Champaign County
Department of
PLANNING & ZONING

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CASE 175-S-25

PRELIMINARY MEMORANDUM
September 18 2025

Petitioner: **Champaign CSG 1 LLC, c/o Dimension RE LLC, via agent Daniel Solorzano, and participating landowner Foersterling Farm LLC**

Request: **Authorize a Community PV Solar Farm with a total nameplate capacity of 3 megawatts (MW), including access roads and wiring, in the AG-1 Agriculture Zoning District, and including the following waivers of standard conditions:**

Part A: A waiver for locating the PV Solar Farm less than one and one-half miles from an incorporated municipality with a zoning ordinance and one-half mile from a municipal boundary per Section 6.1.5 B.(2)a.(a).

Part B: A waiver for not entering into a Roadway Upgrade and Maintenance Agreement or waiver therefrom with the relevant local highway authority prior to consideration of the Special Use Permit by the Zoning Board of Appeals, per Section 6.1.5 G.(1).

Part C: A waiver for providing financial assurance for the Decommissioning and Site Reclamation Plan in the form of a surety bond, in-lieu of a letter of credit per Section 6.1.5 Q.

Other waivers may be necessary.

Location: **The subject property is approximately 35 acres lying south and east of the Copper Slough drainage ditch on a 202-acre tract of land with PIN 03-20-30-100-002 on the South side of Windsor Road, described as The west half of the northwest fraction quarter of section 30 also described as lot 2 of the northwest fractional quarter of section 30; The east half of the northwest fractional quarter of Section 30, also described as lot 1 of the northwest fractional quarter of section 30; except all that part of the south 200 feet thereof lying east of the Copper Slough drainage ditch; and the west half of the northwest quarter of section 30, except the south 200 feet thereof; all in township 19 north, range 8 east of the third principal meridian in Champaign County, commonly known as farmland owned by Foersterling Farms LLC.**

Site Area: **35 acres**

Time Schedule for Development: **As soon as possible**

Prepared by: **Charlie Campo,** Zoning Officer
John Hall, Zoning Administrator
Trevor Partin, Associate Planner

BACKGROUND

The petitioner applied for a Special Use Permit to construct a 3.0 (MW) Community Photovoltaic (PV) Solar Farm on a 35-acre site on the south side of Windsor Rd in Champaign Township. The petitioners request waivers from standard conditions for the Special Use Permit. A PV Solar Farm requires approval by the County Board after recommendations are made by the ZBA and Environment and Land Use Committee.

REQUESTED WAIVERS

Waiver Part A is for locating the PV Solar Farm less than one and one-half miles from an incorporated municipality per 6.1.5 B.(2)a. and one-half mile from a municipal boundary. The subject property is within one-half mile of the City of Champaign, a municipality with zoning. Zoned municipalities do not have protest rights in Special Use Permit cases. Notice was sent by the Department to the City of Champaign. A copy of the Special Use permit application was provided to the City. A public hearing for a PV Solar Farm within one and one-half miles of a municipality with zoning shall occur at a minimum of two Board meetings no less than 28 days apart unless the requirement is waived by the relevant municipality.

Waiver Part B is for not entering into a Roadway Upgrade and Maintenance Agreement with the relevant local highway authority prior to consideration of the Special Use Permit by the ZBA, per Section 6.1.5 G. The site plan is under review by the Champaign Township Highway Commissioner; however, a Roadway Upgrade and Maintenance Agreement has not been completed. A Special Condition has been added and states that a Roadway Upgrade and Maintenance Agreement signed by relevant County, township, and/or municipal authorities and approved by the Environment and Land Use Committee, shall be submitted at the time of application for a Zoning Use Permit.

Waiver Part C is for providing financial assurance for the Decommissioning and Site Reclamation Plan in the form of a surety bond, in-lieu of a letter of credit as required by the Zoning Ordinance.

MUNICIPAL JURISDICTION

The subject property is within 650 ft. of the City of Champaign. The City of Champaign Comprehensive Plan Future Land Use Map calls for "Future Neighborhood (Tier 2)" development in this area. The requirement for two Board meetings has not been waived by the City of Champaign.

The subject property is located in Champaign Township, which does not have a Plan Commission. Townships with Plan Commissions have protest rights on a variance and are notified of such cases.

FUNDAMENTAL CONSIDERATIONS

The application includes numerous details and reports that create an overall picture for the proposed solar farm. P&Z Staff provide a short summary below, and additional information can be found in the petitioner's submittals.

Separation distances
The solar farm meets or exceeds all required separation distances except for the instance for which the petitioner has requested a waiver. The proposed solar farm is approximately 650 ft. from the City

of Champaign. The proposed solar farm appears to meet all other required separation distances from adjacent properties and roadways.

Noise results
Noise levels from the 20 proposed solar inverters are a primary concern. The inverters are centrally located within the project site. A noise study prepared by Kimley Horn and received with the application on August 28, 2025, states that the "Modeled operational octave band sound pressure levels at surrounding Class A properties (i.e. residences and recreational areas) are not anticipated to exceed the limits established by the Illinois Pollution Control Board; therefore, noise mitigation is not recommended at this time."

Landscaped Screening
Landscaped screening is required for any areas of the solar farm that are within 1,000 feet of a dwelling or residential district. The nearest dwelling is over 1,500 feet away.

Drainage & tile
The petitioners submitted a Desktop Drain Tile Memorandum prepared by Kimley Horn, received August 28, 2025, which shows the potential location of existing drain tiles on project site. The memorandum recommends a drain tile survey be performed prior to construction.

Most requirements regarding drainage would occur during the construction permitting process, and a special condition has been added to ensure compliance with the requirements.

Decommissioning plan
A Decommissioning Plan for the proposed solar farm was received with the application on August 28, 2025. The applicant has acknowledged all ordinance requirements regarding the Decommissioning Plan. A special condition has been added to require a signed Decommissioning and Site Reclamation Plan that has been approved by the Environment and Land Use Committee is required at the time of application for a Zoning Use Permit that complies with Section 6.1.1 A. and Section 6.1.5 Q. of the Zoning Ordinance, including a decommissioning cost estimate prepared by an Illinois Professional Engineer. A waiver has been requested to provide financial assurance for the Decommissioning and Site Reclamation Plan in the form of a surety bond, in-lieu of a letter of credit.

Disturbance to Best Prime Farmland
The Petitioner has submitted a signed Agricultural Impact Mitigation Agreement that details methods to preserve and restore the land during construction, operation and decommissioning of the solar farm. The Petitioner has submitted Vegetative Management Plan identifying the seed mix of plants to be used on the site. The Department has asked the developer to revise the list to include additional native species.

EXISTING LAND USE AND ZONING

Table 1. Land Use and Zoning Summary

Direction	Land Use	Zoning
Onsite	Agriculture	AG-1 Agriculture
North	Residential/Agriculture	AG-1 Agriculture
East	Agriculture	AG-1 Agriculture
West	Residential/Agriculture	AG-1 Agriculture
South	Agriculture	R-2 Single Family Res.

PROPOSED SPECIAL CONDITIONS

A. **The approved site plan consists of the following documents:**
   - **Sheets EX1 Zoning Site Plan and Access Drive received August 28, 2025.**

The special condition stated above is required to ensure the following:
The constructed PV SOLAR FARM is consistent with the special use permit approval.

B. **The Zoning Administrator shall not authorize a Zoning Use Permit Application or issue a Zoning Compliance Certificate on the subject property until the lighting specifications in Paragraph 6.1.2.A. of the Zoning Ordinance have been met.**

The special condition stated above is required to ensure the following:
That exterior lighting for the proposed Special Use meets the requirements established for Special Uses in the Zoning Ordinance.

C. **The Zoning Administrator shall not issue a Zoning Compliance Certificate for the proposed PV SOLAR FARM until the petitioner has demonstrated that the proposed Special Use complies with the Illinois Accessibility Code, if necessary.**

The special condition stated above is necessary to ensure the following:
That the proposed Special Use meets applicable state requirements for accessibility.

D. **A signed Decommissioning and Site Reclamation Plan that has been approved by Environment and Land Use Committee is required at the time of application for a Zoning Use Permit that complies with Section 6.1.1 A. and Section 6.1.5 Q. of the Zoning Ordinance, including a decommissioning cost estimate prepared by an Illinois Professional Engineer.**

The special condition stated above is required to ensure the following:
That the Special Use Permit complies with Ordinance requirements and as authorized by waiver.

E. **Roadway Upgrade and Maintenance Agreements signed by the County Highway Engineer Champaign Township Highway Commissioner and any other relevant highway jurisdiction, and approved by the Environment and Land Use Committee, or a waiver therefrom, shall be submitted at the time of application for a Zoning Use Permit.**

The special condition stated above is required to ensure the following:
To ensure full compliance with the intent of the Zoning Ordinance in a timely manner that meets the needs of the applicant.

F. **Underground drainage tile shall be investigated and identified with any necessary changes made to the solar array as follows:**

1. **A qualified Drain Tile Contractor with experience in Illinois shall be employed to investigate, repair, and install any underground drain tile.**

2. **Desktop mapping and field reconnaissance shall identify all areas where drain tile are expected to be located based on soils, topographic elevations, ground surface channels and/or depressions, wetlands, natural drainage ingress and egress locations, and knowledge of current owners and/or current farmers.**

3. **Slit trenching shall be used to investigate the presence of mutual drainage tiles that serve upland areas under different ownership. All existing drain tiles encountered shall be logged on field mapping and repaired to the original state according to Illinois Department of Agriculture Impact Mitigation Agreement (AIMA) standards.**

4. **Drain tile routes shall be located by surface probing or electronic detection and field staked at 20 feet intervals.**

5. **All existing drain tile that are found shall be located in the field using GPS location systems and recorded on as-built plans. Record mapping shall be completed according to typical civil engineering mapping and AIMA standards.**

6. **Any tile found shall be protected from disturbance.**

7. **All mutual drain tiles shall be protected from construction disturbance and a 40-feet wide no construction area shall be centered on all mutual drain tiles.**

8. **A Drain Tile Investigation Survey including a map of all identified drain tile and a revised site plan to reflect any changes to the layout of the solar array shall be submitted to the Zoning Administrator prior to Zoning Use Permit Approval**

9. **Future access shall be guaranteed for maintenance of all mutual drain tiles.**

The special condition stated above is required to ensure the following:
The identification and protection of existing underground drainage tile and to allow ongoing maintenance of mutual drain tiles.

G. **The following submittals are required prior to the approval of any Zoning Use Permit for a PV SOLAR FARM:**

1. **Documentation of the solar module's unlimited 10-year warranty and the 25-year limited power warranty.**

2. **An irrevocable letter of credit (or surety bond, if a waiver is received) to be drawn upon a federally insured financial institution with a minimum acceptable long term corporate debt (credit) rating of the proposed financial institution shall be a rating of "A" by S&P or a rating of "A2" by Moody's within 200 miles of Urbana or reasonable anticipated travel costs shall be added to the amount of the letter of credit.**

3. **A permanent soil erosion and sedimentation plan for the PV SOLAR FARM including any access road that conforms to the relevant Natural Resources Conservation Service guidelines and that is prepared by an Illinois Licensed Professional Engineer**.

4. **Documentation regarding the seed to be used for the pollinator planting, per 6.1.5 F.(9).**

5. **A Transportation Impact Analysis provided by the applicant that is mutually acceptable to the Applicant and the County Engineer and State's Attorney; or Township Highway Commissioner; or municipality where relevant, as required by 6.1.5 G. 2.**

6. **The telephone number for the complaint hotline required by 6.1.5 S.**

7. **Any updates to the approved Site Plan from Case 175-S-25 per the Site Plan requirements provided in Section 6.1.5 U.1.c.**

The special condition stated above is required to ensure the following:

That the PV SOLAR FARM is constructed consistent with the Special Use Permit approval and in compliance with the Ordinance requirements.

H. **A Zoning Compliance Certificate shall be required for the PV SOLAR FARM prior to going into commercial production of energy. Approval of a Zoning Compliance Certificate shall require the following:**

1. **An as-built site plan of the PV SOLAR FARM including structures, property lines (including identification of adjoining properties), as-built separations, public access road and turnout locations, substation(s), electrical cabling from the PV SOLAR FARM to the substations(s), and layout of all structures within the geographical boundaries of any applicable setback.**

2. **As-built documentation of all permanent soil erosion and sedimentation improvements for all PV SOLAR FARM including any access road prepared by an Illinois Licensed Professional Engineer.**

3. **An executed interconnection agreement with the appropriate electric utility as required by Section 6.1.5 B.(3)b.**

The special condition stated above is required to ensure the following:

That the PV SOLAR FARM is constructed consistent with the special use permit approval and in compliance with the Ordinance requirements.

I. **The Applicant or Owner or Operator of the PV SOLAR FARM shall comply with the following specific requirements that apply even after the PV SOLAR FARM goes into commercial operation:**

1. **Maintain the pollinator plantings and any required visual screening in perpetuity.**

2. **Cooperate with local Fire Protection District to develop the District's emergency response plan as required by 6.1.5 H.(2).**

3. **Cooperate fully with Champaign County and in resolving any noise complaints including reimbursing Champaign County any costs for the services of a qualified noise consultant pursuant to any proven violation of the I.P.C.B. noise regulations as required by 6.1.5 I.(4).**
4. **Maintain a current general liability policy as required by 6.1.5 O.**

5. **Submit annual summary of operation and maintenance reports to the Environment and Land Use Committee as required by 6.1.5 P.(1)a.**

6. **Maintain compliance with the approved Decommissioning and Site Reclamation Plan including financial assurances.**

7. **Submit to the Zoning Administrator copies of all complaints to the telephone hotline on a monthly basis and take all necessary actions to resolve all legitimate complaints as required by 6.1.5 S.**

The special condition stated above is required to ensure the following:

That future requirements are clearly identified for all successors of title, lessees, any operator and/or owner of the PV SOLAR FARM.

J. **The PV SOLAR FARM COUNTY Board SPECIAL USE Permit designation shall expire in 10 years if no Zoning Use Permit is granted.**

The special condition stated above is required to ensure the following:

The PV SOLAR FARM is constructed in compliance with the Ordinance requirements.

K. **The owners of the subject property hereby recognize and provide for the right of agricultural activities to continue on adjacent land consistent with the Right to Farm Resolution 3425.**

The special condition stated above is required to ensure the following:

Conformance with Policy 4.2.3 of the Land Resource Management Plan.

L. **A Phase 1 archeological survey that complies with State Historic Preservation Office (SHPO) regulations including and investigations or changes to the site plan**

recommended by the SHPO, shall be submitted at the time of application for a Zoning Use Permit

The special condition stated above is required to ensure the following:
Conformance with Illinois Department of Natural Resources requirements.

M. **The terms of approval are the requirements of the current Section 6.1.5 of the Zoning Ordinance as amended February 23, 2023.**

The special condition stated above is required to ensure the following:
That the current version of the Zoning Ordinance has been referenced.

ATTACHMENTS

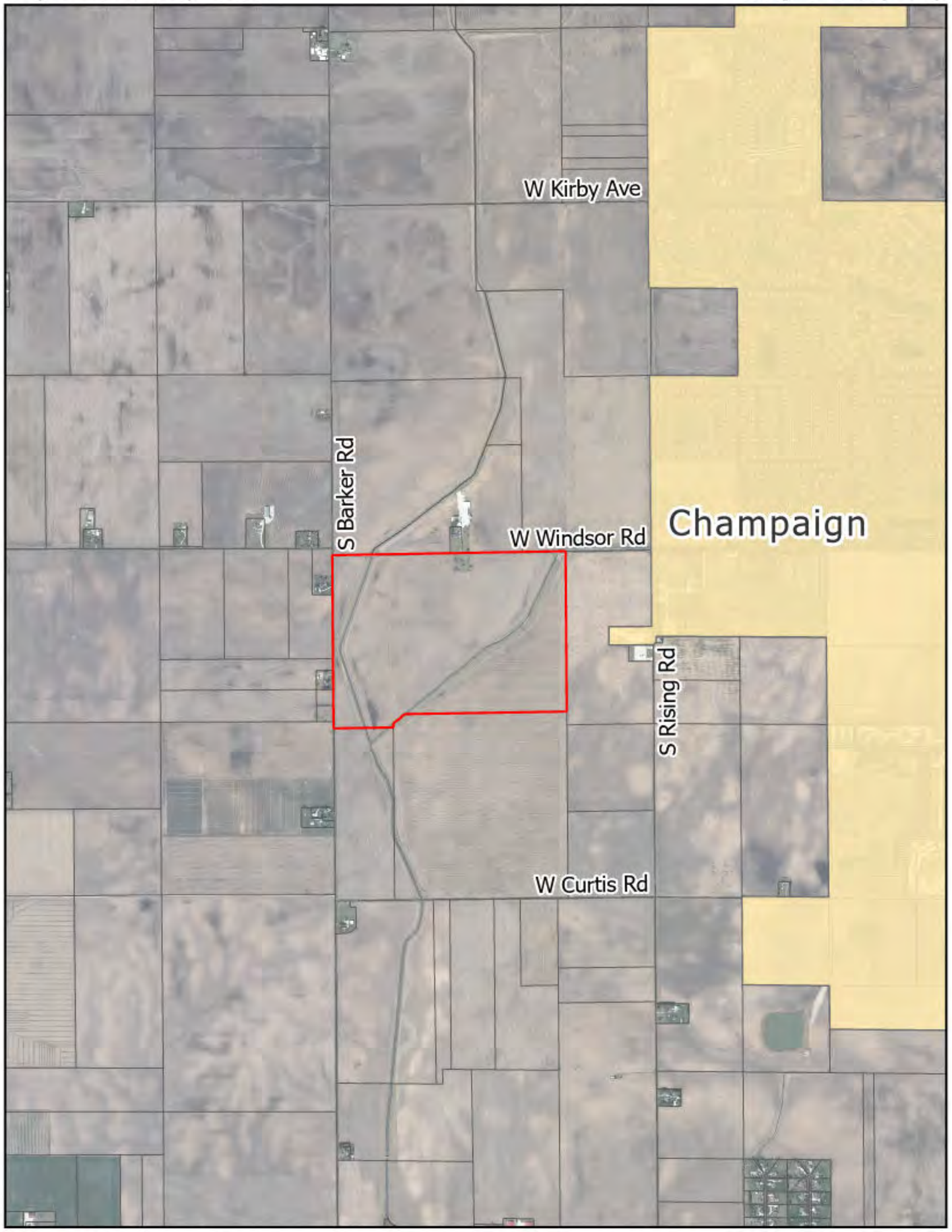
A Case Maps (Location, Land Use, Zoning)
B 2023 Annotated Aerial Photo with floodplain
C Site images taken September 18, 2025
D Special Use Permit Application

