



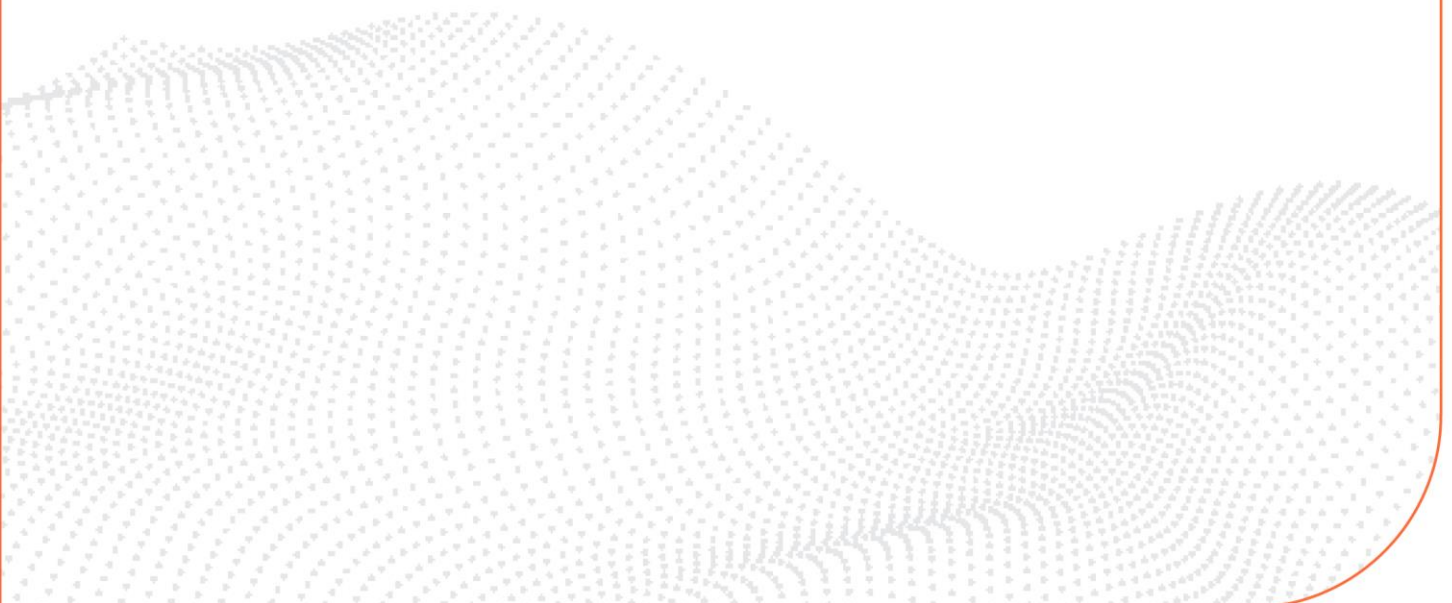
CASS COUNTY CUP APPLICATION DUE DILIGENCE REPORT

CASS COUNTY

PROJECT NO. 175401

REVISION 0

SEPTEMBER 9, 2024



Disclaimer

1898 & Co.® is a part of Burns & McDonnell that performs or provides business, technology, and consulting services. 1898 & Co. does not provide legal, accounting, or tax advice. The reader is responsible for obtaining independent advice concerning these matters. That advice should be considered by reader, as it may affect the content, opinions, advice, or guidance given by 1898 & Co. Further, 1898 & Co. has no obligation and has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate. These materials serve only as the focus for consideration or discussion; they are incomplete without the accompanying oral commentary or explanation and may not be relied on as a stand-alone document.

The information, analysis, and opinions contained in this material are based on publicly available sources, secondary market research, and financial or operational information, or otherwise information provided by or through 1898 & Co. clients whom have represented to 1898 & Co. they have received appropriate permissions to provide to 1898 & Co., and as directed by such clients, that 1898 & Co. is to rely on such client-provided information as current, accurate, and complete. 1898 & Co. has not conducted complete or exhaustive research, or independently verified any such information utilized herein, and makes no representation or warranty, express or implied, that such information is current, accurate, or complete. Projected data and conclusions contained herein are based (unless sourced otherwise) on the information described above and are the opinions of 1898 & Co., which should not be construed as definitive forecasts and are not guaranteed. Current and future conditions may vary greatly from those utilized or assumed by 1898 & Co.

1898 & Co. has no control over weather; cost and availability of labor, material, and equipment; labor productivity; energy or commodity pricing; demand or usage; population demographics; market conditions; changes in technology, and other economic or political factors affecting such estimates, analyses, and recommendations. To the fullest extent permitted by law, 1898 & Co. shall have no liability whatsoever to any reader or any other third party, and any third party hereby waives and releases any rights and claims it may have at any time against 1898 & Co. and any Burns & McDonnell affiliated company, with regard to this material, including but not limited to the accuracy or completeness thereof.

Any entity in possession of, or that reads or otherwise utilizes information herein is assumed to have executed or otherwise be responsible and obligated to comply with the contents of any Confidentiality Agreement and shall hold and protect its contents, information, forecasts, and opinions contained herein in confidence and not share with others without prior written authorization.

CONTENTS

- 1. Executive Summary 7**
 - 1.1 Study Objective..... 7
 - 1.2 Project Overview 7
 - 1.3 Summary and Conclusion 7

- 2. Introduction 8**
 - 2.1 Engagement Overview 8
 - 2.2 Documents Reviewed 8
 - 2.3 Report Organization..... 8

- 3. Project Overview 9**
 - 3.1 Project Summary 9
 - 3.2 Site Description 9
 - 3.3 Site Visit 10

- 4. Exhibit B - Site Plan 11**
 - 4.1 Informational Background 11
 - 4.2 Solar Site Plan Findings 12
 - 4.3 BESS Site Plan Findings 13

- 5. Exhibit C - Manufacturing Specifications 15**
 - 5.1 Informational Background 15
 - 5.2 Manufacturing Specifications Findings..... 15

- 6. Exhibit F - Environmental Compliance 16**
 - 6.1 Informational Background 16
 - 6.2 Environmental Memo Findings 16

- 7. Exhibit G - Decommissioning Plan 18**
 - 7.1 Informational Background 18
 - 7.2 Decommissioning Plan Findings..... 18

- 8. Exhibit I - Vegetation Management Plan 21**
 - 8.1 Informational Background 21
 - 8.2 Vegetation Management Plan Findings 21

- 9. Exhibit J - Single Line Diagrams 22**
 - 9.1 Informational Background 22
 - 9.2 Single Line Diagram Review 23

10. Exhibit K - O&M Plan	25
10.1 Informational Background	25
10.2 Solar O&M Plan Findings	25
11. Solar Glare Study Review	27
11.1 Informational Background	27
11.2 Solar Glare Study Review	27

FIGURES

Figure 1: Solar Site Plan 11
Figure 2: BESS Site Plan..... 12
Figure 3: Single Line Diagram..... 23
Figure 4: Glare Categorization 27

