 feet from the nearest residential use. Glare from the panels should be minimal, as the pebbled surface of the solar panels is designed to absorb light, not reflect it. In addition, it should not pose any aviation threat, as the project site is at least 500 feet from any public or private airport or restricted landing area. Staff recommend that the north array be at least 80 feet from the centerline of the Saline Branch Drainage Ditch, in accordance with an unrecorded 160-foot maintenance easement held by the Saline Drainage District. There will be no impacts to farmland, and the ballast-mounting installation for the panels will allow the site to be decommissioned and returned to its current condition with minimal permanent damage.

Construction and operation of the site would be regulated by existing relevant City and State codes. Operational noise, including that from the inverters and transformers, would be regulated by Chapter 16 "Noise and Vibrations" of the City's Code of Ordinances, which requires that "mechanical stationary noise" be no louder than 55 dB during 10 p.m. – 7 a.m. and no louder than 60 dB during 7 a.m. – 10 p.m.. The proposed inverters are specified to operate at a peak of 69 decibels (dB) (Exhibit D – Specifications). They will be located at least 150 feet from property lines, allowing noise to dissipate to below the threshold level. Vegetation will be regulated by Chapter 25 "Vegetation" of the City's Code, which addresses nuisance vegetation and maximum height.

Discussion

Requirements for a Special Use Permit

According to Section VII-4.A of the Urbana Zoning Ordinance, an application for a special use permit shall demonstrate the following:

[2] Ordinance No. 2022-05-018, Plan Case 2425-T-21

1. That the proposed use is conducive to the public convenience at that location.

Similar to the nearby twenty-acre solar farm, the proposed solar farm is conducive to the public convenience at the proposed location in three ways:

- The proposed system would redevelop 25 acres of a closed municipal landfill which would otherwise have very little opportunity for reuse. It would not consume any current or potential farmland or commercially-viable property.
- The proposed project would be self-contained on the site: construction would have a short-term impact on neighboring properties as materials are delivered to the site; operation should not affect neighboring properties.
- The project site's proximity to the interstate would allow easy access for construction materials and labor, and for maintenance.

2. That the proposed use is designed, located, and proposed to be operated so that it will not be unreasonably injurious or detrimental to the district in which it shall be located, or otherwise injurious to the public welfare.

The proposed solar farm would be designed, constructed, operated and maintained similarly to the nearby solar farm, and include characteristics to minimize unreasonably injurious or detrimental impacts to the public:

- A seven-foot-tall, galvanized chain link gated fence around the array perimeter would prevent unauthorized access to the Solar Farm.
- The selected inverters generate noise levels below 69 decibels and will be located at least 150 feet from all property lines. Existing trees and vegetation along much of the project perimeter would further mitigate noise.
- No occupied structures or buildings are proposed.
- Access roads are designed to minimize use of external roads for internal circulation.
- No new lighting is expected to be installed, to avoid light pollution.
- Tenant will exercise reasonable diligence to not unreasonably block or hamper traffic.
- Scheduled site work is only expected to occur during 7:00 a.m. – 5:00 p.m.
- Very few consumables are used during operations, and very little waste is generated.

3. That the proposed use conforms to the applicable regulations and standards of, and preserves the essential character of, the district in which it shall be located, except where such regulations and standards are modified by Section VII-7.

The proposed solar farm would conform to the applicable regulations and standards of the AG and CRE districts and would not be out of character with the AG and CRE districts, especially given the proximity of the nearby 20-acre solar farm. As the proposed use will not require extension or expansion of any City infrastructure, installation and operation should have minimal impact on the natural and built environments, and the project site should be able to be restored to its current condition with minimal permanent damage.

Overview

The redevelopment of the subject property with the proposed solar farm would be beneficial to the City and meet the criteria for special use permit approval. It would be an infill redevelopment of the closed City of Urbana Landfill: a much higher and better use of the subject property than its current use as vacant land with few potential opportunities for reuse. In addition to providing a source of

revenue for the city, the proposed solar farm would bring the city another step closer to implementing its Climate Action Plan, which includes Goal 3: Increase Renewable Energy Purchasing and Installation, by generating electricity without generating carbon. The proposed solar farm would be compatible with the surrounding complex of natural areas, agricultural production, municipal operations, and renewable energy generation. The required buffers and existing landscaping would mitigate noise and visual impacts to nearby uses. Overall, the proposed solar farm would be a benefit to the community if it were granted a special use permit.

In addition to the requirements in Section VII-4.A. of the Zoning Ordinance, the Plan Commission shall make a recommendation to the City Council for or against the proposed special uses, and may also recommend such additional conditions and requirements on the operation of the proposed uses as are appropriate or necessary for the public health, safety, and welfare, and to carry out the purposes of this Ordinance, including but not limited to conditions that:

1. Regulate the location, extent, and intensity of such uses;
2. Require adherence to an approved site plan;
3. Require landscaping and the screening of such use by means of fences, walls, or vegetation;
4. Stipulate a required minimum lot size, minimum yards, and maximum height of buildings and structures;
5. Regulate vehicular access and volume, and the design and location of parking and loading areas and structures;
6. Require conformance to health, safety, and sanitation requirements as necessary;
7. Regulate signs and outdoor lighting; and
8. Any other conditions deemed necessary to affect the purposes of the Zoning Ordinance.

Public Input

As required by the Zoning Ordinance, staff published Legal Notice in *The News-Gazette* fifteen days prior to the Plan Commission meeting, to notify the public of the request and public hearing. Staff also sent letters to 18 neighboring property owners notifying them of the request, and posted two public hearing signs on the property. Staff received no inquiries regarding the requested permit.

Summary of Findings

1. The City of Urbana has requested a special use permit to allow a Solar Farm on the property near 1210 East University Avenue.

2. The proposal calls for an approximately 15-acre renewable energy system to generate electricity via a system of solar photovoltaic panels, inverters, and transformers. A Solar Farm is permitted in the AG, Agriculture and CRE, Conservation-Recreation-Education zoning district with a Special Use Permit.

3. The proposed use is conducive to the public convenience at that location because it would redevelop the closed municipal landfill – a site with few other redevelopment opportunities – while creating very little impact on transportation and other infrastructure.

4. The proposed use would be designed, located, and operated so that it will not be unreasonably injurious or detrimental to the district in which it shall be located, or otherwise injurious to the public welfare, because road access will be maintained, little waste will be generated, vegetation and noise management will comply with City regulations, site security will be

implemented, and no structures other than the solar arrays, inverters, and associated peripherals will be built.

5. The character of the district would be preserved with the proposed use because installation and operation of the proposed solar farm – similar in scope and scale to the nearby solar farm – would have minimal impact on the natural and built environments, and the project site should be able to be restored to its current condition with minimal permanent damage.

