

To: Planning Advisory Commission
From: Megan Smith, Land Use Management Director
Mtg. Date: June 16, 2025
Report Dated: June 5, 2025

AGENDA ITEM:

Public hearing and conditional use permit review for a 4 megawatt commercial solar farm, located at 4578 County 12 Blvd, Kenyon MN, comprising 35 acres of the 120 acre parcel.

ATTACHMENTS:

1. Application*
 - a. Project Narrative
 - b. Application Forms
 - c. Site Use Permit (plans)
 - d. Manufacturer specifications
 - e. Decommissioning Plan
 - f. USDA NRCS Soil Report
 - g. Wetland and Soil Information
2. Site Maps prepared by County Staff

**Note: some items have been excluded from the packet to reduce the size of the initial 470-page submission. All submission materials are public information, and available upon request. Staff routinely attempts to provide only the most relevant information to the Commission to save on photocopying time and expense, and to reduce the time Commissioner's spend reading the entire packet.*

APPLICATION INFORMATION:

Property Owner: David and Mary Wickum
Applicant Acting as Agent for Owner: New Leaf Energy, Lowell Massachusetts
Site Address: 4578 County 12 Blvd., Kenyon MN
Parcel Number: 36.011.0200
Abbreviated Legal Description: THE SE ¼ OF THE NE ¼ AND THE WEST HALF OF THE NE ¼ OF SECTION 11, IN T109, R18W, GOODHUE COUNTY, MINNESOTA.
Zoning District: A1 (Agricultural Protection District)
Township: Kenyon Township

APPLICABLE COUNTY ORDINANCES:

- Goodhue County Zoning Ordinance, Article 4, Conditional Uses and Interim Uses

- Goodhue County Zoning Ordinance, Article 19, Solar Energy System Regulations

PROJECT SUMMARY AND ANALYSIS:

The Commission will be hearing testimony and considering a request submitted for a conditional use permit for a utility scale solar energy system in an A1 zoning district. The project is located on a 120 acre property where the principal use of the site is agricultural, containing an existing farm, and home site. The proposal would convert approximately 35 acres of agricultural land to use as a solar energy system. The energy generated from the solar array would be connected to the nearest electrical grid, which are nearby overhead transmission lines.

The County has three basic levels, or classifications of solar energy system: residential, commercial, and utility scale. The distinction between commercial scale vs. utility scale solar energy systems are not substantially different from one another for this application, and this specific project could be permitted administratively (without a conditional use permit). However, staff determined that because the primary difference between commercial scale vs utility scale is case is not clear, that it's in the public's best interest to hold a hearing, and have the project be reviewed by the Planning Advisory Commission and the County Board.

Definitions:

- Subd. 1. **Ground-mounted SES.** A solar collector, or collectors, located on the surface of the ground. The collector or collectors may be physically affixed or attached to the ground; ground-mounted systems include pole-mounted systems.
- A. **Residential SES.** Accessory to the primary use of the land, designed to supply energy for onsite residential use; excess energy produced may be sold back to the grid through net metering.
 - B. **Commercial SES.** Accessory to a permitted farm or business use of the land, designed to generate energy to offset utility costs or as an additional revenue stream.
 - C. **Utility Scale SES.** An energy system that is the primary use of the land, designed to provide energy primarily to off-site uses or export to the wholesale market.

As shown above, since this site is part of a permitted farm, and the farm is the primary use of the land, it could qualify as a commercial solar energy system.

The applicant has applied for an interconnection permit with Xcel Energy to transfer energy created from the array onto the electrical "grid", where it will be distributed to other users of electricity.

A wetland delineation was performed in October 2024 on the entire 117 acre site. One wetland, identified as wetland A was identified. It covers .58 acres and is a drainage swale through the southwest corner of the site. The solar array will not impact the wetland area.

The County's zoning ordinance has specific requirements for solar energy systems. These requirements have been met by the applicant and staff has determined that the proposal, if built in accordance with the plans submitted, would comply with County ordinances.

STAFF RECOMMENDATION:

Staff recommends the Planning Advisory Commission:

- A. adopt the staff report into the record;
- B. accept the application, testimony, exhibits, and other evidence presented into the record; and
- C. Recommend that the County Board of Commissioners **APPROVE** the request for a conditional use permit with the following findings and conditions:

Findings of Fact:

1. That the solar energy system will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the immediate vicinity.
2. That the establishment of the solar energy system will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant to the area.
3. That adequate utilities, access roads, drainage and other necessary facilities have been or are being provided.
4. That adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use.
5. That adequate measures have been or will be taken to prevent or control offensive odor, fumes, dust, noise, and vibration so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.

Conditions:

1. The owner or applicant will notify the County after the 25 year lease period to verify if the project will be decommissioned or if the lease will be renewed for a 5 year term .
2. The project is subject to the Minnesota Solar Energy Production Tax, and the owner/applicant is responsible to remind all reports and payments in accordance with state law.

Project Narrative

Kenyon Solar 1, LLC Solar Energy System

Applicant:

Kenyon Solar 1, LLC
For Activities At:
4578 County 12 Blvd
Kenyon, MN 55946

Prepared by:



New Leaf Energy
55 Technology Drive, Suite 102
Lowell, MA 01851

Dated: May 22, 2025

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Exhibits

Exhibit A – Legal Description

Exhibit B – Application Forms

Exhibit C – Site Use Permit Set

Exhibit D – ALTA Survey

Exhibit E – Wetland Delineation Report

Exhibit F – Wetland Boundary Application

Exhibit G – Vegetation Management Plan

Exhibit H – Environmental Constraints Memorandum

Exhibit I – Decommissioning Plan

Exhibit J – NRCS Prime Farmland

Exhibit K – Phase 1 Environmental Site Assessment (ESA)

Exhibit L – Interconnection Request

Exhibit M – Municipal/Agency Correspondence

Exhibit N – Transportation Access Plan

Exhibit O – Glare Study

Exhibit P – Manufacturer Specifications

Exhibit Q – Site Photos

1. Introduction

Kenyon Solar 1, LLC is requesting a Conditional/Interim Use Permit to allow for development of a 4.00 MW AC community solar farm on one parcel of land in Goodhue County, Minnesota with the Assessor Parcel Number (APN) of 36.011.0200. The Project encompasses an approximate 35-acre portion of the 120-acre parcel area. The parcel is zoned A1 - Agricultural Protection District. Per the Goodhue County Solar Energy System Information Packet, construction and operation of Utility Solar Energy Systems are allowed by Conditional/Interim Use Permit. Once constructed, the solar farm will fit well within the surrounding low-density agricultural uses, and the property will not be occupied more than 3-4 times per year for maintenance. The remaining portion of the parcel will continue to be used for agricultural purposes.

Kenyon Solar 1, LLC is requesting a Conditional/Interim Use Permit to allow for the Utility Solar Energy System Use. This report will outline how this project meets all standards, requirements, and factors for consideration that Goodhue County has set forth. To assist in your review of this Conditional/Interim Use Permit request, **Exhibit C: Site Use Permit Set** has been provided which illustrates the proposed solar farm use and site improvements.

2. Utility Solar Energy System Conditional Use

Goodhue County Zoning Ordinance, Article 19 – Solar Energy System (SES) Regulations, Section 4. Solar Energy System Standards.

2.1. General Standards

- The Solar Energy System (SES) shall be designed in a manner that protects public safety and complies with all applicable local, state, and federal regulatory standards. Tree clearing is not anticipated. Reference **Exhibit C: Site Use Permit Set** for a detailed site plan of the proposed Utility SES.

2.2. Roof-Mounted Solar Energy Systems

- Standards under this section are not applicable, as the solar development is not roof-mounted.

2.3. Ground-Mounted and Pole-Mounted Solar Energy Systems

The following standards shall apply to ground and pole-mounted solar energy systems:

- A. Ground and pole-mounted systems shall not exceed twenty (20) feet in height when oriented at maximum design tilt.*
- PV solar panel arrays are currently anticipated to be approximately 10 ft in height at full tilt. If alternative module configurations are considered in the future, the height will vary but the maximum height will not exceed 20 ft.

- B. *Ground and pole-mounted systems shall be subject to yard setback requirements for the Zone District within which they are located.*
- The locations of the proposed panel arrays meet or exceed setback requirements as listed within the Goodhue County Zoning Ordinance, Article 21, Section 5.3. For additional information, reference **Exhibit C: Site Use Permit Set**.

Table 1: Panel setback from edge of public road right-of-way

Road	Required Front Yard	Proposed Front Yard
50 th Avenue	60 ft.	281 ft.
County 12 Boulevard	60 ft.	1409 ft.

Table 2: Panel setbacks from nonparticipating properties

Direction	Required Yard	Proposed Yard
Northern	30 ft.	148 ft.
Southern	30 ft.	302 ft.
Western	30 ft.	1123 ft.
Nearest Non-Participating Residence	150 ft.	2200 ft.

- C. *The total collector surface area of pole or ground mount systems shall not exceed fifty percent (50% of the building footprint of the principal structure in the following zone districts:*
1. *R-1, Suburban Residence*
 2. *MXH, Mixed Use Hamlet Zone*
- The proposed Project parcel is zoned A-1, Agricultural Protection District and the total collector surface area will not exceed 50% of the building footprint.
- D. *Ground and pole-mounted systems shall have natural ground cover under and between the collectors and surrounding the system's foundation or mounting device(s).*
- The Utility SES will maintain natural ground cover across the entire Project area, excluding the proposed access road and equipment pad locations. See **Exhibit C: Site Use Permit Set** sheets 5.0 and 5.1 and **Exhibit G – Vegetation Management Plan** for more information on the proposed natural ground cover.
- E. *Ground and pole-mounted solar energy systems do not count as an accessory structure for the purpose of meeting limits on the total square footage of accessory structures allowed in the A-1, A-2, and A-3 Zone Districts (see Article 11, Section 5).*

- The Applicant understands that ground and pole-mounted solar energy systems do not count as an accessory structure for the purpose of meeting total square footage limits in the A-1, Agricultural Protection District.

2.4. Photovoltaic Solar Energy Systems

The following standards shall apply to photovoltaic solar energy systems:

- A. *The electrical disconnect switch shall be clearly identified and unobstructed.*
- B. *No grid-intertie photovoltaic solar energy system shall be installed until documentation has been given to the Zoning Administrator which confirms that the owner has notified the utility company of the customer's intent to install an interconnected customer-owned generator. Documentation may consist of an interconnection agreement or a written explanation from the utility provider or contractor outlining why an interconnection agreement is not necessary. Off-grid systems are exempt from this requirement.*
- The Project will comply with all requirements listed in the Goodhue County Zoning Ordinance Article 19, Section 4, Subdivision 4. The Applicant has been coordinating with Xcel Energy regarding the proposed interconnection located off 50th Avenue. Reference **Exhibit L: Interconnection Request** for the interconnection application/request portal.
- C. *Photovoltaic solar energy system components must have an Underwriters laboratory (UL) listing and solar hot water systems must have a Solar Rating & Certification Corporation (SRCC) rating.*
- All applicable photovoltaic solar energy system components will have an Underwriters laboratory listing. Refer to **Exhibit P: Manufacturer Specifications** for preliminary component specification sheets.

2.5. Utility Scale Solar Energy Systems (Roof or Ground Mounted)

- A. *All elements of the system shall meet or exceed all district regulations based on the applicable zoning district except as may be amended by provisions of this Article.*
- The Utility SES will meet or exceed all applicable regulations of the A-1, Agricultural Protection District. Reference **Exhibit C: Site Use Permit Set** for more information.
- B. *Systems shall meet the requirements for erosion and sediment control per Article 11, Section 12 of this Ordinance.*
- The Utility SES has a proposed sediment basin and diversion berm, which were designed in compliance with the Minnesota Pollution Control Agency (MPCA) standards for solar developments. The Project will comply with the requirements listed in Article 11, Section 12 of the Goodhue County Zoning Ordinance. See **Exhibit C: Site Use Permit Set** Sheet 3.0 for the proposed erosion and sediment control features on site. An NPDES permit will be acquired prior to the commencement of construction.

- C. *Power and communication lines running between banks of solar collectors and to electric substations or interconnections with buildings shall be buried underground or in conduit overhead to an Inverter if the system is fenced in. Exemptions may be granted in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.*
- The Utility SES will trench all electric lines to the maximum extent possible as described in the Goodhue County Zoning Ordinance. See **Exhibit C: Site Use Permit Set** for proposed locations of electrical trenching.
- D. *Vegetative screening or buffering of the system may be required as part of the conditions of approval. Screening or buffering shall be based on the proximity of the system to residential building and to abutting public rights-of-way.*
- A vegetative screening buffer has been proposed along the right-of-way of 50th Avenue. The buffer is anticipated to consist of evergreen trees. See **Exhibit C: Site Use Permit Set** Sheets C-5.0 and C-5.1 for the proposed screening locations and details.

3. Applications for Solar Energy Systems

Article 19, Section 5 – Applications for Solar Energy Systems. An application to the County for a permit under this section shall contain the following information, including but not limited to the following:

3.1. Application Submittal Requirements for Solar Energy Systems

- A. *A site plan of existing and proposed conditions as defined in Article 10, Section 2, Subd. 95.*
- Refer to **Exhibit C: Site Use Permit Set** for the existing and proposed condition sheets of the solar development that comply with the standards listed in Article 10, Section 2, Subd. 95.
- B. *Number of Solar Collectors to be installed*
- The Utility SES is anticipated to have approximately 10,200 modules. Final module count will be determined prior to final engineering. The module tracking system will be installed with piles that are driven into the ground to an appropriate depth based on geotechnical analysis of the site.
- C. *Location and spacing of solar panels*
- Panels are anticipated to be spaced 22.6' from front edge to front edge with 20.0' North/South spacing. See **Exhibit C: Site Use Permit Set** for the location of the proposed solar panels.
- D. *Ground mounted system applications shall identify existing vegetation on installation site (list type and percent coverage; i.e. grassland, plowed field, wooded areas, etc.) and*

provide a maintenance plan for controlling vegetative growth on site upon installation of the SES.

- Reference **Exhibit C: Site Use Permit Set** for an existing land use table and **Exhibit G: Vegetation Management Plan** for the proposed maintenance plan to control vegetative growth on site.
- *A description of the method of connecting the array to a building or substation and a signed copy of the interconnection agreement with the local electric utility or a written explanation outlining why an interconnection agreement is not necessary.*
- The Utility SES has a proposed interconnection point at an existing Xcel Energy utility pole off 50th Avenue, as shown in **Exhibit C: Site Use Permit Set**. The Applicant has been coordinating with Xcel Energy regarding the interconnection process, as seen in **Exhibit L: Interconnection Request**. An executed agreement can be provided to the County once finalized, as requested.
- *The project's Xcel queue ID # is 5799944. The current projected date for a finalized interconnection agreement is in June of 2026.*
- *The following point of interconnection equipment will be installed on the subject property to connect to Xcel's distribution grid:*
 - 1 Turning pole
 - 1 Utility recloser pole
 - 1 Utility-owned 3-phase 23kV primary metering cluster with pole mounted phone line, label/placard illustrating AC disconnect placement and 24/7 unhindered utility access
 - 1 Utility AC disconnect pole
 - 1 Customer recloser pole
- E. *Planned location of underground or overhead electric lines connecting the SES to the building, substation or other electric load.*
- See **Exhibit C: Site Use Permit Set** for the location of proposed underground and overhead electric lines.
- F. *New electrical equipment other than at the existing building or substation that is the connection point for the SES.*
- See **Exhibit C: Site Use Permit Set** for the proposed locations of all new electrical equipment for the Utility SES.
- G. *Manufacturer's specifications and recommended installation methods for all major equipment, including solar panels, mounting systems and foundations for poles or racks.*

- See **Exhibit P: Manufacturer Specifications** for the anticipated equipment manufacturers and methods of installation. Final manufacturer specifications to be provided prior to the commencement of construction.

H. Existing and proposed (if existing grade will be altered) topography at 2 foot contours.

- See **Exhibit C: Site Use Permit Set** for existing and proposed topography on site. No solar array area grading is anticipated.

I. Visual Impact Analysis: Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

- Adverse visual impacts are not anticipated for this development. A glare study was conducted as shown in **Exhibit O: Glare Study**, analyzing the visual effects of the Utility SES. No glare is expected to be experienced as a result of this development. Additionally, vegetative screening has been proposed along 50th Avenue to minimize any potential visual effects, as seen in **Exhibit C: Site Use Permit Set**.

J. Proposed storm-water management measures: Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction. A NPDES permit may be required.

- The Utility SES has a proposed sediment basin and diversion berm which were designed in compliance with the MPCA and will comply with the Goodhue County Zoning Ordinance Article 11, Section 12 – Soil Erosion and Sediment Control. Additional erosion control measures have been proposed on site, including silt fence, rock outlets, and erosion control blanket. See **Exhibit C: Site Use Permit Set** Sheet 3.0 for the proposed erosion control features for this development. An NPDES permit will be acquired prior to the commencement of construction.

K. Screening or buffering plan included any site grading and/or landscape plantings proposed along public roads or abutting residential properties.

- Proposed vegetative screening plantings indicated within **Exhibit C: Site Use Permit Set**.

L. Maintenance plan for grounds surrounding the systems.

- Reference **Exhibit G: Vegetation Management Plan** for the proposed maintenance plan for controlling vegetative growth on site.

M. A plan outlining the use, storage, and disposal of chemicals used in the cleaning of the collectors and/or reflectors unless certified organic cleaning products are used.

- No hazardous chemicals are anticipated to be used for the cleaning of the solar panels; thus, no chemical storage/disposal plan is proposed.

N. Identify the onsite location and measures that will be taken to avoid, minimize, or mitigate adverse effects to existing historical, cultural, and archaeological features identified by SHPO, the County's databases, and those discovered onsite.

- The Utility SES is not anticipated to have any adverse effect to existing historical, cultural, or archaeological features identified by the SHPO and County database. The Project has consulted with the U.S. Fish & Wildlife Service Information, Planning, and Conservation (IPaC) system and the Minnesota Department of Natural Resources Natural Heritage Review. Refer to **Exhibit H: Environmental Constraints Memorandum** for additional information.
- O. *Criteria to determine potential impacts on agricultural production due to temporary or permanent use of agricultural land for the production of solar energy:*
 1. *Number of acres of Prime Agricultural Soils to be impacted.*
 2. *Number of acres in A-1 Agricultural Protection Zone to be impacted.*
 3. *Proposed duration of operation of the SES.*
- See **Exhibit J: NRCS Prime Farmland** for the location of Prime Agricultural Soils on the Project Parcel. Approximately 33 acres of the site development is proposed on prime agricultural soils per NRCS. The Utility SES is proposed to be sited on approximately 35 acres of A-1 Agricultural Protection Zone with an anticipated lifetime of 25-45 years. The development is designed to improve the quality of the existing site soil in order to return the area to row crop agriculture after the decommissioning of the Project.
- *Criteria to evaluate potential environmental impacts:*
 1. *Environmental Assessment Worksheet (EAW) determination as to the potential for any significant impacts and proposed mitigation measures (for Solar Energy Projects subject to environmental review under Minnesota Rules Chapter 4410)*
 2. *Review of Goodhue County Environmental Constraints Land Use Model (ECLUE) Ratings for proposed Utility Scale Site Area.*
 3. *Proximity to existing Electric Utility Lines and Substations for Grid-Intertie and existing SES projects.*
- An Environmental Assessment Worksheet (EAW) is not applicable for this development as the generating capacity is less than the 25 megawatt threshold set forth in Minnesota Rules Chapter 4410. Based on discussion with Goodhue County Land Use Management, it is unlikely that the ECLUE rating of the site will be of concern as there are minimal environmental constraints within the project area. See **Exhibit H: Environmental Constraints Memorandum** for all potential environmental impacts and mitigation measures to be implemented onsite. The Project's proximity to existing electric utility lines can be seen in **Exhibit C: Site Use Permit Set**.

4. Decommissioning

Article 19, Section 6 – Decommissioning. A decommissioning plan shall be submitted with all applications for Commercial and Utility Scale solar energy systems.

- The Project will comply with all requirements for the Decommissioning Plan standards and requirements listed in the Goodhue County Zoning Ordinance. Reference **Exhibit I: Decommissioning Plan** for additional information.

5. County Hearing Factors

Article 4 – Conditional Uses and Interim Uses, Section 2 – Application Findings. No CUP or IUP use shall be recommended for approval to the County Board unless said Commission specifies in their findings, the facts in each case which shall establish:

5.1. Hearing Factor 1

That the CUP/IUP will not be injurious to the uses and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the immediate vicinity.