TABLES

Table 1: Project Summary..... 9
Table 2: Site Plan Data 14
Table 3: Environmental Compliance Data..... 16
Table 4: Decommissioning Plan Review 19
Table 5: Vegetation Management Plan Data..... 21
Table 6: Single Line Diagram Data 23
Table 7: Solar Glare Study Data 28

LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
°C	Degree Celsius
°F	Degree Fahrenheit
1898 & Co.	1898 & Co., part of Burns & McDonnell
A	Amperes
AC	Alternating Current
AJD	Approved Jurisdictional Determination
AIMA	Agricultural Impact Mitigation Agreement
BESS	Battery Energy Storage System
BMP	Best Management Practice
BoL	Beginning of Life
BoP	Balance of Plant
CAPEX	Capital Expenditures
COD	Commercial Operation Date
CUP	Conditional Use Permit
DC	Direct Current
DHI	Diffuse Horizontal Irradiance
Dkey	USFWS IPaC Rangewide Determination Key
DNI	Direct Normal Irradiance
DoD	Department of Defense
ECI	Electrical Consultants, Inc.
EcoCAT	IDNR Ecological Compliance Assessment Tool
EMS	Ecological Mapping System
EOR	Engineer of Record
EP	Equator Principles
EPC	Engineering Procurement Construction
FAA	Federal Aviation Administration
FNTP	Full Notice to Proceed
GCR	Ground Coverage Ratio
GHI	Global Horizontal Irradiance
GIA	Generator Interconnection Agreement
GIS	Geographic Information Systems
GW	Gigawatt
IEEE	Institute of Electrical and Electronics Engineers
IFC	Issued-for-construction
IFP	Issued-for-permitting
ILR	Inverter Loading Ratio
in	Inches
IPaC	Information for Planning and Consultation
kg	Kilogram
kV	Kilovolt
kVA	Kilovolt-ampere

Abbreviation	Term/Phrase/Name
kW	Kilowatt
lbs	Pounds
MW _{AC}	Megawatt alternating-current
MW _{DC}	Megawatt direct-current
MVA	Megavolt-ampere
NextEra	NextEra Energy Resources
NLEB	Northern Long-Eared Bat
NRCS	Natural Resource Conservation Service
NRF	Norton Rose Fullbright
NRHP	National Register of Historic Places
NSRDB	National Solar Radiation Database
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
OPEX	Operating Expenditures
OQC	Outgoing Quality Control
Ordinance	Cass County Ordinance
OWR	Office of Water Resources
PE	Power Electronics
PEM	Palustrine Emergent
PCS	Power Conversion System
Phase I ESA	Phase I Environmental Site Assessment
POA	Plane of Array
POI	Point of Interconnection
PCS	Power Conversion Stations
Project	Cass County Solar & BESS Project
Project Schedule	Schedule in EPC Agreement
psf	Pounds per Square Foot
PO	Purchase Order
QC	Quality Control
REC	Recognized Environmental Condition
Report	Due Diligence Report
ROW	Rights-of-way
RUA	Road Use Agreement
MW	Megawatt
SPCC	Spill Prevention, Control, and Countermeasure
STC	Standard Test Conditions
SWPPP	Stormwater Pollution Prevention Plan
TMY	Typical Meteorological Year
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Abbreviation

Vac

Vdc

W

WOTUS

WQC

Term/Phrase/Name

Alternating-current Voltage

Direct-current Voltage

Watt

Waters of the U.S.

Water Quality Certification

1. Executive Summary

1.1 Study Objective

1898 & Co., a part of Burns & McDonnell Engineering Company, Inc., was retained by Cass County Department of Zoning and Inspections to perform technical due diligence on a Conditional Use Permit (CUP) application for a Solar & BESS Project. The objective of this effort, as documented through this report, was to describe the purpose and usage of the technical components of the CUP application, review technical content for substantive risks, and opine on the reasonableness of content and conformity to typical CUP practices.

1.2 Project Overview

Cass County Solar & BESS is a proposed PV Solar and Lithium-ion BESS facility located in Cass County, Nebraska near Murray, Nebraska. The Project is expected to have a Solar nameplate capacity of approximately 277.6 MW_{DC} / 205.6 MW_{AC} and a BESS nameplate capacity of approximately 88.2 MW_{AC} at 4 hours once constructed. The Project will be located entirely on land zoned as Agricultural (AG) or Transitional Agricultural (TA).

1.3 Summary and Conclusion

The key conclusions of 1898 & Co. based on its role as engineer for due diligence for the proposed Project's CUP are presented below. For convenience, these conclusions are organized by their primary subject matter and should be considered with respect to the detailed observations and recommendations suggestions provided herein.

As of the date of this Due Diligence Report, 1898 & Co. had not visited the Project Site so the contents of this Report, including conclusions provided herein, are based exclusively upon desktop analysis by 1898 & Co. and documentation provided by Cass County.

Numerous suggestions and observations were offered within this Report and have not been exhaustively relisted below. 1898 & Co. recommends that Cass County review and resolve these items as applicable.

1.3.1 General Conclusions Summary

Based on this Report, and notwithstanding the observations and suggestions provided herein, 1898 & Co. concludes the following with respect to the Project:

- 1898 & Co. identified no substantive issues with the proposed Project configuration or anticipated site conditions at the Project location that would prevent the Project from operating as designed, nor any substantive concerns that would preclude the possibility of the Project achieving a useful life of at least 35 years for the solar facilities. 1898 & Co. anticipates the Project to be capable of providing long-term, reliable service, provided the Project is operated and continually maintained in accordance with good utility practice, including manufacturer's recommendations.
- 1898 & Co. notes that work remains before the Project is ready to fully construct, including advancement of certain development, design, and contracting activities, although these requirements are not uncommon for a facility at this stage of development. While several pending items were identified herein, provided these items are adequately resolved, 1898 & Co. identified no fatal flaws with the Project based on the data provided.

2. Introduction

2.1 Engagement Overview

1898 & Co., a part of Burns & McDonnell Engineering Company, Inc., was retained by Cass County to conduct technical due diligence of the conditional use permit (“CUP”) application for the Cass County Solar & BESS (“Project”). The objective of this study, as documented through this due diligence report (“Report”), was to provide background information on the purpose and usage of the technical components of the CUP application, review the technical exhibits for the Project, and evaluate technical risks and proposed mitigation measures relative to typical industry practices.

2.2 Documents Reviewed

Project-specific documentation reviewed by 1898 & Co. in the completion of the Study was made available by Cass County via email and an online Cass County-populated data room.

2.3 Report Organization

This report is organized into several separate chapters and supporting appendices. These individual sections are listed below, along with a brief description of their contents. For ease of review, sections are organized by subject matter.