Location Map

Case 175-S-25

September 25, 2025

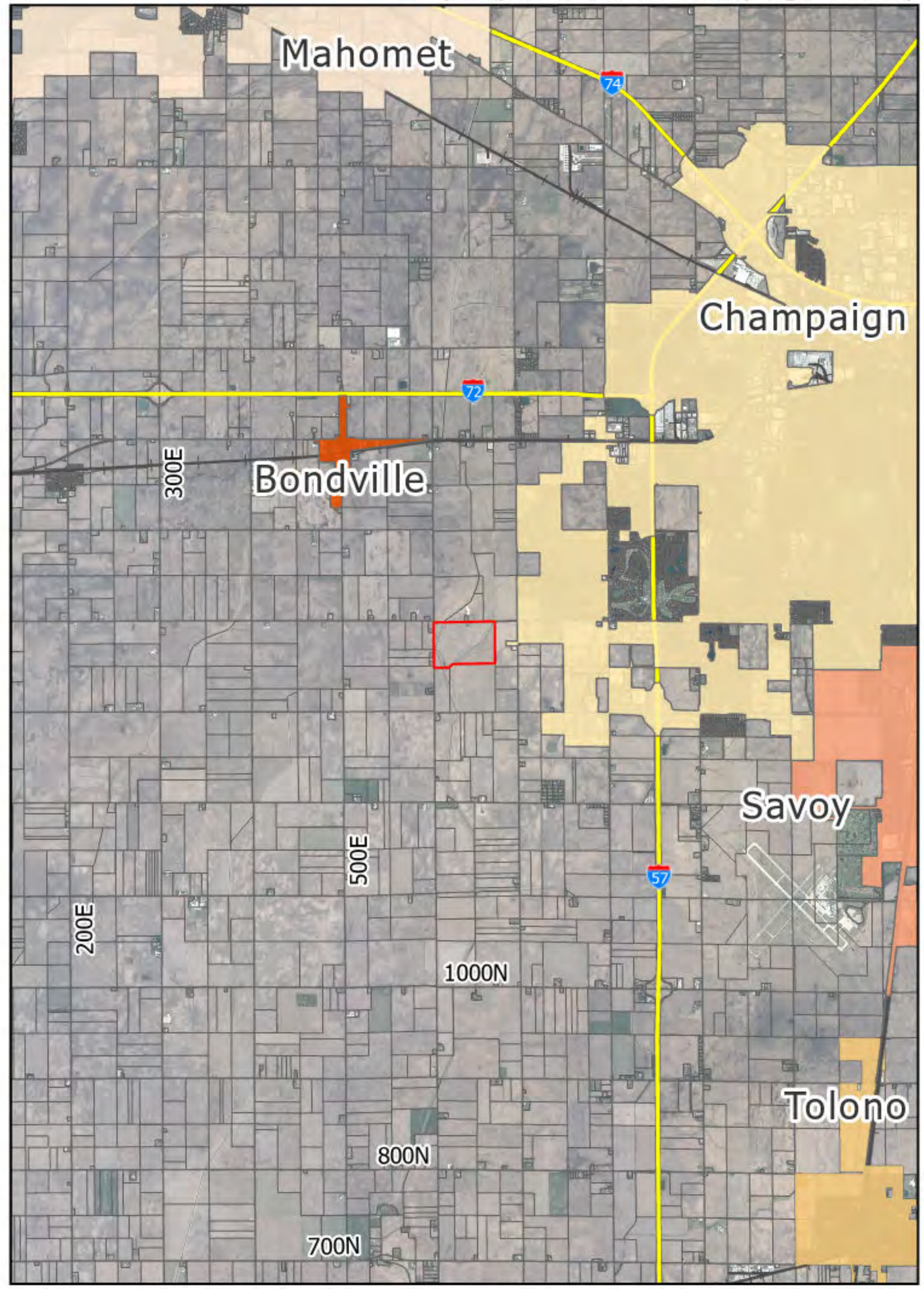
Subject Property



Subject Parcel

0 0.5 1 Miles

Property location in Champaign County



0 2 4 Miles

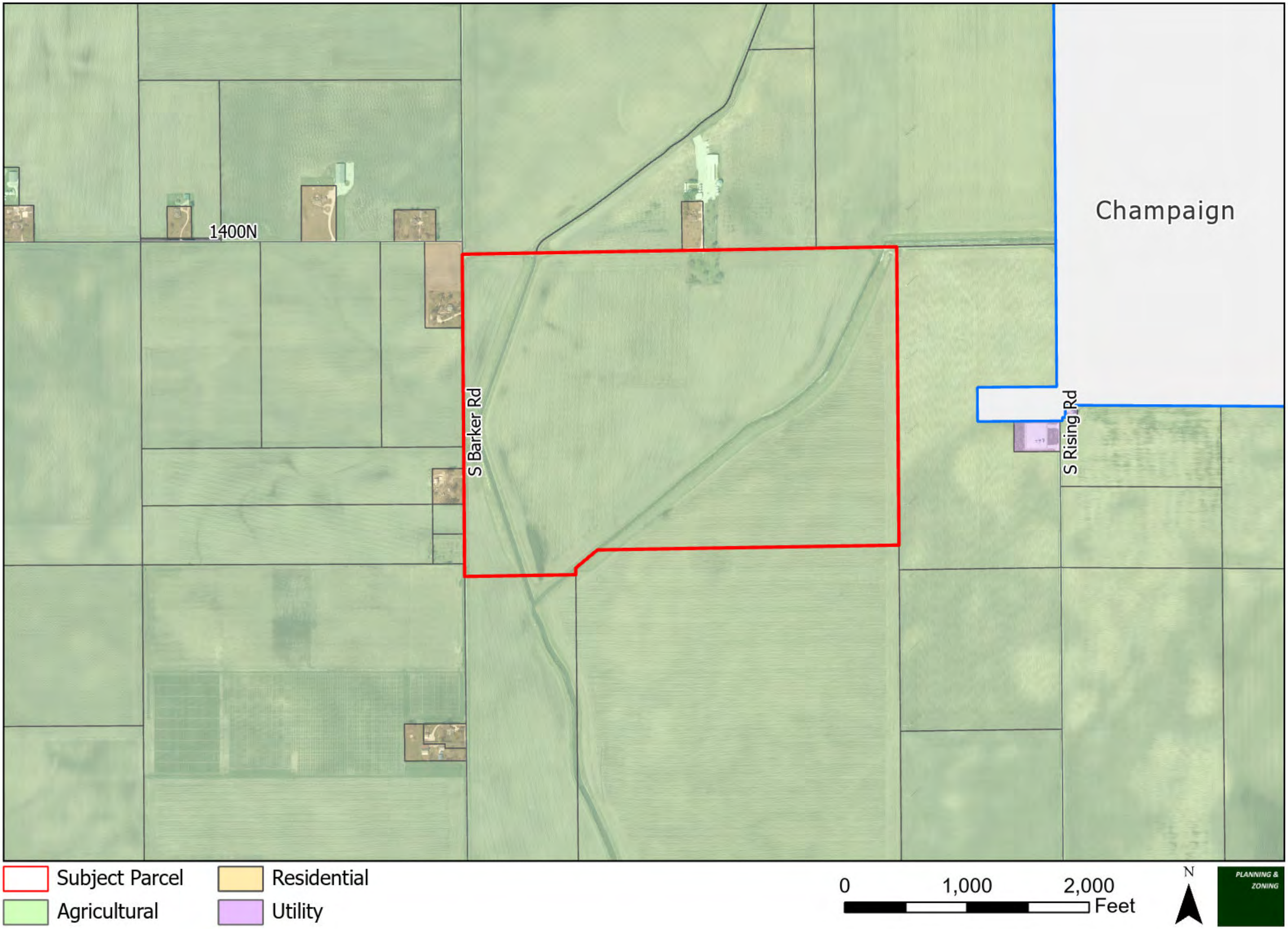
N

PLANNING & ZONING

Land Use Map

Case 175-S-25

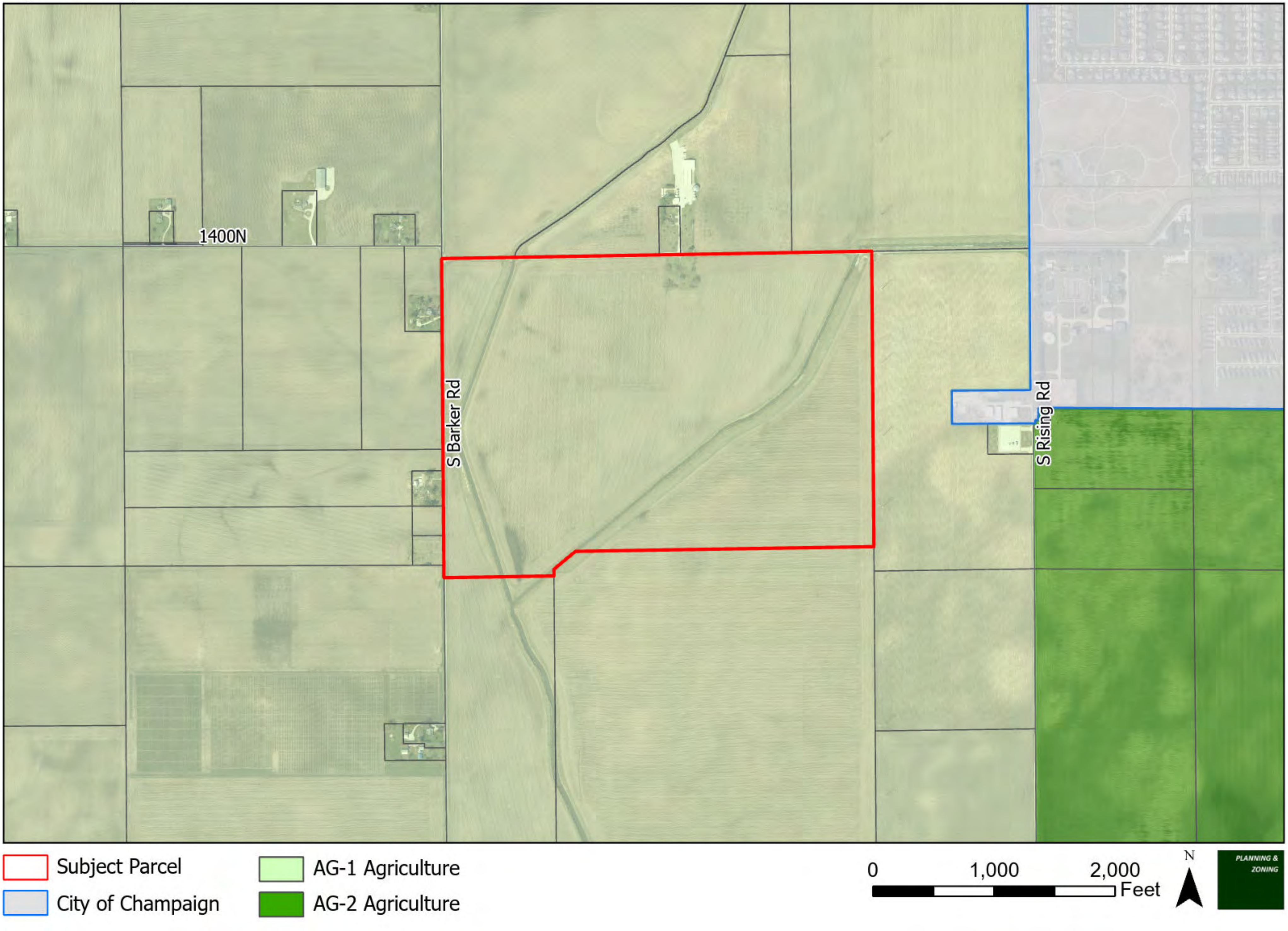
September 25, 2025



Zoning Map

Case 175-S-25

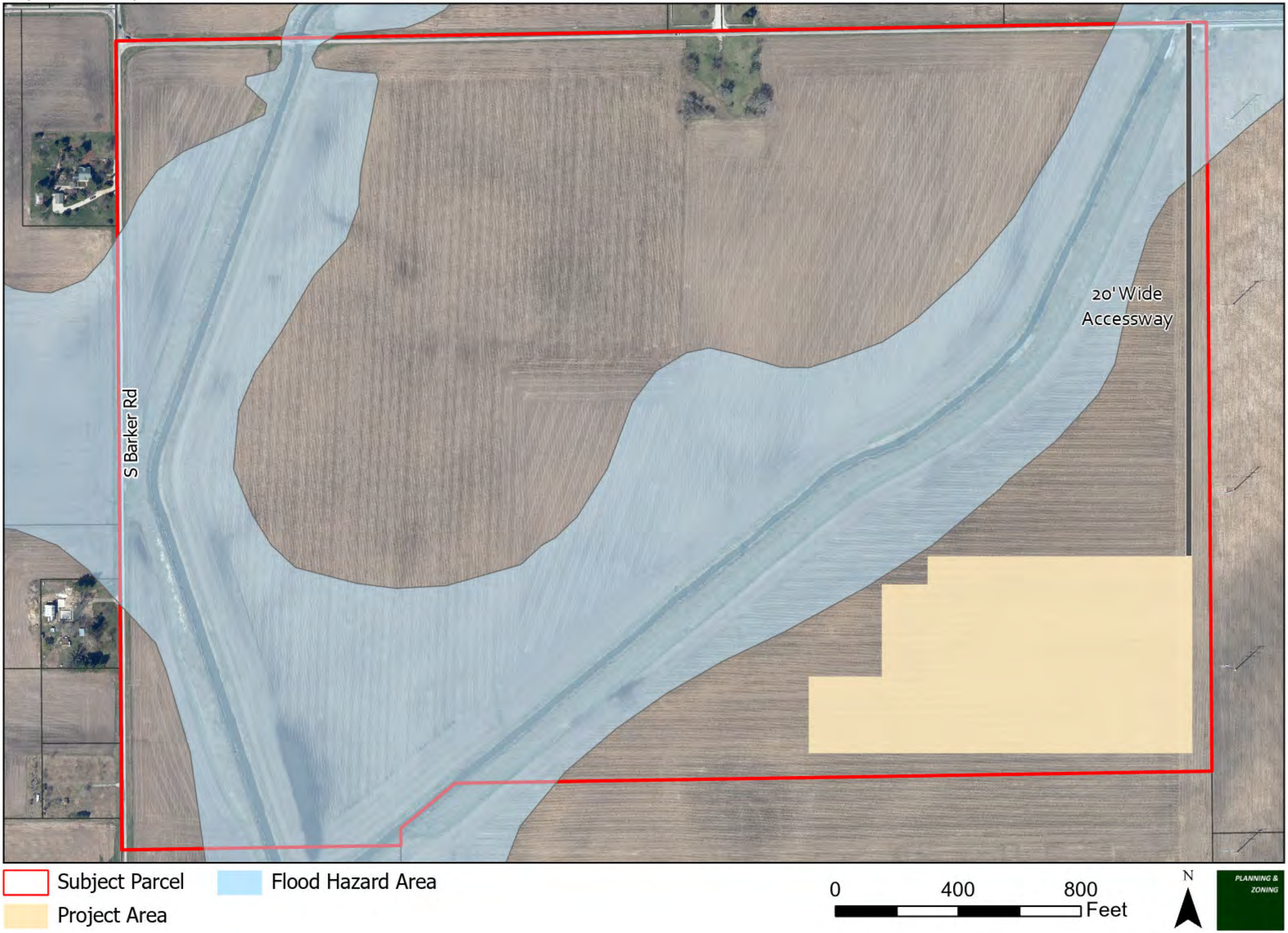
September 25, 2025



Annotated 2023 Aerial

Case 175-S-25

September 25, 2025



175-S-25 Site Images

From Windsor Rd. looking south to subject property at entrance location

From Windsor Rd. looking east

175-S-25 Site Images

From Windsor Rd. looking west

From Windsor Rd looking southwest toward subject property

175-S-25 Site Images

From Windsor Rd. bridge looking southeast toward subject property

Applicant: **Champaign CSG 1 LLC** – A wholly-owned entity of Dimension RE, LLC

SPECIAL USE PERMIT APPLICATION FOR

CHAMPAIGN COUNTY, ILLINOIS

PIN 03-20-30-100-002

AUGUST 2025 | VERSION 1

Prepared By: **Ryan Solum**, P.E. of Kimley-Horn & Associates, Inc.