Options

The Plan Commission has the following options in Plan Case 2465-SU-22:

1. Recommend approval of the special use permit without any additional conditions.

2. Recommend approval of the special use permit with any conditions deemed appropriate or necessary for the public health, safety, and welfare, and to carry out the purposes of the City's municipal code.

3. Recommend denial of the special use permit. If the Plan Commission elects to do so, it should articulate the findings supporting its denial.

Recommendation

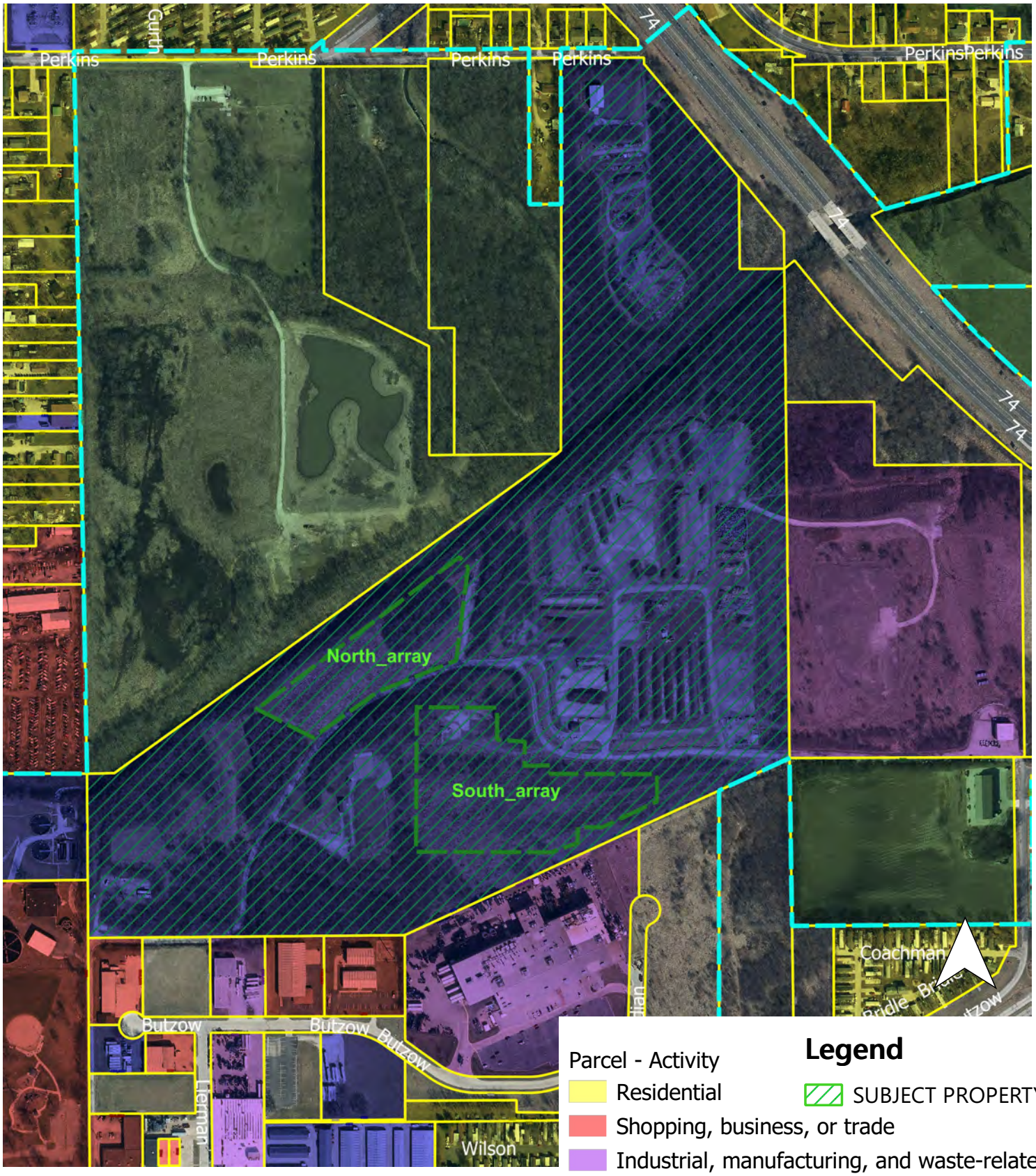
Based on the evidence presented in the discussion above, and without the benefit of considering additional evidence that may be presented at the public hearing, staff recommends that the Plan Commission recommend **APPROVAL** of the proposed special use permit in Plan Case No. 2465-SU-22 for the reasons articulated above and with the following condition:

- The proposed construction and use must generally conform to the site plan submitted in this application as shown in Exhibit D: Application – Site Plan, including a minimum 80-foot buffer to the centerline of the Saline Branch Drainage Ditch, except where modified to meet City regulation.

Attachments:
	Exhibit A:	Location & Land Use Map
	Exhibit B:	Zoning Map
	Exhibit C:	Future Land Use Map
	Exhibit D:	SUP Application with Site Plan
	Exhibit E:	Site Photos & Satellite Renderings

CC: Scott Tess, City of Urbana, Applicant
Chad Tady, TotalEnergies Renewable USA, Developer

Exhibit A - Location & Land Use



0 250 500 750 1,000 ft

CITY OF URBANA

Case: 2465-SU-22
Subject: Special Use Permit - Solar Farm
Location: 1210 East University Avenue
Applicant: City of Urbana