- Section 1.0 - Executive Summary: An executive summary of this Report, including a summary of key conclusions within the report.
- Section 2.0 - Introduction: A description of this Report’s objectives, the documents reviewed by 1898 & Co. in the completion of the report, and the structure of this report.
- Section 3.0 - Project Overview: An overview of the Project and noteworthy characteristics of the Project Site.
- Section 4.0 - Exhibit B - Site Plan: Review of the Project’s solar and BESS site plans, with a focus on analyzing whether Cass County’s Ordinances are followed.
- Section 5.0 - Exhibit C - Manufacturing Specifications: Review of the Project’s proposed equipment and the associated datasheets.
- Section 6.0 - Exhibit F - Environmental Compliance: Review of the provided environmental studies and the associated findings.
- Section 7.0 - Exhibit G - Decommissioning Plan: Summary and analysis of the key contracts and agreements in place for the Project.
- Section 8.0 - Exhibit I - Vegetation Management Plan: Review of the Project’s plan for establishing vegetation, mitigating invasive species, and installing vegetative buffers.
- Section 9.0 - Exhibit J - Single Line Diagrams: Review of the Project’s single line diagrams for the solar and BESS facilities, including a comparison between these diagrams and the provided site plan.
- Section 10.0 - Exhibit K - O&M Plan: Review of the Project’s Operations & Maintenance (“O&M”) plan to confirm that it is in line with Cass County’s Ordinances.
- Section 11.0 - Solar Glare Study: Technical review of the Project’s Solar Glare Study, specifically regarding the process used to construct the model and the findings therein.

As of the date of this Report, certain issues may remain open and/or unresolved. 1898 & Co. may provide suggestions regarding these concerns and/or risk mitigation strategies.

Unless otherwise defined herein, including in the “List of Abbreviations”, all capitalized terms within this Report have the meaning given to them in the applicable Project documents.

3. Project Overview

3.1 Project Summary

The Cass County Solar & BESS Project is a proposed solar photovoltaic (“PV”) and battery energy storage system (“BESS”) facility that will be located in Cass County, Nebraska near the town of Murray. The Project will have a combined nameplate capacity of approximately 277.6 MW_{DC} / 205.6 MW_{AC} once constructed. The Project will also include approximately 1 mile of 345-kV transmission line that will serve as a connection between the Cass County Solar & BESS Collector Substation and OPPD Cass Peaking Station.

A summary of key Project details is included in Table 1 below. Additional details are included in the sections that follow.

Table 1: Project Summary

Project Details	
Name	Cass County Solar & BESS
Type	Ground-mounted single-axis PV & Lithium-ion BESS
Commercial Operation Date	1898 & Co. recommends providing the assumed COD for the Project.
Solar Nameplate Capacity	277.6 MW _{DC} / 205.6 MW _{AC}
Point of Interconnection	OPPD Cass Peaking Station
Interconnection Voltage	345 kV
Site Details	
County	Cass County, Nebraska
Latitude, Longitude (Approximate Site Center)	40.940578, -95.952640
Site Area	2,207.8 acres
Average Site Elevation	1,170 feet
Project Equipment Details	
Solar Modules	BYD Solar BYDxxxMLTK-36*
Solar Inverters	Power Electronics FREESUN HEMK FSxxxxK*
Battery Containers	CATL 10P416S
BESS Inverters	Power Electronics FREEMAQ MULTI PCSM FP4200M4
Single-Axis Trackers (SAT)	<i>Not specified</i>

* A size for the equipment was not specified at the time of this report

3.2 Site Description

The Project is located in Cass County in eastern Nebraska, west of the town of Murray (the “Project Site”). A map showing the general location of the Cass County Solar & BESS Site is provided as Figure 1 and Figure 2.

The Project Site is located primarily on active and fallow agricultural land. Residential buildings, commercial buildings, forested lots, publicly owned State and County Roads, and associated right-of-ways are adjacent to the Project Site in several areas. The proposed Project Site consists of approximately 2,208 acres of leased area. The topography of the Project Site is generally flat with an overall average elevation of approximately 1,170 feet above sea level.

The site is spread across a large area separated throughout by various roads. Therefore, there are multiple site entrances to the various arrays. The northern array is accessible via Church Road, Mill Road, and 24th

Street. The central array is accessible via Mill Road, Waverly Road, 24th Street, and 42nd Street. The eastern array is accessible via Mill Road and 12th Street. The southern arrays are accessible via Waverly Road. The substation and BESS facilities are accessible via Mill Road.

3.3 Site Visit

As of the date of this Report, 1898 & Co. had not visited the Project Site. therefore, the contents of this Report, including conclusions provided herein, are based exclusively upon desktop analysis by 1898 & Co. and documentation provided by Cass County.

4. Exhibit B - Site Plan

1898 & Co. reviewed the provided site plans for the Project. The objective of this review was to check that industry-standard methods and assumptions were utilized in the development of the preliminary design. 1898 & Co. also opined on the design's adherence to local ordinances and the requirements for a CUP.

4.1 Informational Background

The Site Plan displays a high-level view of proposed equipment, infrastructure, applied setbacks, and the Project's substation. Locations for solar modules, inverters, access roads, MV collection, and the substation are present in the site plan provided by NextEra. Section 4.1 lists the applied setbacks that are also included to demonstrate compliance with Cass County ordinance and industry standards. The solar and BESS site plans reviewed by 1898 & Co. are shown below in Figure 1 and Figure 2.