- Solar Energy Systems are compatible developments with traditional agricultural, rural, and residential uses of land. The Solar Energy System will abide by the Goodhue County setback requirements and establish a Vegetation Management Plan to ensure that the Project will not be injurious to the use and enjoyment of other properties in the immediate vicinity. As established by numerous studies, the Project will not substantially diminish property values for permitted uses in the surroundings.

5.2. Hearing Factor 2

That the establishment of the CUP/IUP will not impede the normal and orderly development and improvement of the surrounding vacant property for uses predominant to the area.

- The parcels adjacent to the Project are primarily used for agricultural and low-density residential purposes. The passive nature of the Project will not disturb the adjacent parcels. The system has been sited a large distance from public rights-of-way and neighboring residents, with the closest edge of the Solar Energy System components being approximately 2,200 feet from non-participating adjacent residences. The Solar Energy System is a quiet neighbor, with no on-site employees or addition to traffic after the construction phase.

5.3. Hearing Factor 3

That adequate utilities, access roads, drainage and other necessary facilities have been or are being provided.

- The Solar Energy System does not require access to natural gas, water, or sanitary sewers. The Project will route electricity through existing utility lines as described in

the interconnection agreement. As part of the Project, an access road entrance will be designed off of 50th Avenue and the entrance design details will be approved by Kenyon Township. Prior to construction of the project, a National Pollutant Discharge Elimination System (NPDES) permit will be obtained for the site to ensure adequate erosion control and drainage systems are in place. The post-development conditions are anticipated to experience less stormwater runoff than the existing site condition, as the parcel landcover will change from existing agricultural row crops to a stabilized meadow cover.

5.4. Hearing Factor 4

That adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use.

- During the initial construction of the Solar Energy System, a variety of trucks ranging from semi-trucks for panel and racking delivery, flatbed trucks for fencing, dump trucks for driveway gravel, and various delivery type trucks will make deliveries throughout the day. These deliveries will generate a marginal temporary increase in traffic; however, after construction, only a few vehicles will visit the site per quarter to perform maintenance and inspection. During construction, a temporary laydown yard will be present within the Project Area, providing sufficient off-street parking and loading space for all vehicles and equipment. All required road use agreements, permits, and approvals from the township, County and state will be obtained prior to construction.

5.5. Hearing Factor 5

That adequate measures have been or will be taken to prevent or control offensive odor, fumes, dust, noise, and vibration so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.

- Solar Energy Systems have few impacts on neighboring uses as they do not generate an odor, emit any air pollution, and overall provide a net environmental benefit. Solar Energy Systems operate with little noise and the solar panels are designed with an anti-reflective coating, minimizing glare. The Project has completed numerous studies to ensure the proposed Solar Energy System will not be detrimental to neighboring properties. Refer to **Exhibit O: Glare Study** for additional information.

6. Supplemental Information

6.1. Legal Description

See **Exhibit A: Legal Description** for a detailed description of the Project location.

6.2. Phase 1 Environmental Site Assessment

A Phase 1 Environmental Assessment was completed for the Project within **Exhibit K: Phase 1 Environmental Assessment**. The site analysis did not identify any environmental concerns within the Project area.

6.3. Plat of Survey

See **Exhibit D: ALTA Survey**, provided by Widseth Smith Nolting & Associates, Inc. dated February 10, 2025.

6.4. Wetland Delineation Report

See **Exhibit E: Wetland Delineation Report**, conducted by GEI Consulting Engineers and Scientists, dated November 19, 2024. The wetland features identified within the project area will not be impacted by the proposed development. In addition to the Wetland Delineation Report, a boundary review application has been submitted, as shown in **Exhibit F: Wetland Boundary Application**.

6.5. Municipal/Agency Correspondence

The Applicant has been in ongoing coordination with Goodhue County Land Use Department and has met with County officials to discuss the proposed improvements. It is the Applicant's understanding that all necessary requirements to achieve a Conditional/Interim Use Permit are met by this application package.

The Applicant has reached out to the Goodhue County Soil and Water Conservation District (SWCD) to ensure that the Project complies with all applicable requirements. Per correspondence on 05/19/2025, the SWCD preliminarily approved the Project layout as shown in **Exhibit M: Municipal/Agency Correspondence**.

The Applicant has reached out to Kenyon Township for feedback on the Project and forwarded Project details on site design and transportation planning to the Kenyon Township clerk per correspondence from 5/12/2025 – 5/16/2025. At the time of this submission, Kenyon Township has not yet responded with feedback.

The Applicant likewise contacted the City of Kenyon Volunteer Fire Department on 5/13/2025 for feedback on the Project, but as of the time of this submission has not received a response.

Correspondence with Kenyon Township and Kenyon Volunteer Fire is shown in **Exhibit M: Municipal/Agency Correspondence**.

6.6. Use of Public Roads

The Applicant has identified public roads anticipated to be used in the transportation of Utility SES materials and construction equipment in **Exhibit N: Transportation Access Plan**. The Project will obtain necessary permits and enter into a Road Use Agreement prior to the commencement of construction.

6.7. Fencing

The Project's perimeter fencing, 7' chain link, has been designed in accordance with the specifications outlined in the National Electric Safety Code. Reference **Exhibit C: Site Use Permit Set** for the proposed perimeter fence detail.

6.8. Site Photos

See **Exhibit Q: Site Photos** for images of the existing site conditions.

6.9. Site Photo Visual Simulations

The Applicant is preparing site specific photo visual simulations. These simulations will depict the pre- and post- construction conditions of the proposed site improvements from the viewpoint of highly trafficked areas surrounding the Project parcel. These simulations will be finalized and accessible prior to the public hearing.

6.10. Site Assessment

Soil and geotechnical boring reports will be completed prior to construction and will be provided to the County Engineer for review.

6.11. Conformance with Approved Application and Plan

The Applicant will construct and operate the Utility SES in conformance with the County-approved submitted Conditional Use Permit application and all applicable laws and regulations. The Utility SES will be designed in accordance with all applicable state, federal, and county regulations.

Thank you for your consideration of the proposed solar development. Please do not hesitate to reach out with any questions or concerns.



Miranda Doria

Civil Project Engineer

mdoria@newleafenergy.com

630-287-1550

Exhibit A: Legal Description

Parent Parcel Description (per Stewart Title Guaranty Company Commitment No. 23000372460-01, dated September 18, 2023)

Parcel ID No.: 36.011.0200

The Southeast Quarter (SE1/4) of the Northeast Quarter (NE1/4) and the West Half (W1/2) of the Northeast Quarter (NE1/4) of Section Eleven (11) in Township One Hundred Nine (109) North of Range Eighteen (18) West, Goodhue County, Minnesota.

Exhibit B: Application Forms

SUMMARY OF PLANNING ADVISORY COMMISSION PROCEDURES

Step 1. Request application and discuss circumstances with staff.

Step 2. File application by the above-noted deadline this must include all of the following:

- a. A completed application form with the required filing fee;
- b. A full, recordable property description (Attached as exhibit "A")
- c. A complete site sketch listing all applicable distances, setbacks or other necessary measurements;
- d. When the septic system of the parcel on which the request was made is located within the shoreland overlay district, a septic system certification must be completed. (Note: Noncompliant septic systems are required to be upgraded regardless of the outcome of proceedings).
- e. Township Signature
- f. Other supporting documentation as required by staff.

Step 3. Process (completed by Land Use Management Staff):

- a. Public hearing notice sent to the County newspaper for publication
- b. Notification of property owners within ¼ mile of affected property (or nearest 10);
- c. Staff review application and generate staff report
- d. Mail information packets to the members of the Board; and
- e. Mail agenda and staff report to the applicant.

Step 4. The Planning Advisory Commission (PAC) meetings are held the third Monday of each month unless otherwise stated.

- a. The PAC will make a recommendation for the Board of Commissioners.
- b. It is recommended that the applicant(s) or a representative attend the meeting to answer any questions the Board may have.

Step 5. Staff will forward the information onto the Board of Commissioners.

- a. The information will usually be placed on the first meeting of the month after the PAC made a recommendation (see attached calendar)
- b. It is recommended that the applicant(s) or a representative attend the meeting to answer any questions the Board may have.

1

GOODHUE COUNTY CONDITIONAL/INTERIM USE PERMIT APPLICATION

Parcel # _____

Permit# _____

PROPERTY OWNER INFORMATION

Last Name		First		Email:
Street Address				Phone
City	State	Zip	Attach Legal Description as Exhibit "A" <input type="checkbox"/>	
Authorized Agent			Phone	
Mailing Address of Landowner:				
Mailing Address of Agent:				

PROJECT INFORMATION

Site Address (if different than above):	
Lot Size	Structure Dimensions (if applicable)
What is the conditional/interim use permit request for?	
Written justification for request including discussion of how any potential conflicts with existing nearby land uses will be minimized	

DISCLAIMER AND PROPERTY OWNER SIGNATURE

I hereby swear and affirm that the information supplied to Goodhue County Land Use Management Department is accurate and true. I acknowledge that this application is rendered invalid and void should the County determine that information supplied by me, the applicant in applying for this variance is inaccurate or untrue. I hereby give authorization for the above mentioned agent to represent me and my property in the above mentioned matter.

Signature of Landowner:	Date
Signature of Agent Authorized by Agent: <i>Cole J. Bearden</i>	

TOWNSHIP INFORMATION

Township Zoning Permit Attached? ☐ If no please have township complete below:

By signing this form, the Township acknowledges being made aware of the request stated above. In no way does signing this application indicate the Township's official approval or denial of the request.

Signature	Title	Date
-----------	-------	------

Comments:

COUNTY SECTION

COUNTY FEE \$400 RECEIPT # _____ DATE PAID _____

Applicant requests a CUP/IUP pursuant to Article ____ Section ____ Subdivision ____ of the Goodhue County Zoning Ordinance

What is the formal wording of the request?

Shoreland _____ Lake/Stream Name _____ Zoning District _____
Date Received _____ Date of Public Hearing _____ DNR Notice _____ City Notice _____

Action Taken: ____ Approve ____ Deny Conditions:

PROJECT SUMMARY

Please provide answers to the following questions in the spaces below. If additional space is needed, you may provide an attached document.

1. Description of purpose and planned scope of operations (including retail/wholesale activities).

2. Planned use of existing buildings and proposed new structures associated with the proposal.

3. Proposed number of non-resident employees.

4. Proposed hours of operation (time of day, days of the week, time of year) including special events not within the normal operating schedule.

5. Planned maximum capacity/occupancy.

6. Traffic generation and congestion, loading and unloading areas, and site access.

7. Off-street parking provisions (number of spaces, location, and surface materials).

8. Proposed solid waste disposal provisions.

9. Proposed sanitary sewage disposal systems, potable water systems, and utility services.

10. Existing and proposed exterior lighting.

11. Existing and proposed exterior signage.

12. Existing and proposed exterior storage.

13. Proposed safety and security measures.

14. Adequacy of accessibility for emergency services to the site.

15. Potential for generation of noise, odor, or dust and proposed mitigation measures.

16. Anticipated landscaping, grading, excavation, filling, and vegetation removal activities.

17. Existing and proposed surface-water drainage provisions.

18. Description of food and liquor preparation, serving, and handling provisions.

19. Provide any other such information you feel is essential to the review of your proposal.

Solar Energy System

Information Packet

509 W 5th Street
Red Wing, MN
55066

Solar Energy Systems could require more than one application approval:
Commercial-SES Zoning Permit and Building Permit
Utility Scale-Conditional or Interim Use Permit and Building Permit

Please call (651) 385-3104 for any questions.

SOLAR ENERGY SYSTEM (SES)

A device set of devices, or structural design feature, a substantial purpose of which is to provide for the collection, storage, and distribution of sunlight for space heating or cooling, generation of electricity, water heating, or providing daylight for interior lighting.

- A. Residential SES.** Accessory to the primary use of the land, designed to supply energy for onsite residential use; excess energy produced may be sold back to the grid through net metering.
- B. Commercial SES.** Accessory to a permitted farm or business use of the land, designed to generate energy to offset utility costs or as an additional revenue stream.
- C. Utility Scale SES.** An energy system that is the primary use of the land, designed to provide energy primarily to off-site uses or export to the wholesale market.

Solar Application Fees	
Commercial	\$200
Utility	\$1,000

*SES permit type
determined by staff

*All fees are in
addition to building
permit fees

WHEN IS A SOLAR ENERGY SYSTEM ZONING PERMIT NECESSARY?

Approval Required: All Solar energy systems greater than 2000 watt (2 kW) capacity shall require a building permit and zoning approval in the form of an administrative review, SES Zoning Permit, or a Conditional /Interim Use Permit.

- A. Residential SES** may be approved administratively.
- B. Commercial SES** may be approved through an SES Zoning Permit or a Conditional/Interim Use Permit.
- C. Utility Scale Photovoltaic (PV) SES** Systems require a conditional/interim use permit.

PERMITTED USES, CONDITIONAL USES OR INTERIM USES FOR SOLAR ENERGY SYSTEMS

Solar Energy Systems will be permitted, permitted with a zoning permit, permitted with a conditional use or interim use permitted, or not permitted based on the generating capacity and land use district as established in the table below (P=Permitted, ZP= Zoning Permit, C=Conditionally Permitted, I=Interim Permitted, NP=Not Permitted):

District	Utility Scale	Commercial Scale	Residential Scale
Agriculture Protection (A-1)	C or I	ZP	P
Agriculture (A-2)	C or I	ZP	P
Urban Fringe (A-3)	C or I	ZP	P
Suburban Residence (R-1)	NP	ZP	P
Business (B-1/B-2)	C or I	ZP	P
Mixed Use Hamlet (MXH)	NP	ZP	P
Industrial (I)	C or I	ZP	P
Wild and Scenic River (WS)	NP	C or I	P
Commercial Recreation (CR)	NP	C or I	P
Shoreland (S)	NP	C or I	P
Floodplain Management (FP)	NP	C or I*	ZP*
Conservation Subdivision	NP	P	P

APPLICATION MATERIALS CHECKLIST	
Completed Application	X
Township approval form with Township signature	N/A
Site Plan with information listed below:	X
Location and spacing of solar panels	X
Location of underground or overhead electric lines connecting SES to building, substation, or other electric loads	X
New electrical equipment other than at the existing building or substation that is the connection point for the SES	X
Existing and proposed (if altering) topography at 2-foot contours	X
Manufacturer's specifications and recommended installation methods for all major equipment including solar panels, mounting systems, and foundations for poles or racks.	X
Visual impact analysis: potential visual effects	X
Stormwater management measures:	X
Specific erosion control, sedimentation control, or stabilization methods to address soil limitations during and after project construction	X
Screening or buffering plan including site grading and/or landscape plantings proposed along public roads or abutting residential properties	X
Maintenance plan for grounds surrounding the systems	X



Permit#

Solar Energy System Application

1. Owner/Applicant Information

PROPERTY OWNER'S NAME:

David T. Wickum and Mary D. Wickum

PROPERTY OWNER'S ADDRESS:

4578 County 12 Boulevard, Kenyon, MN 55946

TELEPHONE:

()

EMAIL:

APPLICANT OR AUTHORIZED AGENT'S NAME:

Kenyon Solar 1, LLC

Same as Above ☐

APPLICANT'S ADDRESS:

55 Technology Drive, Suite 102, Lowell, MA 01851

TELEPHONE:

(815) 846-0843

EMAIL:

cbearden@newleafenergy.com

2. Location and Classification

STREET ADDRESS OF PROJECT:

4578 County 12 Boulevard, Kenyon, MN 55946

PARCEL #:

36.011.0200

LEGAL DESCRIPTION:

The Southeast Quarter (SE1/4) of the Northeast Quarter (NE1/4) and the West

Attached ☒

3. Supporting information

NUMBER OF SOLAR COLLECTORS TO BE INSTALLED

Anticipated 10,200

TOTAL SIZE OF PROJECT

4 MW AC, 35 Acres

DESCRIBE METHOD OF CONNECTING THE ARRAY TO A BUILDING OR SUBSTATION

Interconnection through Xcel Energy utility pole on the east side

Attach signed interconnection agreement ☐

4. Applicant's Affidavit

Under penalty of perjury the following declarations are made:

1. The undersigned is the owner or authorized agent of the owner of this property.
2. The information presented is true and correct to the best of my knowledge.
3. Other information or applications may be required.

Signature: Cole Bearden

Digitally signed by Cole Bearden
Date: 2025.05.22 12:40:21 -05'00'

Date: 5/22/2025

Print name: Cole Bearden

County Section

SES Application
Fee:SES Zoning
Permit: \$200SES CUP/IUP:
\$1000

Receipt Number

Date

Building permit #:

Shoreland _____ Lake/Stream Name _____ Zoning District _____

Conditions:

Zoning Administrator Signature

PROJECT SUMMARY

Please provide answers to the following questions in the spaces below. If additional space is needed, you may provide an attached document.

1. Visual Impact Analysis. Is the project anticipated to adversely effect visual sightlines of neighboring dwellings, properties or public rights-of-way. Identify measures to avoid, minimize or mitigate visual effects.

Adverse visual impacts are not anticipated for this development. A glare study was conducted as shown in Exhibit O: Glare Study, analyzing the visual effects of the Utility SES. No glare is expected to be experienced as a result of this development. Additionally, vegetative screening has been proposed along 50th Avenue to minimize any potential visual effects, as seen in Exhibit C: Site Use Permit Set.

2. Proposed stormwater management measures. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after construction. An NPDES permit may be required.

The Utility SES has a proposed sediment basin and diversion berm which were designed in compliance with the MPCA and will comply with the Goodhue County Zoning Ordinance Article 11, Section 12 – Soil Erosion and Sediment Control. Additional erosion control measures have been proposed on site, including silt fence, rock outlets, and erosion control blanket. See Exhibit C: Site Use Permit Set Sheet 3.0 for the proposed erosion control features for this development. An NPDES permit will be acquired prior to the commencement of construction.

3. Maintenance plan for grounds surrounding the system(s).

Reference Exhibit G: Vegetation Management Plan for the proposed maintenance plan for controlling vegetative growth on site.

4. Anticipated wetlands impacts. Has a wetlands impact study been completed?

See Exhibit E: Wetland Delineation Report, conducted by GEI Consulting Engineers and Scientists, dated November 19, 2024. The wetland features identified within the project area will not be impacted by the proposed development. In addition to the Wetland Delineation Report, a boundary review application has been submitted, as shown in Exhibit F: Wetland Boundary Application.

5. Proposed decommissioning procedures.

The Project will comply with all requirements for the Decommissioning Plan standards and requirements listed in the Goodhue County Zoning Ordinance. Reference Exhibit I: Decommissioning Plan for additional information.

Exhibit C: Site Use Permit Set

SITE USE PERMIT SET

KENYON SOLAR 1, LLC

4578 COUNTY 12 BLVD, KENYON, MN 55946

4000 KWAC STC RATED SOLAR ELECTRIC SYSTEM

THIS DOCUMENT IS PROVIDED BY NEW LEAF ENERGY, INC. TO FACILITATE THE SALE OF THE RENEWABLE ENERGY PROJECT REPRESENTED HEREIN. REPRODUCTION, RELEASE OR UTILIZATION FOR ANY OTHER PURPOSE, WITHOUT PRIOR WRITTEN CONSENT IS STRICTLY PROHIBITED.



TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
PHONE: (800) 818-5249
FAX: (888) 678-8991
WWW.NEWLEAFENERGY.COM

Kimley»Horn

NOT FOR
CONSTRUCTION

IS A VIOLATION OF LAW FOR ANY PERSON
ALTER ANY DOCUMENT WHICH BEARS THE
OF A PROFESSIONAL ENGINEER, UNLESS
Y ARE ACTING UNDER THE DIRECTION OF
A LICENSED PROFESSIONAL ENGINEER.