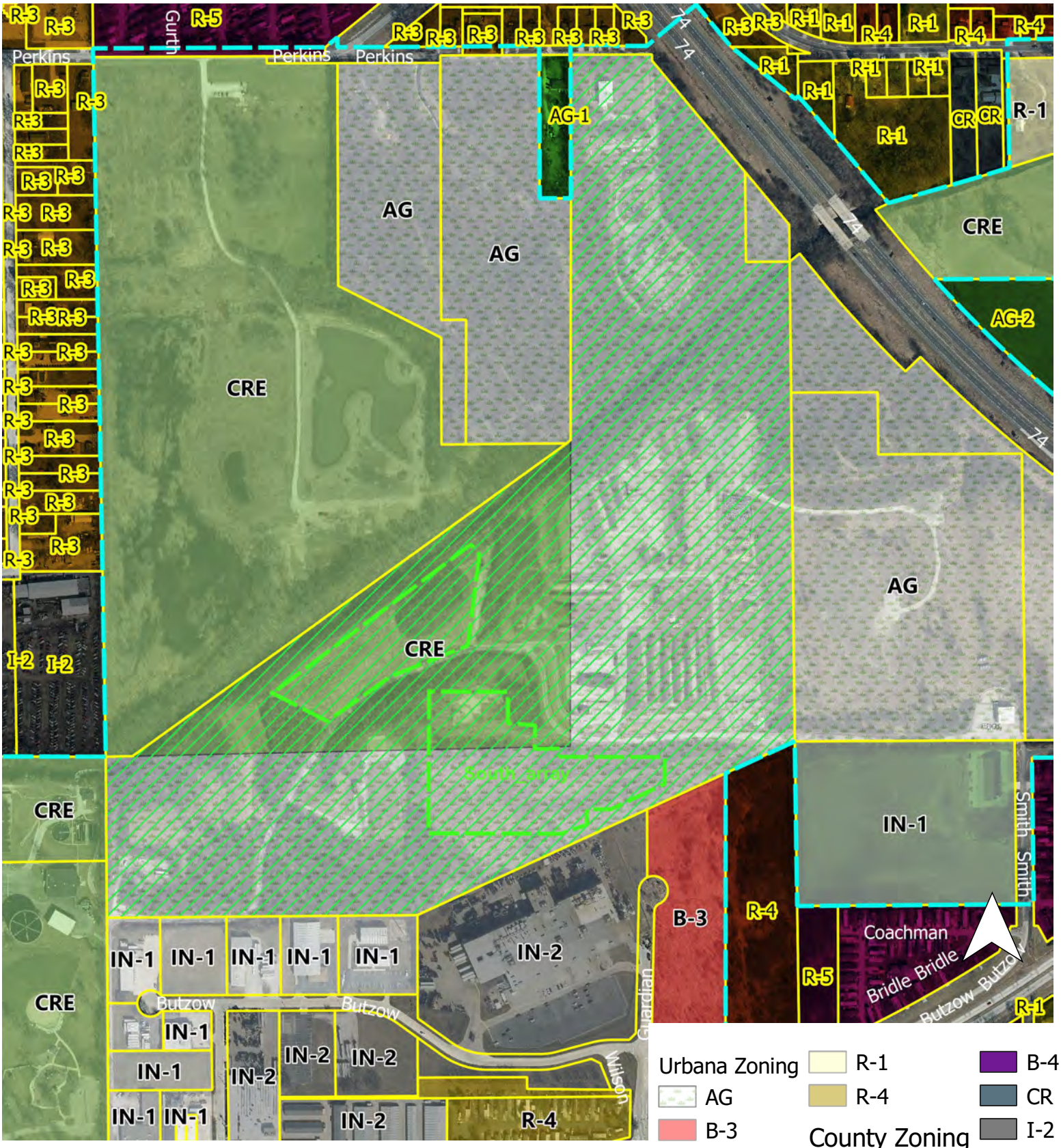
Legend

SUBJECT PROPERTY

Parcel - Activity

- Residential
- Shopping, business, or trade
- Industrial, manufacturing, and waste-related
- Social, institutional, or infrastructure-related
- Travel or movement
- Mass assembly of people
- Leisure
- Natural resources-related
- No human activity or unclassifiable

Exhibit B - Current Zoning



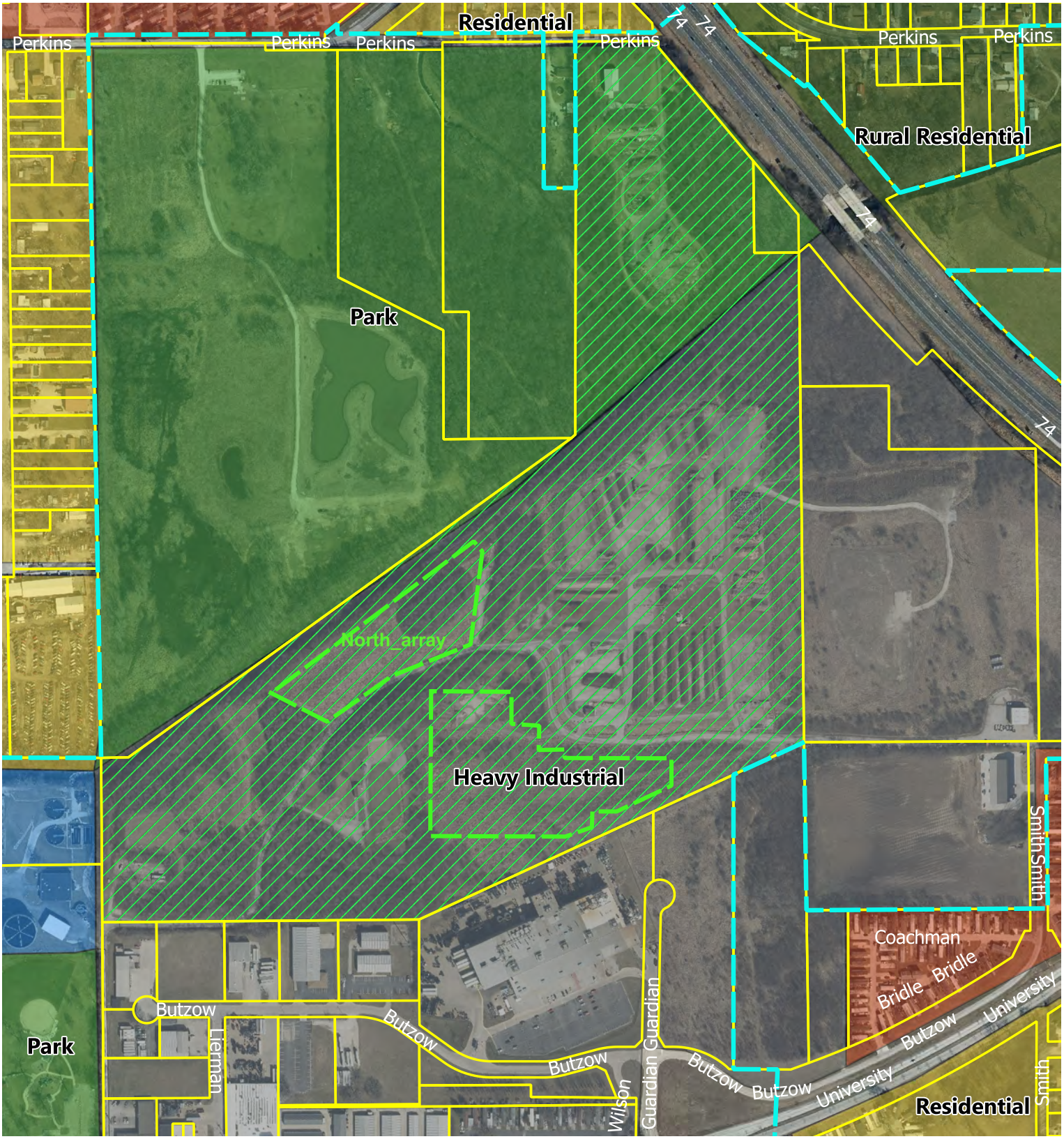
CITY OF URBANA

Case: 2465-SU-22
Subject: Special Use Permit - Solar Farm
Location: 1210 East Unive
Applicant: City of Urbana