Daniel Solorzano (Applicant) of Dimension RE, LLC & Champaign CSG 1 LLC

Dimension Energy

Kimley»Horn

Contents

Exhibits

EXHIBIT A: CONTACT INFORMATION & PROOF OF LAND OWNERSHIP

EXHIBIT B: ZONING SITE PLAN

EXHIBIT C: VEGETATIVE MANAGEMENT PLAN

EXHIBIT D: DECOMMISSIONING PLAN

EXHIBIT E: STATE HISTORIC PRESERVATION OFFICE (SHPO) RESPONSE

EXHIBIT F: AGRICULTURAL IMPACT MITIGATION AGREEMENT (AIMA)

EXHIBIT G: GLARE STUDY

EXHIBIT H: FEDERAL AVIATION AGENCY (FAA) NOTICE OF CRITERIA

EXHIBIT I: ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR) ECOCAT

EXHIBIT J: ECOSPHERE INFORMATION FOR PLANNING AND CONSULTATION (IPAC)

EXHIBIT K: SOIL AND WATER CONSERVATION DISTRICT NRI REPORT AND LESA

EXHIBIT L: TRANSPORTATION AND ACCESS PLAN

EXHIBIT M: NOISE STUDY

EXHIBIT N: HEALTH AND SAFETY STUDIES

EXHIBIT O: HYDROLOGIC RESPONSE OF SOLAR FARMS

EXHIBIT P: FEMA FIRMETTE

EXHIBIT Q: OPERATION AND MAINTENANCE & EMERGENCY RESPONSE PLAN

EXHIBIT R: USACE NO PERMIT REQUIRED AND APPROVED JURISDICTIONAL DETERMINATION

EXHIBIT S: DRAIN TILE SURVEY

EXHIBIT T: MANUFACTURER'S SPECIFICATIONS

EXHIBIT U: LEVEL 2 WETLAND DELINEATION

EXHIBIT V: AMEREN CORRESPONDENCE

1.0 INTRODUCTION

Champaign CSG 1 LLC (Project), a wholly owned entity of Dimension RE, LLC ("Dimension", or "DRE", collectively, the "Applicant"), hereby submits this application for a Special Use Permit (Application) to construct, operate, and maintain the Champaign CSG 1 LLC project. The Project is an approximately 4.49 MW AC Commercial Solar Energy Facility (Project) located on a parcel with a total area of approximately 203-acres. As shown on the Zoning Site Plan in **Exhibit B**, the Project's site layout meets the required minimum road right-of-way setbacks and property line setbacks per the Champaign County Zoning Ordinance Section 6.1.5 and 55 ILCS 5/5-12020. This Project will deliver power to the electrical grid through one point of interconnection via the Ameren overhead power line running north, directly adjacent to the east side of the Project, south of West Windsor Rd.

The solar array and lease area is proposed on the southeastern portion of the overall parcel area and will disturb approximately 17 acres (Project Area). The Project Area is south of West Windsor Rd and is situated on agricultural land and the Parcel Identification Number is 03-20-30-100-002. The Project has partnered via an executed lease agreement with Foersterling Farm, LLC on the aforementioned parcel which will host the Project's infrastructure. West Windsor Road is a Champaign Township Road and will require applicable weight and size permits, and an Access Permit through the Champaign Township Highway Department. After County Zoning Board of Appeals (ZBA) makes its siting approval, the Applicant will be required to obtain a Zoning Use Permit and all other necessary local and state permits prior to construction.

The Applicant has considered the most recent version of the Champaign County Zoning Ordinance to ensure the Project meets the latest requirements and submits this Application to obtain a Special Use Permit (SUP) from Champaign County. Champaign County will send out notices of the Public Hearing and will publish legal ads in the local newspapers in accordance with the Champaign County Zoning Ordinance requirements. The Project has entered into an Agricultural Impact Mitigation Agreement (AIMA), included in **Exhibit F**. The Applicant has also submitted an interconnection application with Ameren and the project is currently progressing through the study process, estimated to finalize in late 2025. The proposed facility is planned to interconnect to Ameren's Bondville substation.

If the Application is approved and a Champaign County Building Permit is secured, construction of the Project is scheduled to commence in 2026, depending on farming plans and discussions with Foersterling Farm, LLC. Dimension feels this is a proper place for solar development due to its distance from non-participating residences. A substantial buffer will be maintained between the solar development and adjacent residential properties. We look forward to presenting our project at the ZBA, listening to any of the County's feedback, and starting construction over the next 24 months. Thank you very much from Dimension and Kimley-Horn.

Founded in 2018, Dimension is a leading community solar developer, owner and operator with a nationwide presence. One of Dimension's key differentiators from other developers is that we not only develop projects, but we retain ownership of them throughout the entire lifecycle, from site identification and land development to construction and operations. Our projects do not rely on being awarded incentives in order to progress into construction. When a project is permitted, we aim to build it expeditiously.

As a community solar developer, Dimension strives to maximize the positive impacts of our projects on local communities. Our fleet of solar projects delivers clean, locally-produced energy, tax revenue, and energy cost savings.

2.0 PROJECT DESCRIPTION

The Project Area is currently agricultural. The Project, if approved, will be a ground-mounted PV Solar Farm comprised of solar photovoltaic (PV) modules, a racking system, inverters, and above-ground electrical conduits via a CAB system connecting PV array blocks with inverters. The access road, with gated entrance, will provide access for maintenance of equipment as well as construction access.

Proposed site access to existing roads will be limited to the one (1) driveway shown on the Zoning Site Plan, provided in **Exhibit B**. Security fencing will enclose the perimeter of the solar array, with road access secured through locked metal gates. These roads are typically gravel and will be verified upon final design with the geotechnical engineer recommendations

The landowners, Foersterling Farm LLC, have signed agreements to participate in the Project.

2.1 SPECIAL USE PERMIT CRITERIA

Dimension (and its affiliates) (the “Developer”) Presents Factors Special Use Permit Application Questions for PV Solar Farms in Champaign County, IL (the “Project”)

a. ***Reasons the proposed use is necessary for the public convenience.***

Response: Illinois faces power shortages in the near future due to increasing demand for energy. Emerging developments such as data centers, industrial campuses, and other single-family subdivisions are driving energy demands. It is necessary for public convenience for more energy to be generated throughout the state to provide domestically-generated energy to these new developments while keeping energy prices down. Additionally, the Project will provide necessary energy to the local community with no negative impacts to the health and wellbeing of the public. Furthermore, there is a need for sustainable energy generation to reach statewide sustainable energy goals as the Climate and Equitable Jobs Act of 2021 targeted a 100% renewable energy goal by 2050 and interim goals of 40% and 50% in 2030 and 2040, respectively. As of 2023, the state’s energy consumption was only 14% renewable.

b. ***List those reasons which will ensure to the County that the proposed land use is designed, located, and operated so that it will not be injurious to the District in which it shall be located or otherwise detrimental to the public welfare. Attach plans if necessary.***

Response: The establishment, maintenance or operation of the Project will not be detrimental to or endanger the health, safety, or general welfare of the public as the nature of the use is passive and does not generate any health or safety risks for the local community. The Project will not have negative impacts to the land, the neighbors, district, or the public at large. Instead, the Project will contribute positively to the welfare of the immediate adjacent properties and surrounding communities. The Project is a passive use that does not produce any noxious fumes or odors and will generate no sound beyond the boundaries of the Project site. Furthermore, the project is intentionally placed away from high-density commercial and residential uses, and the equipment is located at the center of the site to limit noise impacts to neighboring properties. The project will also result in clean energy production with positive outcomes for public health. Finally, the Project will be enclosed by a locked fence and inaccessible to trespassers and vandals.

Also, as noted above, the Project will contribute to the general welfare of the neighborhood or community by paying significantly more in property taxes than the property currently generates, creating new local jobs, and injecting capital into the local economy. Finally, this use does not cause any additional administrative burden on the County.

Additionally, the proposed use will provide easy accessibility for fire apparatus and police protection. The site plan will be shared with the local fire department to ensure compliance with regulations and adequate access to the site to prevent fire hazards.

c. ***Does the proposed use conform to the applicable regulations and standards of, and preserve the essential character of, the District in which it shall be located except where such regulations and standards are modified by Section 6 of the County Zoning Ordinance?***

Response: The project will follow all the setbacks and restrictions outlined by the County Zoning Ordinance. The solar development will be screened with existing vegetation on all sides and will not produce levels of sound that would be noticeable on adjacent parcels and fall within the limits of the Illinois Pollution Control Board. As a result, the design elements visible on other parcels will be essentially the same as in the existing use of farmland/agriculture. The proposed use will have minimal impact on the characteristics of the area, and will not alter the essential characteristics of the area. As stated above, the Project will not substantially diminish property values for permitted uses in the immediate area.

d. ***If the property is an existing non-conforming use, will the Special Use make its use more compatible with its surroundings?***

Response: The Project will not create negative impacts to the land, the neighbors, or the public at large. Solar farms are compatible with traditional agricultural, rural and residential uses of land. The Project is a passive use and no noise will extend beyond the project boundaries. Adjacent property owners will feel little to no change in the pre-existing use and enjoyment of their property.

e. ***Time schedule for development.***

Response: Construction of the PV Solar Farm will begin in early 2026 and will take roughly 6 months.

2.2 ECONOMIC BENEFITS

It is estimated that for every MWac generated by the Project, twenty five (25) to fifty (50) temporary jobs will be created.

2.3 INTERCONNECTION FACILITIES

The Project has submitted an interconnection application to Ameren which has been accepted. The Project is currently being studied, estimated to finalize in late 2025. Refer to **Exhibit V** for Ameren Correspondence.

2.4 PROJECT CONSTRUCTION

Dust and noise from construction will be mitigated with industry standard best management practices. Work hours will be limited to 9am – 5pm, Monday through Friday, or as otherwise directed by the County. Below is a high-level construction schedule including number of vehicle trips.

Estimated Vehicles During Construction				
Time Period	**Construction Activity**	**Estimated Increase in Vehicles (All Vehicles)**	**Estimated Total Vehicles Per Day**	**Estimated Total Heavy Vehicles Per Month**
Month 1	Mobilization, Site Clearing, Erosion Control, and Initial Access Drive Improvements	8 – 10 personal vehicles per work day, 3 – 6 contractor vehicles per work day, 1 – 2 material deliveries (tractor-trailer trucks, tandem dump trucks) per work day, 1 – 2 equipment delivery (30-foot bed, box trucks) per week	13 – 20	24 – 48
Months 2 – 5	Fence, Solar Array, and Final Access Road Improvements	20 – 30 personal vehicles per work day, 6 – 8 contractor vehicles per work day, 3 – 4 material deliveries (tractor-trailer truck) per work day, and 1 – 2 equipment deliveries (30-foot bed, box trucks, concrete trucks) per work day.	30 – 44	80 – 120
Month 6	Commissioning and Demobilization	6 – 8 personal vehicles per work day, 3 – 6 contractor vehicles per work day, and approx.. 1 equipment removal (tractor-trailer truck) per week.	9 - 14	4

All equipment uses and operations will be conducted to avoid impeding the flow of traffic on adjacent roadways. Contractor shall maintain access to adjacent landowners for the duration of the project construction. The Contractor shall be fully responsible to provide signs, barricades, warning lights, guard rails, and employ flaggers as necessary when construction endangers either vehicular or pedestrian traffic. These devices shall remain in place until the traffic may proceed normally again. Equipment will operate in the road right-of-way only to add gravel and make minor improvements to proposed site access driveways. Project construction shall ensure all equipment is properly maintained and equipped with manufacturer's standard noise control devices. Overweight/Oversize Permits will be acquired from the Illinois Department of Transportation prior to the issuance of a Building Permit.

2.5 HEALTH AND SAFETY

During the Building Permit process, the Project will coordinate with the appropriate fire safety personnel to ensure adequate plans and systems are in place in the unlikely event a safety issue emerges. Appropriate signage containing necessary contact and safety information for the PV Solar Farm will be displayed in accordance with local code and coordination with staff.

Upon request, a walk-through of the site with the local authorities and emergency agencies will be scheduled once construction is complete. Emergency personnel will also be given the key or code to access the facility.

PV Solar Farms do not raise concern for fire and explosive hazards. The solar panels and racking, which comprise most of the Project's equipment, are not flammable. Tempered glass offers protection from heat and the elements, and the panels are designed to absorb heat as solar energy. From a study titled Health and Safety Impacts of Solar Photovoltaics by North Carolina State University:

> "…Concern over solar fire hazards should be limited because only a small portion of materials in the panels are flammable, and those components cannot self-support a significant fire. Flammable components of PV panels include the thin layers of polymer encapsulates surrounding the PV cells, polymer back sheets (framed panels only), plastic junction boxes on rear of panel, and insulation on wiring. The rest of the panel is composed of non-flammable components, notably including one or two layers of protective glass that make up over three quarters of the panel's weight." (Cleveland, 2017, p.16).

Refer to **Exhibit N** for the Health and Safety Impacts of Solar Photovoltaics study.

2.6 OPERATIONS AND MAINTENANCE

Once constructed, the solar farm will operate throughout the year, passively generating renewable energy. The site and equipment will be designed, approved, maintained, and inspected to ensure safety and security. Maintenance activities during operation are expected to be minimal with occasional service for inverters and transformers. Solar panels are monitored remotely. Traffic is not anticipated to increase during the operations of the Project.

Maintenance operations will likely be carried out rarely and with minimal traffic as only one vehicle will likely be needed to carry out maintenance tasks several times a year. To prevent shading of the panels for solar energy production and maintain aesthetics of the Project, an on-going vegetation maintenance program will be implemented for all vegetated areas within the fenced boundary and buffer areas. After construction is complete and stabilized vegetation has been established within the fenced Project Area, the Project will conduct vegetative management at appropriate frequency based on weather and moisture conditions. This management schedule would continue each year until implementation of the Decommissioning Plan, included in **Exhibit D**.

3.0 FEDERAL AND STATE APPROVALS, PERMITS, AND AGREEMENTS

3.1 FEDERAL AVIATION ADMINISTRATION (FAA)

The Federal Aviation Administration's (FAA) policy for Solar Energy System Projects on Federally Obligated Airports only requires glint and glare screening for solar projects located on federally-obligated towered airports. Since this project is not on an airport, it does not require a glint and glare screening. Based on the result of the FAA Notice Criteria Tool included in **Exhibit H**, the coordinates of this project and structure heights "do not exceed notice criteria."

3.2 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) portal was consulted to determine if any FEMA 100-year floodplains are on the site. Flood zone A is present on site. The FEMA Firmette is included in **Exhibit P**.

3.3 U.S. FISH AND WILDLIFE SERVICE (USFWS)

The Project will be designed such that federally listed species will not be significantly impacted. Solar projects typically impose only minimal impacts on wildlife species. Champaign CSG 1 LLC evaluated the Project's potential to impact federally protected species. The assessment performed by Kimley-Horn identified seven species of plants and animals that may be present within the project area: *Myotis sodalis* (Indiana Bat), *Myotis septentrionalis* (Northern Long-eared Bat), *Perimyotis* subflavus (Tricolored Bat), *Grus americana* (Whooping Crane), *Danaus plexippus* (Monarch Butterfly), *Platanthera* leucophaea (Eastern Prairie Fringed Orchid). Please see **Exhibit J** for more information on mitigation efforts and details of each species. Prior to construction, consultation with the USFWS will occur to confirm a "No Effect" determination for these species.

3.4 ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR) STATE ECOLOGICAL REVIEW

The Applicant consulted with IDNR for potential impacts to state threatened or endangered species. This consultation is conducted pursuant to IDNR's EcoCAT process. EcoCAT refers to IDNR's Ecological Compliance Assessment Tool (EcoCAT). EcoCAT contains the Section, Township, and Range data of the Project and generates a Project map. Species of concern within the identified Project Area (and/or which may be affected by migrating through or, by reason of the Project, avoiding the identified area) are examined as part of the EcoCAT review process.

EcoCAT requires that state agencies and units of local government consider the potential adverse effects of proposed actions on Illinois endangered and threatened species and sites listed on the Illinois Natural Areas Inventory.

The Applicant submitted an EcoCAT review request to the IDNR in June 2024. The Applicant consulted with IDNR through the department's online EcoCAT program for potential impacts to the State threatened or endangered species. The Applicant received a letter terminating the consultation, dated 06/10/2024, from the IDNR's EcoCAT review provided in **Exhibit I**. The review indicated there is record of protected resources that may be in the vicinity of the proposed project.

3.5 ILLINOIS HISTORIC PRESERVATION REVIEW (SHPO)

Under the Illinois State Agency Historic Resources Protection Act, the State Historic Preservation Office (SHPO) division at IDNR is responsible for studying Project effects on archaeological and/or architectural (cultural) resources. Agencies requiring SHPO evaluation concurrent with their review include the Illinois Environmental Protection Agency, IDNR, and USACE. The Project received a response from SHPO on 07/24/24 that determined that a portion of the project area is within a zone adjacent to the Phinney Branch of Copper Slough with a high probability of containing significant archaeological resources. A Phase I archeological survey will be conducted in accordance with SHPO requirements, see **Exhibit E**.

3.6 ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) - SWPPP

IEPA's Bureau of Water is responsible for overseeing the issuance of permits within the National Pollutant Discharge Elimination System (NPDES) program that regulates construction stormwater discharges. Permits require a Storm Water Pollution Prevention Plan (SWPPP), which is a site-specific document that outlines the measures a project will take to reduce pollutants in the stormwater discharges from a construction site. Stormwater controls reduce silt transport and sedimentation during precipitation events.

Prior to construction, the Project will prepare a SWPPP as well as sediment and erosion control plans for submittal and approval for a NPDES Permit through IEPA. The SWPPP will ensure construction activity compliance with guidelines and regulations for controlling sediment and erosion runoff.

3.7 ILLINOIS DEPARTMENT OF AGRICULTURE (IDOA)

The Illinois Renewable Energy Facilities Agricultural Impact Mitigation Act (505 ILCS 147/1 et seq.) requires the owner of a PV Solar Farm to have an Agricultural Impact Mitigation Agreement (AIMA) in place within 45 days prior to the commencement of Project construction. The intent of the AIMA is to preserve and/or restore the integrity of affected agricultural land during construction and decommissioning activities. Illinois State Legislature passed Amendment to House Bill 4412 in January 2023. The Amendment requires that facility owners enter into an AIMA prior to the date of the required public hearing. The Project received a signed AIMA from the Illinois Department of Agriculture (IDOA), dated 7/11/25, included as **Exhibit F**.