Figure 1: Solar Site Plan

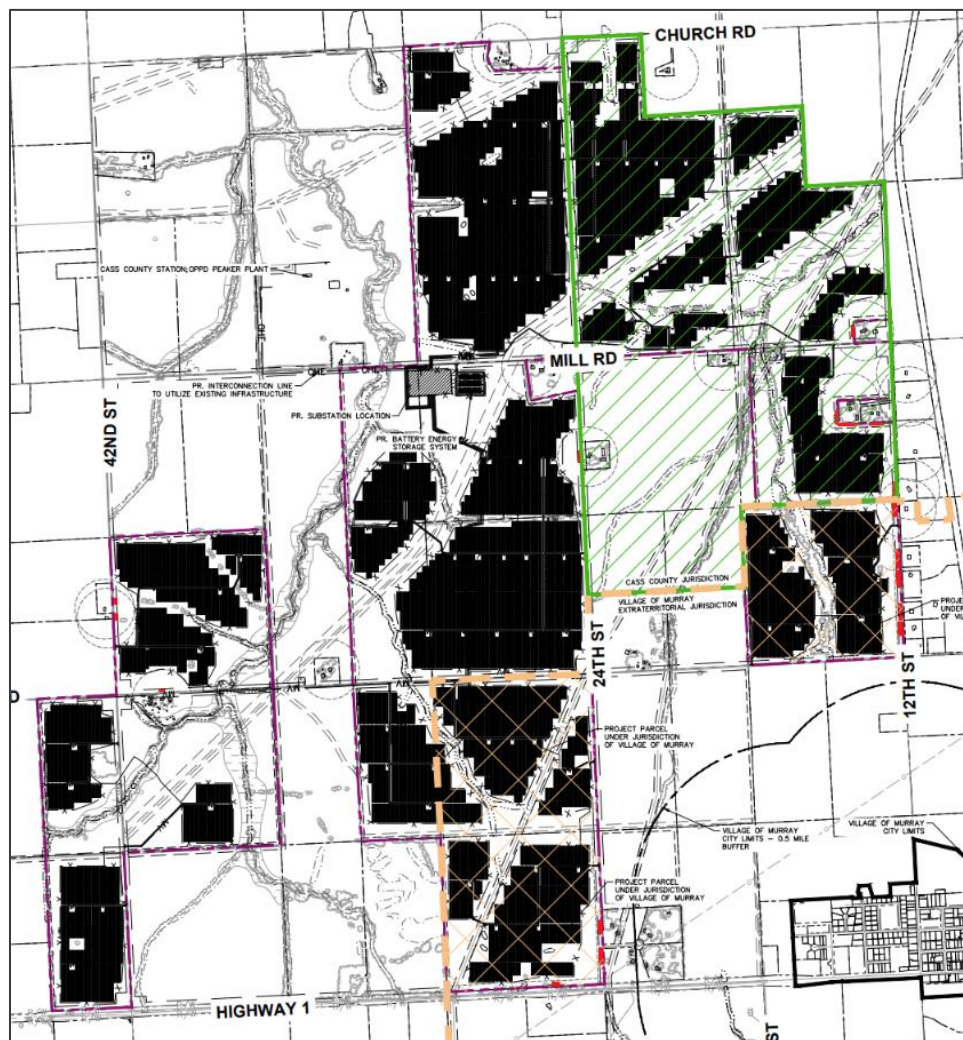
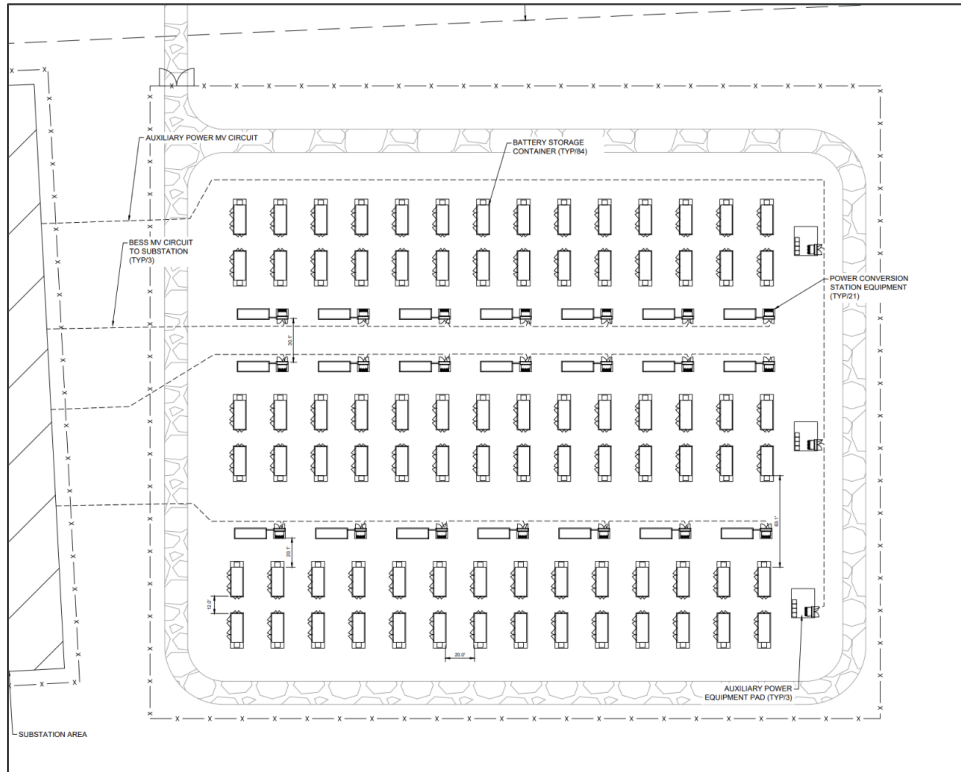


Figure 2: BESS Site Plan



As the Project is intended to be located on land zoned as AG and TA, it will need to abide by the zoning setbacks required by Cass County ordinance for these zones. The applicable setbacks required by Cass County and applied by NextEra are shown as follows:

Cass County Ordinances

- Village of Murray Buffer - N/A
- Occupied Residence Setback - 500 feet
- Road Intersection Setback - 250 feet
- Overhead Electrical Line Easement - N/A
- Property Line Setback - 50 feet
- Fence to Solar Structure Setback - N/A
- County Road ROW Setback - 70 feet

NextEra’s Applied Setbacks

- Village of Murray Buffer - 0.5 miles
- Occupied Residence Setback - 500 feet
- Road Intersection Setback - 250 feet
- Overhead Electrical Line Easement - 100 feet
- Property Line Setback - 50 feet
- Fence to Solar Structure Setback - 20 feet
- County Road ROW Setback - 70 feet

All setbacks stated to be used in the provided site plan match what is required by Cass County, though the setback from Conestoga Jr./Sr. High School does not appear to be applied appropriately if the 500-foot residence setback also applies to schools.

4.2 Solar Site Plan Findings

The following is a list of 1898 & Co.’s findings regarding the solar site plan provided by NextEra:

- A GCR of 38.0% is higher than what is typical in the industry, 30.0% to 34.0% is more common. Although this results in increased shading effects leading to reduced annual energy production, this does not affect the county or impede the applicant’s ability to comply with ordinance requirements.

- A module bin class and inverter MVA rating are not provided. It is unclear how values for DC and AC capacity are being calculated at the time of this report as these ratings are foundational to capacity.
- Conestoga Jr./Sr. High School is located SW of the intersection at Highway 1 and 42nd Street. Modules are planned to be installed within 350' of this school, which would violate the 500' residence setback required by Cass County ordinance if applicable. Excluding this instance, setbacks are applied as required by Cass County ordinance and typical industry standards.
- Wetland disturbances during construction are very likely due to the presence of streams throughout the site. These streams will need to be bored during construction to allow for underground medium voltage collection, though this process is understood to have minimal impacts on the surrounding environment when performed properly.
- Laydown yards and stormwater retention ponds are absent from the provided site plan. NextEra will need to ensure that sufficient space is set aside for these pieces of infrastructure to mitigate impacts to local traffic and local wetlands respectively.

4.3 BESS Site Plan Findings

The following is a list of 1898 & Co.'s findings regarding the BESS site plan provided by NextEra:

- Laydown yards and stormwater retention ponds are not shown in the provided site plan. More land than what is indicated in the BESS site plan will likely be required once these pieces of infrastructure are accounted for.
- Setbacks and applicable Cass County ordinances are applied as necessary. When referencing satellite imagery, 1898 & Co. did not identify any constraints which were not accounted for in the provided BESS site plan.

The data extrapolated from these two site plans is shown below in Table 2, though this is not a comprehensive list and does not capture every piece of data present in the site plan.

Table 2: Site Plan Data

Item		Data	
Total Parcel Area (ac)		1,961	
Utilized Land (ac)		1,114	
Nameplate Capacity		Solar: 205.6 MW _{AC} BESS: 88.2 MW _{AC}	
Acres / MWAC		1,961ac / 205.6MW _{AC} = 8.81 acres/MW _{AC}	
Solar Equipment		Panel → BYD Solar BYDxxxMLTK-36* Inverter → Power Electronics FREESUN HEMK FSxxxxK*	
BESS Equipment		Battery → CATL 10P416S Inverter → Power Electronics FREEMAQ MULTI PCSM FP4200M4	
GCR	DC/AC	38.0%	1.35
Setbacks		Setbacks appear to generally be employed in line with typical industry standards and with Cass County ordinance requirements.	
Ordinances		Vegetative buffers appear to be employed in line with Cass County ordinance requirements.	