Legend

SUBJECT PROPERTY

Exhibit C - Future Land Use



0 250 500 750 1,000 ft

CITY OF URBANA

Case: 2465-SU-22
Subject: Special Use Permit - Solar Farm
Location: 1210 East University Avenue
Applicant: City of Urbana

Legend

SUBJECT PROPERTY

Ex D - SUP Application with Site Plan

TotalEnergies Distributed Generation USA, LLC
1414 Harbour Way South, Ste 1901
Richmond, CA 94804

November 22, 2022

City of Urbana
Community Development Department
Planning Division
400 South Vine Street
Urbana, IL 61801

Dear Planning Division:

The City of Urbana is pursuing a solar photovoltaic project at the City's landfill site and submits this enclosed Application for a Special Use Permit along with relevant attachments on behalf of the project. The Subject Site is located near 1210 E University, Urbana, IL 61802 on Property Index Number 91-21-09-401-007. This Subject Site is approximately 10 acres and comprised of a vacant land on a closed landfill. The proposed land use is for the installation, operation, and maintenance of a distributed energy ballasted fixed tilt ground mount solar photovoltaic energy system ("Solar Farm"). The City's tenant under a lease with the developer, Solar Star Urbana Landfill South, LLC. ("Tenant" or "Developer") is responsible for the turn-key development including design, engineering, installation, interconnection, operations and maintenance.

Sincerely,

Chad Tady

TotalEnergies Distributed Generation USA, LLC
Chad.Tady@totalenergies.com
312-841-2423

Ex D - SUP Application with Site Plan

Contents

Ex D - SUP Application with Site Plan

Application for Special Use Permit

PLAN COMMISSION

The application fee must accompany the application when submitted for processing. Please refer to the City's website at http:/www.urbanaillinois.us/fees for the current fee associated with this application. **The Applicant is also responsible for paying the cost of legal publication fees.** Estimated costs for these fees usually run between $75.00 and $225.00. The applicant will be billed separately by the News-Gazette.

DO NOT WRITE IN THIS SPACE - FOR OFFICE USE ONLY

Date Request Filed 11-22-2022 Plan Case No. 2465-SU-22

Fee Paid - Check No. 9395 Amount $200.00 Date 11-23-2022

PLEASE PRINT OR TYPE THE FOLLOWING INFORMATION

A SPECIAL USE PERMIT is requested in conformity with the powers vested in the Plan Commission to recommend to the City Council under Section VII-4 of the Urbana Zoning Ordinance to allow ***(Insert proposed use)*** Solar Farm on the property described below.

1. APPLICANT CONTACT INFORMATION

Name of Applicant(s): **Solar Star Urbana Landfill South, LLC (attn: Scott Tess)** Phone: **(217) 384-2381**

Address *(street/city/state/zip code)*: **706 S. Glover Ave. Urbana, IL 61802**

Email Address: **srtess@urbanaillinois.us**

2. PROPERTY INFORMATION

Address/Location of Subject Site: **1210 E University Ave, Urbana, IL 61802**

PIN # of Location: **91-21-09-401-007**

Lot Size: **approximately 93.02 acres**

Current Zoning Designation: **CRE (north part) and AG (south part)**

Current Land Use *(vacant, residence, grocery, factory, etc*: **Vacant, closed landfill**

Proposed Land Use: **Installation, operation, & maintenance of a distributed-energy, ballasted, fixed-tilt, ground-mounted solar photovoltaic energy system**

Legal Description ***(If additional space is needed, please submit on separate sheet of paper)***:

Part of the south half of the northeast quarter and part of the north half of the southeast quarter, Section 9, Township 19 North, Range 9 East, of the Third Principal Meridian, Champaign County, Illinois.

Revised Version: 12-02-2022

3. CONSULTANT INFORMATION

Name of Architect(s):

Address *(street/city/state/zip code)*:

Email Address:

Name of Engineers(s): Chad Tady, Total Energies Renewables USA **Phone:** 312-841-2423

Address *(street/city/state/zip code)*: 1414 Harbour Way South, Suite 1901, Richmond CA 94804

Email Address: Chad.Tady@totalenergies.com

Name of Surveyor(s):

Address *(street/city/state/zip code)*: Email Address:

Name of Professional Site Planner(s): Address *(street/city/state/zip code)*: Email Address:

Name of Attorney(s):

Address *(street/city/state/zip code)*: Email Address:

4. REASONS FOR SPECIAL USE PERMIT

Explain how the proposed use is conducive to the public convenience at the location of the property.

Please see enclosed Supplemental Responses

Explain how the proposed use is designed, located and proposed to be operated, so that it will not be unreasonably injurious or detrimental to the district in which it shall be located, or otherwise injurious or detrimental to the public welfare.

Please see enclosed Supplemental Responses

Explain how the proposed use conforms to the applicable regulations and standards of and preserves the essential character of the district in which it shall be located.

Please see enclosed Supplemental Responses

NOTE: If additional space is needed to accurately answer any question, please attach extra pages to the application.

By submitting this application, you are granting permission for City staff to post on the property a temporary yard sign announcing the public hearing to be held for your request.

CERTIFICATION BY THE APPLICANT

I certify all the information contained in this application form or any attachment(s), document(s) or plan(s) submitted herewith are true to the best of my knowledge and belief, and that I am either the property owner or authorized to make this application on the owner's behalf.

Scott Fass _____ 11/22/22

Applicant's Signature _____ Date

PLEASE RETURN THIS FORM ONCE COMPLETED TO:

City of Urbana
Community Development Department Services
Planning Division
400 South Vine Street, Urbana, IL 61801
Phone: (217) 384-2440
Fax: (217) 384-2367

Supplemental Respones

The following are responses to Section 4. Reasons for Special Use Permit of the application.

Explain how the proposed use is conducive to the public convenience at the location of the property.

The proposed use of a Solar Farm at this Subject Site is conducive to the public in several direct and indirect ways. Indirectly, this Solar Farm Special Use Permit would allow the City to benefit from additional lease revenues and reduced electricity operating costs which will benefit the public tax payers and those who receive services from the City. Directly, the proposed use of the Solar Farm at this Subject Site is conducive to the public because of the minimal impact at the Subject Site and surrounding area. The preliminary design and arrangement with the Developer of the Solar Farm includes the following attributes which result in little impact to the public.

- A seven (7) foot tall galvanized, nine (9) gauge, two (2) inch mesh fencing and chain link fence-with gate around the array perimeter is included to prevent access to the Solar Farm.
- Inverter selection has considered noise levels and the preliminary inverters noise level will be below 69 decibels based on sound pressure level at a distance of 1 meter. Inverters have strategically been located towards the center of the Subject Site center of the Subject Site, approximately 300 ft or more from public areas beyond the Subject Site and the existing Landscape Recycling Center. Furthermore, there are existing trees and vegetation along much of the perimeter of the site to eliminate any noise.
- The Solar Farm preliminary design includes a ballasted ground mount system with the height of approximately nine (9) feet from the ground surface and with no moving parts.
- No occupied structures or buildings are included in the Solar Farm which minimizes impact to the Subject Site and surrounding area.
- Access roads in the preliminary design have been designed to minimize use of external roads for access within the Solar Farm.
- No new lighting is expected to be installed to avoid light pollution.