3.8 UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

The Applicant received a No Permit Required (NPR) letter from the United States Army Corps of Engineers (USACE) on 9/13/2024. The USACE found that there were no Jurisdictional features proposed to be impacted by the project and that a Section 404 permit is not required. Additionally, the applicant received an Approved Jurisdictional Determination (AJD) from the USACE on 9/10/2024. The USACE found that there was one non-jurisdictional wetland within the project area. The NPR letter and AJD are both included in **Exhibit R.**

4.0 CHAMPAIGN COUNTY ZONING ORDINANCE SECTION 6.1.5 AND OTHER LOCAL APPROVALS

The Project will comply with the Champaign County Zoning Ordinance Section 6.1.5. (adopted 08/18/2022), as described below and as shown on the Zoning Site Plan, included as **Exhibit B**. The Project will be a ground-mounted PV Solar Farm comprised of solar photovoltaic (PV) modules, racking system, inverters and medium voltage transformers, and above-ground electrical conduits via a CAB system connecting PV array blocks with inverters. The access road with gated entrance shall be located off of W Windsor Rd for maintenance of the site and inverters, as well as construction access.

4.1 HEIGHT REQUIREMENTS

According to 55 ILCS 5/5-12020, no component of a solar panel, cell or modules may exceed twenty (20) feet in height above the ground at full tilt. The Project will ensure no component of the PV Solar Farm exceeds the maximum height requirement.

4.2 SETBACKS

Per the Champaign County Zoning Ordinance Section 6.1.5.D., the PV Solar Farm is subject to the following setbacks to the nearest edge of the perimeter fencing:

- Roadway setback of 40 feet from the centerline of minor streets, 55 feet from the centerline of collector streets, and 60 feet from the centerline of major streets.
- Setback of 255 feet from any existing dwelling or existing principal building.
- Setback of 10 feet from a side or rear lot line of an adjacent lot that is more than 10 acres in area.

The Project will adhere to the requirements set forth above by the Champaign County Zoning Ordinance and 55 ILCS 5/5-12020. The Project demonstrates its compliance in the Zoning Site Plan, included as **Exhibit B**.

4.3 GLARE

The PV Solar Farm will be designed, constructed, and sited to minimize glare or reflections on adjacent properties and roadways and to not interfere with traffic, including air traffic, or otherwise create a safety hazard. The Project is designed to meet the required setbacks and the proposed solar panels include an anti-reflective coating. Utilizing these measures, the Project will not adversely affect nearby properties or traffic. A Glare Study prepared by ForgeSolar is included in **Exhibit G**.

4.4 SOILS AND GROUND COVER

Per the Champaign County Zoning Ordinance Section 6.1.5.M.2, screening is required from existing residential dwellings within 1,000 ft of the project. There is no residential dwelling within 1,000 ft the project, therefore no screening is expected. If the Zoning Board.

Per Champaign County Zoning Ordinance Section 6.1.5.P.3, a weed control plan shall be included and shall ensure the control and/or eradication of Noxious weeds consistent with the Illinois Noxious Weed Law. A Vegetative Management Plan performed by Kimley-Horn details all proposed vegetation, a combination of native grasses and pollinator friendly seed mix, in compliance with state and national requirements. The design will also follow the "Weed Plan" requirements listed in the Champaign County code. The Vegetative Management Plan, included in **Exhibit C,** will also comply with the AIMA.

4.5 SECURITY BARRIER

Per Champaign County Zoning Ordinance Section 6.1.5.M, a fence of at least seven (7) feet shall fully enclose and secure the PV Solar Farm. Furthermore, know boxes and keys shall be provided at locked entrances for emergency access. The Project will adhere to the security barrier requirements set forth in 55 ILCS 5/5-12020 and the Champaign County Zoning Ordinance.

4.6 NOISE

The project follows noise regulations of the Champaign County Zoning Ordinance Section 6.1.5.I and Illinois Pollution Control Board. Manufacturer's sound power level characteristics will be included as a demonstration of compliance with the applicable requirements. The Project has been designed to locate all noise-emitting equipment (inverters and transformers) in the center of the project, furthest away from the surrounding properties. See proof of compliance in the Noise Study included in **Exhibit M**.

4.7 LIGHTING

Due to the proposed security fence and the nature of the operations of a PV Solar Farm , additional lighting is not typically needed. The Project will have no permanent lighting systems on site.

4.8 DECOMMISSIONING PLAN

A Decommissioning Plan is included in **Exhibit D** to ensure the solar facility elements will be properly removed after the solar energy system is inoperable for 6 months per the Champaign County Zoning Ordinance Section 6.1.5.Q. The Decommissioning Plan was developed in accordance with both Champaign County Zoning Ordinance and the AIMA. The Decommissioning Plan outlines a strategy for the removal of Project components such as panels, roads, fences, and racking, including any applicable recyclable items once the solar facility is no longer in use. The Decommissioning Plan also includes the removal of landscape and restoration of soil and vegetation. The combination of the native grasses and pollinator friendly seed mix established during the Project life and temporary rest of the soils from agricultural planting will promote soil restoration and more productive farmland after decommissioning.

Prior to commercial operation, the Applicant shall provide Champaign County with a security bond to ensure proper decommissioning at the end of the Project life.

4.9 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

Per the Champaign County Zoning Ordinance, solar farms are subject to the Champaign County stormwater management and erosion and sediment control provisions and NPDES permit requirements. No impact to existing drainage facilities is anticipated. During final engineering, the pre- and post-drainage areas shall be analyzed for quantity of runoff in the 10-year and 100-year storm events, and the Applicant will conform to all local stormwater ordinances prior to issuance of a Building Permit. A NPDES Permit will be applied for and received prior to the commencement of construction activities.

The National Pollutant Discharge Elimination System (NPDES) is a federally mandated program established under Section 402 of the Clean Water Act, its goal being to protect, preserve, and improve the Nation’s water resources by controlling polluted storm water runoff. To ensure adequate runoff, a NPDES Permit will be applied for and received prior to the commencement of construction activities.

4.10 OTHER MISCELLANEOUS STANDARDS AND CODES

The Project will comply with all relevant state, national, and international standards, the State of Illinois Electric Code, the State of Illinois Uniform Building Code, the National Electric Code, and all Champaign-Urbana Public Health District requirements. The Applicant understands these requirements and all final engineering documents shall be designed in accordance with these standards.

The Applicant and Operator will coordinate with all local emergency responders to develop an emergency response plan in accordance with the Bondville Fire Department. The Applicant will submit a copy of the Site Plan, Standard Operating Procedures and Standard Operating Guidelines as part of this coordination. The Emergency Response Plan will be reviewed and updated on an annual basis. The Operation and Maintenance & Emergency Response Plan is included in **Exhibit Q**.

4.11 AVOIDANCE AND MITIGATION OF DAMAGES TO PUBLIC INFRASTRUCTURE

The Project has identified all public roads to be used for transporting materials, construction, operation, or maintenance of the PV Solar Farm. These roads were identified using IDOT approved truck routes and are outlined in the Transportation and Access Plan, found in **Exhibit L**. Dimension has determined that Champaign Township will be the Authority Having Jurisdiction with regard to the access permit, and Dimension is in active communication with the Highway Department. The Project requests a waiver to proceed without the finalized Road Use Agreement and will acquire said Agreement prior to construction.

Since there are roads in this proposed route that fall under IDOT and Champaign Township jurisdiction, the Project will acquire any necessary Access Permits and Overweight/Oversize Permits from the Illinois Department of Transportation (IDOT) and Champaign Township prior to the issuance of a Building Permit.

5.0 CONCLUSION

The Champaign CSG 1 LLC project adheres to all requirements of the Champaign County and State of Illinois and should qualify for a Special Use Permit to construct a PV Solar Farm on West Windsor Road in Champaign County, Illinois. Champaign CSG 1 LLC, a wholly owned entity of Dimension RE, LLC, seeks a Special Use Permit that can be transferred if Champaign CSG 1 LLC is sold by Dimension RE, LLC.

Property Owner(s):

Name (Printed) Signature

1.____

2.____

Applicant(s):

Name (Printed) Signature

1.____

EXHIBIT A: CONTACT INFORMATION & PROOF OF LAND OWNERSHIP

GROUND LEASE

BASIC TERMS SUMMARY

1.	**Effective Date**	April 29, 2024
2.	**Landlord**	**FOERSTERLING FARM, LLC**, an Illinois limited liability company
3.	**Tenant**	**DIMENSION IL 1 LLC**, a Delaware limited liability company
4.	**Property**	That certain real property, including Landlord's interest in, on, under or to any land, highway, alley, road, street or right-of-way adjacent to the Property along with any and all privileges and rights appurtenant to the real property, including without limitations, all development rights, entitlements, easements, air rights, improvements, fixtures, tenements, hereditaments, easements and rights of way associated therewith, located in the County of Champaign, State of Illinois, consisting of approximately two hundred two and fifty-nine hundredths (202.59) acres, commonly known as County Road 1400 North, Champaign Township, IL 61822 and assigned PIN: 03-20-30-100-002; as more particularly described on Exhibit A attached hereto and incorporated herein.
5.	**Premises**	A portion of the Property that is comprised of approximately thirty-five (35) acres of the Property, as depicted on Exhibit B.
6.	**Development Term** (Section 2)	The period commencing on the Effective Date and terminating on the earlier of (a) the first day of the Operating Term, or (b) the third (3rd) anniversary of the Effective Date.
[redacted]		
9.	**Commercial Operation Date** (Section 2)	The date on which (a) completion of the construction and successful testing of the Solar Facility has occurred, and (b) the Solar Facility has obtained final approval for interconnected operation by the applicable electric utility.
10.	**Operating Term** (Section 2)	Period commencing on the Commercial Operation Date and terminating on the twenty-fifth (25th) anniversary thereof.

11.	**Option Terms** (Section 2)	One (1) renewal term for a period of five (5) years.
[redacted]		
15.	**Landlord's Notice Address** (Section 26)	Foersterling Farm, LLC 167 Tantallon Lane Inverness, IL 60067 Attn: Robert Foersterling Phone: (847) 977-9574 Email: foersty@icloud.com and Robert A. Holland, Esq. Kelleher + Holland, LLC 102 S. Wynstone Park Drive North Barrington, Illinois 60010 rholland@kelleherholland.com (847) 382 9195

16. Tenant's Notice Address (Section 26)	Dimension IL 1 LLC 3050 Peachtree Road, Suite 460 Atlanta, GA 30305 Attn: Robert Hatton, VP of Real Estate Phone: 1-(866) 777-7969 E-mail: rhatton@dimension-energy.com; and legal@dimension-energy.com and Perspective Law Group, P.C. Attn: Jason R. Morgan 11100 Santa Monica Blvd., Suite 780 Los Angeles, CA 90025 Phone: (424) 371-6730 Fax: (424) 316-5706 Email: jason@perspectivelg.com

GROUND LEASE

THIS GROUND LEASE (this "Lease") is made and entered into by and between Landlord and Tenant, as of the Effective Date. ("Tenant" and, together with Landlord, each, a "Party" and together, the "Parties").

RECITALS

A. WHEREAS, Landlord is the owner of the Property.

B. WHEREAS, Landlord desires to lease the Premises, together with all appurtenant rights and easements thereto to Tenant for the purposes (the "Permitted Use") of installing, operating, maintaining and removing certain improvements, including but not limited to a solar electric generating facility and/or an electrical collection and storage facility, which may include, among other things, as determined by Tenant in its sole but reasonable discretion, all photovoltaic solar panels, mounting systems, inverters, transformers, integrators, all electrical lines and conduits required to collect and transmit electrical energy and/or energy storage facilities, foundations, overhead or underground electrical and communications lines and conduits and additional utility lines, cables, conduits, transformers, wires, meters, switch yards, monitoring equipment, batteries, fencing and other necessary and convenient equipment, structures and appurtenances common to such a facility or facilities (collectively, the "Solar Facility", "Facility" or "Facilities").

AGREEMENT

NOW, THEREFORE, in consideration of the rents, covenants and agreements herein contained on the part of Tenant, the receipt and sufficiency of which are hereby acknowledged, Landlord and its successors and assigns, agrees to and does hereby lease to Tenant, and Tenant agrees to and does hereby lease from Landlord, subject to the terms and conditions of this Lease, a leasehold estate in the Premises, together with all right, title and interest of Landlord in and to all easements, rights, privileges and appurtenances to the same belonging or in any way appertaining thereto, and all right, title and interest, if any, of Landlord in any land lying in the bed of any street, avenue or alley adjoining the parcel of land described above to the center line thereof, to have and to hold the aforesaid Premises and appurtenant interests unto Tenant for the Term, and Landlord and Tenant hereby covenant and agree as follows:

1. Basic Terms Summary; Recitals; Definitions. References in the body of this Lease to a portion of the Basic Terms Summary (the "Summary") (e.g., the defined terms in the left-hand column of the Basic Terms Summary) shall be deemed and construed to incorporate all the terms provided under each such referenced portion of the Basic Terms Summary. References in the Basic Terms Summary to a portion of the body of this Lease (e.g., Section references in the left-hand column of the Basic Terms Summary) shall be deemed and construed to incorporate all the terms provided under each such referenced portion of the body of this Lease. Notwithstanding anything set forth above, if there is any inconsistency between the Basic Terms Summary and another portion of this Lease, the terms of the Basic Terms Summary shall control. The Recitals set forth above and the Exhibits attached to this Lease are each incorporated into the body of this Lease as if set forth in full. All capitalized terms used in the body of this Lease shall have the meaning as set forth herein, whether defined before or after said terms are used herein. It is the intention of the Parties hereto that this Lease shall in all events control the landlord-tenant relationship between the Parties, notwithstanding any contrary statutory provision.

2. Term of Lease; Extension Option.

(a) Term. The initial Term of the Lease shall consist of the Development Term and the Operating Term. The "Development Term" is the period set forth in Section 6 of the Summary. Notwithstanding anything to the contrary contained herein, in the event that the Commercial Operation Date has not occurred prior to the expiration of the Development Term despite the fact that Tenant has commenced construction of the Solar Facility on the Premises during the Development Term, the Development Term will automatically be extended until such date that the Commercial Operation Date occurs, provided, however, in no event shall the Development Term pursuant to the terms of this Section 2(a) be extended for a period in excess of eighteen (18) months following the date upon which Tenant has commenced the physical construction of the Facilities. "Operating Term" is the period set forth in Section 10 of the Summary. The "Commercial Operation Date" is the date set forth in Section 9 of the Summary. Landlord and Tenant agree to promptly execute and deliver a written memorandum in recordable form confirming the Commercial Operation Date, the Premises and the annual Operating Rent for the Premises, in the form attached to the Lease as Exhibit D. Tenant shall promptly notify Landlord in writing upon the occurrence of the Commercial Operation Date. Notwithstanding the foregoing or anything to the contrary contained herein, Tenant shall have the right to terminate this Lease as to the entire Premises (or any portion thereof) at any time during the Development Term, for any or no reason at all, upon at least five (5) days' written notice to Landlord. The termination notice shall be effective upon the mailing of such notice by Tenant, or upon such later date as designated by Tenant in such notice. Upon such termination, except as expressly set forth in this Lease (including, without limitation, Section 17 of this Lease below), this Lease shall be of no further force or effect and all rights, duties and obligations of Landlord and Tenant under this Lease shall terminate, except for those that expressly survive termination of the Lease. If Tenant terminates the Lease only as to a portion of the Premises (as indicated in the Reduced Premises Notice), this Lease shall continue in full force and effect for the remaining portion of the Premises, as set forth in Section 4(c), below. The Development Term and the Operating Term shall be referred to herein as the "Term", and the word "Term" shall be deemed to include each Option Term (defined in Section 2(b), below).

(b) Extension Option. Tenant shall have the option (an "Option") to renew this Lease and extend the Operating Term for one (1) additional period (an "Option Term") of five (5) years. The Rent during each Option Term shall be calculated in the same manner as during the initial Operating Term. Tenant shall notify Landlord of its intention to exercise an Option at least three (3) months but no more than fifteen (15) months prior to the then-scheduled expiration date of the Lease.

[redacted]

[redacted]

4. Development Term Feasibility.

(a) Right of Entry. At all times during the Development Term, Tenant, its employees, agents and independent contractors shall have full and complete access, upon not less than twenty-four (24) hours' prior notice to Landlord, which may be telephonic or via electronic mail at the number or the email address specified in Section 15 of the Summary, to the Premises to evaluate, conduct, perform field inspections, pre-construction work, invasive soil and water testing, environmental audits, engineering and boundary surveys, topographical, structural and geo-technical tests, cultural resources/archeological surveys, and such other tests and inspections (collectively, "Tests and Investigations") of the Premises which Tenant may deem necessary or advisable in its sole discretion. Tenant has the right, but not the obligation, to perform Tests and Investigations. Tenant shall have the right to use for ingress and egress the Property and any other land or easement rights on Surrounding Lands owned by or under the control of Landlord to access the Premises. Tenant shall, at Tenant's expense, repair any damage to the Premises caused by Tenant during the performance of any Tests and Investigations. Tenant shall provide Landlord with evidence of insurance in accordance with the terms of Section 7, below, before entering the Property to perform any Tests and Investigations. Landlord consents and agrees that Tenant may make and file applications, at Tenant's sole cost and expense, on Landlord's behalf to any Governmental Authorities having jurisdiction whose approval may be necessary or advisable to enter the Premises to perform said Tests and Investigations and to take any actions in furtherance of Tenant's ability to proceed with timely construction of the Solar Facility. Landlord shall, within five (5) days after Tenant's request, execute any such application or other documentation and attend hearings, as required by such authority or as would reasonably assist Tenant. Tenant shall not disclose the results of any Tests and Investigations (the "Results") to any third parties, except to Tenant's affiliates and its and their respective directors, officers, employees, agents, consultants, owners, associates, controlling persons, shareholders, managers, members, legal advisors, investment advisors, accountants and other agents and representatives, and capital partners, potential co-investors and any bank or lender or other financing sources (collectively, "Representatives") who need to know the Results to assist Tenant, or act on its behalf, in relation to the development of the Facilities or to exercise Tenant's rights hereunder. Tenant shall be responsible for any unpermitted disclosure of the Results in violation of this Lease by any of Tenant's Representatives. Notwithstanding the foregoing, Landlord acknowledges and agrees that Tenant and its Representatives shall be entitled to disclose the Results without liability hereunder pursuant to a written request from or valid order issued by a Governmental Authority, as required by applicable law or under any other legal process.