SITE USE PERMIT SET
4578 COUNTY 12 BLVD
KENYON, MN 55946

PROJECT NUMBER:
120-1663

0	04/24/25	EEF	SITE USE PERMIT SET
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SCALES STATED ON DRAWINGS
ARE VALID ONLY WHEN PLOTTED
ARCH D 24" X 36"

T-1.0

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[illegible]

GENERAL CIVIL NOTES

- APPROVALS
1. INTERIM USE PERMIT (IN PROGRESS).
- GENERAL NOTES
1. AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE THE EPC PROVIDER HIRED BY THE SYSTEM OWNER. "SUBCONTRACTOR" IS THE EPC PROVIDER'S INSTALLATION SUBCONTRACTORS (INCLUDING SITE WORK SUBCONTRACTOR) AND CIVIL ENGINEER OF RECORD (CEOR) IS THE EPC PROVIDER'S DESIGNATED CIVIL ENGINEER.
2. EXISTING CONDITIONS SURVEY INFORMATION WAS PREPARED BY WIDSETH SMITH NOLTING & ASSOCIATES, INC. PERFORMED ON 01/16/2025. HORIZONTAL DATUM IS REFERENCED TO THE MINNESOTA STATE PLANE SYSTEM, SOUTH ZONE NAD83 (2011). VERTICAL DATUM IS REFERENCED TO NAVD83.
3. THERE IS NO GUARANTEE THAT ALL THE EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED WITHIN THE PROJECT LIMITS ARE ON THIS DRAWING. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM THIS WORK. A DIG SAFE TICKET NUMBER INDICATING ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED SHALL BE OBTAINED PRIOR TO COMMENCING WORK. CONTACT "GOPHER STATE ONE CALL" AT 1-800-252-1166 AND PROVIDE 72 HOURS NOTICE TO RECEIVE A TICKET NUMBER.
4. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE ELECTRIC UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.
5. COUNTY APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.
6. PRIOR TO CONSTRUCTING THE SITE ENTRANCE ONTO 50TH AVENUE, THE CONTRACTOR SHALL OBTAIN A HIGHWAY/DRIVEWAY PERMIT FROM THE APPLICABLE AHJ.
7. SUBCONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
8. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR/CEOR FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
9. AREAS USED AS FOR PARKING DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITED TO, REGRADING, LOAMING AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.

- SITE PREPARATION NOTES
1. AREAS DESIGNATED FOR TREE CUTTING SHALL BE CUT ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY UNLESS SPECIFICALLY SHOWN OTHERWISE AND APPROVAL HAS BEEN GIVEN BY THE CONTRACTOR.
2. TREE CLEARING AND STUMP REMOVAL SHALL BE IN ACCORDANCE WITH APPROVED LOCAL, STATE, AND FEDERAL PERMITS. TREES TO BE REMOVED SHALL BE MARKED BY THE CONTRACTOR'S PROJECT MANAGER OR SITE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORK ON-SITE.
3. SEASONAL TREE CLEARING RESTRICTIONS MAY BE REQUIRED FOR ENDANGERED SPECIES PROTECTION. THE CONTRACTOR SHALL REFER TO THE TREE CLEARING PLAN FOR ANY RESTRICTIONS.
4. THE SUBCONTRACTOR(S) IS/ARE RESPONSIBLE FOR ANY DAMAGE TO EXISTING SITE CONDITIONS TO REMAIN THAT ARE DUE TO SUBCONTRACTOR(S) OPERATIONS.
5. ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE SUBCONTRACTOR(S).
6. THE SUBCONTRACTOR(S) SHALL BE RESPONSIBLE FOR COORDINATING THEIR EFFORTS WITH ALL TRADES.
7. THE SUBCONTRACTOR(S) SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
8. TEMPORARY CONSTRUCTION HAUL ROADS SHALL BE USED DURING CONSTRUCTION IF DEEMED NECESSARY BY THE CONTRACTOR. THE USE OF SEPARATION FABRICS SHALL BE USED TO FACILITATE FUTURE REMOVAL AND RECOVERY OF GRANULAR MATERIALS. HAUL ROADS SHALL BE MAINTAINED DURING CONSTRUCTION WITH APPROPRIATE EROSION CONTROL AND STORMWATER REDUCTION MEASURES. ONCE REMOVED, THE SUB-BASE AREA SHOULD BE DECOMPACTED WITH A YORK RAKE, LOAM REPLACED, AND RESEDED.
9. THE SITE ACCESS ROADS ARE DESIGNED TO MEET STATE FIRE CODE FOR FIRE TRUCK ACCESS. MEANS AND METHODS FOR ACCOMMODATING LARGER CONSTRUCTION DELIVERY VEHICLES MUST BE DETERMINED BY THE CONTRACTOR.
10. THE PROPOSED ROAD DESIGN SHOWN IN THESE PLANS SHALL BE CONSIDERED THE FINAL DESIGN CONDITION. ADDITIONAL MEANS AND METHODS OF CONSTRUCTION DEEMED NECESSARY BY THE OWNER OR CONTRACTOR SHALL BE DESIGNED BY OTHERS AND INCLUDED IN THE INITIAL EPC BID PRICE (INCLUDING, BUT NOT LIMITED TO: TEMPORARY HAUL ROADS, WIDENED OR LENGTHENED ROADS AND TURN OUT AREAS FOR LARGER CONSTRUCTION AND DELIVERY VEHICLES, TEMPORARY PARKING AND LAYDOWN AREAS, MODIFIED GRADING TO SUPPORT CONSTRUCTION AND DELIVERY VEHICLES, ETC.).

- EROSION AND SEDIMENT CONTROL MEASURES
1. A NPDES PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY EARTH DISTURBANCE.
2. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR DISTURBANCE AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
3. SEDIMENT BARRIERS SHALL BE INSPECTED AND APPROVED BY GOODHUE COUNTY OR THEIR REPRESENTATIVE AND THE CONTRACTOR/CEOR BEFORE CONSTRUCTION BEGINS.
4. STRAW BALES AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE OF NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY WHEN INSTALLED.
5. DISTURBED AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES IN THAT AREA HAVE CONCLUDED. ALL ERODABLE/BARE AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 7 DAYS WITH TEMPORARY EROSION CONTROL SEEDING.
9. PRIOR TO SEEDING, ACCESS AISLES, TEMPORARY STAGING, STORAGE, AND PARKING AREAS ARE TO BE DE-COMPACTED AND RESTORED PER THE SWPPP.
10. STABILIZE SLOPES GREATER THAN 3:1 (HORIZONTAL: VERTICAL) WITH SEED, SECURED GEOTEXTILE

- FABRIC, SPRAYED COMPOST BLANKET, OR RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
11. SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.
12. CLEAN OUT PROJECT DRAINAGE FEATURES AND STRUCTURES (I.E. CULVERTS, BASINS, SWALES, ETC.) AFTER COMPLETION OF CONSTRUCTION.
13. SEDIMENT COLLECTED DURING CONSTRUCTION BY THE VARIOUS EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS. SEDIMENT SHALL BE REMOVED FROM EROSION CONTROL SYSTEMS WHEN THE HEIGHT OF THE SEDIMENT EXCEEDS ONE-HALF OF THE HEIGHT OF THE SEDIMENT CONTROL MEASURE.
14. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE SUBCONTRACTOR(S) SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AT THE CONTRACTOR/CEOR DIRECTION.
15. AFTER THE REMOVAL OF TEMPORARY EROSION CONTROL MEASURES, THE SUBCONTRACTOR(S) SHALL GRADE AND SEED AREA OF TEMPORARY EROSION CONTROL MEASURE.
16. DAMAGED OR DETERIORATED EROSION AND SEDIMENT CONTROL ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION OR AS DIRECTED BY THE CONTRACTOR/CEOR.
17. THE CONTRACTOR'S SITE SUPERINTENDENT IS RESPONSIBLE FOR DAILY INSPECTIONS, MAINTENANCE, AND DIRECTING REPAIR ACTIVITIES. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES TWICE EVERY SEVEN (7) CALENDAR DAYS (IF GREATER THAN 5 ACRES IS TO BE DISTURBED AT ANY ONE TIME) OR ONCE EVERY FOURTEEN (14) DAYS AND WITHIN 24 HOURS OF ANY STORM EXCEEDING 1/2 INCH PRECIPITATION, IN ACCORDANCE WITH THE NPDES REQUIREMENTS. DAMAGED AND INEFFECTIVE EROSION CONTROL MEASURES SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.
18. PIPE OUTLETS (IF ANY) SHALL BE STABILIZED WITH STONE. REFER TO DETAILS.
19. WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING SHALL BE FILTERED.
20. WHEN TEMPORARY DRAINAGE IS ESTABLISHED, EROSION/SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED BY CONTRACTOR/CEOR.
21. GRAVEL ROADS, ACCESS DRIVES, PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH, AND VEHICLE WASH DOWN FACILITIES, SHALL BE PROVIDED TO PREVENT SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL REACHING A PUBLIC OR PRIVATE ROADWAY SHALL BE REMOVED BEFORE THE END OF EACH WORKDAY.
22. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE-FUELING SHALL OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.
23. THE COST OF REPAIRING EROSION CONTROL MEASURES OR REMOVING SEDIMENT FROM EROSION CONTROL SYSTEMS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE APPLICABLE EROSION CONTROL ITEM.
24. EROSION CONTROL MEASURES SHALL BE KEPT OPERATIONAL AND MAINTAINED CONTINUOUSLY THROUGHOUT THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT SEDIMENT AND EROSION CONTROL MEASURES ARE OPERATIONAL.
25. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.
26. EROSION CONTROL MEASURES AS SHOWN ON THESE DRAWINGS IS INTENDED TO CONVEY MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES AS NECESSARY TO PREVENT SOIL EROSION AND TO COMPLY WITH THE PROJECT'S NPDES PERMIT STORMWATER POLLUTION PREVENTION PLAN.

- LAYOUT AND MATERIAL NOTES
1. THE CONTRACTOR SHALL HAVE PERIMETER FENCE, ELECTRICAL TRENCHES, AND RACKING STAKED OUT BY A LICENSED LAND SURVEYOR PRIOR TO ANY INSTALLATION OF RACKING OR TRENCHES.
2. EXCESS TRENCH MATERIAL SHALL BE PLACED ON THE SIDES OF THE TRENCH AND PLACED AT OR NEAR THE SAME LOCATION AS WHERE EXCAVATED. TOPSOIL REMOVED SHALL BE PLACED ON TOP AND LIGHTLY COMPACTED.
3. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRIC CONDUIT CROSSINGS PRIOR TO INSTALLATION OF THE GEOGRID MATERIAL. THE GEOGRID SHALL NOT BE HORIZONTALLY CUT ONCE INSTALLED.

- GRADING NOTES
1. WHERE PROPOSED GRADES MEET EXISTING GRADES, SUBCONTRACTOR(S) SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
2. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES, PUBLIC ROADWAYS, AND ELECTRICAL EQUIPMENT AREAS.

- PLANTING NOTES
1. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THE DRAWINGS.
2. MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
3. PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
4. PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
5. PLANT SIZE AND QUANTITY SHALL NOT CHANGE WITHOUT APPROVAL OF CONTRACTOR/CEOR.

ABBREVIATIONS

- | | |
|------|------------------------------------------|
| BIT | BITUMINOUS |
| BMP | BEST MANAGEMENT PRACTICE |
| BVW | BORDERING VEGETATED WETLANDS |
| CB | CONCRETE BOUND |
| CONC | CONCRETE |
| CMP | CORRUGATED METAL PIPE |
| CPP | CORRUGATED PLASTIC PIPE |
| DH | DRILL HOLE |
| DIP | DUCTILE IRON PIPE |
| DMH | DRAIN MANHOLE |
| ECB | EROSION CONTROL BARRIER |
| FES | FLARED END SECTION |
| FH | FIRE HYDRANT |
| FND | FOUND |
| GG | GAS GATE |
| HDPE | HIGH-DENSITY POLYETHYLENE |
| HW | HEADWALL |
| ILSF | ISOLATED LANDS SUBJECT TO FLOODING |
| IP | IRON PIPE |
| ISW | ISOLATED WETLANDS (FEDERAL JURISDICTION) |
| LA | LANDSCAPED AREA |
| LOW | LIMIT OF WORK |
| N/F | NOW OR FORMERLY |
| NTS | NOT TO SCALE |
| OCS | OUTLET CONTROL STRUCTURE |
| OHW | OVERHEAD WIRE |
| RCP | REINFORCED CONCRETE PIPE |
| RET | RETAINING |
| ROW | RIGHT-OF-WAY |
| SB | STONE BOUND |
| TEL | TELEPHONE CABLE |
| TYP | TYPICAL |
| UP | UTILITY POLE |
| WG | WATER GATE |

REV 1.1

LEGEND

- | | |
|--|---------------------------|
| | FENCE LINE |
| | SUBJECT PROPERTY LINE |
| | PROPERTY LINE |
| | SETBACK LINE |
| | RIGHT-OF-WAY |
| | MAJOR CONTOUR |
| | MINOR CONTOUR |
| | DELINEATED WETLAND |
| | WETLAND BUFFER ZONE |
| | EASEMENT |
| | SWALE |
| | STRUCTURE |
| | GRAVEL/ASPHALT |
| | UTILITY POLE |
| | OVERHEAD ELECTRIC |
| | ROAD (GRAVEL) |
| | FENCE LINE |
| | SILT FENCE |
| | TEMPORARY ROCK OUTLET |
| | EROSION CONTROL BLANKET |
| | SEDIMENT BASIN |
| | LV ELECTRICAL TRENCH |
| | MV ELECTRICAL TRENCH |
| | OVERHEAD ELECTRIC |
| | PROPOSED GRADING BOUNDARY |
| | SOLAR PANEL |
| | UTILITY POLE |
| | GRADING AREA |

NOTE: ITALIC FONTS INDICATE EXISTING CONDITIONS.
STANDARD FONTS INDICATE PROPOSED CONDITIONS.

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LOWELL, MA 01851
PHONE: (978) 678-8249
FAX: (978) 678-8991
WWW.NEWLEAFENERGY.COM

Kimley»Horn

NOT FOR
CONSTRUCTION

IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER ANY DOCUMENT WHICH BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

SITE USE PERMIT SET
4578 COUNTY 12 BLVD
KENYON, MN 55946

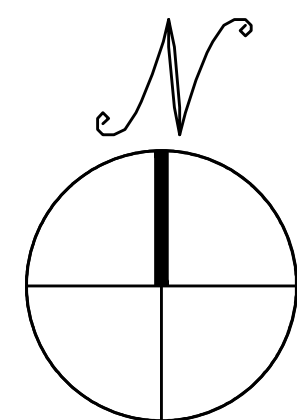
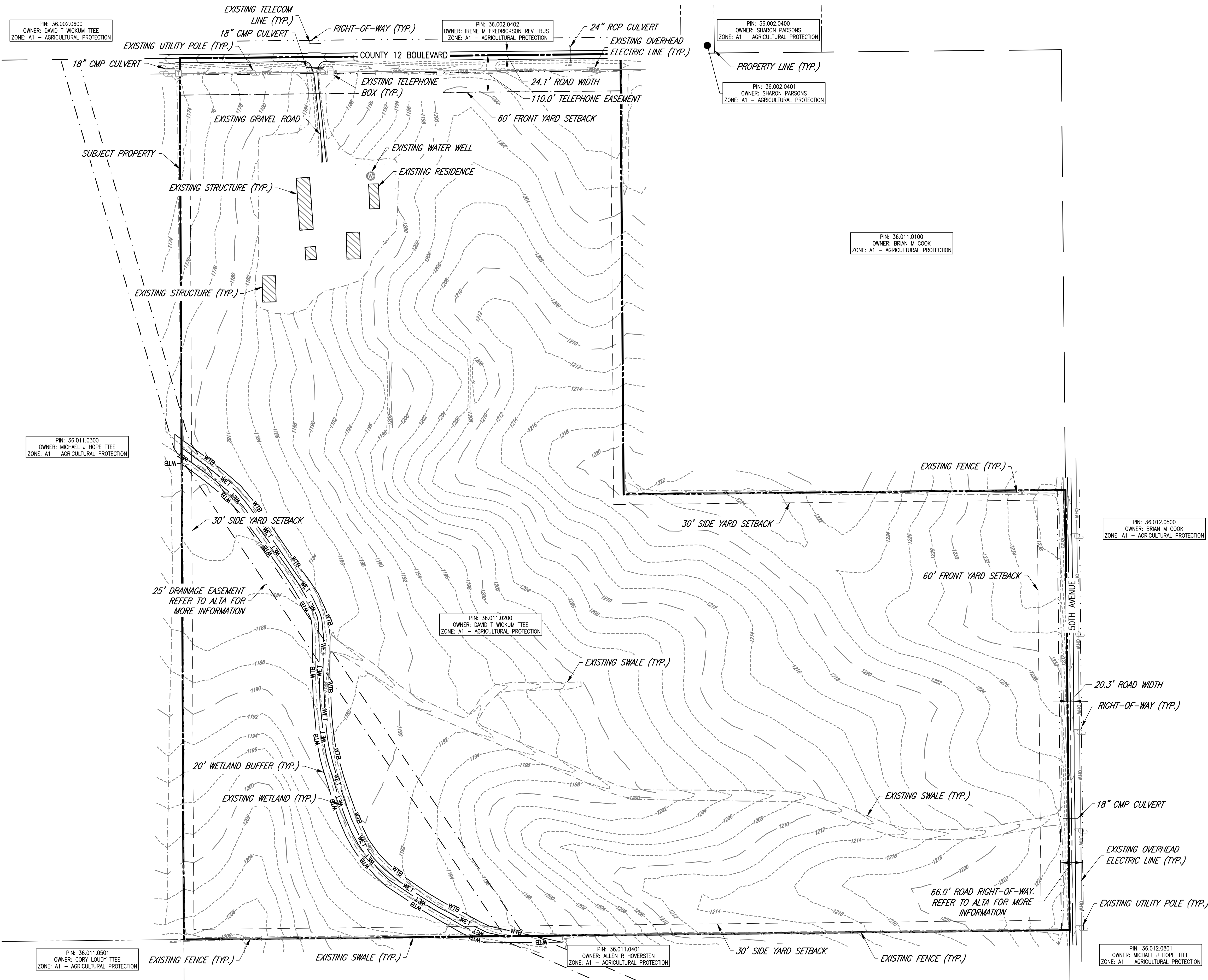
PROJECT NUMBER:
120-1663

REV	DATE	DRAWN	CHECKED	RELEASE	LEVEL
0	04/24/25	TEF			SITE USE PERMIT SET

SCALES STATED ON DRAWINGS
ARE VALID ONLY WHEN PLOTTED
ARCH D 24" X 36"

C-0.0

CIVIL NOTES



EXISTING CONDITIONS PLAN

SCALE: 1" = 150'

NOTES

1. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A CONSTRUCTION LEVEL DESIGN AND ASSOCIATED DRAWINGS AND DETAILS.
2. THE PURPOSE OF THESE PLANS ARE FOR CONDITIONAL/INTERIM USE PERMIT REVIEW AND APPROVAL BY GOODHUE COUNTY TO CONSTRUCT A SOLAR FARM.
3. EXISTING CONDITIONS SURVEY AND TOPOGRAPHIC SURFACE PROVIDED BY WIDSETH SMITH NOLTING & ASSOCIATES, INC., DATED 01/16/2025.
4. EXISTING WETLAND DELINEATION PER GEI CONSULTANTS, INC., DATED 11/19/2024. ONE WETLAND WAS DELINEATED WITHIN PROJECT BOUNDARY. PROPOSED DEVELOPMENT WILL NOT IMPACT THE DELINEATED WETLAND.
5. NO FEMA FLOOD ZONES PRESENT WITHIN PROJECT AREA. PROJECT AREA WITHIN ZONE X - AREA OF MINIMAL FLOOD HAZARD.
6. TREE CLEARING IS NOT ANTICIPATED.
7. EXISTING WATER WELL LOCATION TRACED PER THE MINNESOTA DEPARTMENT OF HEALTH (MDH) MINNESOTA WELL INDEX, ACCESSED ON 05/06/2025. PROPOSED DEVELOPMENT WILL NOT IMPACT THE EXISTING WATER WELL.