Explain how the proposed use is designed, located and proposed to be operated, so that it will not be unreasonably injurious or detrimental to the district in which it shall be located, or otherwise injurious or detrimental to the public welfare.

The Solar Farm design, commercial arrangements, installation, operations and maintenance include the following characteristics which will result in no unreasonably injurious or detrimental impacts to the public.

- Tenant will exercise reasonable diligence not to unreasonably block any such road or otherwise hamper or encumber any vehicular, bicycle or pedestrian traffic on any such road, except as reasonably necessary.
- Scheduled site work is only expected to occur during the hours of 7:00 AM to 5:00 PM.
- During installation, the Tenant will provide a temporary portable toilet and temporary dumpster for all Solar Farm installation waste. During operations, very few consumables are used and very little waste is generated. Operational waste will be handled and disposed of by the Tenant if and when it is resulting from Solar Farm use.
- Tenant may remove, trim, prune, top or otherwise control the growth of any tree, shrub, plant or other vegetation located on the Subject Site. Vegetation management within the array area of the Solar Farm will be the responsibility of the Tenant and will include manual means (e.g. mowing and cutting), and chemical or other means.

Explain how the proposed use conforms to the applicable regulations and standards of and preserves the essential character of the district in which it shall be located.

The proposed use of the Solar Farm will satisfy and conform with the following codes and standards.

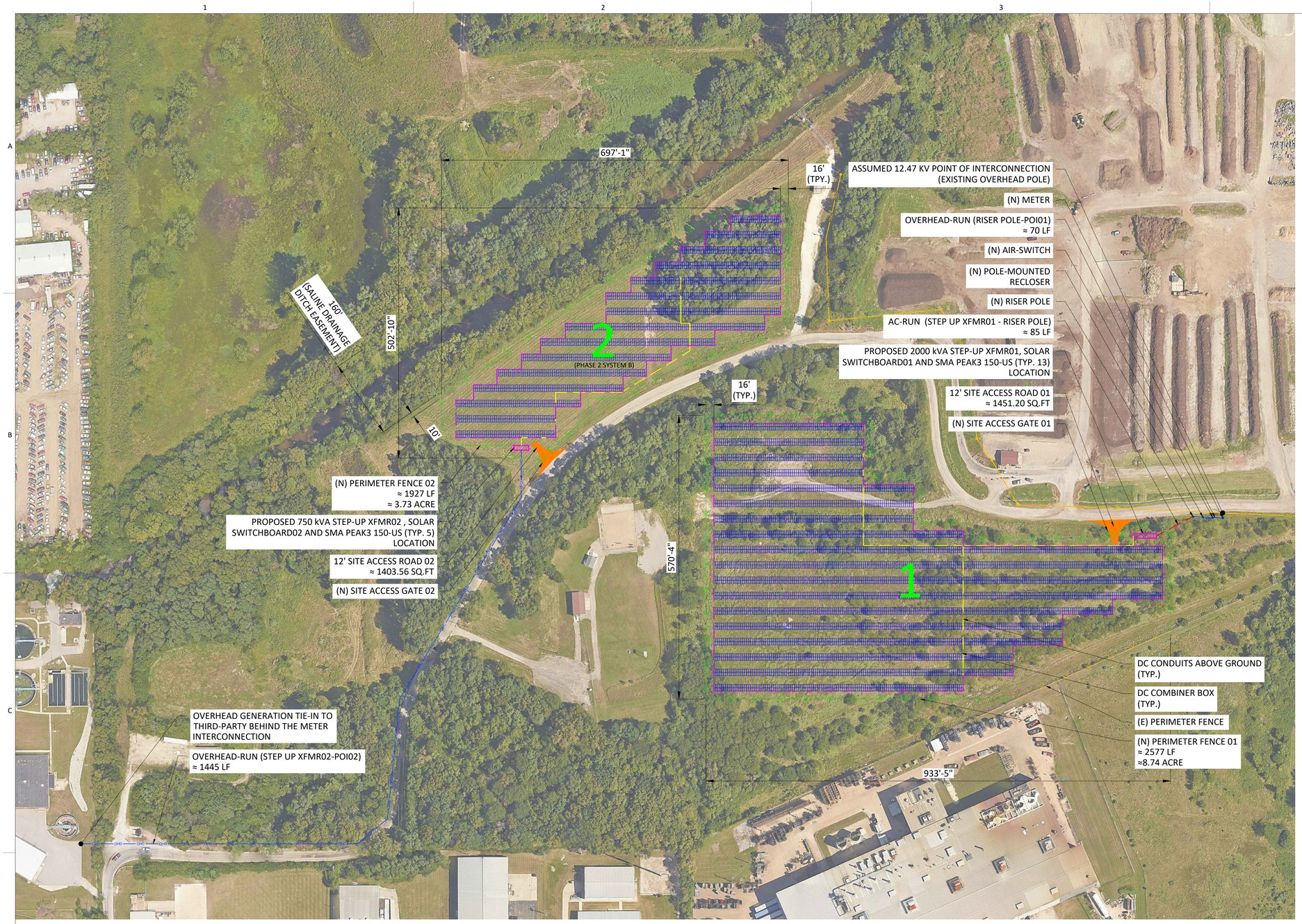
- City of Urbana 2021 Zoning Ordinance
- City of Urbana Building, Fire, and Flood Safety Codes - Chapter 5 Urbana City Code
- City of Urbana Electrical Code Requirements - The 2008 National Electrical Code
- City of Urbana Fence Requirements - Chapter 7 Urbana City Code
- IEEE 929-2000, “Recommended Practice for Utility Interface of Photovoltaic Systems”; and
- UL Subject 1741, “Standard for Static Inverters and Charge Controllers for use in Photovoltaic Power Systems”
- ANSI C12.1-2008; (electricity metering)
- ASME PTC 50 (solar PV performance)
- ANSI Z21.83 (solar PV performance and safety)
- NFPA 70 (including NFPA 70E Arc flash)
- IEEE 1547 (interconnections)

Furthermore, the proposed use of the Solar Farm’s design, products, and installation will comply with the following industry standards, wherever applicable:

- Electronic Industries Association (EIA) Standard 569

Ex D - SUP Application with Site Plan

- Illumination Engineering Society of North America (IESNA) Lighting Standards
- Institute of Electrical and Electronics Engineers (IEEE) Standards
- National Electrical Manufacturers Association (NEMA)
- National Electric Code (NEC)
- Insulated Power Cable Engineers Association (IPCEA)
- Certified Ballast Manufacturers Association (CBMA)
- Underwriters Laboratories, Inc. (UL)
- National Fire Protection Association (NFPA)
- Utility(s) Requirements
- American National Standards Institute (ANSI)
- Occupational Health and Safety Administration (OSHA)
- American Disabilities Act (ADA)
- American Society for Testing and Materials (ASTM)
- National Electrical Contractors Association (NECA)
- National Electrical Testing Association (NETA)