(b) Condition of Title. Landlord will reasonably and in good faith cooperate with Tenant, at Tenant's cost, to allow Tenant to obtain a preliminary report to be issued by a title company of Tenant's choosing (the "Title Company"), as well as copies of each document underlying any matters set forth in said report within twenty (20) business days of the Effective Date. Landlord shall reasonably and in good faith assist and cooperate with Tenant in complying with or obtaining any land use or zoning permits and approvals, tax-incentive or tax-abatement program approvals, building permits, environmental impact reviews or any other approvals, consents, orders or authorizations reasonably required or reasonably deemed desirable by Tenant in connection with the development, financing, construction, installation, replacement, relocation, maintenance, operation or removal of the Facility. Accordingly, Landlord shall execute and file all reasonable applications for such approvals, consents, orders or authorizations and deliver all information and documentation related thereto, and execute, if required, any reasonable orders or conditions of approval.

(c) Reduction of Premises. If during the Development Term, Tenant determines, in its sole and absolute discretion, that only a portion of the Premises shall be necessary for construction of the Solar Facility, then Tenant shall send Landlord written notice specifying that only a portion of the Premises is usable by Tenant (the "Reduced Premises Notice"). The Reduced Premises Notice shall include a description of the portion of the Premises that shall be utilized by Tenant for construction of the Solar Facility and the Permitted Use hereunder (the "Reduced Premises"). From and after the delivery of the Reduced Premises Notice, the definition of "Premises" hereunder shall mean the Reduced Premises.

5. Solar Facility.

(a) At all times while this Lease is in force and effect, all rights to, title to and possession of the Solar Facility (including without limitation, all additions, alterations, and improvements thereto or replacements thereof, all appurtenant fixtures, machinery and equipment installed therein), Environmental Attributes, Incentives, capacity, energy and anything related to or in connection with the foregoing belong solely to Tenant and shall at all times remain the personal property of Tenant and shall not attach to or be deemed a part of, or fixture to the Premises. The Solar Facility and any and all improvements located on the Premises after the Effective Date through the duration of the Term including the Solar Facility (the "Improvements") shall at all times retain the legal status of personal property as described under Article 9 of the Uniform Commercial Code of the State of Illinois and/or under the Illinois Property Tax Code. Any Improvements located or constructed on the Premises after the Effective Date shall be deemed to be constructed by Tenant (regardless of whether Tenant constructed the same) and shall in all cases be deemed to be Tenant's personal property and shall not be considered fixtures to the Premises. "Environmental Attributes" shall mean, without limitation, carbon trading credits, renewable energy credits or certificates, emissions reduction credits, emissions allowances, green tags, tradable renewable credits, or Green-e® products. "Incentives" includes, without limitation, any accelerated depreciation, installation or production-based incentives, investment tax credits and subsidies.

(b) Except as expressly set forth herein, Tenant, at its sole cost and expense, shall operate and maintain the Solar Facility throughout the Operating Term, including, without limitation, making all necessary repairs and replacements to the Solar Facility, as determined by Tenant in its sole discretion.

(c) Tenant shall have the right to construct the Solar Facility without Landlord's consent, provided that the construction of the Solar Facility shall be performed in compliance with applicable Legal Requirements (defined in Section 8(a), below) and the Permitted Use. Following the initial construction of the Solar Facility and any Improvements, Tenant shall have the right, but not the obligation, at any time and from time to time during the Term, at its expense, to (i) make additions, changes, alterations, or improvements, structural or otherwise, to the Solar Facility in accordance with the Permitted Use; and (ii) demolish and remove the Solar Facility, the Improvements or any other structures hereafter located on the Property. Notwithstanding any provision to the contrary set forth herein, in no event shall Landlord's consent be required for any repairs, maintenance or replacements of or to components of the Solar Facility and the Improvements in the ordinary course of business.

(d) "As-Is" Condition. Subject to the terms of this Lease, Tenant accepts the Premises in its "as-is" condition.

(e) Tenant shall comply with all applicable Legal Requirements related to the Permitted Use.

6. Taxes.

(a) Taxes Payable by Tenant. Except as otherwise expressly set forth in this Section 6, Tenant shall have no obligation to pay any Taxes attributable to the Property or the Premises during the Development Term, Operating Term or any applicable Option Term. Throughout the Operating Term and Option Term, if applicable, Tenant shall pay, or cause to be paid, only (i) those Taxes that may be imposed or assessed on the Facilities, and (ii) Tenant's share of any increase in Taxes accruing against the Premises only to the extent resulting solely and directly from the presence of Facilities on the Premises. Tenant, however, shall not be required to pay any increase in Taxes that may be levied against the Property that is attributable to any sale or other transfer of the Property by Landlord or other change of ownership of the Property involving Landlord. Any such increase in real property taxes due to such a transfer or change of ownership in the Property shall remain the sole obligation of Landlord. Landlord and Tenant hereby acknowledge and agree that Taxes expressly payable by Tenant applicable to periods extending beyond the Term shall be apportioned between Landlord and Tenant at the expiration or earlier termination of the Term, and Tenant shall not be required to pay Taxes on any portion of the Property that is, or for improvements that are the property of Landlord that are, located outside the Premises but on the same tax parcel as the Premises.

(b) Payment of Taxes. Landlord shall submit the Tax bill for the Property to Tenant within ten (10) days after Landlord receives the same from the taxing authority. No later than ten (10) days prior to the due date of any installment, Tenant shall either (i) pay only the portion of the Taxes that are Tenant's obligation to pay pursuant to the terms of Section 6(a), above, to the taxing authority and deliver written evidence thereof to Landlord, or (ii) deliver a sum equal to the portion of the Taxes that are Tenant's obligation to pay pursuant to the terms of Section 6(a), above, to Landlord for payment to the taxing authority, which Landlord shall do and deliver written evidence thereof to Tenant. In the event Landlord fails to pay the taxing authority, Tenant shall be entitled (but not obligated) to make payments in fulfillment of Landlord's obligations to the taxing authority, including any penalties for late payments, and may offset the amount of all such payments from amounts due Landlord under this Lease. In the event Tenant fails to pay its portion of Taxes in accordance with this Section 6(b), Landlord shall be entitled (but not obligated) to make payments in fulfillment of Tenant's obligations to the taxing authority, including any interest, fines and/or penalties for late payments, and Tenant shall promptly reimburse Landlord for such amounts paid on behalf of Tenant. To the extent that any of the Taxes payable by Tenant as Taxes (if any) are jointly assessed with Landlord's Taxes, the Parties shall cooperate in good faith to cause such Taxes to be separately assessed and apportioned so that Tenant pays only those Taxes that are attributable to Premises and Tenant's Improvements located thereon to the extent payable by Tenant hereunder. Tenant shall have the right, on behalf of Landlord, to contest the validity or amount, in whole or in part, of any Taxes (including a reduction in the assessed valuation of the Property) payable on the Property by appropriate proceedings timely instituted, provided such contest at all times effectively stays or prevents any official or judicial sale of the Property or any part thereof by reason of nonpayment of any Taxes. Landlord shall, at Tenant's request, and reasonable out-of-pocket expense payable by Tenant, fully cooperate with Tenant in all ways to contest any such Taxes. Tenant shall hold Landlord harmless from any costs and expenses related to any such contest, and Tenant shall promptly pay any valid final adjudication enforcing any Taxes. Any refund of Taxes specifically associated with the Premises payable as a result of any such proceedings attributable to a period of time during the Term shall be the property of Tenant. If Tenant is not successful in such contest, Tenant will pay such Taxes and any increase in Taxes for the Premises expressly payable by Tenant hereunder. Landlord shall have the right in its own name to contest the validity or amount, in whole or in part, of any Taxes (including a reduction in the assessed valuation of the Property) payable by Landlord by appropriate proceedings timely instituted, provided such contest effectively stays or prevents any official or judicial sale of the Property or any part thereof by reason of nonpayment of any Taxes. Tenant shall, at Landlord's request and cost, fully cooperate with Landlord in all ways to contest any such Taxes. Landlord shall hold Tenant harmless from any costs and expenses related to any such contest, and Landlord shall promptly pay any valid final adjudication enforcing any Taxes. Any refund of Taxes payable as a result of any such proceedings attributable to a period of time during the Term shall be the property of Landlord. If Landlord is not successful in such contest, Landlord will pay such Taxes and any increase in Taxes for the Property (excluding the portion of Taxes applicable to the Premises, which shall be payable by Tenant).

(c) Definition. For the purposes of this Lease, "Taxes" shall mean all real property taxes, assessments, excises, levies, license and permit fees, utility charges and other charges, general, special or otherwise, ordinary and extraordinary, foreseen and unforeseen, levied or assessed upon or with respect to the ownership of the Property imposed by any board, bureau, commission, department or body of any municipal, county, state or federal governmental unit or subdivision thereof, having or acquiring jurisdiction over the Property or the use and improvement thereof (collectively, the "Governmental Authorities"), of any kind and nature, which shall or may during the Operating Term be assessed, levied, charged, confirmed or imposed upon or become payable out of or become a lien on the Property, or any part thereof, in each case on a cash (and not accrual) basis. Taxes shall not include any municipal, state or federal income, income profits or revenue tax imposed on rent, inheritance, estate, succession, transfer, gift, franchise, corporation, income or profit tax or capital levy.

[redacted]

[redacted]

8. Alterations.

(a) Tenant may at any time, or from time to time, at its sole cost and expense and without obtaining the consent or approval of Landlord, construct Improvements, make changes, alterations, or modifications (collectively, the "Alterations") including, but not limited to demolition, removal and/or reconstruction of the Improvements, or any part thereof; provided, however, that such Alterations shall (i) be made in connection with the Permitted Use, and (ii) comply with all laws, statutes, regulations, rules, ordinances, governmental rulings, orders, judgments, decrees or similar, whether now or hereafter in force, applicable to the Premises, or any part thereof, as to the manner of use or occupancy or the maintenance, repair or condition of the Premises, or any part thereof (collectively, the "Legal Requirements"). In furtherance, but not in limitation, of the foregoing, Landlord acknowledges that Tenant intends (but shall not be obligated) to construct an energy storage facility and/or photovoltaic solar energy generation and transmission facility on the Premises.

(b) Tenant shall comply with all Legal Requirements and shall, within sixty (60) days after receipt of a written demand by Landlord, discharge, by the filing of a bond or otherwise, any mechanics', materialmen's or other liens actually filed against the Premises by reason of the making of any Alterations.

(c) Landlord shall not construct any buildings, structures or make any other alterations on the Premises at any time during the Term.

9. Repairs, Maintenance, Damage or Destruction.

(a) Except as expressly set forth herein, Landlord shall not be required to furnish any services or facilities or to make any repairs or alterations in or to the Improvements. Except in the case of Landlord's negligence or willful misconduct, Tenant hereby assumes the full and sole responsibility for the condition, operation, repair, replacement, maintenance and management of the Improvements throughout the Term, provided that Tenant shall have no obligation to construct or reconstruct any Improvements or to maintain the Improvements in any particular condition or state of repair so long as the Improvements comply with Legal Requirements. All insurance proceeds paid on account of any damage or destruction under the insurance policies maintained by Tenant shall be paid to Tenant. Except as otherwise set forth in this Lease, Landlord shall be liable to Tenant for all damages other than consequential, indirect, exemplary, special or punitive damages caused to the Solar Facility by the negligence or willful misconduct of Landlord, its employees, agents, contractors, tenants or invitees.

(b) In the event that any portion of the Property or the Premises is damaged as a result of a fire, earthquake, hurricane, other natural disaster or an act of god, then Tenant shall have the right to terminate this Lease within ninety (90) days of the occurrence of such event. In the event that Tenant does not elect to terminate this Lease, then Tenant shall continue to pay Operating Rent pursuant to the terms of this Lease. All insurance proceeds paid on account of any damage or destruction under the insurance policies maintained by Tenant shall be paid to Tenant. All insurance proceeds paid on account of any damage or destruction under the insurance policies maintained by Landlord shall be applied to the repair of the Property to the same condition it was prior the date of the damage or destruction.

10. Use of Property; Compliance with Legal Requirements.

(a) Tenant shall have the right during the Term to use and occupy the Premises without the necessity of securing Landlord's prior consent or permission for the construction, maintenance and operation of photovoltaic solar energy generation and transmission facility and/or energy storage facility and all legal uses and improvements related thereto.

(b) Tenant shall, throughout the Term, promptly comply with all applicable Legal Requirements now or hereafter applicable to the Permitted Use. Tenant shall, however, have the right to contest any of the foregoing, and if compliance therewith may legally be held in abeyance during such contest without the imposition of any liens on the Premises or the Improvements, Tenant may postpone compliance until the final determination of such contest, provided such contest shall be prosecuted in good faith, except that Tenant shall not so postpone compliance therewith so as to subject Landlord to any fine or penalty or to prosecution for a criminal act, or to cause the Premises, or any part thereof, to be condemned or vacated.

(c) Landlord shall have access to the Premises for the purposes of farming for the period commencing as of the Effective Date and continuing through the date that is one day immediately preceding the Delivery Date (defined in Section 23(a), below); provided, however, Landlord hereby acknowledges and agrees that Tenant shall have access to the Premises during the foregoing referenced period pursuant to the terms of this Lease, including, without limitation, the terms of Section 4(a) to the Lease. Notwithstanding any provision to the contrary set forth in this Lease, neither Landlord nor any other party shall have the right to enter upon the Premises or use the Premises for any purpose whatsoever effective as of the Delivery Date.

11. Condemnation. If, at any time during the Term, the Premises or the Improvements, all or any part thereof, shall be taken in condemnation proceedings, the entire award or compensation that may be made in any such proceeding shall be allocated between Landlord and Tenant as follows: (a) Tenant shall first receive the portion of the condemnation award equal to the unamortized portion of the costs expended by Tenant in constructing any Improvements on the Premises (for purposes of the foregoing, such costs shall be amortized over a period of twenty-five (25) years); (b) Landlord shall then receive the value of Landlord's fee interest in the Premises, and (c) Tenant shall receive any remaining proceed not to exceed the value of Tenant's unexpired leasehold interest in the Premises. Landlord and Tenant each agree to execute any and all documents that may be required in order to facilitate the collection of any and all such awards or compensation. Tenant shall have the right to participate in any such condemnation proceedings and to be represented by counsel for the purpose of protecting its interest hereunder. Notwithstanding the foregoing, in the event a portion of the Premises or Improvements is taken, and Tenant determines (in its sole discretion) that Tenant does not wish to terminate this Lease pursuant to this Section 11, then the proceeds of such condemnation shall be paid as follows: (i) first, to Tenant in the amount required to cover the reasonably anticipated costs of construction or reconstruction of any Improvements necessitated by such partial taking (including any roadway Improvements); and (ii) the remainder to Landlord. If, at any time during the Term, title to less than all of the Premises or the Improvements shall be taken in condemnation proceedings, then Tenant shall have the right to determine, in its sole discretion, whether to terminate this Lease or continue this Lease in full force and effect. In the event Tenant elects to continue this Lease, the Rent thereafter payable by Tenant shall be proportionately reduced.

12. Easements and Encumbrances.

(a) In the event requested by Tenant, Landlord shall grant such easements, rights of way, or other rights or encumbrances necessary for the completion, maintenance and operation of Tenant's Improvements, across, over, under or through Landlord's fee interest in the Property, Premises and/or other land owned by or under the control of Landlord and not included in the Premises, and such easements, rights of way and other rights or encumbrances shall be delivered by Landlord on forms prepared by Tenant within fifteen (15) days of request by Tenant, so long as such easements, rights of way or other encumbrances do not materially impact the reasonable development of Landlord's adjacent land. Notwithstanding the foregoing, such easements, rights of way or other rights or encumbrances to be granted hereunder shall be subject to Legal Requirements and Landlord's prior approval, such approval not to be unreasonably withheld, conditioned or delayed.

(b) Landlord acknowledges and agrees that access to sunlight is essential to the value to Tenant of the rights granted in this Lease and is a material inducement to Tenant in entering in this Lease. Landlord will not construct buildings or structures, initiate or conduct activities or plant trees or vegetation of any type or allow any trees or other vegetation on the Property or on any land adjacent to the Premises or Property that Landlord or Landlord's affiliate may acquire (collectively, the "Surrounding Land"), which blocks or interferes with access to the Improvements or access of sunlight to the Improvements. In connection with the foregoing, Landlord hereby grants Tenant the right, but not the obligation, from time to time to trim and to cut down and clear away or otherwise destroy any and all trees, vegetation and brush now or hereafter on the Premises, Property (or Surrounding Land) and to trim and to cut down and clear away any trees on either side of the Premises, Property or Surrounding Land which now or hereafter in the reasonable opinion of Tenant may be a hazard to the Improvements, block access to the Improvements, access of sunlight to the Improvement and/or interfere with the exercise of Tenant's rights hereunder. In addition to the foregoing, Tenant shall have the right (but shall not be obligated) to remove, at Landlord's cost, any buildings or other structures located on the Property or the Surrounding Land that are in violation of the terms of this Section 12(b). Tenant shall be permitted to a reimbursement of such costs as an abatement of Rent. For purposes of this Section 12, no development by Landlord or its affiliates shall be allowed if it blocks access to the Premises or the Improvements or access of sunlight to the Improvements or interferes with Tenant's rights hereunder, and Landlord shall execute any "sunlight easements" as required by Tenant to effectuate this restriction.