* A size for the equipment was not specified at the time of this report

5. Exhibit C - Manufacturing Specifications

1898 & Co. reviewed the Project's provided equipment datasheets. The objective of this review was to confirm that the necessary documentation was provided and that the datasheets match what was indicated in other exhibits. In addition, 1898 & Co. provided background information on what data is typically included in these sheets and why they are relevant.

5.1 Informational Background

Solar and BESS datasheets are typically used for commercial or technical communication to describe the characteristics of an item or product. They are published by the manufacturer to help firms select products and confirm compliance with commonly accepted industry standards. Datasheets provide useful information when strategizing, sizing, and designing PV and BESS systems during various project development phases.

Typical equipment used in the construction of a solar and BESS facility are medium and high-voltage transformers, inverters, solar modules, solar trackers, and battery storage units. The datasheets associated with these pieces of equipment are concise forms detailing all of the major technical characteristics of the equipment, including but not limited to: Operating Voltage (V), Operating Current (A), Rated Power (W), Efficiency (%), Weight, and Dimensions.

5.2 Manufacturing Specifications Findings

The CUP application indicates the following equipment and associated OEM's will be used for the Project:

- Solar Inverters: Power Electronics - FREESUN HEMK FSxxxxK
- Modules: BYD Solar - BYDxxxMLTK-36
- BESS Inverters: Power Electronics - FREEMAQ MULTI PCSM FP4200M4
- Batteries: CATL - 10P416S

It is noted that datasheets for the trackers, BESS inverters, and batteries were not included at the time of this review. Batteries are suggested to be requested to confirm OEM compliance with UL9450, UL9450A, and NFPA standards to ensure they meet fire safety requirements. Without the datasheets, compliance with these standards cannot be confirmed, although CATL is a known provider of batteries in the industry and their products are known to comply. While the Ordinance does not address BESS facilities, 1898 & Co. recommends requesting these datasheets from NextEra to ensure the completeness of their CUP application.

6. Exhibit F - Environmental Compliance

1898 & Co. reviewed the provided environmental compliance documentation for the Project. The objective of this review was to check that typical environmental concerns are being addressed appropriately and to draw attention to any which are of particular concern to the county. 1898 & Co. also reviewed the design's adherence to local ordinances and the requirements for a CUP.

6.1 Informational Background

Environmental compliance encompasses a variety of measures which help to ensure that a project complies with local, state, and federal environmental regulations. Table 3 lists potential environmental issues along with the offices which govern them and required action(s), though this is not a comprehensive list. 1898 & Co. did not review or opine on potential risks associated with pending or draft legislation.

Table 3: Environmental Compliance Data

Environmental Item	Governing Agency	Required Action
Wetlands Disturbance	United States Environmental Protection Agency (USEPA)	Obtain Section 404 Permit
Federal Permits	Federal Aviation Administration (FAA)	File Form 7460 for Notice
Historic/Cultural Resources	State Historical Preservation Office (SHPO)	Obtain Agency Approval
Construction Stormwater	United States Environmental Protection Agency (USEPA)	Obtain NPDES Stormwater Permit
Construction Stormwater & Pollution	United States Environmental Protection Agency (USEPA)	Develop Stormwater and Pollution Prevention Plan
Migratory Bird Treaty Act	United States Fish and Wildlife Service (USFWS)	Obtain Agency Approval
Equipment Sound	County/State	Complete Sound Study

6.2 Environmental Memo Findings

6.2.1 Zoning

Cass County's zoning ordinances are generally followed based on the provided Site Plan. Appropriate setbacks are implemented, and vegetative screening is depicted. The school not being setback from appropriately is the only instance of these setbacks and ordinances not being applied.

6.2.2 Waters of the US / Wetlands

Several areas of wetlands and waterbodies are present throughout the Project Site. The provided Site Plan avoids locating any equipment within the boundaries of these features. However, as construction will be occurring near these features, a Section 404 Permit will likely still be required due to wetlands disturbances associated with the construction process.

6.2.3 Cultural Resources

A Cultural Resources Assessment was not conducted for this environmental study, and it does not appear that the SHPO has been contacted at the time of this review. These assessments are performed to determine the presence of potential historical or archaeologically significant items on site. As the Project is sited exclusively on farmland, it is likely that any artifacts on site have either already been discovered or have been disturbed previously. However, it would be prudent to conduct this assessment and obtain approval from SHPO prior to construction.

6.2.4 Construction Permits

A Construction Stormwater Permit will be required to ensure that runoff impacts to local waters during construction are mitigated. Along with this, a Stormwater Pollution Prevention Plan (SWPPP) will likely need to be created to mitigate the discharge of pollutants into nearby wetlands and waterbodies.

6.2.5 Federal Permits

Due to the nearby airports, it may be necessary for the Project to provide notice to the FAA via Form 7460. This process is primarily to inform the FAA that a facility will be constructed and is therefore unlikely to pose a problem.

6.2.6 Threatened and Endangered Species

The environmental study conducted by Olsson did not identify a substantial risk for impacts to threatened and endangered species on the Project Site. Bats were not discussed in the Migratory Bird Treaty Act, though NextEra has confirmed that bats will not be impacted by the construction of the Project. Raptor studies were performed which concluded that no raptor nests are present within the Project Site.

1898 & Co. notes that if tree clearing will be required for the Project, there are likely to be concerns for impact on bat and migratory bird populations.

6.2.7 Cass County Solar Energy Systems Ordinance

1898 & Co. reviewed a Solar Energy Systems Ordinance (Ordinance) for Cass County, enacted on May 31, 2017. The Ordinance summarizes the fees, permits, setbacks and restrictions, and requirements for the development of a commercial solar energy facility within Cass County. The Ordinance states that development of a solar energy conversion facility equal to or greater than 500 Energy Facility kilowatts in total nameplate capacity are required to submit an application for special use in Agricultural (A-1 and A-2) and Industrial (I-1 and I-2) zoning, following the requirements for a Class A Special Use request as outlined in the Cass County Zoning Code. Additionally, commercial solar energy facilities in Cass County must comply with the County Building and Maintenance Code by applying for a building permit and paying the fee associated with the size of the project.

1898 & Co. found the Ordinance to be consistent with 1898 & Co. experience and in conformance with known requirements. 1898 & Co. identified no substantive technical risks associated with this approach.

7. Exhibit G - Decommissioning Plan

1898 & Co. conducted a review of the Project's decommissioning plan present in the data room. The decommissioning plan completed by Kimley Horn shows that decommissioning the Project in a year will result in \$48 million positive return for the Project.

7.1 Informational Background

A decommissioning plan estimates the total cost to decommission the facility at the end of its useful life typically including labor and equipment rates based on a nearby city, transportation and disposal fees of all equipment, site restoration to return the land to its previous state, and the salvage or scrap value for recyclable material.