EXISTING LAND USE

LAND USE	AREA (AC)	PERCENT
AGRICULTURAL (PLOWED FIELD)	113.49	94.63%
WETLANDS	0.58	0.48%
RESIDENTIAL / AGRICULTURAL STRUCTURES	5.87	4.89%

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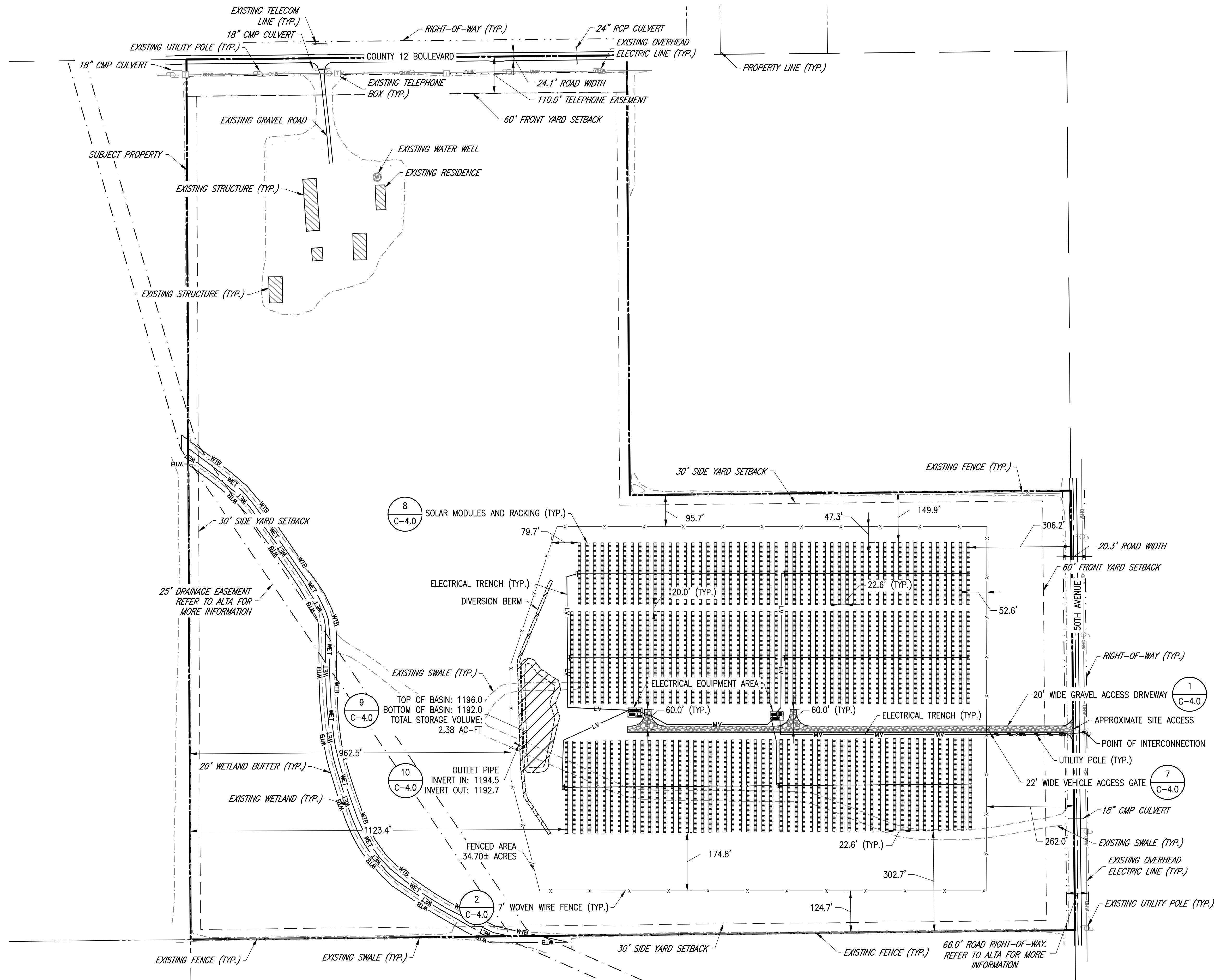
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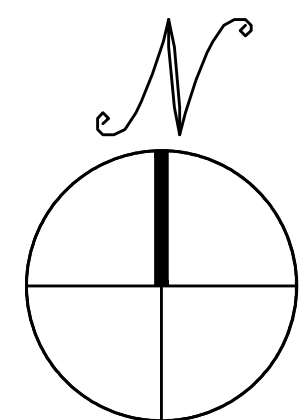
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EXISTING CONDITIONS PLAN

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
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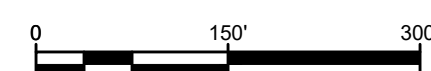


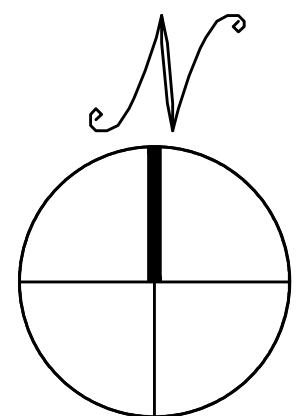
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 - NO LIGHTING PROPOSED OUTSIDE OF PROJECT AREA.
 - MAXIMUM HEIGHT OF STRUCTURES IS 20 FEET PER GOODHUE COUNTY CODE REQUIREMENTS.



LAYOUT AND MATERIALS PLAN

SCALE: 1" = 150'





SCALE: 1" = 150'



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VALUES STATED ON DRAWINGS
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REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
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CONCEPT PLANT SCHEDULE

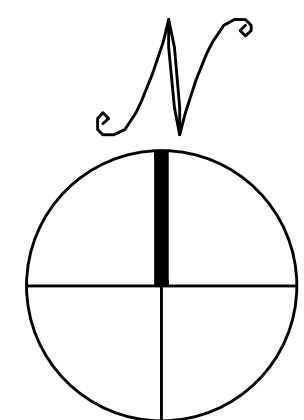
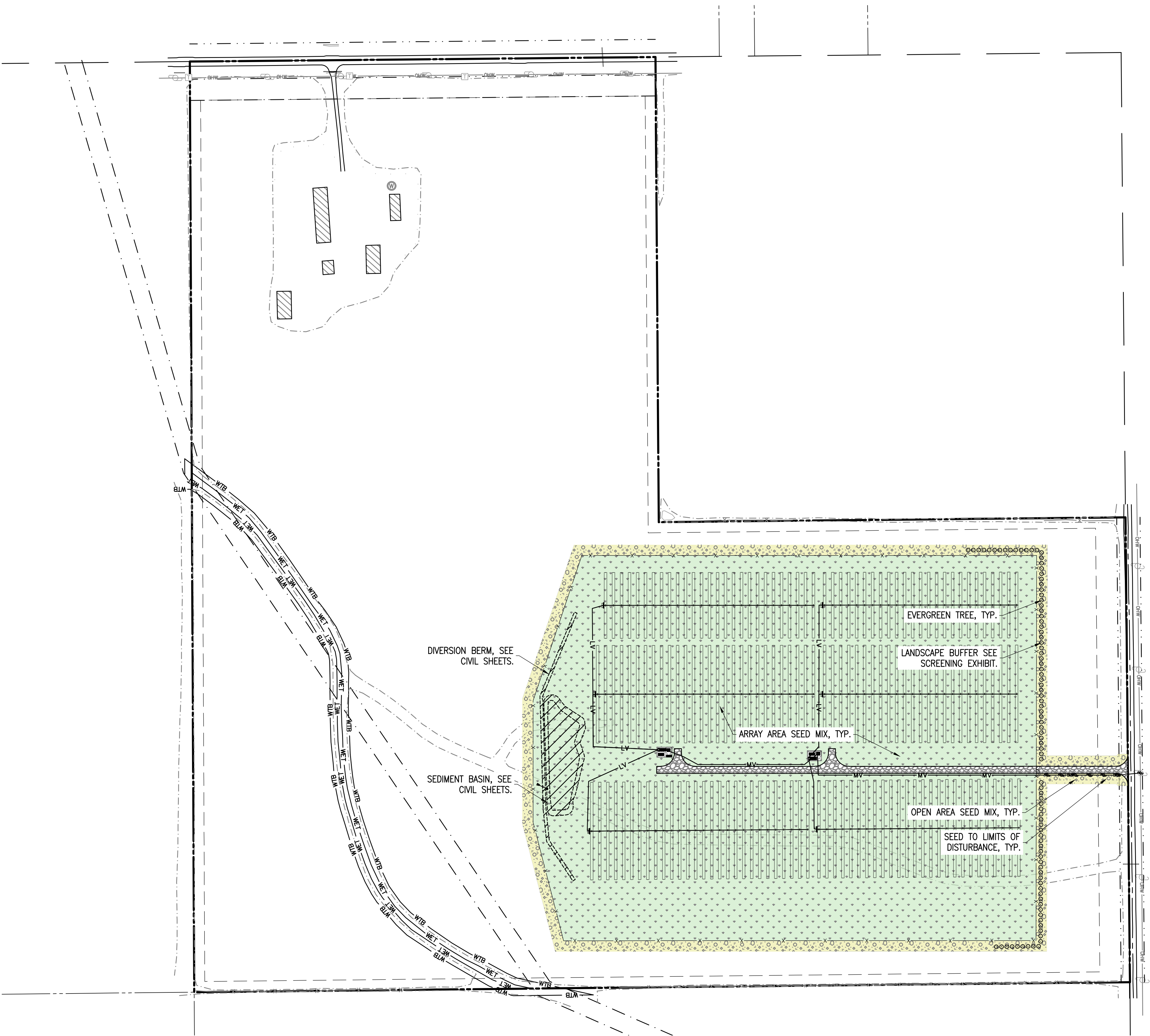
 **EVERGREEN BUFFER TREE** 94
RECOMMENDED SPECIES:

SOFT SERVE FALSE CYPRESS
JUNIPERUS VIRGINIANA
MOUNTBATTEN JUNIPER
FAIRVIEW JUNIPER
FAT ALBERT COLORADO SPRUCE
AMERICAN ARBORVITAE

 **ARRAY AREA SEED MIX**

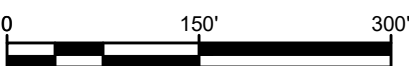
 **OPEN AREA SEED MIX**

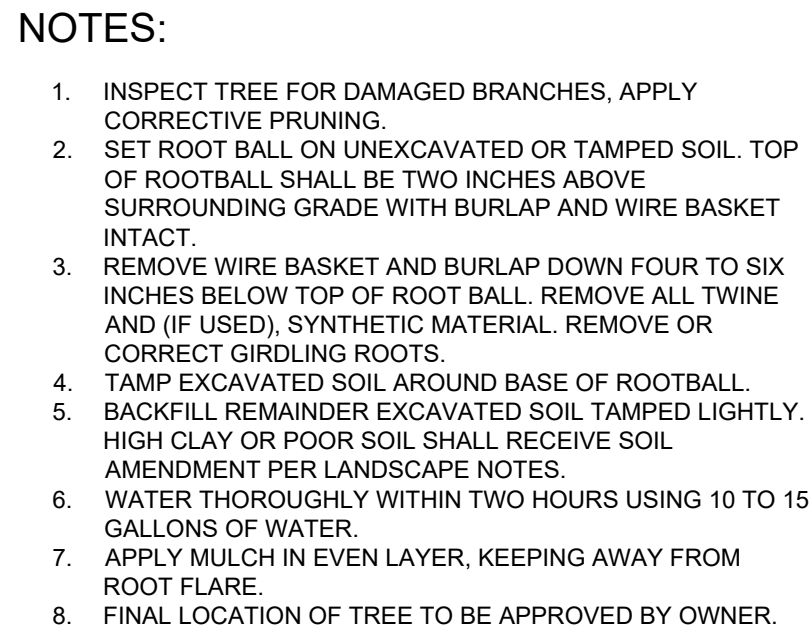
1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MATERIALS AND PLANTS SHOWN ON THE LANDSCAPE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT LANDSCAPE, PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION OR DURING THE SPECIFIED MAINTENANCE PERIOD. CALL FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR SHALL REPORT ANY DISCREPANCY IN PLAN VS. FIELD CONDITIONS IMMEDIATELY TO THE LANDSCAPE ARCHITECT, PRIOR TO CONTINUING WITH THAT PORTION OF WORK.
3. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
5. ALL PLANTS TO BE SPECIMEN GRADE, WELL BRANCHED, HEALTHY, FULL, PRE-INOCULATED AND FERTILIZED. PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, AND SCARS. PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES. PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES. TRUNKS WILL BE WRAPPED IF NECESSARY TO PREVENT SUN SCALD AND INSECT DAMAGE. THE LANDSCAPE CONTRACTOR SHALL REMOVE THE WRAP AT THE PROPER TIME AS PART OF THIS CONTRACT.
6. THE OWNER'S REPRESENTATIVE MAY REJECT ANY PLANT MATERIALS THAT ARE DISEASED, DEFORMED, OR OTHERWISE NOT EXHIBITING SUPERIOR QUALITY.
7. ALL NURSERY STOCK SHALL BE GUARANTEED, BY THE CONTRACTOR, FOR ONE YEAR FROM DATE OF FINAL INSPECTION. THE GUARANTEE BEGINS ON THE DATE OF THE LANDSCAPE ARCHITECT'S OR OWNERS WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
8. PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
9. PRUNE PLANTS AS NECESSARY- PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
10. TOPSOIL SHALL BE PROVIDED AND GRADED BY THE GENERAL CONTRACTOR UP TO 6 INCHES BELOW FINISHED GRADE IN TURF AREAS AND 18 INCHES IN PLANTING AREAS.
11. PLANTING AREA TOPSOIL SHALL BE AMENDED WITH 25% SPHAGNUM PEATMOSS, 5% HUMUS AND 70% PULVERIZED SOIL FOR ALL NON TURF SEED MIX AREAS, SHRUB, ORNAMENTAL GRASS, PERENNIAL AND ANNUAL BEDS.
12. SEED/SOD LIMIT LINES ARE APPROXIMATE. CONTRACTOR SHALL SEED/SOD ALL AREAS WHICH ARE DISTURBED BY GRADING WITH THE SPECIFIED SEED/SOD MIXES.
13. EDGING TO BE A SPADED EDGE UNLESS INDICATED OTHERWISE ON THE PLANS. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. A SPADED BED EDGE SHALL SEPARATE MULCH BEDS FROM TURF OR SEEDED AREAS. A SPADED EDGE IS NOT REQUIRED ALONG CURBED EDGES.
14. CONTRACTOR SHALL INSTALL SHREDDDED HARDWOOD MULCH AT A 3" DEPTH TO ALL TREES, SHRUB, PERENNIAL, AND GROUND COVER AREAS. TREES PLACED IN AREA COVERED BY TURF SHALL RECEIVE A 4 FT WIDE MAXIMUM TREE RING WITH 3" DEPTH SHREDDDED HARDWOOD MULCH.
15. INSTALLATION OF TREES WITHIN PARKWAYS SHALL BE COORDINATED IN THE FIELD WITH LOCATIONS OF UNDERGROUND UTILITIES. TREES SHALL NOT BE LOCATED CLOSER THAN 5' FROM UNDERGROUND UTILITY LINES AND NO CLOSER THAN 10' FROM UTILITY STRUCTURES.
16. DO NOT DISTURB THE EXISTING PAVING, LIGHTING, OR LANDSCAPING THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLAN.
17. ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. SOD/SEED SHALL BE LOCAL HARDY TURF GRASS MIX UNLESS, OTHERWISE NOTED.
18. PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE OWNER AND JURISDICTIONAL REVIEW AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES AS DRAWN.
19. THE CONTINUED MAINTENANCE OF ALL REQUIRED LANDSCAPING SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY ON WHICH SAID MATERIALS ARE REQUIRED. ALL PLANT MATERIALS REQUIRED BY THIS SECTION SHALL BE MAINTAINED AS LIVING VEGETATION AND SHALL BE PROMPTLY REPLACED IF THE PLANT MATERIAL HAS DIED PRIOR TO FINAL ACCEPTANCE. PLANTING AREAS SHALL BE KEPT FREE OF TRASH, LITTER, AND WEEDS AT ALL TIMES.



LANDSCAPE PLAN

SCALE: 1" = 150'





NTS



VEGETATION SHOWN AT MATURITY



VEGETATION SHOWN AT 5+ YEARS GROWTH

NTC



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C-5.1

LANDSCAPE PLAN

Exhibit P: Manufacturer Specifications

12
YEAR
QUALITY ASSURANCE

30
YEAR
POWER OUTPUT GUARANTEE

VSUN590N-144BMH

VSUN590N-144BMH

VSUN585N-144BMH

VSUN580N-144BMH

VSUN575N-144BMH

VSUN570N-144BMH

VSUN565N-144BMH

590W

Highest power output

22.84%

Module efficiency

1.0%

First-year
degradation warranty

0.4%

Annual degradation
over 30 years

KEY FEATURES

TOPcon TOPcon technology



Higher output power



MBB technology with
Circular Ribbon



Positive tolerance offer



Bifacial cells, converting more
sunlight into electricity



Better shading tolerance



Better temperature coefficient



Excellent PID Resistance



Lower LCOE



UL 61730 & CSA 61730
IEC 61215 & IEC 61730

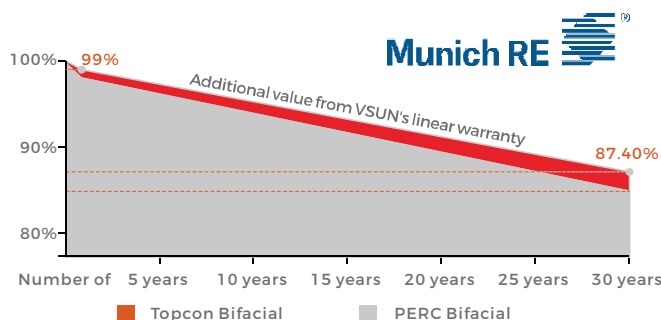
ABOUT VSUN

Invested by Fuji Solar, VSUN SOLAR is a solar solution provider with headquartered in Tokyo, Japan that offers reliability, high efficiency solar products and technology globally. VSUN is rated as BNEF Tier 1 PV module manufacturer, PVEL Lab "Best performer" and EcoVadis "Bronze Award".

PRODUCT CERTIFICATION



WARRANTY



Electrical Characteristics at Standard Test Conditions(STC)

Module Type	VSUN590N-144BMH	VSUN585N-144BMH	VSUN580N-144BMH	VSUN575N-144BMH	VSUN570N-144BMH	VSUN565N-144BMH
Maximum Power - Pmax (W)	590	585	580	575	570	565
Open Circuit Voltage - Voc (V)	51.79	51.65	51.44	51.26	51.07	50.87
Short Circuit Current - Isc (A)	14.49	14.44	14.37	14.31	14.25	14.19
Maximum Power Voltage - Vmpp (V)	43.11	42.92	42.7	42.53	42.34	42.14
Maximum Power Current - Impp (A)	13.69	13.65	13.6	13.54	13.48	13.41
Module Efficiency	22.84%	22.65%	22.45%	22.26%	22.07%	21.87%

Standard Test Conditions (STC): irradiance 1,000 W/m²; AM 1.5; module temperature 25°C. P_{max} Sorting : 0~5W. Measuring Tolerance: ±3%.

Remark: Electrical data do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

Electrical Characteristics with different rear side power gain(reference to 585 front)

Pmax (W)	Voc (V)	Isc (A)	Vmpp (V)	Imp (A)	Pmax gain
614	51.65	15.16	42.92	14.33	5%
644	51.65	15.88	42.92	15.02	10%
702	51.73	17.33	42.84	16.38	20%
731	51.73	18.05	42.84	17.06	25%

Material Characteristics

Dimensions	2278×1134×35mm (L×W×H) 89.69*44.65*1.38 inches (L×W×H)
Weight	28.8kg / 63.49lbs
Frame	Silver anodized aluminum profile
Front Glass	AR-Coating toughened glass, 3.2 mm
Back sheet	Transparent white-mesh backsheet
Cells	12×12 pcs mono solar cells series strings
Junction Box	IP68, 3 diodes
Cable	Potrait: 500 mm (cable length can be customized) , 1×4 mm2 or 12AWG

System Design

Maximum System Voltage [V]	1500
Series Fuse Rating [A]	30
Bifaciality	80%±10%
Fire Rating	Class C for IEC and TYPE 1 for US
Protection Class	Class II
Temperature Range	-40 °C to + 85 °C
Maximum Surface Load	+5400/-2400 Pa +113/-50 psf
Application class	class A
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m/s

Packaging

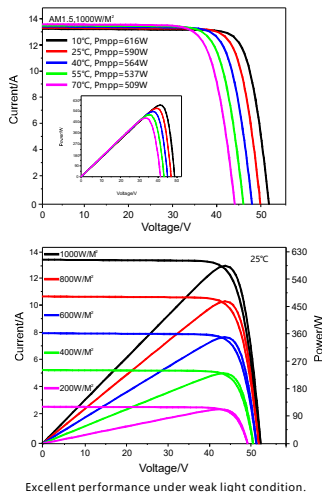
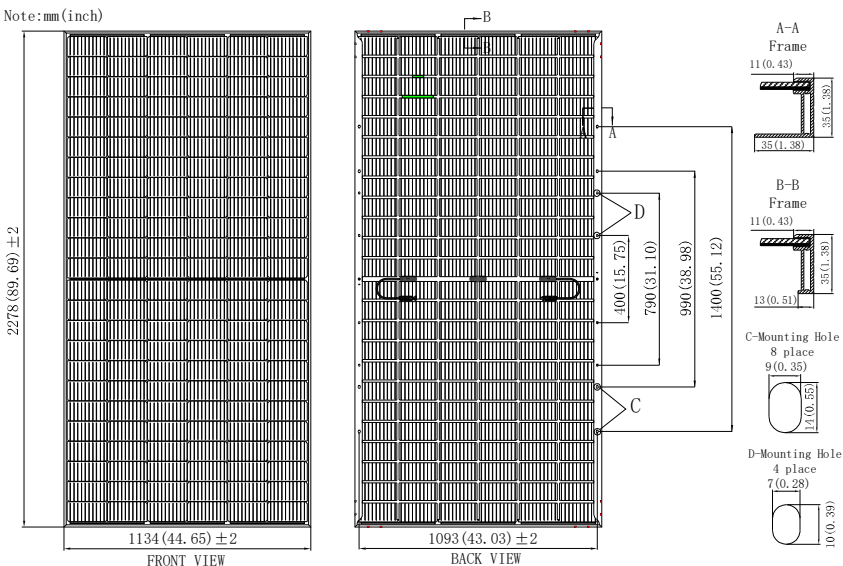
Dimensions(L×W×H)	2310×1125×1253mm / 90.94*44.29*49.33inches
Quantity per pallet	31 pcs
Container 20'	155
Container 40'	310
Container 40'HC	620

Temperature Characteristics

NOCT	45°C(±2°C)
Voltage Temperature Coefficient	-0.26%/°C
Current Temperature Coefficient	+0.046%/°C
Power Temperature Coefficient	-0.30%/°C

Dimensions IV-Curves

IV-Curves



ENGINEERED SIMPLICITY

99.9%

UPTIME

7%

LOWER LCOE

31%

LOWER LIFETIME O&M

Array DuraTrack®

The most durable, reliable tracking system under the sun. While our single-bolt module clamp and forgiving tolerances streamline installation, and our flexibly linked architecture maximizes power density, it's our innovative use of fewer components and a failure-free wind management system that makes Array Technologies the best choice for solar trackers. **Better. Stronger. Smarter.**



Zero Scheduled Maintenance

Maintenance-free motors and gears, fewer moving parts, and industrial-grade components, means no scheduled maintenance required for our customers. While our competitors average two unscheduled maintenance events per day, we average only one per year.