(c) All easements, rights and covenants granted by Landlord to Tenant hereunder touch and concern the land, shall burden the Property and any applicable Surrounding Land and run with the land, and are expressly intended to, and shall, be covenants running with the Property. The Parties further agree that there is privity between Landlord and Tenant, and that performance of the terms and conditions of this Lease aid the Parties in the physical use or enjoyment of the lands impacted by this Lease. To the extent any covenant, right, or obligation set out in this Lease is not enforceable as a covenant running with the land, such provision shall be deemed an equitable servitude. In the event that Landlord fails to grant to Tenant any of the easements, rights of way or other rights or encumbrances referenced in this Section 12, or if Landlord prevents Tenant from using any of the easements, rights of way or other rights or encumbrances referenced in this Section 12, then Tenant shall be entitled to an abatement of Rent for the period that Tenant is denied such right to any such easements, rights of way or other rights or encumbrances.

(d) At the request of the local electric utility, Landlord will grant to the utility a recordable easement for access, ingress and egress to aid construction, repair and replacement of utilities, systems and equipment and related rights over and across any of the Property which the utility determines is needed in order to install, maintain, gain access to and provide electricity and communications equipment and services for the Facilities and to interconnect the Facilities to the utility's distribution system, which utility easement shall be granted on the utility's standard form in accordance with the utility's standard practice.

13. Encumbrance of the Leasehold Estate; Leasehold Mortgage.

(a) Tenant shall have the right, from time to time, without the prior consent of Landlord, to mortgage, hypothecate, pledge, convey in trust or alienate or otherwise encumber Tenant's leasehold estate in the Premises and/or Tenant's interest in the Improvements as security for payment of any indebtedness and/or the performance of any obligation by means of a mortgage or similar instrument which encumbers Tenant's leasehold interest in the Premises and Improvements which constitutes a first lien on this Lease (each, a "Leasehold Mortgage"); provided, however, Tenant shall not, without Landlord's prior consent, obtain a Leasehold Mortgage for a period of six (6) months following the Effective Date. A Leasehold Mortgagee shall mean any lender or other legitimate holder of a Leasehold Mortgage (a "Leasehold Mortgagee"). A Leasehold Mortgagee may enforce such

Leasehold Mortgage and foreclose the leasehold estate by lawful foreclosure and upon such foreclosure and judicial sale, the Leasehold Mortgagee may sell and assign the leasehold estate hereby created, provided that a Leasehold Mortgagee shall at all times have the right to assign its rights under the Leasehold Mortgage and any other security instruments and/or documents relating to the Leasehold Mortgage to a nominee for the purpose of taking title to a leasehold interest in the Premises following a foreclosure of the Leasehold Mortgage or deed-in-lieu thereof. Such nominee (the "Lessee") shall be entitled to all of the rights and protections afforded a Tenant in this Lease. Any person or entity acquiring such leasehold estate so sold and assigned by the Lessee or Leasehold Mortgagee shall be liable to perform the obligations imposed on Tenant by this Lease, including, but not limited to, curing all monetary defaults, only during the period such person has ownership of said leasehold estate of the Premises. The rights and privileges hereunder of any Lessee or Leasehold Mortgagee shall be subject to the rights and privileges of any other party whose lien has priority over the lien of such Lessee or Leasehold Mortgagee. Except as otherwise set forth in this Lease, in no event whatsoever shall Tenant have the right to encumber Landlord's fee simple interest in Premises without Landlord's consent.

(b) For the benefit of the holder of any Leasehold Mortgage who shall have become entitled to notice as hereinafter provided in this Section 13, Landlord agrees not to accept a voluntary surrender of this Lease at any time while such Leasehold Mortgage shall remain a lien on the leasehold estate; and Landlord and Tenant further agree for the benefit of any Lessee or Leasehold Mortgagee that, so long as any such Lessee or Leasehold Mortgage shall remain a lien on the leasehold estate, without the prior written consent of such Lessee or Leasehold Mortgagee, Landlord and Tenant will not subordinate this Lease to any mortgage which may hereafter be placed on the fee of the Premises or amend or alter any terms or provisions of this Lease or consent to any prepayment of any Rent by more than one (1) year, except as set forth herein and Landlord will simultaneously provide any notice of an Event of Default on the part of Tenant to the holder of any Leasehold Mortgage or Lessee.

(c) If at any time any Lessee or Leasehold Mortgagee shall have given to Landlord, before any Event of Default shall have occurred under this Lease, a notice specifying the name and address of such Lessee or Leasehold Mortgagee, Landlord shall send by personal delivery or by certified or registered mail or overnight courier service to such Lessee or Leasehold Mortgagee a copy of each notice of default at the same time as and whenever any such notice of default shall thereafter be given by Landlord to Tenant, addressed to such Lessee or Leasehold Mortgagee at the address last furnished to Landlord. No notice of default by Landlord shall be deemed to have been given unless and until a copy thereof shall have been so given to such Lessee or Leasehold Mortgagee. Tenant irrevocably directs that Landlord accept, and Landlord agrees to accept, performance and compliance by any such Lessee or Leasehold Mortgagee of and with any term, covenant or condition on Tenant's part to be kept, observed or performed under this Lease with the same force and effect as though kept, observed or performed by Tenant.

(d) In case of the termination of this Lease by reason of the occurrence of an Event of Default, Landlord shall give notice thereof to any Lessee or Leasehold Mortgagee who shall have notified Landlord of its name and address pursuant to Section 13(c), which notice shall be sent by personal delivery or by registered or certified mail or overnight courier service to such Lessee or Leasehold Mortgagee at the address last furnished to Landlord pursuant to Section 13(c). If, within thirty (30) days after the mailing of such notice, such Lessee or Leasehold Mortgagee shall notify Landlord that such Lessee or Leasehold Mortgagee desires to enter into a lease of the Premises with Landlord, Landlord shall join with the Lessee or Leasehold Mortgagee, or its nominee, in executing and delivering a new lease of the Premises to such Lessee or Leasehold Mortgagee, or its nominee, for the remainder of the Term, at the Rent and upon the terms, covenants and conditions contained in this Lease.

(e) Any Lessee or Leasehold Mortgagee shall be liable to perform obligations under this Lease, including, but not limited to, curing all monetary defaults, only for and during the period of time that such Lessee or Leasehold Mortgagee has taken assignment of the leasehold estate. Moreover, any Lessee, Leasehold Mortgagee or other party who acquires the leasehold estate pursuant to foreclosure or an assignment in lieu of foreclosure shall not be liable to perform any obligations hereunder once such Lessee, Leasehold Mortgagee or other party no longer has possession and use of the leasehold estate and such possession and use has properly vested in another person or entity.

14. Assignment. Tenant may not sell, transfer or assign this Lease without the prior consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed; provided, however, as long as Tenant is not in default beyond any applicable notice and cure period, then Tenant may in its sole discretion assign this Lease without the consent of Landlord to (i) any company directly or indirectly controlling, controlled by or under common control with Tenant; (ii) any entity engaged in a joint venture, partnership or similar arrangement with Tenant, an affiliate, subsidiary or parent of Tenant, or a subsidiary or affiliate of Tenant's parent; (iii) any person or entity purchasing or otherwise succeeding to all or substantially all of the assets of Tenant; or (iv) to any individual, entity, financial institution, tax equity investor, leasing company, or lender providing funds, investing or extending credit to Tenant for the purpose of leasing the Premises or constructing, maintaining, repairing and operating the Solar Facilities. Any assignment by Tenant shall relieve Tenant of all future performance, liabilities, and obligations under this Lease, provided that the assignee assumes all of the obligations of Tenant under this Lease. In the event of an assignment of this Lease pursuant to this Section 14, all liabilities and obligations of the assignor (including a Leasehold Mortgagee which acquires the leasehold estate pursuant to a foreclosure and sale) accruing after such assignment shall terminate and be released and discharged provided the assignee shall have assumed each and every one of the terms, covenants and provisions contained in this Lease by an instrument of assumption. Landlord shall have the right to assign this Lease to any acquirer of title to the Premises provided such assignee has assumed in writing all of Landlord's obligations under this Lease. If Landlord transfers or conveys title to any non-Premises tax parcel(s), or any part thereof ("Transferred Parcel"), Landlord shall include in any instrument evidencing such transfer or conveyance language mutually acceptable to Landlord, Tenant and the assignee in form and substance substantially similar to the following imposing the following restriction on the title to the Transferred Parcel: any assignee of a Transferred Parcel shall not construct buildings or structures, initiate or conduct activities or plant trees or vegetation of any type or allow any trees or other vegetation on the Transferred Parcel that blocks or interferes with access to the Improvements or access of sunlight to the Improvements. The Parties will diligently cooperate to approve such language, and Tenant shall not unreasonably delay, condition or withhold its approval., Landlord shall provide Tenant with prior written notice of all such assignments and written evidence thereof. In the event of an approved or permitted transfer or conveyance of a Transferred Parcel, the definition of Property in this Agreement shall be deemed automatically amended removing from the definition the transferred or conveyed parcel or part thereof.

15. Liens.

(a) Landlord acknowledges and agrees that Landlord does not have a lien nor has a right to a lien on any of Tenant's personal property, including, but not limited to, the Solar Facility, Tenant's inventory, trade fixtures, removable equipment, fixtures and all Improvements ("Tenant's Personalty"), and all of Tenant's Personalty shall be deemed the personal property of Tenant in accordance with the laws of the State of Illinois. Landlord expressly waives its lien or related rights, if any, granted or conferred upon Landlord by the Legal Requirements on any of Tenant's Personalty. Landlord agrees, upon written request by Tenant, to cause any lender or mortgagee having a security interest in the Property or the Premises to specifically acknowledge the rights of any Leasehold Mortgagee under this Lease. This provision is operative without execution of any further documentation, and may be relied on by any Leasehold Mortgagee in extending credit to Tenant. Any Leasehold Mortgagee shall be a third-party beneficiary of Section 15 of this Lease and may take action against Landlord (i) to enforce its rights and Tenant's rights or (ii) in the event of a breach by Landlord of its duties under this provision.

(b) As a condition precedent of any encumbrance of the Property or the Premises by Landlord subsequent to the date of this Lease, (i) the Lease shall be in a first priority position (*i.e.*, no senior monetary liens may encumber the Property or the Premises other than Taxes and assessments on the Premises that are a lien not yet due and payable), or (ii) the holder of each mortgage or other monetary encumbrances (*i.e.*, mechanics' liens, judgment liens, tax liens, etc.) shall promptly execute and deliver to Tenant a fully executed and acknowledged SNDA (defined below) in a form reasonably approved by Tenant. Subject to this Section and Section 24, Landlord may collaterally assign its interest in this Lease.

16. Default Provisions.

(a) The following events shall be referred to herein as "Events of Default" and each an "Event of Default":

(1) if either party shall default in the due and punctual payment of any monetary sums payable under this Lease, when and as the same shall become due and payable, and such default shall continue for more than ten (10) business days after a written notice therefor shall have been received by the defaulting party; or

(2) if either party shall default in keeping, observing or performing any of the non-monetary terms, covenants or conditions contained in this Lease, and if such default is not remedied (A) within sixty (60) days after the defaulting party shall have received a written notice specifying such default, or (B) in the case of any such default which cannot with due diligence and in good faith be cured within sixty (60) days, within such additional period as may be reasonably required to cure such default with due diligence and in good faith (it being intended that, in connection with any such default which is not susceptible of being cured with due diligence and in good faith within sixty (60) days, the time within which the defaulting party is required to cure such default shall be extended for such additional period as may be necessary for the curing thereof with due diligence and in good faith, provided that in no event shall such period exceed ninety (90) days).

(b) Upon the occurrence of any Event of Default by Tenant hereunder, Landlord agrees, within five (5) days of the expiration of all applicable notice and cure periods and prior to taking any action to terminate this Lease, to send, by registered or certified mail, written notice of such default to any Lessee or Leasehold Mortgagee. If Tenant fails to cure any Event of Default under this Lease within any applicable grace and cure periods, then Landlord shall afford to Lessee or any Leasehold Mortgagee (i) for defaults by Tenant in the payment of money, an additional sixty (60) days within which Lessee or any Leasehold Mortgagee shall have the right, but not the obligation, to cure such default and (ii) for all other defaults hereunder, an additional sixty (60) days within which Lessee or any Leasehold Mortgagee shall have the right, but not the obligation, to cure such default. If Lessee or Leasehold Mortgagee elects to cure, but cannot remedy a non-monetary default completely within the aforementioned additional sixty (60) day period, then Landlord shall give Lessee or any Leasehold Mortgagee a reasonable extension of time so to do, provided that Lessee or any Leasehold Mortgagee continues to pursue such remedies with reasonable diligence. The commencement of foreclosure proceedings by a Leasehold Mortgagee shall be deemed the commencement of a non-monetary cure provided that: (a) the Leasehold Mortgagee thereafter diligently prosecutes the same (provided, however, that if the Leasehold Mortgagee is prevented or restrained by a court of competent jurisdiction or by reason of any law, regulation, order, stay or rule from so proceeding, the time period set forth above shall be tolled, and provided further that if the default is cured, the Leasehold Mortgagee may discontinue such proceedings and/or possession); and (b) upon acquisition by either the Leasehold Mortgagee or any other direct purchaser or direct transferee of Tenant's interest under this Lease, whether at a non-judicial foreclosure, judicial foreclosure, trustee's sale or by deed or assignment in lieu of foreclosure, such Leasehold Mortgagee, purchaser or transferee commences within one-hundred twenty (120) days after acquiring such interest, and thereafter diligently prosecutes to completion, curing all defaults hereunder reasonably capable of being cured by such Leasehold Mortgagee or transferee. The time available to any Leasehold Mortgagee entitled to notice to initiate foreclosure proceedings as aforesaid shall be deemed extended by the reasonable number of days of delay occasioned by circumstances beyond the Leasehold Mortgagee's control. During the period that such Leasehold Mortgagee or Lessee shall be in possession of the Premises and/or during the pendency of any foreclosure proceedings instituted by any Leasehold Mortgagee, the Leasehold Mortgagee and/or Lessee shall pay or cause to be paid the Rent and all other charges of whatsoever nature payable by Tenant hereunder which have been accrued and are unpaid and which will thereafter accrue during said period. Landlord agrees that, so long as Leasehold Mortgagee or Lessee shall have the right to cure any default by Tenant under this Lease, as provided herein, Landlord shall not take any action to terminate this Lease. In the event that the default under this Lease is a result of the bankruptcy of Tenant or is otherwise incapable of being cured by Leasehold Mortgagee or Lessee or if the Lease is rejected in connection with a bankruptcy proceeding by Tenant, a trustee in a bankruptcy or such other party to such proceeding on behalf of Tenant, within ten (10) days after a request from Lessee or Leasehold Mortgagee, which request has been made within thirty (30) days following Lessee's or Leasehold Mortgagee's receipt of written notice of such default or rejection of the Lease in a bankruptcy proceeding, Landlord agrees that it will, at Lessee's or Leasehold Mortgagee's sole option, enter into a new ground lease (a "New Lease") with Lessee or Leasehold Mortgagee or its nominee for the remaining portion of the Term, and upon the terms and conditions that would have been applicable for such period under this Lease had the default not occurred, it being the intention of the parties, if Lessee or any Leasehold Mortgagee so elects, to preserve the Lease and the benefit of the leasehold estate created by this Lease for the benefit of Lessee or any Leasehold Mortgagee without interruption and for no additional consideration from Lessee or any Leasehold Mortgagee. Any New Lease shall be superior to all rights, liens and interests granted at any time on the fee interest in the Premises and to all rights, liens and interests intervening between the date of this Lease and the granting of the New Lease, and shall be free of any and all rights of Tenant under the Lease. If Lessee or any Leasehold Mortgagee designates Tenant to enter into the New Lease in accordance with the terms hereof, Tenant and Landlord acknowledge and agree that Lender shall have the right to encumber the New Lease and the estate created thereby with a mortgage (as the case may be) on the same terms and conditions, and with the same first lien priority as the Leasehold Mortgage, it being the intention of the parties to preserve the priority of the Leasehold Mortgage, the New Lease and the leasehold estate created by the New Lease for the benefit of Lender without interruption. For purposes of this Lease, "Lender" shall mean a bank, savings bank, trust company, insurance company, pension or profit-sharing trust, retirement or welfare fund, real estate investment trust or any other lender.

(c) At any time or from time to time after any such expiration or termination of a cure period provided above, including any and all cure rights of Leasehold Mortgagee described in Section 16(b), above, Landlord shall be entitled to any and all remedies available to Landlord at law and in equity, provided that in no event shall Landlord be entitled to any consequential, special, exemplary, punitive or indirect damages under this Lease.

(d) Upon the occurrence of an Event of Default on the part of Landlord hereunder and after all applicable cure periods, Tenant shall be entitled to any and all remedies available to Tenant at law and in equity, including, but not limited to, the right to terminate this Lease, and the right to bring a claim for specific performance or a suit for damages, including in connection with contracts or agreements to which Tenant is a party arising directly or indirectly from Landlord's breach or Event of Default under the Lease; provided that, except as otherwise set forth in this Lease, in no event shall Tenant be entitled to any consequential damages under this Lease.