VICINITY MAP:
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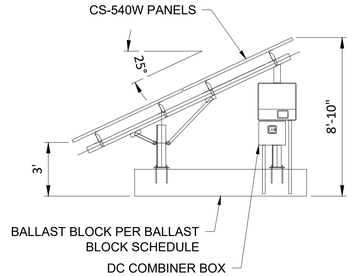
LONGITUDE: -88.185529°



SCHEMATIC DIAGRAM

LEGEND:

- PROPOSED AC STATION
- PROPOSED POINT OF INTERCONNECTION
- AC CONDUITS (SSB-POI)
- DC CONDUITS (CB-INV)
- EXISTING OVERHEAD LINE
- NEW OVERHEAD LINE
- EXISTING UTILITY POLE
- NEW UTILITY POLE

NOTES:

1. 105 MPH WIND ZONE (ASCE 7-10) CATEGORY I, EXPOSURE C
2. SNOWLOAD 20 PSF, ELEVATION 749'
3. ARRAY SHOWN ON : AERIAL IMAGE
4. BALLASTED FOUNDATIONS FOR RACKING REQUIRED
5. ALL TREES WITHIN ARRAY BOUNDARY, AND THOSE WHICH WILL SHADE THE ARRAY, NEED TO BE REMOVED PRIOR TO INSTALLATION
6. MAXIMUM PANEL HEIGHT FROM GRADE: 8'-10"
7. TOTAL NO. OF NEW UTILITY POLES: 4
8. NEW UTILITY POLE-TO-POLE DISTANCE: 20 FT

180°
N

1 ARRAY LAYOUT
SCALE: 1/100" = 1'-0"

POI	SOLAR SWITCHBOARD	# MODULE	#STRING	KW (DC)	36 INPUT CB (W/ 16 STR)	SHP_150_US_20	AC SYSTEM SIZE (KW)	TILT (°)	GCR	CSI AZIMUTH (°)	PLANE AZIMUTH (°)	DC RUN (CB-INV)
POI01	SSB01	5408	208	2920.32	13	13	1950	25	0.44	180	0	745, 680, 620, 640, 575, 545, 515, 485, 455, 425, 390, 360, 390
POI02	SSB02	2080	80	1123.2	5	5	750	25	0.44	180	0	640, 575, 495, 385, 100
	TOTAL	7488	288	4043.52	18	18	2700.00					

PROJECT SUMMARY	GFT
TOTAL # OF MODULE	7488
STRING LENGTH	26
MODULE TYPE	3RD PARTY 540W
# OF SMA PEAK 3 INVERTER	18
DC SYSTEM SIZE (kW)	4043.52
AC SYSTEM SIZE (KW)	2700.00

THE PROPOSED ARRAY LAYOUT SHOWN IS DESIGNED TO FIT EXISTING CONDITIONS AS THEY ARE DESCRIBED ON THIS DRAWING. LAYOUT AND QUANTITIES ARE SUBJECT TO CHANGE BASED ON TOTAL ENERGIES VERIFICATION OF ACTUAL SITE CONDITIONS.

TIER 1

PROJECT DEVELOPER

TotalEnergies

TOTALENERGIES RENEWABLES, USA
1201 LOUISIANA STREET, SUITE 1800
77002 - HOUSTON - USA

ENGINEER'S STAMP

URBANA PHASE 2 - RFQ #2122-11
CITY OF URBANA LANDFILL PH2

1210 E UNIVERSITY AVE
URBANA, IL 61802

ARRAY LAYOUT

REVISIONS

REV	DESCRIPTION	DATE	DB	CB
A	PROPOSAL	04-22-22	AR	TC
B	CHANGE MODULE TYPE	11-02-22	MC	TC
C	NEW SITE INFORMATION	12-19-22	DG	TC