Per the Cass County zoning ordinance, the cost estimate for the decommissioning of a commercial solar conversion system ensures the facilities are properly removed after their useful life. The decommissioning plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and a plan ensuring financial resources will be available to fully decommission the site. The applicant shall provide a revised decommissioning cost estimate every 5 years. Upon the 5-year interval when the decommissioning cost estimate shows a positive net decommissioning cost, the county may require the posting of a surety. The facility will be considered abandoned after 12 consecutive months without energy production, provided that there is no ongoing maintenance, repairs, or replacement of the system or damage cost by an event outside of the control of the owner. The owner shall removal all equipment and appurtenances within 180 days of abandonment. A National Pollutant Discharge Elimination System Permit from the Nebraska Department of Environment and Energy may be required.

7.2 Decommissioning Plan Findings

Table 4 lists the data that was reviewed. The following is a list of our findings:

- 1898 & Co. recommends confirming that the estimate includes the cost to remove all piles from the ground, regardless of the depth. Transformer oil is considered hazardous materials and should be properly drained and disposed. 1898 & Co. recommends confirming that the cost of proper disposal of the transformer oil is included in the decommissioning estimate.
- The BYD Solar modules are larger than typical, and it is expected they would require higher costs of removal as well as more robust support assemblies than were assumed in the Decommissioning Plan. At the time of this review enough information is known about the Project to develop more accurate cost estimations for the PV piles and support assemblies. 1898 & Co. would recommend updating the cost estimates to reflect preliminary Project design; however, it is reasonable to assume these details may change prior to finalizing Project design.
- The plan includes the cost to remove all substation, transmission line, and collection equipment.
- 1898 & Co. recommends including the cost of removal and proper disposal or recycling of the BESS equipment, including the battery cells, racks, foundations, collection, and other key equipment.
- The plan utilizes a typical site restoration process. The seeding is lower than expected based on similar project experience. 1898 & Co. would recommend 25% site restoration and seeding for the site.
- 1898 & Co. finds it appropriate to include the credit received from the salvage value of these materials in the cost estimate. Since scrap pricing can be volatile, 1898 & Co. recommends taking an average of the US salvage exchange rates over the last 12 months.
- 1898 & Co. recommends confirming that the sale of the inverters every 5 years is specified in the Operations and Maintenance plan for the site. The decommissioning plan states that panels will be

recycled at Cleanlites, but the cost estimate assumes a \$51 million credit for resale. 1898 & Co. recommends confirming if the panel salvage credit is calculated from recycling the panels at Cleanlites or reselling the panels. To conservatively estimate the decommissioning cost, 1898 & Co. recommends removing the associated resale/recycling credits for the panels and inverters and modeling more conservative disposal costs for the weight of the panels and salvage costs for the inverters.

- The plan utilizes typical labor and equipment rates.
- 1898 & Co. recommends confirming that the transportation fee was included to properly transport all material to the landfill, scrap yard, or recycling facility for all major components of the Project.
- Assuming the Project will be decommissioned at year 1 of the Project provides optimistic assumptions for resale of the inverters and panels. 1898 & Co. recommends the decommissioning estimate assume a typical life span of 25 to 30 years.
- 1898 & Co. recommends including 20% contingency on direct Project costs to account for unspecified but reasonably expected additional costs.

Table 4: Decommissioning Plan Review

Item	Data
PV Equipment Removal	Above ground portions of the PV module supports shall be removed. Below ground portions of the PV module supports shall be removed to a depth of five feet at a minimum. No hazardous materials or waste will be used during operation of the Project.
PV Piles and Support Assemblies	The estimate assumes 77,162 pounds of support assemblies per 1 MW of the Project. Removing and recycling piles assumes 4 piles per string.
Collection and Substation Removal	All above and below-ground cables, inverters, and transformers shall be dismantled. All overhead conductors, poles, and foundations shall be removed. All components of the Project substation shall be removed.
BESS Removal	Removal of BESS shells were included in the decommissioning estimate, but the plan did not include any additional information of the other key equipment for a BESS. The plan also did not mention where the battery cells would be properly disposed of or recycled.
Site Restoration and Seeding	All unvegetated or disturbed areas will be restored during the decommissioning process. Restoration shall consist of additional topsoil, seed, and necessary fertilizer to ensure adequate vegetation is established. The estimate assumes 56 acres will require seeding.
Salvage Credit	Material salvage values were based off current US salvage exchange rates.

Panel and Inverter Resale Credit	PV module material salvage rate is based on straight-line depreciation of modules (-0.5% per year). Inverter resale value is dependent on the assumption that all inverters will be decommissioned and resold halfway through their useful life (every 5 years).
Labor and Equipment Rates	Labor, material, and equipment rates are based on the RSMeans Heavy Construction rates and adjusted using the City Cost Index for Omaha, Nebraska.
Transportation Rates	In the “PV Equipment Removal and Recycling” section, the plan mentions that the debris will be processed for transportation.
Lifetime of Project	The decommissioning estimate assumes the Project will be decommissioned at year 1.
Contingency	The decommissioning estimate does not include contingency.

8. Exhibit I - Vegetation Management Plan

1898 & Co. reviewed the Project’s vegetation management plan present in the data room. The objective of this review was to verify the reasonableness of the Project’s diagram and consistency with generally accepted industry practices for the design and construction of utility-scale solar projects.

8.1 Informational Background

A vegetation management plans dictate how plant life within the overall boundary of the Project is established and maintained. This plan also includes any vegetative buffers used to mitigate the visual impact of the Project on surrounding areas. Any necessary tree clearing should be covered under this plan.

Within the solar array, a mixture of seeds from plants native to the area will be used for revegetation. The vegetative buffers will be composed of a mixture of native seeds and native trees. Per local ordinances, screening applies to lot lines that abut an occupied residence of a non-participating landowner when the closest exterior wall of the residence is within 500 feet of any panels or equipment. For AG land, screening must be provided for a distance equal to the parallel wall of the residence. For TA land, screening must be provided for a distance equal to the parallel wall of the residence plus 75 feet in both directions. 1898 & Co. did not review or opine on potential risks associated with pending or draft legislation.

8.2 Vegetation Management Plan Findings

Table 5 below lists the items that were reviewed in the Vegetation Management Plan. The following is a list of our findings:

- The current Plan does not indicate requirements for vegetation inspections or their frequency.
 - An inspection schedule and associated activities should be established to ensure that vegetation is properly established and maintained.

Table 5: Vegetation Management Plan Data

Item	Data
Maximum Height Within Solar Area	18 inches to 20 inches
Inspections	Requirements for inspections and their frequency are not indicated within the current Vegetation Management Plan.
Solar Area Seeding	Wetland Delineation Reports, Approved Jurisdictional Determination Request, Constraints Analysis
Vegetative Buffer	Cultural Resources Desktop Review, Phase I Cultural Resources Survey
Invasive Species and Weeds	Recommended mowing is expected to eliminate most invasive species and weeds. Additional spot mowing and selective use of herbicides may be needed.
Mowing	Year 1: Mow at 12-18in. Year 2: Mow at 18-24in.