17. Surrender of Possession.

(a) Removal Period. Except as set forth herein, Tenant shall, upon expiration or earlier termination of the Term, remove the Solar Facility, all personal property and all of Tenant's Personalty and restore the Premises to a condition reasonably similar to its original condition, reasonable wear and tear, casualty damage and condemnation excepted. Such removal shall be performed by Tenant in accordance with the Legal Requirements, including applicable laws imposed by the Illinois Department of Agriculture. Landlord agrees and acknowledges that the Solar Facility and all of the equipment, conduits, fixtures of Tenant and Tenant's Personalty shall remain Tenant's Personalty and at all times title to the same shall continue to be the property of Tenant (or Leasehold Mortgagee's or Lessee's, as the case may be) and Tenant (or Leasehold Mortgagee or Lessee's, as the case may be) shall have the right to remove the same at any time during the Term, whether or not said items are considered fixtures and attachments to real property under applicable Legal Requirements. Notwithstanding the foregoing, if Tenant's Personalty cannot be removed prior to the expiration or earlier termination of the Term; Tenant may hold over at the Premises for a period not to exceed one hundred eighty (180) days ("Removal Period"), on the same terms and conditions as applicable during the Operating Term; provided, however, that (i) Tenant shall have no obligation to pay any Rent for the initial ninety (90) days of the Removal Period, and (ii) Tenant shall pay Rent in an amount equal to the Operating Rent payable under this Lease immediately preceding the Removal Period prorated on a monthly basis for the period commencing as of the fourth (4th) month of the Removal Period and continuing through the remainder of the Removal Period. In connection with the foregoing, Landlord shall as soon as practicable after written request from Tenant execute and deliver any and all permits and permit applications necessary or desirable so that Tenant (or Leasehold Mortgagee or Lessee's, as the case may be) may remove the Solar Facility and all of Tenant's Personalty. Any reasonable out-of-pocket expenses incurred by Landlord pursuant to the foregoing obligation to execute and deliver permits shall be payable by Tenant.

(b) Decommissioning Bond. On or before the first (1st) full calendar year following the Commercial Operation Date, Tenant shall provide to Landlord a decommissioning and removal bond in an amount sufficient to decommission and remove the Facility and restore the Premises, as determined by a report prepared by a qualified, third-party engineer designated and employed at Tenant's expense; provided, however, if any governmental or quasi-governmental agency shall require a decommissioning bond in connection with the Facility (a "Governmental Decommissioning Bond Obligation"), then satisfaction by Tenant of such Governmental Decommissioning Bond Obligation shall be deemed to satisfy Tenant's obligation to provide a decommissioning and removal bond hereunder and no additional bond shall be required hereunder. In the event that the decommissioning and removal bond is obtained by Tenant prior to the date that Tenant satisfies the Governmental Decommissioning Bond Obligation, upon satisfaction of such Governmental Decommissioning Bond Obligation by Tenant in accordance with this Section 17(b), Tenant shall have no further obligation to maintain any prior decommissioning and removal bond obtained by Tenant and the same may, at Tenant's election, be retired and/or cancelled by Tenant. Promptly after the expiration or earlier termination of the Term, and at all times during the Removal Period, Tenant shall commence to decommission, dismantle and remove the Facility and all other property of Tenant located on the Premises.

18. Indemnification. Tenant hereby agrees to indemnify and hold harmless Landlord and its owners, managers, directors, officers, employees, agents, contractors, subcontractors, invitees and guests from and against any and all claims, costs and expenses, including reasonable attorneys' fees, to the extent that the same arise directly due to (i) any negligent act or negligent omission of Tenant or Tenant's agents or employees, (ii) any property damage, including crop damage, directly caused by Tenant or Tenant's agents or employees, (iii) the performance of any Tests and Investigations, or (iv) any environmental damage to the Property caused by the release of any Hazardous Substance onto the Property by Tenant or Tenant's agents or employees, provided that the foregoing shall not be applicable to the extent that any such claims, costs and expenses are caused by Landlord, or its agents', contractors', employees' or invitees' negligence or willful misconduct. Tenant shall, at its own cost and expense, defend any and all actions, suits and proceedings which may be brought against Landlord with respect to the foregoing or in which Landlord may be impleaded. Tenant shall pay, satisfy and discharge any and all final judgments, orders and decrees which may be recovered against Landlord in connection with the foregoing. Landlord hereby agrees to indemnify, defend and hold Tenant harmless from and against any and all claims, costs and expenses, including reasonable attorneys' fees, to the extent that the same (x) arise from or are connected with the negligent acts, negligent omissions or willful misconduct of Landlord or Landlord's agents, employees or invitees, (y) result from any default or breach of this Lease or any provision herein by Landlord, or (z) is caused by the release of any Hazardous Substance onto the Property by Landlord or Landlord's agents or employees. Landlord shall, at its own cost and expense, defend any and all actions, suits and proceedings which may be brought against Tenant with respect to the foregoing or in which Tenant may be impleaded. Landlord shall pay, satisfy and discharge any and all final judgments, orders and decrees which may be recovered against Tenant in connection with the foregoing. The provisions of this Section 18 shall survive the expiration or earlier termination of the Term.

19. Quiet Enjoyment.

(a) Landlord covenants that Tenant, upon paying the Rent provided for in this Lease, and upon keeping, performing and observing the terms, covenants and conditions of this Lease on its part to be kept, observed and performed, shall and may peacefully and quietly have, hold, occupy and enjoy the Premises for the entire Term, without hindrance, ejection or molestation by Landlord or any party claiming under or through Landlord. In connection with the foregoing, Landlord hereby agrees not to conduct any activities on the Property, or grant any third party the right to conduct any activities on the Property, that will interfere with the Permitted Use or damage or impair the Facility.

(b) Landlord covenants that Tenant and Tenant's designees (including any Leasehold Mortgagee or Lessee and any electric distribution utility or transmission owner or operator providing electric distribution and/or interconnection services to Tenant at the Premises, as well as any other electric distribution company or transmission owner or operator with approval and/or consent rights of any kind in connection with the Solar Facility) shall have the non-exclusive right of pedestrian and vehicular ingress and egress from a public right of way, seven (7) days a week, twenty four (24) hours a day, over, in and through the Property and to the Premises for the purpose of construction, installation, operation, interconnection, inspection, maintenance, repair and improvements of the Solar Facility in the location designated Access & Gen-Tie Line on Exhibit B, attached hereto. Tenant shall use commercially reasonable efforts not to interfere with Landlord's (or other tenants') use of the Property (excluding the Premises) during such entries.

20. Inspection by Landlord. Tenant shall permit Landlord, or its authorized representatives, to enter the Premises at all reasonable times during usual business hours, upon at least twenty-four (24) hours' prior notice from Landlord, for the purposes of inspecting the Premises. In addition, Landlord's notice shall identify any third parties who intend to accompany Landlord on the Premises by name and employer. Any access to the Premises must be in the accompaniment of a representative of Tenant and must be in compliance with Tenant's security and safety procedures with respect to any such entry, which may at Tenant's reasonable discretion require the execution of a nondisclosure agreement and/or waiver. Tenant shall have the right to deny access to the Premises to third parties if (i) Tenant determines in its reasonable discretion that allowing such third-party potential exposure to Tenants' proprietary and confidential information within the Premises would be detrimental to Tenant's business interests, or (ii) such third party fails to provide Tenant with a reasonable executed non-disclosure and confidentiality agreement prior to accessing the Premises. Any such access shall not unreasonably interfere with Tenant's business operations at the Premises.

21. Landlord's Consent. Landlord agrees that whenever it is provided in this Lease that the prior consent or approval of Landlord is required, Landlord will not unreasonably withhold, condition or delay the giving of such consent or approval.

22. Limitation on Liability.

(a) Limitation on Tenant's Liability. Landlord agrees that any claim, judgment or decree of any court or arbitrator(s) against Tenant and in favor of Landlord as a result of any default or breach of any of the terms, covenants, conditions or limitations contained in this Lease on Tenant's part to be kept, observed and performed, shall be satisfied by Landlord resorting to the interest of Tenant in this Lease and any other assets of Tenant, but not against the assets of Tenant's officers, directors, employees, shareholders, members, partners, other equity owners, and Landlord shall not have the right to seek or obtain a personal judgment against Tenant or Tenant's officers, directors, employees, shareholders, members, partners, or other equity owners for any damages.

(b) Limitation on Landlord's Liability. Tenant agrees that any claim, judgment or decree of any court or arbitrator(s) against Landlord and in favor of Tenant as a result of any default or breach of any of the terms, covenants, conditions or limitations contained in this Lease on Landlord's part to be kept, observed and performed, shall be satisfied by Tenant resorting to the interest of Landlord in the Property, but not against any other assets of Landlord or the assets of Landlord's officers, directors, employees, shareholders, members, partners, other equity owners, and Tenant shall not have the right to seek or obtain a personal judgment against Landlord's officers, directors, employees, shareholders, members, partners, other equity owners for any damages.

23. Landlord's Covenants, Representations and Warranties.

(a) Landlord hereby covenants and agrees to give Tenant exclusive possession of the Premises on the date (the "Delivery Date") that is thirty (30) days after Tenant notifies Landlord, in writing, that it will commence construction activities at the Premises, free and clear of all tenants, licensees and occupants (the "Construction Commencement Notice"). In addition, from and after the delivery of Construction Commencement Notice, Landlord shall have removed all personal property and equipment from the Premises, it being understood that neither Landlord nor any other party shall have the right to enter onto the Premises from and after the date specified in the Construction Commencement Notice. Except for entry under the terms of this Lease, Landlord agrees, for itself and for parties under its control, not to allow entry upon the Premises as expressly set forth herein, and shall not interfere with or handle any of Tenant's equipment or the Solar Facility without written authorization from Tenant, provided that Landlord will provide Tenant with at least two (2) business days' notice, except in the event of an emergency, in which case Landlord will give such notice as is practicable under the circumstances to promptly notify Tenant upon the discovery of an emergency condition at or in the Solar Facility.

(b) To the best of Landlord's knowledge, Landlord represents and warrants to Tenant that Landlord has not received any written notice of the existence of any underground storage tanks for petroleum or any other substance, or underground piping or conduits are or have previously been located on the Property or the Premises, and no asbestos-containing thermal insulation or products containing PCB, formaldehyde, chlordane, or heptachlor or other Hazardous Substances have been placed on or in any structure on the Property or the Premises by Landlord or, to the knowledge of Landlord, by any prior owner or user of the Property or the Premises, and there have been no release of or contamination by Hazardous Substances on the Property or the Premises. Landlord has provided Tenant with all environmental studies, records and reports in its possession or control conducted by independent contractors or Landlord, and all correspondence with any public or quasi-public authority having jurisdiction concerning environmental conditions of the Property or the Premises, or which identify underground storage tanks or otherwise relate to contamination of the soil or groundwater of the Property, the Premises or effluent into the air.

(c) Landlord has not received notice of or been served with any pending or threatened liens, litigation, condemnation, foreclosure or deed in lieu thereof with respect to any portion of the Property relating to or arising out of the ownership of the Property or the Premises by any person, company or governmental instrumentality, and Landlord represents and warrants, to the best of Landlord's knowledge, the Property and the Premises have lawful and valid vehicular access to and from the Property and the Premises to existing public rights of way, pedestrian pathways, roads, sewer, electrical, other utility services and all utilities which serve the Property and the Premises enter the Property or the Premises through adjoining public streets or, if they pass through an adjoining private tract, do so in accordance with valid public easements, which easement(s) shall be sufficient for the purposes of Tenant.

(d) Landlord represents, warrants and covenants to Tenant that Exhibit B, attached hereto, accurately depicts the Premises.

(e) Landlord represents to Tenant that (i) as of the date of this Lease, Landlord has lawful title to and is the fee owner of the Property and the Premises and has the full power and authority to enter into this Lease, and (ii) Landlord has not leased or granted any other party any rights to the Premises and that no other interests in the Property would be violated by the terms of this Lease.

As used herein, the term "Hazardous Substance" as used in this Lease shall mean any toxic or hazardous substance, material or waste or any pollutant or contaminant or infectious or radioactive material, including but not limited to those substances, materials or wastes regulated now or in the future under any of the statutes or regulations listed below and any and all of those substances included within the definitions of "hazardous substances", "hazardous materials", "hazardous waste", "hazardous chemical substance or mixture", "imminently hazardous chemical substance or mixture", "toxic substances", "hazardous air pollutant", "toxic pollutant" or "solid waste" in the statutes or regulations listed below. Hazardous Substances shall also mean any and all other similar terms defined in other federal, state and local law, statues, regulations, orders or rule and materials and wastes which are, or in the future become, regulated under applicable local, state or federal law for the protection of health or the environment or which are classified as hazardous or toxic substances, materials or waste, pollutants or contaminants, as defined, listed or regulated by any federal, state or local law, regulation or order or by common law decision, including, without limitation, (i) trichloroethylene, tetrachloroethylene, perchloroethylene and other chlorinated solvents, (ii) any petroleum products or fractions thereof, (iii) asbestos, (iv) polychlorinated biphenyls, (v) flammable explosives, (vi) urea formaldehyde, (vii) mold and fungal material, and (viii) radioactive materials and waste. In addition, a Hazardous Substance shall include a "Hazardous Substance", "Hazardous Material", "Hazardous Waste", and/or "Toxic Substance" under: (1) the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA") (42 U.S.C. §9601 et seq.), the Resource Conservation and Recovery Act, as amended ("RCRA") (42 U.S.C. §6901 et seq.), and the Toxic Substances Control Act, as amended ("TSCA") (15 U.S.C. §2601 et seq.); and/or (2) the Illinois Environmental Protection Act, as amended (415 ILCS 5/1 et seq.).

24. Subordination; Non-disturbance. Landlord shall provide Tenant all applicable lender contact information for any mortgage or other monetary lien now or hereinafter encumbering the Premises and Landlord acknowledges and agrees that Tenant may contact such lender in connection with obtaining and in order to obtain a subordination, non-disturbance and attornment agreement(s) (each, a "SNDA"). Tenant shall obtain an SNDA from any such lenders; provided, however, Landlord hereby acknowledges and agrees to reasonably cooperate with Tenant in obtaining the same and shall use commercially reasonable efforts to request the lender to provide an SNDA. Any such SNDA shall be recorded in the official records of the county where the Premises is located. For the avoidance of doubt, if Tenant requires an SNDA now or in the future from any current or future lender or lien holder, it is Tenant's obligation and responsibility to obtain such SNDA; provided, however, Landlord shall reasonably cooperate with Tenant in obtaining an SNDA from any current or future lender or lien holder and shall use commercially reasonable efforts to request such current or future lender or lien holder to provide an SNDA.

25. Estoppel Certificates. Either Party agrees, at any time and from time to time upon not less than ten (10) business days' prior notice by the other Party or from a Leasehold Mortgagee or Lessee, to execute, acknowledge and deliver to the other Party, or to any person designated by the other Party, a written estoppel certificate certifying that this Lease is unmodified and in full force and effect (or, if there have been modifications, that the Lease is in full force and effect as modified and stating the modifications), and the dates to which the Rent has been paid, and stating whether or not the other Party is in default in keeping, observing or performing any term, covenant or condition contained in this Lease on the other Party's part to be kept, observed or performed and, if in default, specifying each such default, and any other factual matters pertaining to this Lease reasonably requested by the other Party, it being intended that any such statement delivered pursuant to this Section may be relied upon by the other Party, or any prospective purchaser or encumbrancer of the Property, the Premises or the Improvements or both (including any Leasehold Mortgagee or Lessee), any auditor, creditor, commercial banker, and investment banker of either Party or any purchaser of Landlord's interest in the Property or the Premises. Any Party's failure to execute, acknowledge, and deliver, on request, such an estoppel within the specified time shall constitute acknowledgment by such Party to all persons entitled to rely on the estoppel certificate that the information contained in the form of estoppel certificate, if any, provided with the request is true and accurate in all respects; provided that said acknowledgment and waiver shall not apply to the extent such acknowledgment or waiver is inconsistent with any statement or information set out in a written notice provided by such Party to the requesting Party within the specified time.

26. Miscellaneous Provisions.

(a) All notices, approvals, disapprovals or elections required or permitted to be given under this Lease shall be in writing and shall be (a) delivered personally, (b) mailed, certified or registered mail, return receipt requested, (c) sent by email transmission, or (d) sent by Federal Express or other professional carrier, to the Parties at the addresses set forth in Sections 15 and 16 of the Summary, as applicable, or to such other address for either Party as such Party has notified the other Party of in writing as the address to which notices should thereafter be given, which notice shall be given in accordance with this Section. Notices shall be deemed given upon delivery or tender of delivery to the intended recipient; provided that notice sent by email shall only be deemed received when a hard copy of such notice is sent by other acceptable means set forth in this Section 26(a). Copies of notices are for informational purposes only, and a failure to give or receive copies of any notice shall not be deemed a failure to give notice. Any notice sent by the attorneys representing a Party shall qualify as notice under this Lease.

(b) Words of any gender used in this Lease shall be held to include any other gender, and words in the singular number shall be held to include the plural and words in the plural shall be held to include the singular, when the context so requires. In the event that more than one person or entity or persons constitutes Landlord hereunder, the rights, duties, obligations and liabilities of the entities comprising Landlord shall be joint and several. In any instance where Landlord's consent is needed for any action or matter arising under or related to this Lease, Tenant shall be entitled to rely on the authority of either one or both of the entities or persons comprising Landlord.

(c) The captions herein are inserted only for convenience, and they are in no way to be construed as a part of this Lease or as a limitation on the scope of the particular provisions to which they refer.