Failure-free wind management

Nobody can control the weather, but DuraTrack self-manages wind events to power through even the harshest storms.



High Power Density

Higher density means more power and more profit. DuraTrack offers the unique ability to maximize the power density of each site, boasting up to 120 modules per row and higher density than our closest competition.



Fewer Components. Greater Reliability.

Array was founded on a philosophy of engineered simplicity. Minimizing potential failure points. With fewer components than competitors, DuraTrack consistently delivers higher reliability and superior uptime.

COST VERSUS VALUE

Value is more than the cost of a tracking system. It's about building with forgiving tolerance and fewer parts so construction crews can work efficiently. It means protecting your investment with a failure-free wind management system. It also includes increasing power density. But most of all, value is measured in operational uptime, or reliability.

THE GLOBAL LEADER IN RELIABILITY

Maintenance-free motors and gears, fewer moving parts, and industrial-grade components, means no scheduled maintenance required for our customers. While our competitors average two unscheduled maintenance events per day, we average only one per year.

ARRAY TECHNOLOGIES, INC.

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Albuquerque, NM 87109 USA

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+1 855.TRACKPV (872.2578)
+1.505.881.7572

sales@arraytechinc.com
arraytechinc.com

30+ GW YEARS OF
OPERATION

NEARLY 200x
FEWER ELECTRICAL COMPONENTS PER
100MWAC THAN DECENTRALIZED TRACKERS

STRUCTURAL & MECHANICAL FEATURES/SPECIFICATIONS

Tracker Type	Horizontal single axis (1 module in portrait)
Ground Cover Ratio (GCR)	Site configurable. Typical: 28-45%
Linked Rows per Drive Motor	Up to 32
Drive Type	Rotating gear drive connected by drivelines (no driveline or bearing lubrication required)
Array Height	Torque Tube Elevation: 54" standard, adjustable (48" min height above grade)
Tracking Range of Motion	+/- 52°
Terrain Flexibility (N-S)	Up to 8.5° standard (up to 15° optional)
Terrain Flexibility (E-W)	Up to 25° combined angle
Wind Protection	Autonomous passive mechanical system No sensors or grid power required to activate
Max Wind Speed	140mph (225 km/h) per ASCE 7-10 (3-second gust), higher wind speeds possible depending on project conditions
Operating Temp Range	Standard: -4°F to 140°F (-20°C to 60°C) Optional: -40°F to 104°F (-40°C to 40°C)
Materials	Pre-galv steel, HDG steel and aluminum structural members, as required.
Codes and Standards	Certified to UL 3703 and IEC 62817

MODULE COMPATIBILITY

c-Si Modules per Row (1500V DC)	Typical: 84-112 Maximum: 120
First Solar Modules per Row (1500V DC)	Series 6 Plus: 84-108 Series 7: 96-114
Modules Supported	Most commercially available, including framed or frameless crystalline, thin film, bifacial, and back rails
Module Attachment	Single fastener, high-speed mounting clamps with integrated grounding. Traditional rails for crystalline in landscape, custom racking for thin film and frameless crystalline and bifacial per manufacturer specs.

CONTROL SYSTEM DETAILS

Baseline Solar Tracking Method	SANDIA's Ephemeris Model
Control Electronics	SmarTrack™ Controller Site Data Controller 6X Motor Controllers
Communications	MODBUS TCP
Backtracking	Yes (Optional terrain adaptive backtracking with SmarTrack)
Diffuse Light Response	Optional with SmarTrack
Night-time Stow	Yes (configurable)
Tracking Accuracy	+/- 2°
Motor Type	2HP, 3 Phase, 480V AC

INSTALLATION, OPERATION, AND MAINTENANCE

Annual Power Consumption (kWh per 1 MW)	Approximately 310 kWh per MW
PE Stamped Structural Calculations & Drawings	Yes
On-site Training and System Commissioning	Yes
Connection	100% bolted connections. No drilling, cutting or welding on-site or in-field fabrication
Scheduled Maintenance	None required
Module Cleaning Compatibility	Robotic, Tractor, Manual
Warranty	10 years structural; 5 years drive and controls components

SOLECTRIA® XGI 1500-250 SERIES

PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

FEATURES

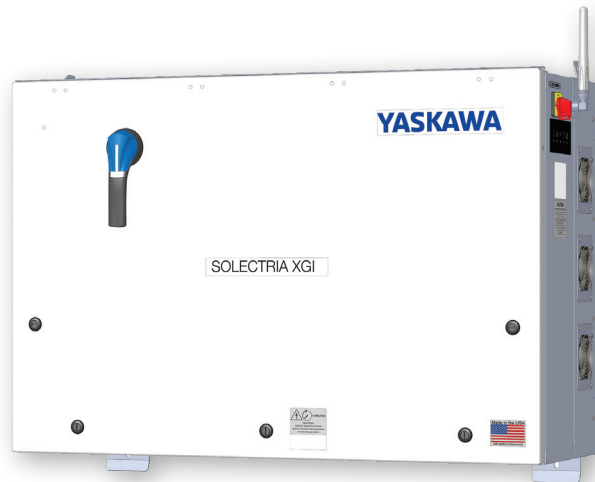
- NEW and MORE POWERFUL!
 - XGI 1500-250/250-600
 - XGI 1500-225-600 (Selectable: 225kW/225kVA or 225kW/250kVA)
 - XGI 1500-200/200-480
 - XGI 1500-175-480 (Selectable: 175kW/175kVA or 175kW/200kVA)
- Industry-leading maximum DC/AC Ratio of 2.0
- Accepts two input PV Output Circuits, with no overcurrent protection required
- Made in the USA with global components
- Buy American Act (BAA) compliant
- 99.0% peak efficiency
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SB
- Robust, dependable and built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified
- Tested compatible with the TESLA PowerPack Microgrid System

OPTIONS

- PV Source Circuit Combiners
- Web-based monitoring
- Extended warranty



Yaskawa Solectria Solar is pleased to introduce its most powerful XGI 1500 inverters, with the XGI 1500-250 models at 600 Vac, and the XGI 1500-200 models for 480 Vac service.



The XGI 1500-250 and XGI 1500-200 feature SiC technology, high power and high efficiency that places them at the top end of the utility-scale string inverters in the market.

Yaskawa Solectria Solar designs all XGI 1500 utility-scale string inverters for high reliability and builds them with the highest quality components -- selected, tested and proven to last beyond their warranty. The XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety.

The XGI 1500 inverters provide ideal solutions for ground-mounted utility-scale PV systems, with models available for service connections at 600 Vac and 480 Vac. Designed and engineered in Lawrence, MA, the SOLECTRIA XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. The XGI 1500 inverters are Made in the USA with global components, and are compliant with the Buy American Act.

SOLECTRIA® XGI 1500-250 SERIES TECHNICAL DATA

SPECIFICATIONS

Product Specification		XGI 1500 Inverter Model							
		XGI 1500 250/250-600		XGI 1500 225-600		XGI 1500 200/200-480		XGI 1500 175-480	
DC Input	Absolute Maximum Input Voltage	1500 VDC							
	Maximum Power Voltage Range (MPPT)	860-1250 VDC				750-1250 VDC			
	Operating Voltage Range (MPPT)	860-1450 VDC				750-1450 VDC			
	Number of MPP Trackers	1 MPPT							
	Maximum Operating Input Current	296.7 A		267 A		237.3 A		207.6 A	
	Maximum Operating PV Power	255 kW		230 kW		204 kW		179 kW	
	Maximum DC/AC Ratio Max Rated PV Power	2.0 500 kW		2.22 500 kW		2.5 500 kW		2.86 500 kW	
	Max Rated PV Short-Circuit Current (ΣIsc x 1.25)	800 A							
AC Output	Nominal Output Voltage	600 VAC, 3-Phase				480 VAC, 3-Phase			
	AC Voltage Range	-12% to +10%							
	Continuous Real Output Power	250 kW		225 kW		200 kW		175 kW	
	Continuous Apparent Output Power (kVA)	250		250 225		200		200 175	
	Maximum Output Current (A _{RMS})	240.6		XGI 1500- 225/225: 216.5 225/250: 240.6		240.6		XGI 1500- 175/175: 210.5 175/200: 240.6	
	Fault Current Contribution (1 cycle RMS)	390 A		390 A 351 A		312 A		312 A 273 A	
	Conductor Compatibility	600 kcmil max, Cu or Alum, 1 or 2 conductors with lugs							
	Nominal Output Frequency	60 Hz							
	Power Factor (Unity default)	+/- 0.80 Adjustable							
	Total Harmonic Distortion (THD) @ Rated Load	< 5%							
	Grid Connection Type	3-Ph + N/GND							
	Efficiency	Peak Efficiency	99.0%						
CEC Average Efficiency		98.5%							
Tare Loss		<1 W							
Ambient Temperature Range		-40°F to 140°F (-40°C to 60°C)							
Temperature	De-Rating Temperature	113°F (45°C)		127°F (53°C)		113°F (45°C)		131°F (55°C)	
	Storage Temperature Range	-40°F to 167°F (-40°C to 75°C)							
	Relative Humidity (non-condensing)	0 - 95%							
Communications	Operating Altitude	9,840 ft (3 km)							
	Advanced Graphical User Interface	WiFi							
	Communication Interface	Ethernet							
	Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP							
	Web-Based Monitoring	Optional							
	Firmware Updates	Remote and Local							
Testing & Certifications	Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998, UL 1699b Photovoltaic Arc-Fault Circuit Protection Certified							
	Advanced Grid Support Functionality	Rule 21, UL 1741SB							
	Testing Agency	ETL							
	FCC Compliance	FCC Part 15 (Subpart B, Class A)							
Warranty	Standard and Options	5 Years Standard; Option for 10 Years							
Enclosure	Acoustic Noise Rating	73 dBA @ 1 m ; 67dBA @ 3 m							
	DC Disconnect	Integrated 2-Pole 400 A DC Disconnect							
	Mounting Angle	Vertical only							
	Dimensions	Height: 29.5 in. (750 mm) Width: 44.3 in. (1125 mm) Depth: 15.4 in. (390 mm)							
	Weight	290 lbs (131.5 kg)							
	Enclosure Rating and Finish	NEMA 4X, IEC IP66, Type 3R, Polyester Powder-Coated Aluminum							



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IT'S PERSONAL

Three-phase pad-mounted compartmental type transformer



General

At Eaton, we are constantly striving to introduce new innovations to the transformer industry, bringing you the highest quality, most reliable transformers. Eaton's Cooper Power series Transformer Products are ISO 9001 compliant, emphasizing process improvement in all phases of design, manufacture, and testing. In order to drive this innovation, we have invested both time and money in the Thomas A. Edison Technical Center, our premier research facility in Franksville, Wisconsin. Such revolutionary products as distribution-class UltraSIL™ Polymer-Housed Evolution™ surge arresters and Envirotemp™ FR3™ fluid have been developed at our Franksville lab.

With transformer sizes ranging from 45 kVA to 12 MVA and high voltages ranging from 2400 V to 46 kV, Eaton has you covered. From fabrication of the tanks and cabinets to winding of the cores and coils, to production of arresters, switches, tap changers, expulsion fuses, current limit fuses, bushings (live and dead) and molded rubber goods, Eaton does it all. Eaton's Cooper Power series transformers are available with electrical grade mineral oil or Envirotemp™ FR3™ fluid, a less-flammable and bio-degradable fluid. Electrical codes recognize the advantages of using Envirotemp™ FR3™ fluid both indoors and outdoors for fire sensitive applications. The bio-based fluid meets Occupational Safety and Health Administration (OSHA) and Section 450.23 NEC Requirements.



Powering Business Worldwide

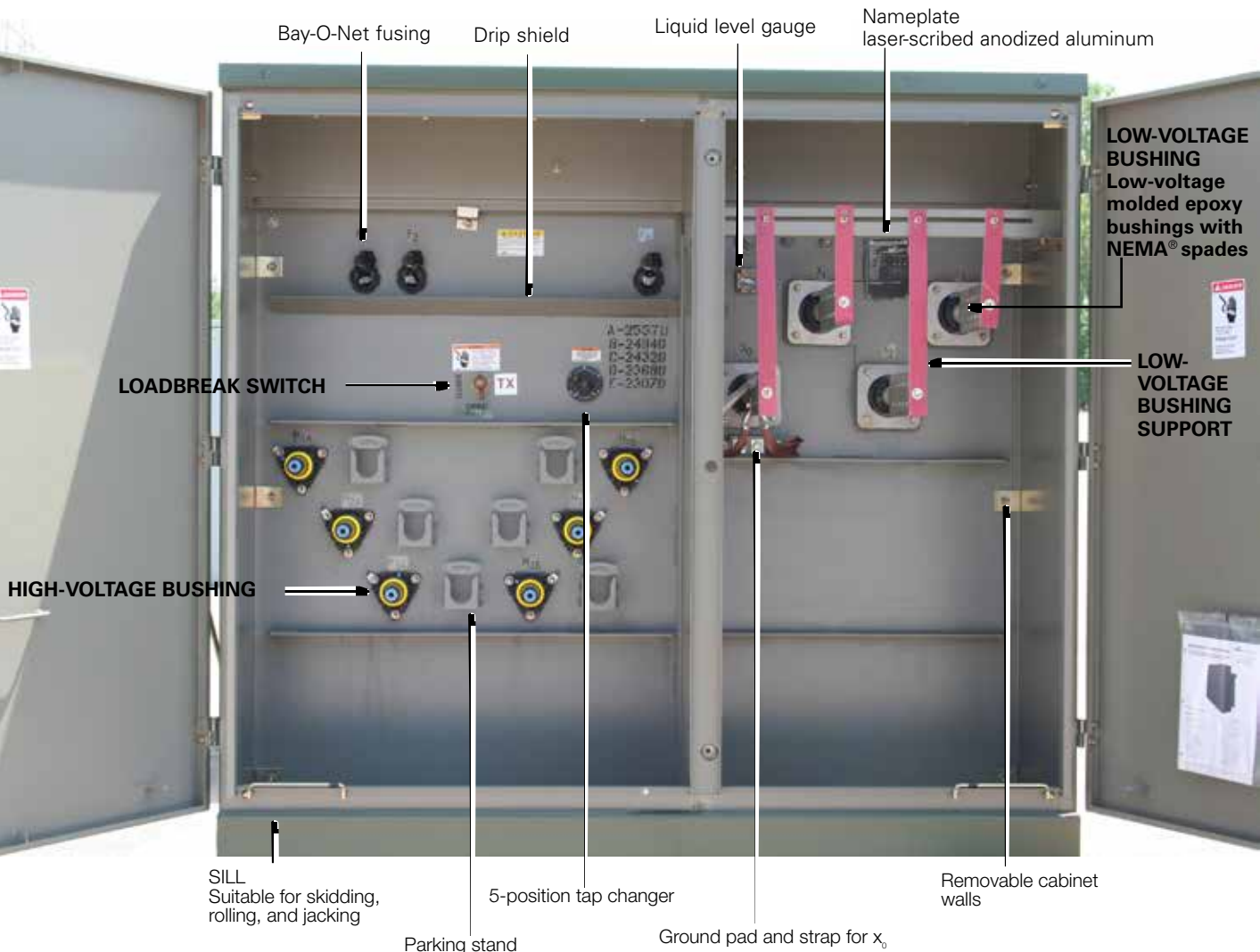


Figure 1. Three-phase pad-mounted compartmental type transformer.

Table 1. Product Scope

Type	Three Phase, 50 or 60 Hz, 65 °C Rise (55 °C, 55/65 °C), 65/75 °C, 75 °C
Fluid Type	Mineral oil or Envirotemp™ FR3™ fluid
Coil Configuration	2-winding or 4-winding or 3-winding (Low-High-Low), 3-winding (Low-Low-High)
Size	45 – 10,000 kVA
Primary Voltage	2,400 – 46,000 V
Secondary Voltage	208Y/120 V to 14,400 V
Specialty Designs	Inverter/Rectifier Bridge
	K-Factor (up to K-19)
	Vacuum Fault Interrupter (VFI)
	UL® Listed & Labeled and Classified
	Factory Mutual (FM) Approved®
	Solar/Wind Designs
	Differential Protection
	Seismic Applications (including OSHPD)
	Hardened Data Center

Table 2. Three-Phase Ratings**Three-Phase 50 or 60 Hz**kVA Available¹:

45, 75, 112.5, 150, 225, 300, 500, 750, 1000, 1500, 2000, 2500, 3000, 3750, 5000, 7500, 10000

¹Transformers are available in the standard ratings and configurations shown or can be customized to meet specific needs.**Table 3. Impedance Voltage**

Rating (kVA)	Low-voltage rating		
	≤ 600 V	2400 Δ through 4800 Δ	6900 Δ through 13800GY/7970 or 13800 Δ
45-75	2.70-5.75	2.70-5.75	2.70-5.75
112.5-300	3.10-5.75	3.10-5.75	3.10-5.75
500	4.35-5.75	4.35-5.75	4.35-5.75
750-2500	5.75	5.75	5.75
3750	5.75	5.75	6.00
5000		6.00	6.50

Note: The standard tolerance is ± 7.5%**Table 4. Audible Sound Levels**

Self-Cooled, Two Winding kVA Rating	NEMA® TR-1 Average
	Decibels (dB)
45-500	56
501-700	57
701-1000	58
1001-1500	60
1501-2000	61
2001-2500	62
2501-3000	63
3001-4000	64
4001-5000	65
5001-6000	66
6001-7500	67
7501-10000	68

Table 5. Insulation Test Levels

KV Class	Induced Test 180 or 400 Hz 7200 Cycle	kV BIL Distribution	Applied Test 60 Hz (kV)
1.2	Twice Rated Voltage	30	10
2.5		45	15
5		60	19
8.7		75	26
15		95	34
25		125	40
34.5		150	50

Table 6. Temperature Rise Ratings 0-3300 Feet (0-1000 meters)

	Standard	Optional
Unit Rating (Temperature Rise Winding)	65 °C	55 °C, 55/65 °C, 75 °C
Ambient Temperature Max	40 °C	50 °C
Ambient Temperature 24 Hour Average	30 °C	40 °C
Temperature Rise Hotspot	80 °C	65 °C

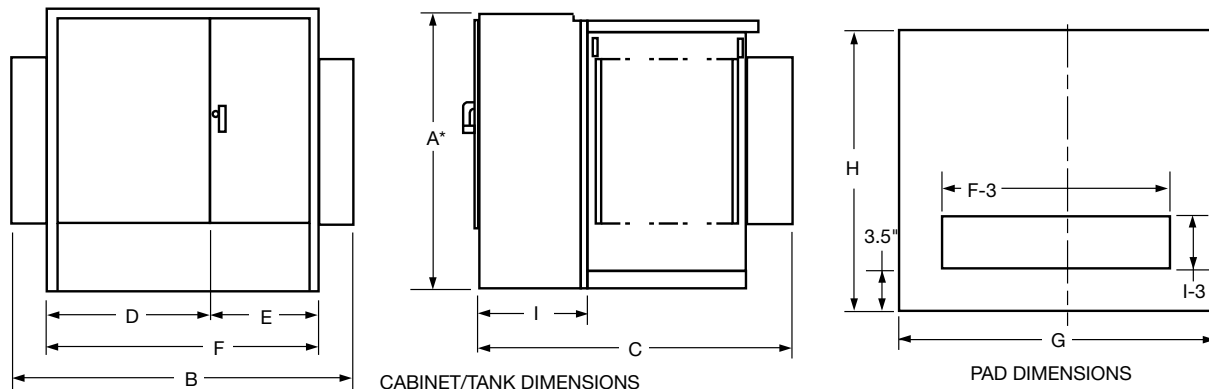


Figure 2. Transformer and pad dimensions.