DESIGN #
D-0120691
D-0123727
D-0124453

OPPORTUNITY 0002496695

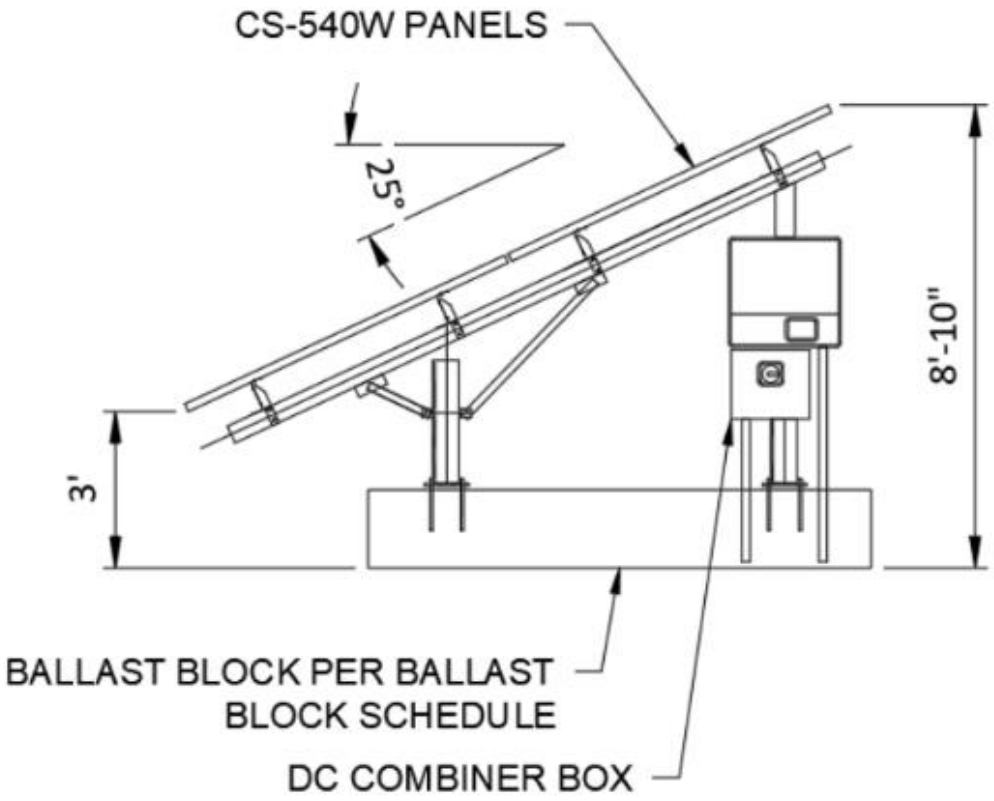
PROJECT ---

0 ½" 1"
IF BAR IS NOT ONE INCH, DRAWING IS NOT TO SCALE

SHEET AL1

Preliminary Elevation Schematic

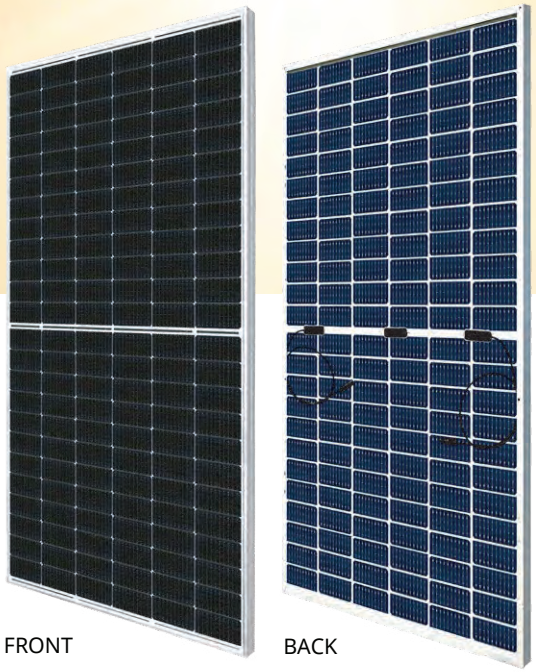
Components, dimensions, structures and design subject to change



Ex D - SUP Application with Site Plan

NEW

CanadianSolar



FRONT BACK

BiHiKu6

520 W ~ 545 W

BIFACIAL MONO PERC

CS6W-520|525|530|535|540|545MB-AG

MORE POWER

- Module power up to 545 W
  Module efficiency up to 21.2 %
- Up to 12.3 % lower LCOE
  Up to 5.2 % lower system cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Compatible with mainstream trackers, cost effective product for utility power plant
- Better shading tolerance

MORE RELIABLE

- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa*

* For detailed information, please refer to Installation Manual.

12 Years **Enhanced Product Warranty on Materials and Workmanship***

30 Years **Linear Power Performance Warranty***

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.45%

*According to the applicable Canadian Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA
CEC listed (US California)
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
Take-e-way

* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

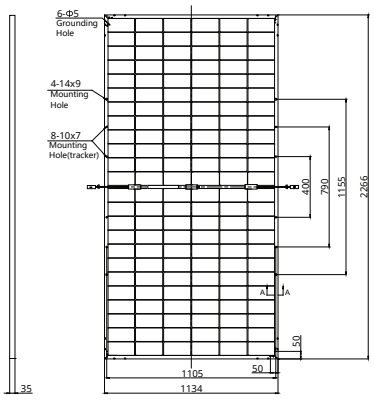
CSI SOLAR (USA) CO., LTD. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 20 years, it has successfully delivered over 63 GW of premium-quality solar modules across the world.

CSI SOLAR (USA) CO., LTD.
1350 Treat Blvd. Suite 500, Walnut Creek, CA 94598, USA | www.csisolar.com/na | service.ca@csisolar.com

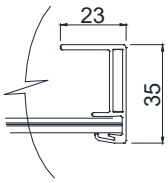
Ex D - SUP Application with Site Plan

ENGINEERING DRAWING (mm)

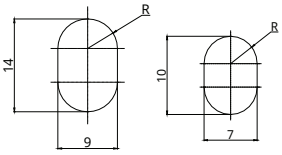
Rear View



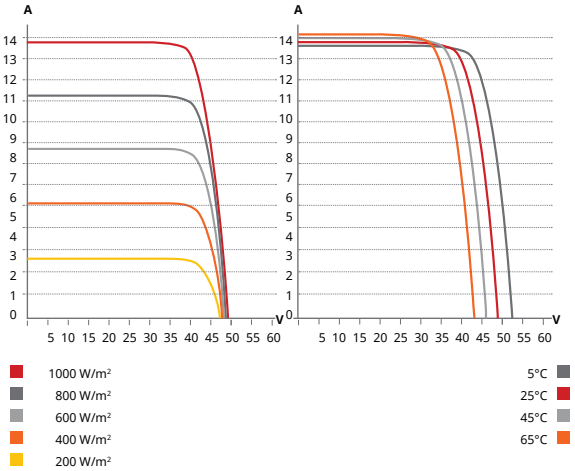
Frame Cross Section A-A



Mounting Hole



CS6W-530MB-AG / I-V CURVES



ELECTRICAL DATA | STC*

	Nominal Max. Power (Pmax)	Opt. Operating Voltage (Vmp)	Opt. Operating Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)	Module Efficiency
CS6W-520MB-AG	520 W	40.5 V	12.84 A	48.4 V	13.70 A	20.2%
Bifacial Gain** 5%	546 W	40.5 V	13.48 A	48.4 V	14.39 A	21.2%
Bifacial Gain** 10%	572 W	40.5 V	14.12 A	48.4 V	15.07 A	22.3%
Bifacial Gain** 20%	624 W	40.5 V	15.41 A	48.4 V	16.44 A	24.3%
CS6W-525MB-AG	525 W	40.7 V	12.90 A	48.6 V	13.75 A	20.4%
Bifacial Gain** 5%	551 W	40.7 V	13.55 A	48.6 V	14.44 A	21.4%
Bifacial Gain** 10%	578 W	40.7 V	14.21 A	48.6 V	15.13 A	22.5%
Bifacial Gain** 20%	630 W	40.7 V	15.48 A	48.6 V	16.50 A	24.5%
CS6W-530MB-AG	530 W	40.9 V	12.96 A	48.8 V	13.80 A	20.6%
Bifacial Gain** 5%	557 W	40.9 V	13.62 A	48.8 V	14.49 A	21.7%
Bifacial Gain** 10%	583 W	40.9 V	14.26 A	48.8 V	15.18 A	22.7%
Bifacial Gain** 20%	636 W	40.9 V	15.55 A	48.8 V	16.56 A	24.8%
CS6W-535MB-AG	535 W	41.1 V	13.02 A	49.0 V	13.85 A	20.8%
Bifacial Gain** 5%	562 W	41.1 V	13.68 A	49.0 V	14.54 A	21.9%
Bifacial Gain** 10%	589 W	41.1 V	14.34 A	49.0 V	15.24 A	22.9%
Bifacial Gain** 20%	642 W	41.1 V	15.62 A	49.0 V	16.62 A	25.0%
CS6W-540MB-AG	540 W	41.3 V	13.08 A	49.2 V	13.90 A	21.0%
Bifacial Gain** 5%	567 W	41.3 V	13.73 A	49.2 V	14.60 A	22.1%
Bifacial Gain** 10%	594 W	41.3 V	14.39 A	49.2 V	15.29 A	23.1%
Bifacial Gain** 20%	648 W	41.3 V	15.70 A	49.2 V	16.68 A	25.2%
CS6W-545MB-AG	545 W	41.5 V	13.14 A	49.4 V	13.95 A	21.2%
Bifacial Gain** 5%	572 W	41.5 V	13.80 A	49.4 V	14.65 A	22.3%
Bifacial Gain** 10%	600 W	41.5 V	14.46 A	49.4 V	15.35 A	23.3%
Bifacial Gain** 20%	654 W	41.5 V	15.77 A	49.4 V	16.74 A	25.5%