9. Exhibit J - Single Line Diagrams

1898 & Co. reviewed the Single Line Diagram for the Project provided by NextEra. This Single Line Diagram included the equipment necessary for both the solar and BESS components of the overall Project, along with their arrangement within the site.

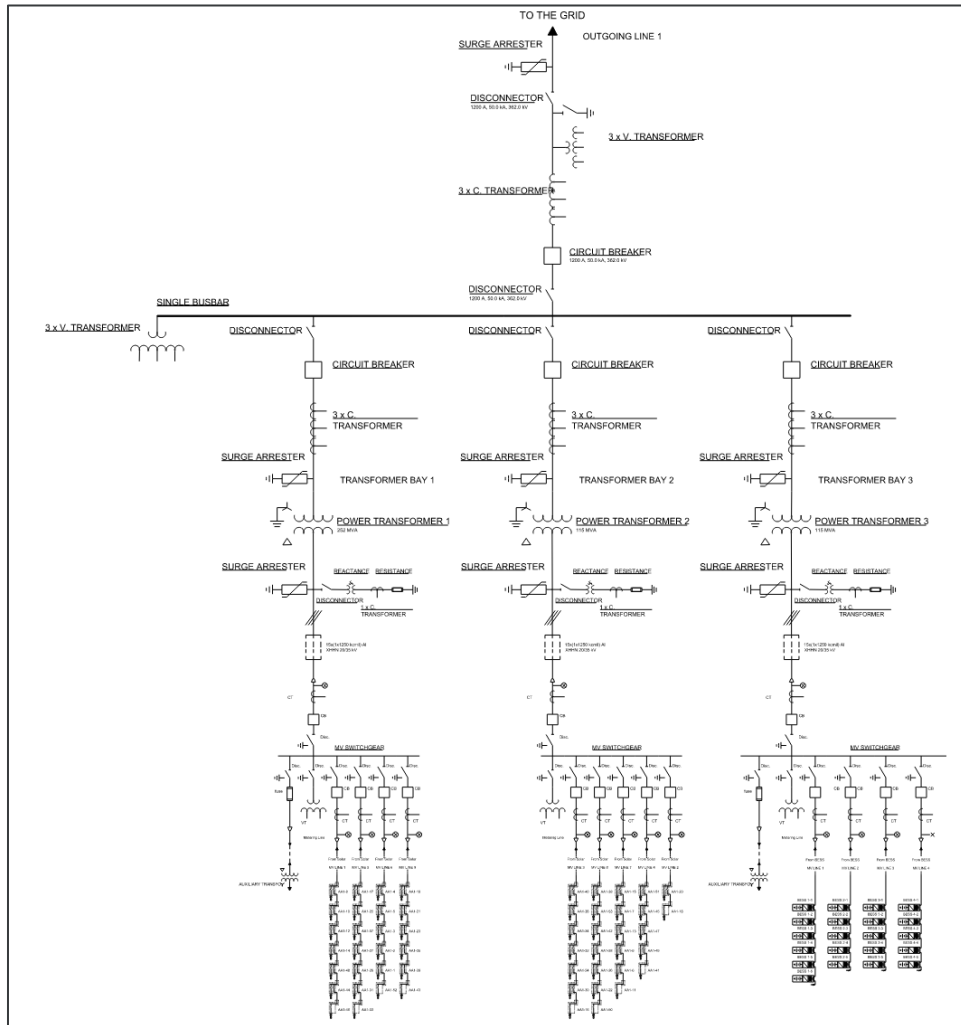
9.1 Informational Background

A single line diagram (“SLD”) depicts the electrical design configuration of a facility and contains electrical equipment pertaining to the production, transformation, and regulation of electrical energy. This may include, but is not limited to, the following equipment:

- **Main Power Transformers (MPTs):** MPT’s step up the voltage of power supplied by the facility to match the voltage of the grid at its point of interconnection (POI).
- **Inverters:** An inverter converts DC power to AC power. This is essential for solar and BESS as both technologies output in DC, but the grid at large operates in terms of AC.
- **Breakers:** All breakers will be connected to a protection and controls network which identifies critical issues in the system. When told to by this network, the breaker will open in fractions of a second, breaking the flow of power and limiting the impact of the issue on equipment and the network.
- **Surge Arrester:** Major overvoltage events, such as a lightning strike or electrical fault, can severely damage electrical equipment. Surge arrestors limit these overvoltage events by providing a path to ground for surge currents.

Single line diagrams display the major electrical equipment necessary for a project to operate, along with their arrangement within the substation. Lines within the diagram represent an electrical connection between pieces of equipment. Reviewing the equipment shown in this diagram helps to ensure the project will operate safely and will be able to output its expected power to the grid. Points of focus during this review include major equipment necessary to interconnect into the electrical grid (inverters, breakers, MPT’s, etc.), electrical ratings (voltage, current, power, etc.), and the overall nameplate rating of the depicted power generating equipment. Figure 3 is the single line diagram which was provided for review by NextEra.

Figure 3: Single Line Diagram



9.2 Single Line Diagram Review

Table 6 below lists the items that were reviewed in the SLD. The following is a list of our findings:

- Many necessary ratings for equipment are absent from the single line diagram.
- Several of the ratings present in the single line diagram are inaccurate or entirely incorrect, including the MVA rating for MPT 1 and the grid voltage. This diagram does not appear to be an accurate representation of the Project as depicted in the Site Plan.

Table 6: Single Line Diagram Data

Item	Data
Calculated Capacity	Solar: 222.6 MVA BESS: 88.2 MVA @ 4 hours
Voltage Levels	35.0 kV : 354.0 kV

Arrangement	Two (2) main power transformers (MPT's) for solar, one (1) MPT for BESS. No main-tie switch between the solar switchgears will prevent redundancy.
Equipment	Transformers, inverters, bus bars, and switches are present where expected. Revenue meter(s) are absent, grounding transformers are absent though these may not be necessary.
Ratings	HV rating and MVA rating of MPT's are incorrect. Voltage and current ratings are missing for MPT, bus bars, switches, and most breakers.
Protection & Controls	Breakers, voltage transformers (VT's) and current transformers (CT's) are present where expected. Relays are excluded from the current SLD.

10. Exhibit K - O&M Plan

1898 & Co. conducted a review of the Project's Operations & Maintenance (O&M) Plan present in the data room. The O&M plan details the activities and equipment necessary to maintain the Project and its associated equipment throughout its lifespan.

10.1 Informational Background

O&M plans are commonly provided for CUP applications to describe a list of activities which are typical to be completed and maintained throughout the life of the Project. For solar projects, this may include, but is not limited to, the following activities:

- Inverter and MPT inspection and maintenance
- Mowing/vegetation management
- Access road upkeep
- General maintenance on trackers modules, and balance of plant equipment as needed
- Meteorological (MET) station calibration and inspection
- Onsite labor personnel
- Emergency action plan review and update (as needed).