* Add 9" for Bay-O-Net fusing.

Table 7. Fluid-filled—aluminum windings 55/65 °C Rise¹

65° Rise	DEAD-FRONT—LOOP OR RADIAL FEED—BAY-O-NET FUSING OIL FILLED—ALUMINUM WINDINGS										Gallons of Fluid	Approx. Total Weight (lbs.)
	OUTLINE DIMENSIONS (in.)											
kVA Rating	A*	B	C	D	E	F	G	H	I			
45	50	68	39	42	26	68	72	43	20	110	2,100	
75	50	68	39	42	26	68	72	43	20	115	2,250	
112.5	50	68	49	42	26	68	72	53	20	120	2,350	
150	50	68	49	42	26	68	72	53	20	125	2,700	
225	50	72	51	42	30	72	76	55	20	140	3,150	
300	50	72	51	42	30	72	76	55	20	160	3,650	
500	50	89	53	42	30	72	93	57	20	190	4,650	
750	64	89	57	42	30	72	93	61	20	270	6,500	
1000	64	89	59	42	30	72	93	63	20	350	8,200	
1500	73	89	86	42	30	72	93	90	24	410	10,300	
2000	73	72	87	42	30	72	76	91	24	490	12,500	
2500	73	72	99	42	30	72	76	103	24	530	14,500	
3000	73	84	99	46	37	84	88	103	24	620	16,700	
3750	84	85	108	47	38	85	88	112	24	660	19,300	
5000	84	96	108	48	48	96	100	112	24	930	25,000	
7500	94	102	122	54	48	102	100	126	24	1,580	41,900	

¹ Weights, gallons of fluid, and dimensions are for reference only and not for construction. Please contact Eaton for exact dimensions.

* Add 9" for Bay-O-Net fusing.

Table 8. Fluid-Filled—Copper Windings 55/65 °C Rise¹

65° Rise	DEAD-FRONT—LOOP OR RADIAL FEED—BAY-O-NET FUSING OIL FILLED—COPPER WINDINGS										Gallons of Fluid	Approx. Total Weight (lbs.)
	OUTLINE DIMENSIONS (in.)											
kVA Rating	A*	B	C	D	E	F	G	H	I			
45	50	64	39	34	30	64	69	43	20	110	2,100	
75	50	64	39	34	30	64	69	43	20	115	2,350	
112.5	50	64	49	34	30	64	69	53	20	115	2,500	
150	50	64	49	34	30	64	69	53	20	120	2,700	
225	50	64	51	34	30	64	73	55	20	140	3,250	
300	50	64	51	34	30	64	75	55	20	160	3,800	
500	50	81	53	34	30	64	85	57	20	200	4,800	
750	64	89	57	42	30	72	93	61	20	255	6,500	
1000	64	89	59	42	30	72	93	63	20	300	7,800	
1500	73	89	86	42	30	72	93	90	24	410	10,300	
2000	73	72	87	42	30	72	76	91	24	420	11,600	
2500	73	72	99	42	30	72	76	103	24	500	14,000	
3000	73	84	99	46	37	84	88	103	24	720	18,700	
3750	84	85	108	47	38	85	88	112	24	800	20,500	
5000	84	96	108	48	48	96	100	112	24	850	25,000	
7500	94	102	122	54	48	102	100	126	24	1,620	46,900	

¹ Weights, gallons of fluid, and dimensions are for reference only and not for construction. Please contact Eaton for exact dimensions.

* Add 9" for Bay-O-Net fusing.

Standard features

Connections and neutral configurations

- Delta - Wye: Low voltage neutral shall be a fully insulated X0 bushing with removable ground strap.
- Grounded Wye-Wye: High voltage neutral shall be internally tied to the low voltage neutral and brought out as the H0X0 bushing in the secondary compartment with a removable ground strap.
- Delta-Delta: Transformer shall be provided without a neutral bushing.
- Wye-Wye: High voltage neutral shall be brought out as the H0 bushing in the primary compartment and the low voltage neutral shall be brought as the X0- bushing in the secondary compartment.
- Wye-Delta: High voltage neutral shall be brought out as the H0 bushing in the primary compartment. No ground strap shall be provided (line to line rated fusing is required).

High and low voltage bushings

- 200 A bushing wells (15, 25, and 35 kV)
- 200 A, 35 kV Large Interface
- 600 A (15, 25, and 35 kV) Integral bushings (dead-front)
- Electrical-grade wet-process porcelain bushings (live-front)

Tank/cabinet features

- Bolted cover for tank access (45-2500 kVA)
- Welded cover with hand hole (>2500 kVA)
- Three-point latching door for security
- Removable sill for easy installation
- Lifting lugs (4)
- Stainless steel cabinet hinges and mounting studs
- Steel divider between HV and LV compartment
- 20" Deep cabinet (45-1000 kVA)
- 24" Deep cabinet (1500-7500 kVA)
- 30" Deep cabinet (34.5/19.92 kV)
- Pentahead captive bolt
- Stainless steel 1-hole ground pads (45-500 kVA)
- Stainless steel 2-hole ground pads (750-10,000 kVA)
- Parking Stands (dead-front)

Valves/plugs

- One-inch upper filling plug
- One-inch drain plug (45-500 kVA)
- One-inch combination drain valve with sampling device in low voltage compartment (750-10,000 kVA)
- Automatic pressure relief valve

Nameplate

- Laser-scribed anodized aluminum nameplate



Figure 3. Drain valve with sampler.



Figure 4. Automatic Pressure relief valve.



Figure 5. Liquid level gauge.



Figure 6. External Gauges.



Figure 7. External visible break with gauges.

Optional features

High and low voltage bushings

- 200 A (15, 25 kV) bushing inserts
- 200 A (15, 25 kV) feed thru inserts
- 200 A (15, 25 kV) (HTN) bushing wells with removable studs
- High-voltage 600 A (15, 25, 35 kV) deadbreak one-piece bushings
- Low voltage 6-, 8-holes spade
- Low voltage 12-, 16-, 20-holes spade (750-2500 kVA)
- Low voltage bushing supports

Tank/cabinet features

- Stainless steel tank base and cabinet
- Stainless steel tank base, cabinet sides and sill
- 100% stainless steel unit
- Service entrance (2 inch) in sill or cabinet side
- Touch-up paint (domestic)
- Copper ground bus bar
- Kirk-Key provisions
- Nitrogen blanket
- Bus duct cutout

Special designs

- Factory Mutual (FM)
- UL® Classified
- Triplex
- High altitude
- K-Factors
- Step-up
- Critical application
- Modulation transformers
- Seismic applications (including OSHPD)

Switches

- One, two, or three On/Off loadbreak switches
- 4-position loadbreak V-blade switch or T-blade switch
- Delta-wye switch
- 3-position V-Blade selector switch
- 100 A, 150 A, 300 A tap changers
- Dual voltage switch
- Visible break with VFI interrupter interlock
- External visible break (15, 25, and 35 kV, up to 3 MVA)
- External visible break with gauges (15, 25, and 35 kV, up to 3 MVA)

Gauges and devices

- Liquid level gauge (optional contacts)
- Pressure vacuum gauge (optional contacts and bleeder)
- Dial-type thermometer (optional alarm contacts)
- Cover mounted pressure relief device (optional alarm contacts)
- Ground connectors
- Hexhead captive bolt
- Molded case circuit breaker mounting provisions
- External gauges in padlockable box

Overcurrent protection

- Bay-O-Net fusing (Current sensing, dual sensing, dual element, high amperage overload)
- Bay-O-Net expulsion fuse in series with a partial range under-oil ELSP current limiting fuse (below 23 kV)
- Cartridge fusing in series with a partial range under-oil ELSP current limiting fuse (above 23 kV)
- MagneX™ interrupter with ELSP current-limiting fuse
- Vacuum Fault Interrupter (VFI)
- Visible break window
- Fuse/switch interlock

Valves/plugs

- Drain/sampling valve in high-voltage compartment
- Globe type upper fill valve

Overvoltage protection

- Distribution-, intermediate-, or station-class surge arresters
- Elbow arresters (for dead-front connections)

Metering/fan/control

- Full metering package
- Current Transformers (CTs)
- Metering Socket
- NEMA® 4 control box (optional stainless steel)
- NEMA® 7 control box (explosion proof)
- Fan Packages

Testing

- Customer test witness
- Customer final inspection
- Zero Sequence Impedance Test
- Heat Run Test
- ANSI® Impulse Test
- Audible Sound Level Test
- RIV (Corona) Test
- Dissolved Gas Analysis (DGA) Test
- 8- or 24-Hour Leak Test

Coatings (paint)

- ANSI® Bell Green
- ANSI® #61 Light Gray
- ANSI® #70 Sky Gray
- Special paint available per request

Nameplate

- Stainless steel nameplate

Decals and labels

- High voltage warning signs
- Mr. Ouch
- Bi-lingual warning
- DOE compliant
- Customer stock code
- Customer stenciling
- Shock and arc flash warning decal
- Non-PCB decal

Construction

Core

The three-legged, step-lap mitered core construction is manufactured using a high-quality cutting machine. For maximum efficiency, cores are precisely stacked, virtually eliminating gaps in the corner joints.

Five-legged wound core or shell-type triplex designs are used for wye-wye connected transformers, and other special transformer designs.

Cores are manufactured with precision cut, burr-free, grain-oriented silicon steel or amorphous metal, depending on customer preference or optimal material based upon performance requirements. Many grades of core steel are available for optimizing core loss efficiency.

Coils

Pad-mounted transformers feature a rectangular coil configuration with wire-wound, high-voltage primaries and sheet-wound secondaries. The design minimizes axial stress developed by short circuits and provides for magnetic balancing of tap connections.

Coils are wound using the highest quality winding machines providing exacting tension control and conductor placement for superior short-circuit strength and maximum efficiency.

Extra mechanical strength is provided by diamond pattern, epoxy-coated paper insulation, used throughout the coil, with additional epoxy at heavy stress points. The diamond pattern distribution of the epoxy and carefully arranged ducts, provide a network of passages through which cooling fluid can freely circulate.

Coil assemblies are heat-cured under calculated hydraulic pressure to ensure performance against short-circuit forces.

Core and coil assemblies

Pad-mounted transformer core and coil assemblies are braced with heavy steel ends to prevent the rectangular coil from distorting under short-circuit conditions. Plates are clamped in place using presses, and welded or bolted to form a solid core and coil assembly. Core and coil assemblies exceed ANSI® and IEEE® requirements for short-circuit performance. Due to the rigidity of the design, impedance shift after short-circuit is comparable to that of circular wound assemblies.

Tanks

Transformer tanks are designed for high strength and ease of handling, installation, and maintenance. Tanks are welded using precision-cut, hot rolled, pickled and oiled steel. They are sealed to protect the insulating fluid and other internal components.

Transformer tanks are pressure-tested to withstand 7 psig without permanent distortion and 15 psig without rupture.

Tank finish

An advanced multi-stage finishing process exceeds IEEE Std C57.12.28™-2014 standards. The eight-stage pre-treatment process assures coating adhesion and retards corrosion. It converts tank surfaces to a nonmetallic, water insoluble iron phosphate coating.

The paint method consists of two distinct layers of paint. The first is an epoxy primer (E-coat) layer which provides a barrier against moisture, salt and corrosives. The two-component urethane final coat seals and adds ultraviolet protection.

Vacuum processing

Transformers are dried and filled with filtered insulating fluid under vacuum, while secondary windings are energized. Coils are heated to drive out moisture, ensuring maximum penetration of fluid into the coil insulation system.

Insulating fluid

Eaton's Cooper Power series transformers are available with

electrical-grade mineral insulating oil or Envirotemp™ FR3™ fluid. The highly refined fluids are tested and degassed to assure a chemically inert product with minimal acid ions. Special additives minimize oxygen absorption and inhibit oxidation. To ensure high dielectric strength, the fluid is re-tested for dryness and dielectric strength, refiltered, heated, dried, and stored under vacuum before being added to the completed transformer.

Eaton's Cooper Power series transformers filled with Envirotemp™ FR3™ fluid enjoy unique fire safety, environmental, electrical, and chemical advantages, including insulation life extending properties.

A bio-based, sustainable, natural ester dielectric coolant, Envirotemp™ FR3™ fluid quickly and thoroughly biodegrades in the environment and is non-toxic per acute aquatic and oral toxicity tests.

Building for Environmental and Economic Sustainability (BEES) total life cycle assessment software, utilized by the US Dept. of Commerce, reports its overall environmental performance impact score at 1/4th that reported for mineral oil. Envirotemp™ FR3™ fluid has also earned the EPA Environmental Technology Verification of transformer materials.

With a fire point of 360 °C, Envirotemp™ FR3™ fluid is FM Approved® and Underwriters Laboratories (UL®) Classified "Less-Flammable" per NEC® Article 450-23, fitting the definition of a Listed



Figure 8. VFI transformer with visible break.

Product per NEC®.

Pad-mounted VFI transformer

Eaton's Cooper Power series VFI transformer combines a conventional distribution transformer with the proven Vacuum Fault Interrupter (VFI). This combination provides both voltage transformation and transformer over current protection in one space saving and money saving package. The pad-mounted VFI transformer protects the transformer and provides proper coordination with upstream protective devices. When a transformer fault or overload condition occurs, the VFI breaker trips and isolates the transformer.

The three-phase VFI breaker has independent single-phase initiation, but is three-phase mechanically gang-tripped. A trip signal on any phase will open all three phases. This feature eliminates single-phasing of three phase loads. It also enables the VFI breaker to be used as a three-phase load break switch.

Due to the resettable characteristics of the VFI breaker, restoring three-phase service is faster and easier.

The sealed visible break window and switch is an option that can be installed to provide visible break contact. This feature provides enhanced safety and allows an operator to see if the loadbreak switch contacts are in an open or closed position before performing

maintenance.

Envirotran™ FM Approved special protection transformer

Eaton's Cooper Power series Envirotran™ transformer is FM Approved and suitable for indoor locations. Factory Mutual Research Corporation's (FMRC) approval of the Envirotran transformer line makes it easy to comply with and verify compliance with Section 450.23, 2008 NEC, Less-Flammable Liquid-Filled Transformer Requirements for both indoor and outdoor locations.

Envirotran FM Approved transformers offer the user the benefit of a transformer that can be easily specified to comply with NEC, and makes FM Safety Data Sheet compliance simpler, while also providing maximum safety and flexibility for both indoor and outdoor installations.

Because the "FM Approved" logo is readily visible on the transformer and its nameplate, NEC compliance is now easily verifiable by the inspector.

Envirotran FM Approved transformers are manufactured under strict compliance with FMRC Standard 3990 and are filled with



FM Approved Envirotemp™ FR3™ fluid, a fire-resistant dielectric coolant.

Special application transformers

Data Center transformer

With focus rapidly shifting from simply maximizing uptime and supporting demand to improving energy utilization, the data center industry is continually looking for methods to increase its energy efficiency and reliability. Utilizing cutting edge technology, Eaton's Cooper Power series Hardened Data Center (HDC) transformers are the solution. Designed with special attention given to surge protection, HDC liquid-filled transformers provide superior performance under the harshest electrical environments. Contrary to traditional dry-type units, HDC transformers provide unsurpassed reliability, overloadability, operational life, efficiency, thermal loading and installed footprint. These units have reliably served more than 100 MW of critical data center capacity for a total of more than 6,000,000 hours without any reported downtime caused by a thermal or short-circuit coil failure.

The top priority in data center operations is uninterrupted service. Envirotran HDC transformers from Eaton, having substantially higher levels of insulation, are less susceptible to voltage surges. Eaton has experienced zero failures due to switching transients. The ANSI® and IEEE® standard impulse withstand ratings are higher for liquid-filled transformers, making them less susceptible to insulation failure. The Envirotran HDC transformer provides ultimate protection by increasing the BIL rating one level higher than standard liquid-filled transformer ratings. The cooling system of liquid-filled transformers provides better protection from severe overloads—overloads that can lead to significant loss of life or failure.

Data center design typically includes multiple layers of redundancy, ensuring maximum uptime for the critical IT load. When best in class transformer manufacturing lead times are typically weeks, not days, an unexpected transformer failure will adversely affect the facility's reliability and profitability. Therefore, the ability to determine the electrical and mechanical health of a transformer can reduce the probability of costly, unplanned downtime. Routine diagnostic tests, including key fluid properties and dissolved gas analysis (DGA), can help determine the health of a liquid-filled transformer. Although sampling is not required for safe operation, it will provide the user with valuable information, leading to scheduled repair or

replacement, and minimizing the duration and expense of an outage. With a dry-type transformer, there is no reliable way to measure the health or likelihood of an impending failure.

Solar transformer

As a result of the increasing number of states that are adopting aggressive Renewable & Alternative Energy Portfolio Standards, the solar energy market is growing—nearly doubling year over year. Eaton, a key innovator and supplier in this expanding market, is proud to offer its Cooper Power series Envirotran transformers specifically designed for Solar Photovoltaic medium-voltage applications. Eaton is working with top solar photovoltaic developers, integrators and inverter manufacturers to evolve the industry and change the way we distribute power.

In accordance with this progressive stance, every Envirotran Solar transformer is filled with non-toxic, biodegradable Envirotemp™ FR3™ dielectric fluid, made from renewable seed oils. On top of its biodegradability, Envirotemp™ FR3™ fluid substantially extends the life of the transformer insulation, saving valuable resources. What better way to distribute green power than to use a green transformer. In fact, delaying conversion to Envirotran transformers places the burden of today's environmental issues onto tomorrow's generations. Eaton can help you create a customized transformer, based on site specific characteristics including: temperature profile, site altitude, solar profile and required system life. Some of the benefits gained from this custom rating include:

- Reduction in core losses
- Improved payback on investment
- Reduction in footprint
- Improved fire safety
- Reduced environmental impact

For the solar photovoltaic industry, Eaton is offering standard step up transformers and dual secondary designs, including 4-winding, 3-winding (Low-High-Low) and 3-winding (Low-Low-High) designs.

Wind transformer

Eaton is offering custom designs for renewable energy power generation. Eaton manufactures its Cooper Power series Generator Step-Up (GSU) transformers for installation at the base of every wind turbine. Additionally, grounding transformers are available for wind power generation.

DOE efficiency

The United States Department of Energy (DOE) has mandated efficiency values for most liquid type, medium voltage transformers. As a result, all applicable Eaton's Cooper Power series transformers 2500 kVA and below conform to efficiency levels as specified in the DOE ruling "10 CFR Part 431 Energy Conservation Program."

Underwriters Laboratories® (UL®) Listed and Labeled/Classified

The Envirotran transformer from Eaton can be specified as UL® Listed & Labeled, and/or UL® Classified. Underwriters Laboratories (UL®) listing is a verification of the design and construction of the transformer to the ANSI® and IEEE® standards. UL® listing generally is the most efficient, cost-effective solution for complying with relevant state and local electrical codes. UL® Combination Classification/Listing is another way in which to comply with Section 450.23, 2008 NEC® requirements. This combines the UL® listed transformer with a UL® Classified Less-Flammable Liquid and complies with the use restrictions found within the liquid Classification.



K-Factor transformer

With a drastic increase in the use of ferromagnetic devices, arcing devices, and electric power converters, higher frequency loads have increased significantly. This harmonic loading has the potential to generate higher heat levels within a transformer's windings and leads by as much as 300%. Harmonic loading has the potential to induce premature failure in standard-design distribution transformers.

In addition to standard UL® "K-Factor" ratings, transformers can be designed to customer-provided specifications detailing precise loading scenarios. Onsite measurements of magnitude and frequency, alongside harmonic analysis of the connected load can be performed by Eaton engineers or a third party consultant. These field measurements are used to determine exact customer needs and outline the transformer specifications.

Eaton will design harmonic-resistant transformers that will be subjected to the unique harmonic loads. These units are designed to maintain normal temperature rise under harmonic, full-load conditions. Standard UL® "K-Factor" designs can result in unnecessary costs when the "next-highest" K-Factor must be selected for a calculated design factor. To save the customer these unnecessary costs, Eaton can design the transformer to the specific harmonic spectrum used in the application. Eaton's Cooper Power series K-factor transformers are filled with mineral oil or Envirotemp™ FR3™ fluid and enjoy the added benefits of dielectric cooling such as higher efficiencies than dry-type transformers.