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.
** Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

ELECTRICAL DATA

Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1500 V (IEC/UL) or 1000 V (IEC/UL)
Module Fire Performance	TYPE 29 (UL 61730) or CLASS C (IEC61730)
Max. Series Fuse Rating	30 A
Application Classification	Class A
Power Tolerance	0 ~ + 10 W
Power Bifaciality*	70 %

* Power Bifaciality = $Pmax_{rear}$ / $Pmax_{front}$, both $Pmax_{rear}$ and $Pmax_{front}$ are tested under STC, Bifaciality Tolerance: ± 5 %

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

ELECTRICAL DATA | NMOT*

	Nominal Max. Power (Pmax)	Opt. Operating Voltage (Vmp)	Opt. Operating Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)
CS6W-520MB-AG	390 W	38.0 V	10.27 A	45.7 V	11.05 A
CS6W-525MB-AG	394 W	38.2 V	10.32 A	45.9 V	11.09 A
CS6W-530MB-AG	397 W	38.3 V	10.38 A	46.1 V	11.13 A
CS6W-535MB-AG	401 W	38.5 V	10.42 A	46.3 V	11.17 A
CS6W-540MB-AG	405 W	38.7 V	10.47 A	46.5 V	11.21 A
CS6W-545MB-AG	409 W	38.9 V	10.52 A	46.7 V	11.25 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	2266 × 1134 × 35 mm (89.2 × 44.6 × 1.38 in)
Weight	32.2 kg (71.0 lbs)
Front Glass	2.0 mm heat strengthened glass with anti-reflective coating
Back Glass	2.0 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4.0 mm² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	410 mm (16.1 in) (+) / 290 mm (11.4 in) (-) or customized length*
Connector	T4 or MC4 series
Per Pallet	30 pieces
Per Container (40' HQ)	600 pieces or 540 pieces (only for US)

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.34 % / °C
Temperature Coefficient (Voc)	-0.26 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	41 ± 3°C

PARTNER SECTION

Ex D - SUP Application with Site Plan

SUNNY HIGHPOWER PEAK3 125-US / 150-US

Cost effective

- Modular architecture reduces BOS and maximizes system uptime
- Compact design and high power density maximize transportation and logistical efficiency

Maximum flexibility

- Scalable 1,500 VDC building block with best-in-class performance
- Flexible architecture creates scalability while maximizing land usage

Simple install, commissioning

- Ergonomic handling and simple connections enable quick installation
- Centralized commissioning and control with SMA Data Manager

Highly innovative

- SMA Smart Connected reduces O&M costs and simplifies field-service
- Powered by award winning ennexOS cross sector energy management platform

SUNNY HIGHPOWER PEAK3 125-US / 150-US

A superior modular solution for large-scale power plants

The PEAK3 1,500 VDC inverter offers high power density in a modular architecture that achieves a cost-optimized solution for large-scale PV integrators. With fast, simple installation and commissioning, the Sunny Highpower PEAK3 is accelerating the path to energization. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 power plant solution is powered by the ennexOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

Ex D - SUP Application with Site Plan

Technical Data	Sunny Highpower PEAK3 125-US	Sunny Highpower PEAK3 150-US
Input (DC)		
Maximum array power	187500 Wp STC	225000 Wp STC
Maximum system voltage	1500 VDC	
Rated MPP voltage range	705 V ... 1450 V	880 V ... 1450 V
MPPT operating voltage range	684 V ... 1500 V	855 V ... 1500 V
MPP trackers	1	
Maximum operating input current	180 A	
Maximum input short-circuit current	325 A	
Output (AC)		
Nominal AC power	125000 W	150000 W
Maximum apparent power	125000 VA	150000 VA
Output phases / line connections	3 / 3-PE	
Nominal AC voltage	480 V	600 V
Compatible transformer winding configuration	Wye-grounded	
Maximum output current	151 A	
Rated grid frequency	60 Hz	
Grid frequency / range	50 Hz, 60 Hz / -6 Hz ... +6 Hz	
Power factor at rated power / adjustable displacement	1 / 0.0 leading ... 0.0 lagging	
Harmonics (THD)	<3%	
Efficiency		
CEC efficiency	98.5 %	99.0 %
Protection and safety features		
Ground fault monitoring: Riso / Differential current	● / ●	
DC reverse polarity protection	●	
AC short circuit protection	●	
Monitored surge protection (Type 2): DC / AC	● / ●	
Protection class / overvoltage category (as per UL 840)	I / IV	
General data		
Device dimensions (W / H / D)	770 / 830 / 444 mm (30.3 / 32.7 / 17.5 in.)	
Device weight	98 kg (216 lbs)	
Operating temperature range	-25°C ... +60°C (-13°F ... +140°F)	
Storage temperature range	-40°C ... +70°C (-40°F ... +158°F)	
Audible noise emission (full power @ 1m and 25°C)	< 69 dB(A)	
Internal consumption at night	< 5 W	
Topology	Transformerless	
Cooling concept	OptiCool (forced convection, variable speed fans)	
Enclosure protection rating	Type 4X (as per UL 50E)	
Maximum permissible relative humidity (non-condensing)	100%	
Additional information		
Mounting	Rack mount	
DC connection	Terminal lugs - up to 600 kcmil CU/AL	
AC connection	Screw terminals - up to 300 kcmil CU/AL	
LED indicators (Status/Fault/Communication)	●	
SMA Speedwire (Ethernet network interface)	● (2 x RJ45 ports)	
Data protocols: SMA Modbus / SunSpec Modbus	● / ●	
Integrated Plant Control / Q on Demand 24/7	● / ●	
Off-grid capable / SMA Hybrid Controller compatible	– / ●	
SMA Smart Connected (proactive monitoring and service)	●	
Certifications		
Certifications and approvals	UL 62109, UL 1998, CAN/CSA-C22.2 No.62109	
FCC compliance	FCC Part 15, Class A	
Grid interconnection standards	IEEE 1547, UL 1741 SA - CA Rule 21, HECO Rule 14H	
Advanced grid support capabilities	L/HFRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor	
Warranty		
Standard	5 years	
Optional extensions	10 / 15 / 20 years	
Type designation	SHP 125-US-20	SHP 150-US-20

Technical data as of May 2020 ● Standard features ○ Optional features – Not available

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

Exhibit E – Site Photos & Satellite Renderings

Figure 1. Project site from north (GoogleMaps)

Figure 2. Project site from north; Flex-n-Gate in background.