The following is a list of activities which are typical to be completed and maintained throughout the life of the BESS Project:

- Fire Safety Plan: Interacting with the fire chief or the alternative authority-having jurisdiction
 - NFPA requires mention of chemical, electrical, and explosive potential
- Fire prevention measures and associated maintenance
- Ensure system isolation and maintain shutdown procedures
- Establishing and maintaining hazard containment
- Install and maintain warning signage (arc flash, high-voltage, fire/chemical/etc. hazards)
 - 24-hr monitoring by NextEra or contractor
- Maintenance of the BESS containers is typically performed by the vendor, though this will need to be confirmed.

Additionally, augmentation and/or overbuild is a common practice in BESS facilities to offset battery degradation. This is achieved by either providing space for future battery installations (augmentation), or by installing more than the stated capacity so the Project can still meet its nameplate capacity in later years of its project life (overbuild). O&M plans may describe augmentation expectations or reference overbuild practices.

10.2 Solar O&M Plan Findings

1898 & Co. reviewed the provided O&M plan. It was noted that this plan only referenced solar PV. 1898 & Co. generally finds the O&M plan to comply with the Ordinance. 1898 & Co notes that it was not specified in detail what activities are included as part of the PV Module Inspection. Module washing is not called out, and it is not specified if/how modules will be inspected for damage/degradation. If further detail is required by Cass County, it is suggested that Cass County request this information from NextEra.

A BESS O&M Plan was not provided as part of this CUP application, and it is not indicated if this is planned to be completed. Although a BESS O&M plan is not required per the Ordinance, requesting a BESS O&M plan may provide greater insight into typical operational activities and maintenance concerns.

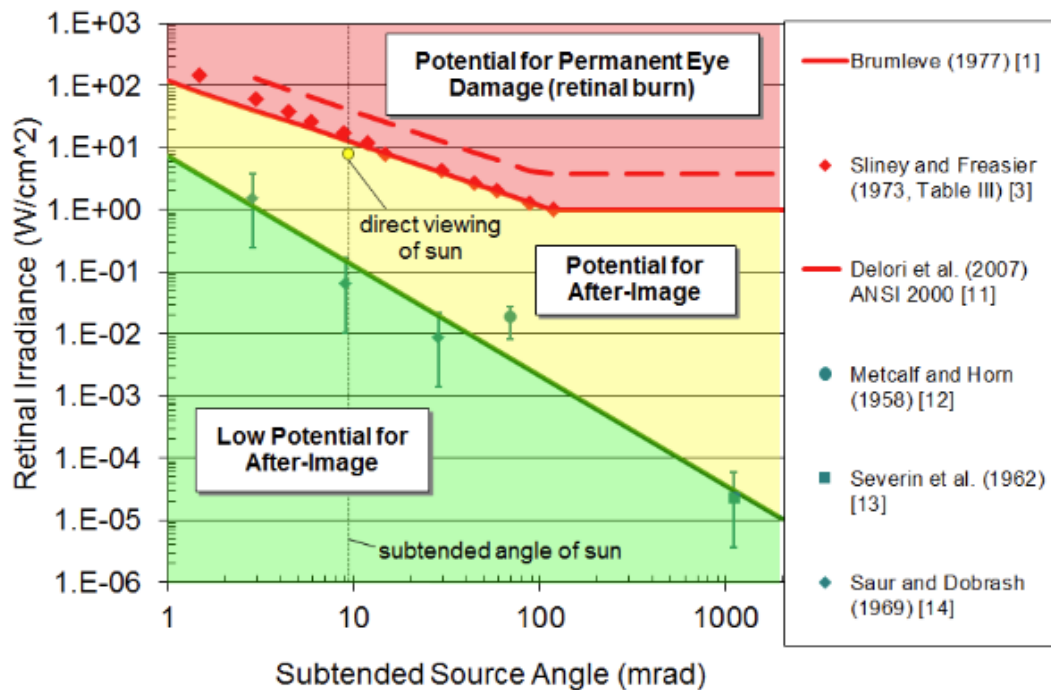
11. Solar Glare Study Review

1898 & Co. conducted a review of the Project’s solar glare study present in the data room. The solar glare study completed by Capitol Airspace shows that no glare found on any of the modeled observation points, routes, or airports.

11.1 Informational Background

Glare is caused by the sun reflecting or refracting off a surface of the solar panel and hitting an observer’s eyes. Glare is typically evaluated at nearby residences, roadways, railroads, and airports. A glare study estimates the intensity and size of glare at various locations across the Project Site. As shown in Figure 4, glare is measured and categorized by its intensity and size from an observer’s viewpoint. This Project utilizes photovoltaic solar panels. Since the potential for permanent eye damage (i.e. red glare) is only caused by concentrated solar projects, red glare will not be caused by this Project. Glare studies are typically required by state or local county zoning ordinances or when the Project is proposed on federally obligated airport property.

Figure 4: Glare Categorization (ForgeSolar,



11.2 Solar Glare Study Review

Cass County does not currently have any regulations for glare. The following review and recommendations provided by 1898 & Co. should be considered as technical commentary only. Glare study quality does not currently have any bearing on the CUP application’s ability to comply with the ordinance.

- 1898 & Co. recommends a conservative 5° resting angle applied to all arrays to accurately represent the potential for glare. NextEra confirmed they will implement variable resting angles due to the slope of the Project Site. 1898 & Co. recommends including the specified resting angles in the O&M plan.
- The maximum height of a panel at full tilt is typically between 8 to 12 feet. 1898 & Co. recommends conservatively modeling the array height as the height from the ground to the middle of the panel.

- The solar glare study assumes a conservative approach for assessing residences. Capitol Airspace reports evaluating both 55 and 154 observation points in the report. 1898 recommends confirming how many observation points were evaluated. 1898 & Co. also recommends evaluating the glare impact on Conestoga High School.
- The solar glare study assumes a conservative approach for assessing routes and railroads.
- The solar glare study assumes a conservative approach for assessing airport approach paths.
- The solar glare study utilizes a standard elevation data set.
- The solar glare study assumes a typical maximum tracking angle.

Table 7 below lists the items that were reviewed.

Table 7: Solar Glare Study Data

Item	Data
Resting Angle / Backtracking Limit	At the request of NextEra, a range of resting angles at 5°, 6°, 7°, 8°, and 9° was applied to various arrays to mitigate glare.
Rotation Axis Height	All arrays were modeled with a rotation axis height of 3 feet.
Observation Points	Fifty-five discrete observation points were assessed at an 8-foot first story and 16-foot second story viewing height.
Routes & Railroads	Eight route receptors were assessed, representing 7 roadways and 1 railroad. The roadways were assessed at a 4-foot car viewing height and an 8-foot truck viewing height, and the railroad was assessed at a 12-foot locomotive cab viewing height.
Airports	An azimuthal view restriction of 100° total field-of-view and a vertical view restriction of 30° was used to assess all approach paths at the two nearby airports.
Elevation	USGS 1/3 arc-second DEM elevation data was used to assess the Project Site.
Maximum Tracking Angle	A maximum tracking angle of ±52° was recorded for each array.

1898  **CO**®

PART OF **BURNS**  **MCDONNELL**

1898andco.com