Modulation transformer

Bundled with an Outboard Modulation Unit (OMU) and a Control and Receiving Unit (CRU), a Modulation Transformer Unit (MTU) is designed to remotely achieve two way communication.

The use of an MTU reduces travel time and expense versus traditional meter reading performed by high voltage electricians. Additionally, with MTU it is possible to manage and evaluate energy consumption data, providing reduced metering costs and fewer tenant complaints.

An MTU utilizes existing utility infrastructure, therefore eliminating the need to engineer and construct a dedicated communication network.



Figure 9. Modular transformer.

Inverter/rectifier bridge

Eaton complements its range of applications for transformers by offering dual winding designs. These designs are intended for connection to 12-pulse rectifier bridges.

Product attributes

To set us apart from other transformer manufactures, Eaton includes the following guarantees with every three-phase pad-mounted transformer.

Engineered to order (ETO)

Providing the customer with a well developed, cost-effective solution is the number one priority at Eaton. Using customer specifications, Eaton will work with the customer from the beginning to the end to develop a solution to fit their needs. Whether it is application specific, site specific, or a uniquely specified unit, Eaton will provide transformers with the best in class value and performance, saving the customer time and money.

Made in the U.S.A.

Eaton's three-phase pad-mounted transformers are produced right here in the United States of America. Our manufacturing facilities are positioned strategically for rapid shipment of products. Furthermore, should the need arise, Eaton has a broad network of authorized service repair shops throughout the United States.

Superior paint performance

Protecting transformers from nature's elements worldwide, Eaton's E-coat system provides unrivaled transformer paint life, and exceeds IEEE Std C57.12.28™-2014 and IEEE Std C57.12.29™-2005 standards. In addition to the outside of the unit, each transformer receives a gray E-coat covering in the interior of the tank and cabinet, providing superior rust resistance and greater visibility during service.

If the wide range of standard paint selections does not suit the customer's needs, Eaton will customize the paint color to meet their requirements.

Rectangular coil design

Eaton utilizes a rectangular coil design. This winding technique results in a smaller overall unit footprint as well as reducing the transformer weight. The smaller unit size does not hinder the transformer performance in the least. Units have proven short circuit withstand capabilities up to 10 MVA.

Testing

Eaton performs routing testing on each transformer manufactured including the following tests:

- **Insulation Power Factor:** This test verifies that vacuum processing has thoroughly dried the insulation system to required limits.
- **Ratio, Polarity, and Phase Relation:** Assures correct winding ratios and tap voltages; checks insulation of HV and LV circuits. Checks entire insulation system to verify all live-to-ground clearances.
- **Resistance:** This test verifies the integrity of internal high-voltage and low-voltage connections; provides data for loss upgrade calculations.
- **Routine Impulse Tests:** The most severe test, simulating a lightning surge. Applies one reduced wave and one full wave to verify the BIL rating.
- **Applied Potential:** Applied to both high-voltage and low-voltage windings, this test stresses the entire insulation system to verify all live-to-ground clearances.
- **Induced Potential:** 3.46 times normal plus 1000 volts for reduced neutral designs.
- **Loss Test:** These design verification tests are conducted to assure that guaranteed loss values are met and that test values are

within design tolerances. Tests include no-load loss and excitation current along with impedance voltage and load loss.

- Leak Test: Pressurizing the tank to 7 psig assures a complete seal, with no weld or gasket leaks, to eliminate the possibility of moisture infiltration or fluid oxidation.

Design performance tests

The design performance tests include the following:

- Temperature Rise: Our automated heat run facility ensures that any design changes meet ANSI® and IEEE® temperature rise criteria.
- Audible Sound Level: Ensures compliance with NEMA® requirements.
- Lightning Impulse: To assure superior dielectric performance, this test consists of one reduced wave, two chopped waves and one full wave in sequence, precisely simulating the harshest conditions.

Thomas A Edison Research and Test Facility

We are constantly striving to introduce new innovations to the transformer industry, bringing you the highest quality transformer for the lowest cost. Eaton's Cooper Power series Transformer Products are ISO 9001 compliant, emphasizing process improvement in all phases of design, manufacture, and testing. We have invested millions of dollars in the Thomas A. Edison Technical Center, our premier research facility in Franksville, Wisconsin affirming our dedication to introducing new innovations and technologies to the transformer industry. This research facility is fully available for use by our customers to utilize our advanced electrical and chemical testing labs.

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For Eaton's Cooper Power series three-phase transformer product information call 1-877-277-4636 or visit:
www.eaton.com/cooperpowerseries.

Exhibit I: Decommissioning Plan



Decommissioning Estimate/Plan

Date: 5/19/2025
Calculated By: MJD

4578 COUNTY 12 BLVD
GOODHUE COUNTY, MN

This Decommissioning Estimate has been prepared by New Leaf Energy in an attempt to predict the cost associated with the removal of the proposed solar facility. The financial resource to cover the cost of decommissioning and removal of the system is anticipated to be provided in the form of a surety bond. The primary cost of decommissioning is the labor to dismantle and load as well as the cost of trucking and equipment. All material will be removed from the site, including the concrete equipment pads, which will be broken up at the site and hauled to the nearest transfer station.

No salvage values have been assumed in this calculation.

The following values were used in this Decommissioning Estimate:

System Specifications		Equipment & Material Removal Rates	
Number of Modules	10,200	Module Removal Rate (min/module)	2
Linear Feet of Racking (ft)	38,250	Rack Wiring Rem. Rate (min/mod)	1
Number of Inverters	20	Racking Dismantling Rate (min/LF)	0.4
Number of Transformers	2	Inverter Removal Rate (hr/unit)	0.5
Number of Tracker Motors	159	Transformer Removal Rate (hr/unit)	2
Electrical Wiring Length (ft)	2,800	Motor Removal Rate (hr/unit)	2
Number of Foundation Piles	2,319	Rack Loading Rate (min/LF)	0.5
Length of Perimeter Fence (ft)	3,800	Elect. Wiring Removal Rate (min/LF)	1
Number of Power Poles	6	Pile Rem. Rate (piles/day)	300
Access Rd Material Volume (YD)	1,138	Fence Removal Rate (min/LF)	2
Total Disturbed Area (SF)	29,471	Days req. to break up concrete pads	1
Total Fence Weight (lbs)	2,698	Days req. with Rough Grader	1
Total Racking Weight (lbs)	239,700	Days req. with Fine Grader	1
Total Foundation Pile Weight (lbs)	313,065	Total Truckloads Required	24
Total Solar Module Weight (lbs)	652,800	Round-Trip Dist. to Trans. Sta.(miles)	12
		Round-Trip Time to Trans. Sta. (hr)	0.25
Labor and Equipment Costs			
Labor Rate (\$/hr)	\$ 68.50		
Operator Rate (\$/hr)	\$ 72.50		
Bobcat Cost (\$/hr)	\$ 105.10		
Front End Loader Cost (\$/Day)	\$ 872.33		
Excavator Cost (\$/Day)	\$ 1,408.34		
Trucking Cost (\$/hr)	\$ 131.38		
Backhoe Cost (\$/hr)	\$ 105.10		
Power Pole Removal Cost (\$/pole)	\$ 1,500.00		
Grader Cost (\$/day)	\$ 1,366.30		
Gravel Export Cost (\$/YD)	\$ 8.00		
Loam Import Cost (\$/YD)	\$ 20.00		
Seeding Cost (\$/SF)	\$ 0.10		
Fuel Cost (\$/mile)	\$ 0.67		

Labor, Material, and Equipment Costs

1. Remove Modules

The solar modules are fastened to racking with clamps. They slide in a track. A laborer needs only unclamp the module and reach over and slide the module out of the track.

$$\text{Module Removal Rate} \cdot \text{Total Number of Solar Modules} \cdot \text{Labor Rate} = \text{Module Removal Cost}$$

$$\text{Total} = \$ 23,290.00$$

2. Remove Rack Wiring

The modules are plugged together in the same manner as an electrical cord from a light is plugged into a wall socket. The string wires are in a tray. A laborer needs only unplug the module, reach into the tray and remove the strands of wire.

$$\text{Wire Removal Rate} \cdot \text{Total Number of Solar Modules} \cdot \text{Labor Rate} = \text{Rack Wiring Removal Cost}$$

$$\text{Total} = \$ 11,645.00$$

3. Dismantle Racks

Tracker module racking primarily consists of torque tubes and a driveline. These are supported on driven piles. The torque tubes and driveline unbolt from the foundation piles.

$$\text{Linear feet of Racking} \cdot \text{Rack Dismantling Rate} \cdot \text{Labor Rate} = \text{Rack Dismantling Cost}$$

$$\text{Total} = \$ 17,467.50$$

4. Remove and Load Electrical Equipment

Electrical equipment includes transformers, inverters, and tracker motors.

$$(\text{Number of Inverters} \cdot \text{Inverter Removal Rate} + \text{Number of Transformers} \cdot \text{Transformer Removal Rate} + \text{Number of Motors} \cdot \text{Motor Removal Rate}) \cdot (\text{Operator Rate} + \text{Bobcat Cost}) = \text{Electrical Equipment Removal Cost}$$

$$\text{Total} = \$ 58,963.20$$

5. Break Up Concrete Pads

Concrete pads are broken up using an excavator and jackhammer.

$$\text{Number of Demolition Days} \cdot (\text{Excavator Cost} + \text{Operator Cost}) = \text{Total Concrete Pad Removal}$$

$$\text{Total} = \$ 1,452.33$$

6. Load Racks

Once the racking has been dismantled, it will be loaded onto trucks for removal from the site. The trucking cost associated with this line item represents the additional time a truck will be needed during loading. Please see item # 13 for the cost of trucking off-site.

$$\text{Linear feet of Racking} \cdot \text{Rack Loading Rate} \cdot (\text{Operator Cost} + \text{Front End Loader Cost} + \text{Trucking Cost}) = \text{Total Rack Removal Cost}$$

Total = \$ 98,485.78

7. Remove Electrical Wiring

All electrical wiring and underground conduits will be removed to a depth of 48 inches.

$$\text{Cable Length} \cdot \text{Cable Removal Rate} \cdot (\text{Operator Cost} + \text{Backhoe Cost}) = \text{Total Cable Removal Cost}$$

Total = \$ 16,576.00

8. Remove Foundation Piles

Foundation piles will be pulled out of the ground and loaded onto a truck to be removed from site.

$$(\text{Total Number of Piles} / \text{Daily Pile Removal Rate}) \cdot (\text{Operator Rate} + \text{Excavator Cost}) = \text{Total Pile Removal Cost}$$

Total = \$ 23,054.80

9. Remove Fencing

Fencing posts, mesh, and foundations will be loaded onto a truck and removed from site. Trucking costs included in this line item are for the removal process. Trucking to a recycling facility are included in item #13.

$$(\text{Total Length of Fence} \cdot \text{Fence Removal Rate}) \cdot (\text{Operator Rate} + \text{Bobcat Cost} + \text{Trucking Cost}) =$$

Total = \$ 39,136.83

10. Remove Power Poles

Power poles will be removed and shipped off site.

$$\text{Number of Power Poles} \cdot \text{Pole Removal cost} = \text{Total Power Pole Removal Cost}$$

Total = \$ 9,000.00**11. Gravel Road Reclamation**

Reclamation of the gravel access road will entail removing the gravel material and exporting it off site. The area will then be backfilled with loam and graded.

$$(Days\ with\ Rough\ Grader + Days\ with\ Fine\ Grader) \cdot (Grader\ Cost\ per\ Day + Operator\ Cost\ per\ Day) + [Roadway\ Material\ Volume \cdot (Gravel\ Export\ Cost + Loam\ Import\ Cost)] = \\ Gravel\ Road\ Reclamation\ Cost$$

Total = \$ 35,753.83**12. Seed Disturbed Areas**

Seeding cost includes labor and materials for reseeding all disturbed areas including the reclaimed gravel road area, former electrical areas, and areas disturbed by racking foundation removal.

$$Seeding\ Cost \cdot Disturbed\ Area = \\ Total\ Seeding\ Cost$$

Total = \$ 2,947.10**13. Truck to Transfer Station**

All material will be trucked to the nearest Transfer station that accepts construction material. The nearest transfer station is Flom Disposal

$$(Total\ Truckloads \cdot Roundtrip\ Distance \cdot Fuel\ Cost) + (Total\ Truckloads \cdot Round\ Trip\ Time \cdot \\ Trucking\ Cost) = \\ Total\ Trucking\ Cost\ to\ Transfer\ Station$$

Total = \$ 981.21

Salvage Values

Salvage Value Not Included

Racking Disposal Cost**1S. Racking Disposal Cost**

The racking can be disposed of at the Transfer Station. They will be trucked to Flom Disposal.

$$(Total\ Racking\ Weight)/2000 \cdot Cost\ per\ Ton\ of\ disposal =$$

$$Total = \$ 27,093.75$$

Panel Disposal**2S. Solar Panel Disposal Cost**

The panels can be disposed of at facilities which except electronics. They will be trucked to Flom Disposal.

$$(Total\ Panel\ Weight)/2000 \cdot Cost\ per\ Ton\ of\ disposal =$$

$$Total = \$ 48,960.00$$



4578 COUNTY 12 BLVD
GOODHUE COUNTY, MN

Summary of Decommissioning Costs and Salvage Values

Line Item	Task	Cost
1	Module Removal	\$ 23,290.00
2	Rack Wiring Removal	\$ 11,645.00
3	Rack Dismantling	\$ 17,467.50
4	Electrical Equipment Loading and Removal	\$ 58,963.20
5	Break Up Concrete Pads	\$ 1,452.33
6	Load Racks	\$ 98,485.78
7	Electrical Wiring Removal	\$ 16,576.00
8	Foundation Pile Removal	\$ 23,054.80
9	Fence Removal	\$ 39,136.83
10	Power Pole Removal	\$ 9,000.00
11	Gravel Road Reclamation	\$ 35,753.83
12	Seed Disturbed Areas	\$ 2,947.10
13	Trucking to Transfer Station	\$ 981.21
		Subtotal = \$ 338,753.59

Additional Item	Task	Value
Salvage Values Not Included		
1S	Racking Disposal Cost	\$ 27,093.75
2S	Solar Panel Disposal Cost	\$ 48,960.00

Additional Item Subtotal \$ 76,053.75

Present Value Total = \$ 414,807.34

Task	Future Value
------	--------------

Inflation

of Years= 25



4578 COUNTY 12 BLVD
GOODHUE COUNTY, MN

Inflation Rate= 2.0%

Total • (1+ Inflation Rate)^Number of Years =Grand Total

Grand Total = \$ 680,535.41

Exhibit J: NRCS Prime Farmland

Farmland Classification—Goodhue County, Minnesota

































Map Scale: 1:6,810 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND













 Area of Interest (AOI)	 Prime farmland if subsoiled, completely removing the root inhibiting soil layer	 Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season	 Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium	 Farmland of unique importance
 Not prime farmland	 Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	 Farmland of statewide importance, if irrigated and drained	 Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	 Not rated or not available
Soil Rating Polygons	 All areas are prime farmland	 Prime farmland if irrigated and reclaimed of excess salts and sodium	 Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season	 Not prime farmland
 Prime farmland if drained	 Prime farmland if irrigated	 Farmland of statewide importance, if drained	 Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season	 All areas are prime farmland
 Prime farmland if protected from flooding or not frequently flooded during the growing season	 Farmland of statewide importance	 Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer	 Farmland of statewide importance, if warm enough	 Prime farmland if drained
 Prime farmland if irrigated	 Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season	 Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	 Farmland of local importance	 Prime farmland if protected from flooding or not frequently flooded during the growing season
 Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	 Farmland of statewide importance, if irrigated	 Farmland of statewide importance, if irrigated	 Farmland of local importance	 Prime farmland if irrigated and drained
 Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		 Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	 Farmland of local importance	 Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season










Farmland Classification—Goodhue County, Minnesota

	Prime farmland if subsolled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsolled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Prime farmland if protected from flooding or not frequently flooded during the growing season		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance, if drained		Farmland of statewide importance, if subsolled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if irrigated and drained		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated				Farmland of local importance		Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated

Soil Rating Points

Farmland Classification—Goodhue County, Minnesota

	Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated and drained
	Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
	Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if warm enough
	Farmland of statewide importance, if thawed
	Farmland of local importance
	Farmland of local importance, if irrigated

	Farmland of unique importance
	Not rated or not available
Water Features	
	Streams and Canals
Transportation	
	+++ Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads
Background	
	Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

Soil Survey Area: Goodhue County, Minnesota
 Survey Area Data: Version 20, Sep 7, 2024

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

Date(s) aerial images were photographed: Jul 30, 2020—Oct 8, 2020

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

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
M505A	Klinger silt loam, 1 to 4 percent slopes	All areas are prime farmland	55.9	45.5%
M507B	Marquis silt loam, 2 to 6 percent slopes	All areas are prime farmland	26.7	21.7%
M510A	Maxfield silt loam, 0 to 2 percent slopes	Prime farmland if drained	26.3	21.4%
M523C2	Bassett-Kasson complex, 6 to 12 percent slopes, eroded	Farmland of statewide importance	4.1	3.4%
M532A	Maxfield silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained	9.9	8.0%
Totals for Area of Interest			123.0	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options










































Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Custom Soil Resource Report Soil Map



MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
	Soils		Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
	Special Point Features		Water Features
	Blowout		Streams and Canals
	Borrow Pit		Transportation
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Aerial Photography
	Marsh or swamp		
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

Soil Survey Area: Goodhue County, Minnesota
Survey Area Data: Version 20, Sep 7, 2024

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

Date(s) aerial images were photographed: Jul 30, 2020—Oct 8, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
M505A	Klinger silt loam, 1 to 4 percent slopes	54.6	46.5%
M507B	Marquis silt loam, 2 to 6 percent slopes	25.1	21.4%
M510A	Maxfield silt loam, 0 to 2 percent slopes	24.1	20.5%
M523C2	Bassett-Kasson complex, 6 to 12 percent slopes, eroded	4.1	3.5%
M532A	Maxfield silty clay loam, 0 to 2 percent slopes, occasionally flooded	9.5	8.1%
Totals for Area of Interest		117.4	100.0%

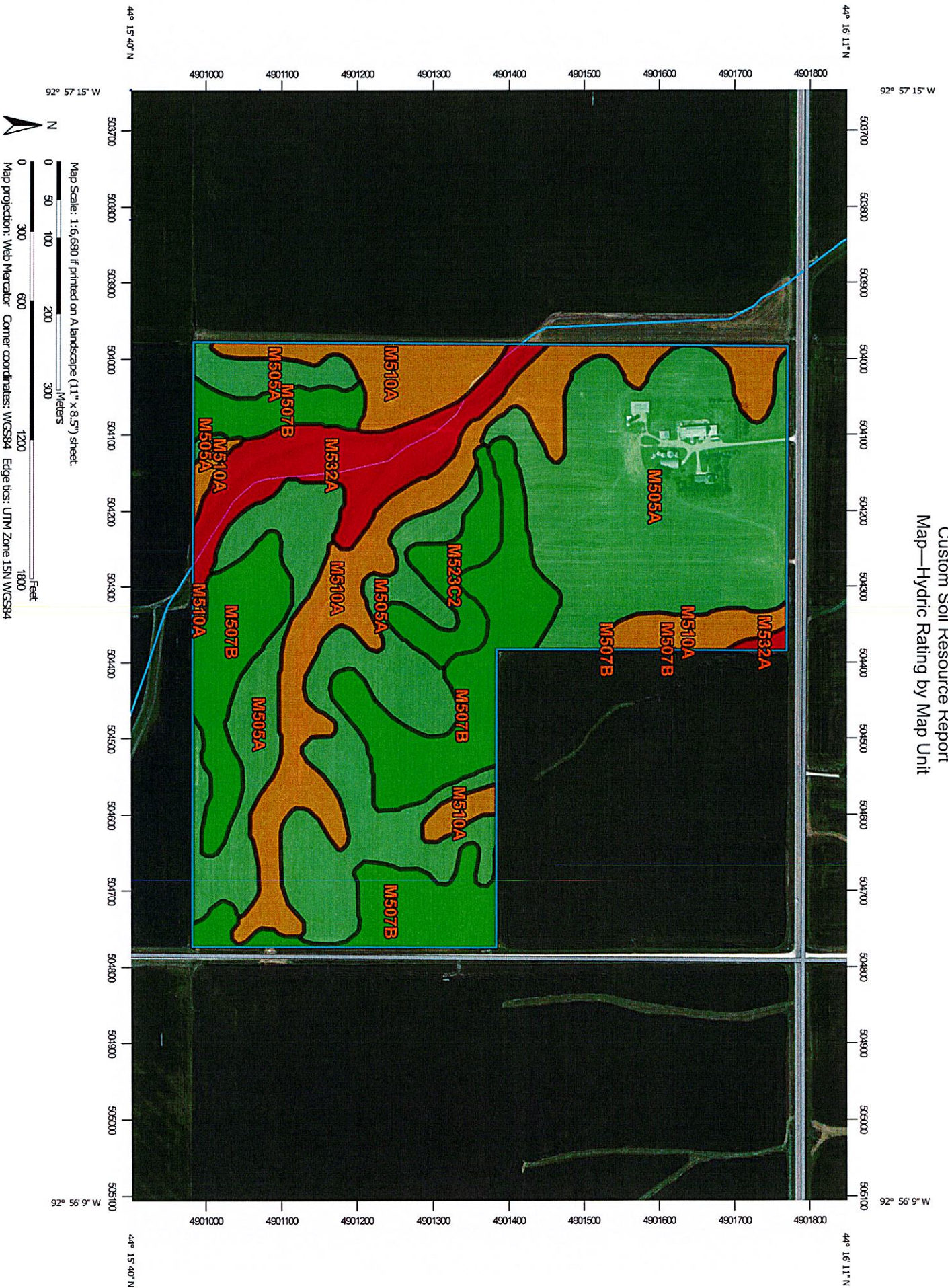
Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

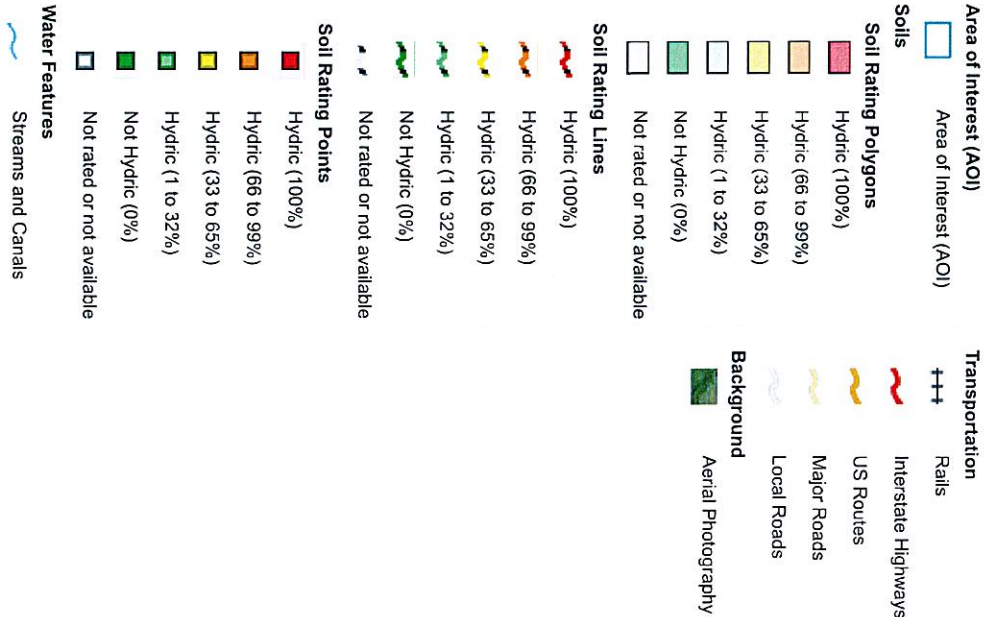
A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

Custom Soil Resource Report Map—Hydric Rating by Map Unit



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

Soil Survey Area: Goodhue County, Minnesota
Survey Area Data: Version 20, Sep 7, 2024

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

Date(s) aerial images were photographed: Jul 30, 2020—Oct 8, 2020

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

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
M505A	Klinger silt loam, 1 to 4 percent slopes	5	54.6	46.5%
M507B	Marquis silt loam, 2 to 6 percent slopes	0	25.1	21.4%
M510A	Maxfield silt loam, 0 to 2 percent slopes	90	24.1	20.5%
M523C2	Bassett-Kasson complex, 6 to 12 percent slopes, eroded	0	4.1	3.5%
M532A	Maxfield silty clay loam, 0 to 2 percent slopes, occasionally flooded	100	9.5	8.1%
Totals for Area of Interest			117.4	100.0%

Rating Options—Hydric Rating by Map Unit*Aggregation Method: Percent Present**Component Percent Cutoff: None Specified**Tie-break Rule: Lower*

Appendix E

Offsite Hydrology/Wetland Determination

Project Name: 4578 County 12 Blvd, Kenyon, MN
County: Goodhue Weather Station: Zumbrota
Date: 10/23/2024

Investigator: CD
Legal Description (S, T, R): 11, 109N, 018W
Page 1 of 1



[illegible]

- Use above key to label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.
- If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.

* Answer "N/A" if field verification is not required and was not conducted.

07-18-2003 NAIP Normal

Area A

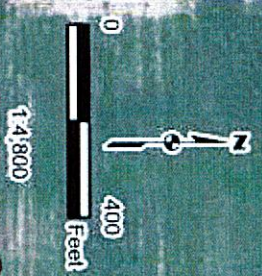
 Delineation Area (+/- 117.3 acres)
 FSA Slide Review Areas



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APPENDIX E

OFF-SITE WETLAND SLIDE REVIEW
OCTOBER, 2024



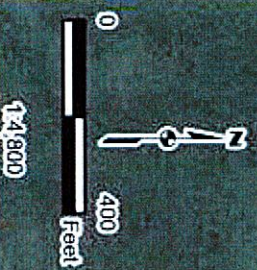
08-18-2009 NAIP Normal

Area A

-  Delineation Area (+/- 117.3 acres)
-  FSA Slide Review Areas



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OCTOBER, 2024

07-18-2013 NAIP Wet

Area A

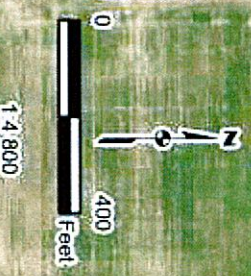
 Delineation Area (+/-
117.3 acres)
 FSA Slide Review Areas



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OFF-SITE WETLAND SLIDE REVIEW
OCTOBER, 2024



04-22-2015 Google Earth, Normal

0 400 Feet
1:4,800

APPENDIX E

OFF_SITE WETLAND SLIDE REVIEW
OCTOBER, 2024

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GEI

5250 Midway Truck, Hwy. 26, Box 2
Theftville, OH 45881
www.jm-cummins.com

Delineation Area (+/- 117.3 acres)

FSA Slide Review Areas

Editorial Board: David H. Gustafson, dgustaf@u.washington.edu, University of Washington School of Public Health and Community Medicine, 6600 University Avenue, NE, Seattle, WA 98195-7350, USA; and Keith J. Jolley, keith.j.jolley@unsw.edu.au, The University of New South Wales, 156 Railway Parade, Kensington, NSW 1512, Australia.

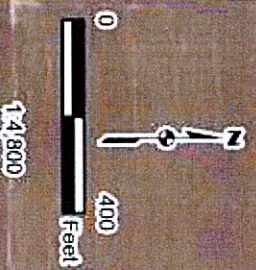
09-30-2015 NAIP Normal

Area A

-  Delineation Area (+/- 117.3 acres)
-  FSA Slide Review Areas



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OFF-SITE WETLAND SLIDE REVIEW
OCTOBER, 2024

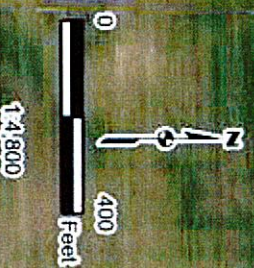
07-27-2019 NAIP Wet

Area A

 Delineation Area (+/-
117.3 acres)
 FSA Slide Review Areas



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OFF-SITE WETLAND SLIDE REVIEW
OCTOBER, 2024

08-14-2021 NAIP Normal

Area A

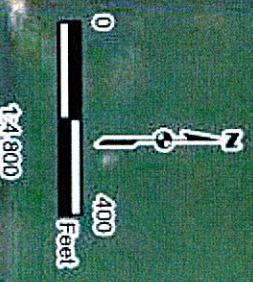
 Delineation Area (+/-
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 FSA Slide Review Areas



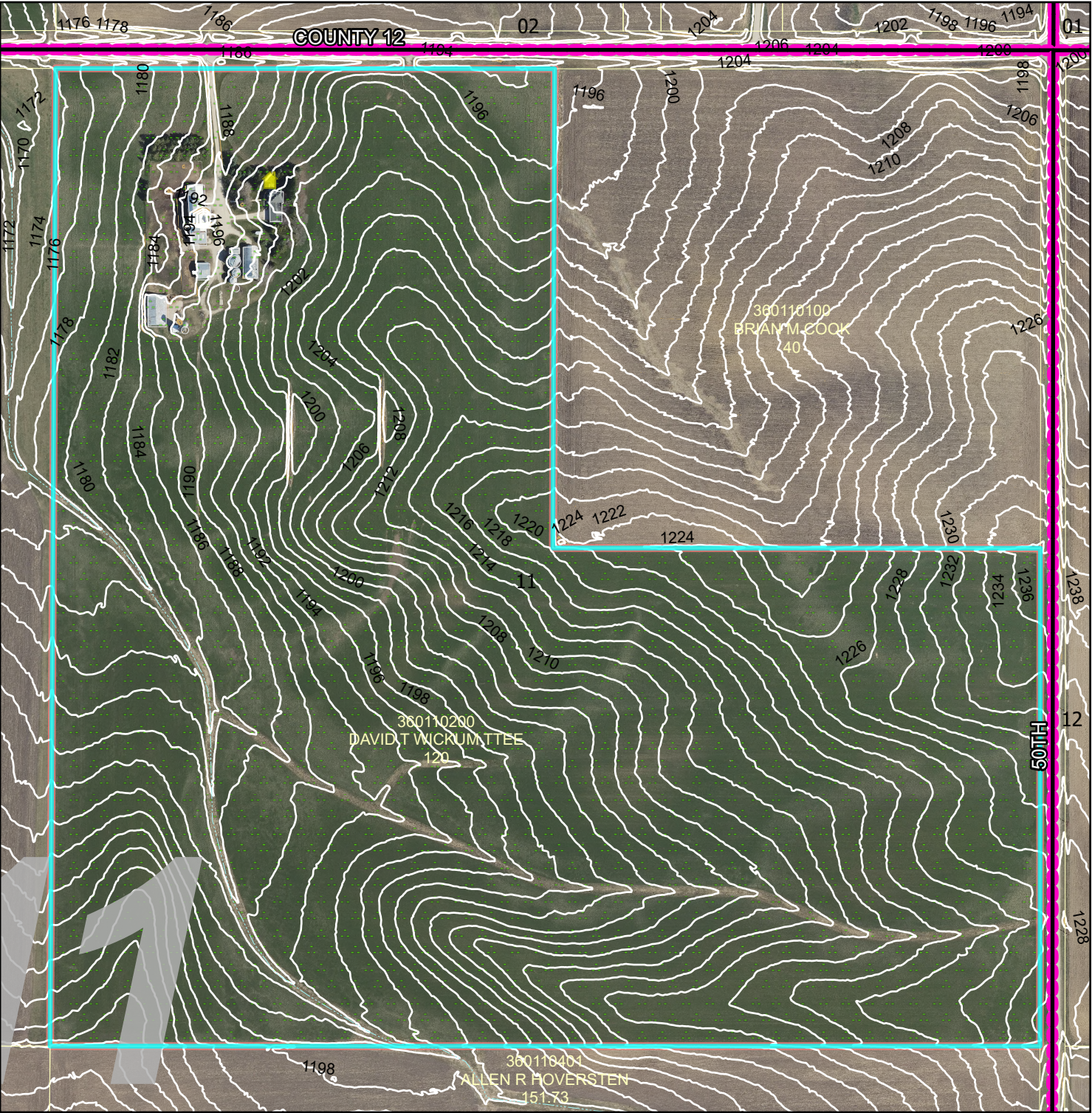
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APPENDIX E

OFF-SITE WETLAND SLIDE REVIEW
OCTOBER, 2024



MAP 03: ELEVATIONS



PLANNING COMMISSION

Public Hearing
June 16th, 2025

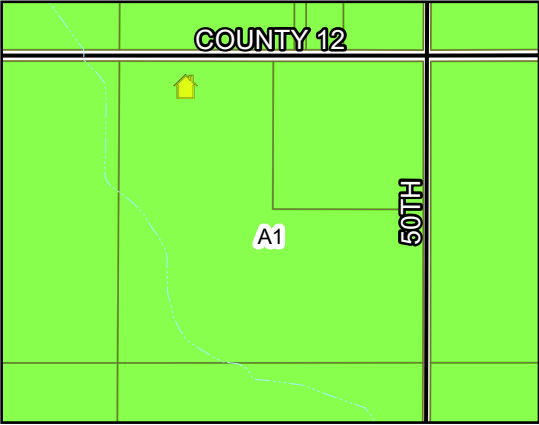
Kenyon Solar 1, LLC (Applicant) on behalf
of David Wickum (Owner)
A-1 Zoned District.

The SE1/4 OF NE1/4 of Section 11
TWP 109 Range 18 in Kenyon Township.

Request for CUP for a Commercial Solar
Array that will be 4-Mega Watts in size.

Legend

- | | |
|----------------------------|------------------------------------|
| Intermittent Streams | Bluff Impact Zones (% slope)
20 |
| Protected Streams | 30 |
| Lakes & Other Water Bodies | |
| Shoreland | FEMA Flood Zones |
| Historic Districts | 2% Annual Chance |
| Parcels | A |
| Registered Feedlots | AE |
| Dwellings | AO |
| Municipalities | X |



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Map Created May, 2025 by LUM



MAP 01: PROPERTY OVERVIEW



PLANNING COMMISSION

Public Hearing
June 16th, 2025

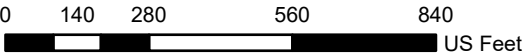
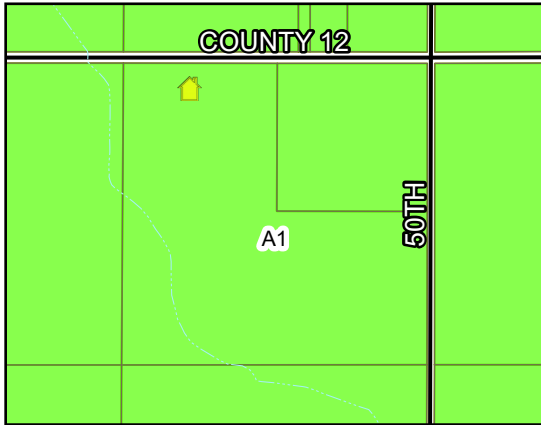
Kenyon Solar 1, LLC (Applicant) on behalf
of David Wickum (Owner)
A-1 Zoned District.

The SE1/4 OF NE1/4 of Section 11
TWP 109 Range 18 in Kenyon Township.

Request for CUP for a Commercial Solar
Array that will be 4-Mega Watts in size.

Legend

- Intermittent Streams
 - Protected Streams
 - Lakes & Other Water Bodies
 - Shoreland
 - Historic Districts
 - Parcels
 - Registered Feedlots
 - Dwellings
 - Municipalities
- Bluff Impact Zones (% slope)**
- 20
 - 30
- FEMA Flood Zones**
- 2% Annual Chance
 - A
 - AE
 - AO
 - X

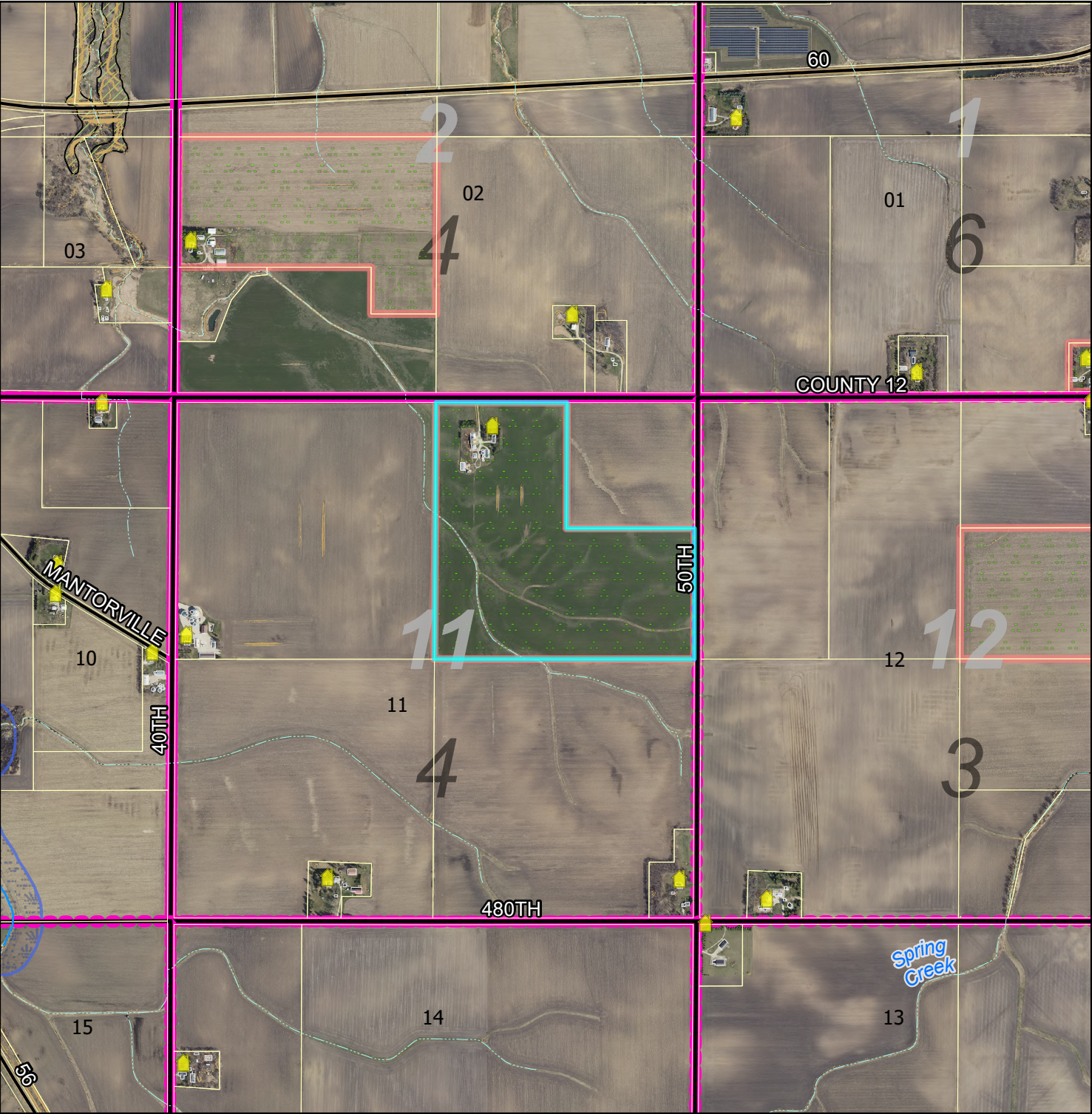


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MAP 02: VICINITY MAP



PLANNING COMMISSION

Public Hearing
June 16th, 2025

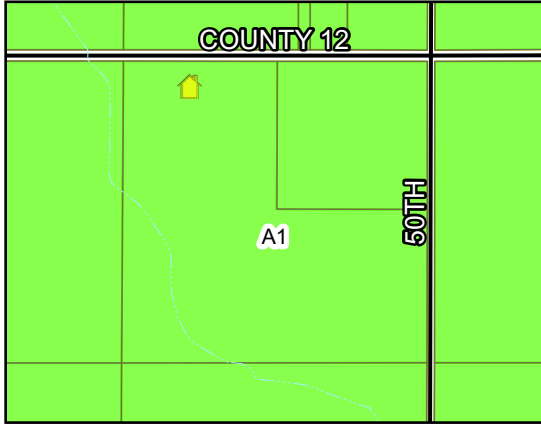
Kenyon Solar 1, LLC (Applicant) on behalf
of David Wickum (Owner)
A-1 Zoned District.

The SE1/4 OF NE1/4 of Section 11
TWP 109 Range 18 in Kenyon Township.

Request for CUP for a Commercial Solar
Array that will be 4-Mega Watts in size.

Legend

- | | |
|----------------------------|------------------------------|
| Intermittent Streams | Bluff Impact Zones (% slope) |
| Protected Streams | 20 |
| Lakes & Other Water Bodies | 30 |
| Shoreland | |
| Historic Districts | FEMA Flood Zones |
| Parcels | 2% Annual Chance |
| Registered Feedlots | A |
| Dwellings | AE |
| Municipalities | AO |
| | X |



0 500 1,000 2,000 3,000
US Feet

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