(d) This Lease is made pursuant to, and shall be governed by, construed and enforced in accordance with, the laws of the State of Illinois. If the Parties are unable to resolve amicably any dispute arising out of or in connection with this Lease, they agree that such dispute shall be resolved in an Illinois federal or state court having jurisdiction over the county in which the Property is situated. **TO THE EXTENT PERMITTED BY LAW, EACH OF THE PARTIES KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES THE RIGHT TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION BASED ON THIS LEASE, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS LEASE AND ANY OTHER AGREEMENT CONTEMPLATED TO BE EXECUTED IN CONJUNCTION HEREWITH, OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER ORAL OR WRITTEN) OR ACTIONS OF ANY PARTY HERETO. EACH OF THE PARTIES TO THIS LEASE WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL HAS BEEN WAIVED WITH ANY OTHER ACTION IN WHICH A JURY TRIAL CANNOT OR HAS NOT BEEN WAIVED. THIS PROVISION IS A MATERIAL INDUCEMENT TO EACH OF THE PARTIES FOR ENTERING INTO THIS LEASE.**

(e) Subject to Section 14, the Parties hereto covenant and agree that all of the conditions, covenants, agreements, rights, privileges, obligations, duties, specifications and recitals contained in this Lease shall be construed as covenants running with the land and as extending to, inuring to the benefit of, and being binding upon, Landlord and Tenant, and their respective heirs, executors, administrators, successors and assigns, to the same extent as if such heirs, executors, administrators, successors and assigns were named as original parties to this Lease, all to the end that this Lease shall always bind the owner and holder of any fee or leasehold interest in or to the Property and the Premises.

(f) This Lease cannot be changed or terminated orally. This Lease contains the entire agreement between the parties and is intended by the parties to set forth their entire agreement in respect of the Premises with respect to the subject matter hereof, and any agreement hereafter made shall be ineffective to change, modify or discharge this Lease, in whole or in part, unless such agreement is in writing and signed by the Party against whom enforcement of the change, modification or discharge is sought.

(g) In the event any action between the parties hereto for enforcement or interpretation of any of the terms or conditions of this Lease, the prevailing party in such action shall be entitled to recover its reasonable attorneys' fees actually incurred, together with its other reasonable out-of-pocket costs and expenses, including expert witness fees, accounting and other professional fees from the non-prevailing party.

(h) Any prevention, delay or stoppage due to strikes, lockouts, labor disputes, acts of God, inability to obtain services, labor, or materials or reasonable substitutes therefor, governmental actions, civil commotions, epidemics or pandemics (including the current pandemic caused by COVID-19), fire or other casualty, and other causes beyond the reasonable control of the party obligated to perform (collectively, a "Force Majeure"), notwithstanding anything to the contrary contained in this Lease, shall excuse the performance of such party for a period equal to any such prevention, delay or stoppage and, therefore, if this Lease specifies a time period for performance of an obligation of either party, that time period shall be extended by the period of any delay in such party's performance caused by a Force Majeure.

(i) This Lease may be executed in counterparts, each of which shall be deemed an original, but such counterparts, when taken together, shall constitute one agreement. The delivery of an executed counterpart of this Lease as a PDF or similar attachment to an email (including any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com) shall constitute effective delivery of such counterpart for all purposes with the same force and effect as the delivery of an original, executed counterpart.

(j) No provision of this Lease shall be deemed waived by either party hereto unless expressly waived in a writing signed thereby. The waiver by either party hereto of any breach of any term, covenant or condition herein contained shall not be deemed to be a waiver of any subsequent breach of same or any other term, covenant or condition herein contained.

27. Non-Merger of Estates. The interests of Landlord and Tenant in the Property or the Premises shall at all times be separate and apart, and shall in no event be merged, notwithstanding the fact that this Lease or the leasehold estate created hereby, or any interest therein, may be held directly or indirectly by or for the account of any person who shall own the fee title to the Property or the Premises, or any portion thereof; and no such merger of estates shall occur by operation of law, or otherwise, unless and until all persons at the time having any interest in the Property or the Premises, including any Leasehold Mortgagee or Lessee, shall join in the execution of a written instrument effecting such merger of estates.

28. Mineral Rights. Landlord hereby represents, warrants and covenants to Tenant that as of the Effective Date, Landlord has not transferred, leased, licensed or otherwise encumbered the mineral rights for the Property and that notwithstanding anything to the contrary contained herein, following the Effective Date, Landlord shall have no right to access the surface of the Property or the Premises for the removal of any such minerals nor shall Landlord provide any subsequent licensee, transferee, assignee or purchaser of the mineral rights for the Property with any surface rights whatsoever to the Property or Premises. Any breach of the representations, warranties and covenants set forth in this Section shall be an immediate Event of Default, entitling Tenant to any and all rights and remedies set forth herein.

29. Brokers. Neither Landlord nor Tenant shall have any obligation to pay any commissions, finder's fees or brokerage fees with respect to this Lease. Each Party represents that, it has not had any dealings with any real estate broker, finder, or other person with respect to this Lease. Each Party shall defend, protect, indemnify and hold harmless the other from all damages or claims that may be asserted by any broker, finder, or other person

with whom the indemnifying Party has purportedly dealt. The terms of this Section shall survive the expiration or earlier termination of this Lease.

30. Memorandum of Lease. As a condition precedent to Tenant's obligations hereunder including the obligation to pay Rent, Landlord agrees to execute and deliver to Tenant an original counterpart of the Memorandum of this Lease in the form of Exhibit C attached hereto, which Tenant may record, at its own expense in the real property records of Champaign County, Illinois. The date set forth in the Memorandum of Lease is for recording purposes only. After the expiration or earlier termination of this Lease, Tenant shall deliver to Landlord a termination or release of such Memorandum of Lease to Landlord, or such other commercially reasonable documentation necessary to remove the Memorandum of Lease from the applicable public records, provided that Landlord has satisfied all material obligations under this Lease. In addition to the foregoing, Landlord agrees to execute and deliver to the Title Company such customary owner's affidavits and other instruments, including, without limitation, an Illinois Plat Act Affidavit, undertakings and assurances as may be reasonably required by Tenant or the Title Company to issue a title policy insuring Tenant's leasehold estate in the Premises (with extended coverage), and that, to the best of Landlord's then-current, actual knowledge neither this Lease nor the Memorandum of Lease is junior to any monetary liens other than Taxes that are a lien not yet due or mortgages and/or deeds of trusts the beneficiaries of which have executed and delivered an SNDA in accordance with this Lease. "Memorandum of Lease" shall mean the memorandum attached hereto as Exhibit C attached hereto, which Memorandum of Lease shall be executed by Landlord and Tenant on or as of the Effective Date, and shall be recorded among the real property records of Champaign County, Illinois by Tenant, at Tenant's expense, as further described in Section 33.

31. Confidentiality. Except as otherwise expressly provided for by this Lease, each Party shall maintain in the strictest confidence, for the benefit of the other Party and, in the case of Tenant, Lessee and any Leasehold Mortgagee, all information pertaining to the financial terms of or payments under this Lease, any site or product design, methods of operation, methods of construction, power production or availability of any improvements or developments and the like, and in the case of Tenant, the Facilities, whether disclosed by the disclosing Party, or discovered by the receiving Party, unless such information either (i) is in the public domain by reason of prior publication through no act or omission of the receiving Party or its heirs, executors, administrators, successors, assigns, employees or agents; or (ii) was already known to the receiving Party at the time of disclosure and which the receiving Party is free to use or disclose without breach of any obligation to any person or entity. Neither Party shall use such other Party's information for its own benefit, publish or otherwise disclose it to others, or permit its use by others for their benefit or to the detriment of the disclosing Party or its assignees. Notwithstanding the foregoing, either Party may disclose such information to (a) its lenders, attorneys, accountants and other personal financial advisors solely for use in connection with their representation of such Party regarding this Lease, (b) in the case of Landlord, any prospective purchaser of the Property who has a made a written offer to purchase or otherwise acquire the Property that Landlord desires to accept, (c) in the case of Tenant, any prospective assignee of Tenant's interest in the Lease or the Improvements who has signed a written offer or agreement with respect thereto or (d) pursuant to lawful process, subpoena or court order requiring such disclosure; provided, that the receiving Party in making such disclosure advises the party receiving the information of the confidentiality of the information and obtains the written agreement of said party not to disclose the information, which agreement shall run to the benefit of and be enforceable by the disclosing Party; provided, further, that with respect to (d), the receiving Party shall as soon as practicable notify the disclosing Party of the lawful process, subpoena or court order and afford the disclosing Party the opportunity to contest same, at the disclosing Party's sole cost and expense. The provisions of this Section 31 shall survive the expiration or earlier termination of this Lease.

32. Transfer Taxes. Landlord shall pay any and all transfer taxes imposed by the State of Illinois (and/or any individual county and/or municipality) in connection with this Lease and any other tax payable by reason of delivery and/or recording of any of the documents relating to this Lease, including without limitation on account of any assignment by Landlord permitted by this Lease, and shall prepare all transfer tax documents relating thereto.

33. Recording Fees. Tenant shall pay all fees relating to the recording of the Memorandum of Lease.

34. Subdivision. Upon at least thirty (30) days' prior written notice to Tenant, Landlord shall have the right, at Landlord's sole cost and expense, to subdivide the Premises from the remainder of the Property during the Term of this Lease and deed the subdivided portion of the Property to another entity; provided, however, that any such subdivision shall not (i) increase or modify Tenant's obligations under this Lease, or (ii) in any way modify or affect any of Tenant's rights under this Lease. Concurrently with the transfer of such portion of the subdivided Property to another entity, Landlord shall assign this Lease and all of Landlord's obligations hereunder to such other entity and Landlord shall promptly provide Tenant with a copy of such assignment.

[SIGNATURE PAGES TO FOLLOW]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease on the Effective Date.

LANDLORD:

FOERSTERLING FARM, LLC,
an Illinois limited liability company

By: ______________________
Name: Robert L. Foersterling
Title: Owner

TENANT:

DIMENSION IL 1 LLC,
a Delaware limited liability company

By: Sam Younes
Name: Sam Younes
Its: Authorized Person

EXHIBIT A

THE PROPERTY

THE PREMISES DESCRIBED HEREIN IS SITUATED IN THE STATE OF ILLINOIS, COUNTY OF CHAMPAIGN, AND IS DESCRIBED AS FOLLOWS:

[ADD METES AND BOUNDS LEGAL DESCRIPTION]

COMMON STREET ADDRESS: County Road 1400 North, Champaign Township, IL 61822

PIN(S): 03-20-30-100-002

[THE PARTIES HEREBY ACKNOWLEDGE AND AGREE THAT TENANT SHALL HAVE THE RIGHT TO INCORPORATE THE METES AND BOUNDS LEGAL DESCRIPTION INTO THIS LEASE UPON PRIOR WRITTEN NOTICE TO LANDLORD AND NO AMENDMENT HERETO SHALL BE REQUIRED]

EXHIBIT B

PREMISES DEPICTION

EXHIBIT C

This document was prepared by
and after recording return to:

Dimension IL 1 LLC
3050 Peachtree Road, Suite 460
Atlanta, GA 30305
Attn: Real Estate

(The Above Space for Recorders Use Only)

MEMORANDUM OF LEASE[1]

This MEMORANDUM OF LEASE (this "Memorandum of Lease") is made and entered into as of ___________, 20__, by and by and between FOERSTERLING FARM, LLC, an Illinois limited liability company, having an address at 167 Tantallon Lane, Inverness, IL 60067 ("Landlord"), and DIMENSION IL 1 LLC, a Delaware limited liability company, having an address at 3050 Peachtree Road, Suite 460, Atlanta, GA 30305 ("Tenant").

WITNESSETH

WHEREAS, pursuant to that certain Ground Lease (the "Lease") [of even date herewith] by and between Landlord and Tenant, Tenant leases from Landlord the land more particularly described in Exhibit A attached hereto and made a part hereof, together with all appurtenances thereto (collectively, the "Property").

WHEREAS, the parties hereto desire to enter into this Memorandum of Lease for the purpose of recording a document in the real property records of Champaign County, Illinois that will provide public notice of the existence of the Lease and certain of its terms and conditions.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby certify and agree as follows:

[1] NTD: This form memorandum should be acceptable for recording in most Illinois counties, but certain counties may have additional/different requirements. The title company should sign off on the form of memorandum for each county prior to finalization (and they may want to review the lease, too).

1. Lease of Property. Landlord has leased to Tenant, and Tenant has leased from Landlord, for the Term (as defined in the Lease) and subject to the provisions of the Lease, to each of which Landlord and Tenant mutually agree, the Property.

2. Term. The Term of the Lease consists of the Development Term and the Operating Term (each as defined in the Lease). The Development Term commenced on ___________ __, 20___, and shall, subject to Tenant's right to extend the Development Term, expire on ____________, 20__. In the event that Tenant does not elect to terminate the Lease during the Development Term, the Operating Term shall be for a period of twenty-five (25) years. The Lease contains Tenant's option to extend the Operating Term by a period of five (5) years.

3. Improvements. Notice is hereby given that all Improvements (as defined in the Lease) located or constructed on the Property after the commencement of the Development Term shall at all times retain the status of personal property and shall in all cases be deemed to be Tenant's personal property and shall not be considered to be fixtures to the Property. Reference is hereby made to the Lease for a more particular description of the title to all such Improvements.

4. Successors and Assigns. The Lease provides that the provisions of the Lease are binding upon and inure to the benefit of Landlord and Tenant and each of their respective heirs, executors, administrators, successors and assigns, subject to certain limitations. Further, Tenant and any assignee shall have the right, in Tenant or assignee's sole discretion and without need for Landlord's consent, to do any of the following, conditionally or unconditionally, with respect to all or any portion of the Property or Facilities (as defined in the Lease): (i) finance the Facilities; or (ii) assign, change ownership or voting control, mortgage, encumber, pledge, hypothecate or otherwise transfer (including any transfer by operation of law) all or any part of the Lease, or any right or interest in the Lease, or any or all right or interest of Tenant in the Property or in any or all of the Facilities that Tenant or any assignee may now or hereafter install on the Property.

5. Rights of Lenders. Pursuant to the Lease, any Leasehold Mortgagee or Lessee (each as defined in the Lease) of Tenant has certain rights regarding notice and right to cure any default of Tenant under the Lease, and the right to take possession of the Facilities, and to acquire the leasehold estate by foreclosure, as well as other rights as set forth in the Lease.

6. Purpose of Memorandum of Lease; Miscellaneous. This Memorandum of Lease, when recorded in the real property records of Champaign County, Illinois, is intended to serve as public notice of the existence of the Lease and of certain of its terms and conditions. This Memorandum of Lease does not describe or refer to all of the terms or conditions contained in the Lease, nor is this Memorandum of Lease intended to modify, amend or vary any of the terms or conditions set forth in the Lease. If there is any inconsistency between the provisions of this Memorandum of Lease and the provisions of the Lease, the provisions of the Lease shall control. Capitalized terms used in this Memorandum of Lease but not defined herein have the meanings given such terms in the Lease. This Memorandum of Lease may be executed in any number of counterparts, each of which shall be deemed an original and all of which shall constitute one agreement.

[signature page and acknowledgements follow]

IN WITNESS WHEREOF, the parties have caused this Memorandum of Lease to be duly executed under seal and delivered as of the date first written above.

LANDLORD:

FOERSTERLING FARM LLC,
an Illinois limited liability company

By: ____________________
Name: __________________
Title: ___________________

TENANT:

DIMENSION IL 1 LLC,
a Delaware limited liability company

By: __________________
Name: ________________
Its: ___________________

STATE OF ________________)
)
COUNTY OF ______________)

On ________________, 20___ before me, a notary public in and for County and State aforesaid, personally appeared _____________________, the ____________________ of ________________________________, a _________________, who is personally known to me or properly identified to be the same person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same as the ______________ of said __________________ and as his/her free and voluntary act for the uses and purposes therein set forth.

WITNESS my hand and official seal.

____
Notary Public

My commission expires:____________________

STATE OF ________________)
)
COUNTY OF ______________)

On ________________, 20___ before me, a notary public in and for County and State aforesaid, personally appeared _____________________, the ____________________ of ________________________________, a _________________, who is personally known to me or properly identified to be the same person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same as the ______________ of said __________________ and as his/her free and voluntary act for the uses and purposes therein set forth.

WITNESS my hand and official seal.

____
Notary Public

My commission expires:____________________

EXHIBIT A TO EXHIBIT C

LEGAL DESCRIPTION OF THE PROPERTY

THE PREMISES DESCRIBED HEREIN IS SITUATED IN THE STATE OF ILLINOIS, COUNTY OF CHAMPAIGN, AND IS DESCRIBED AS FOLLOWS:

[ADD METES AND BOUNDS LEGAL DESCRIPTION]

COMMON STREET ADDRESS: County Road 1400 North, Champaign Township, IL 61822

PIN(S): 03-20-30-100-002

EXHIBIT D

Memorandum of Commercial Operation Date

This MEMORANDUM OF COMMERCIAL OPERATION DATE (this "Memorandum") is made and entered into as of __________________, 20__, by and between FOERSTERLING FARM, LLC, an Illinois limited liability company ("Landlord"), and DIMENSION IL 1 LLC, a Delaware limited liability company ("Tenant"), with respect to that certain Ground Lease between Landlord and Tenant dated as of _______ __, 20__ (the "Lease"). Capitalized terms used in this Memorandum but not defined herein have the meanings given such terms in the Lease.

The Commercial Operation Date occurred on ______________________, 20__. The Operating Term shall expire on ________________, 20__, unless sooner terminated pursuant to the Lease, or extended as permitted by the Lease. The Premises consists of ________ acres within the Property, as further described on Schedule 1 to this Memorandum. The Operating Rent shall be $________ per year. Landlord hereby acknowledges that Tenant is not in default or breach under the Lease.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Memorandum as of the date set forth above.

LANDLORD:

FOERSTERLING FARM, LLC,
an Illinois limited liability company

By: _____________________
Name: __________________
Title: ___________________

TENANT:

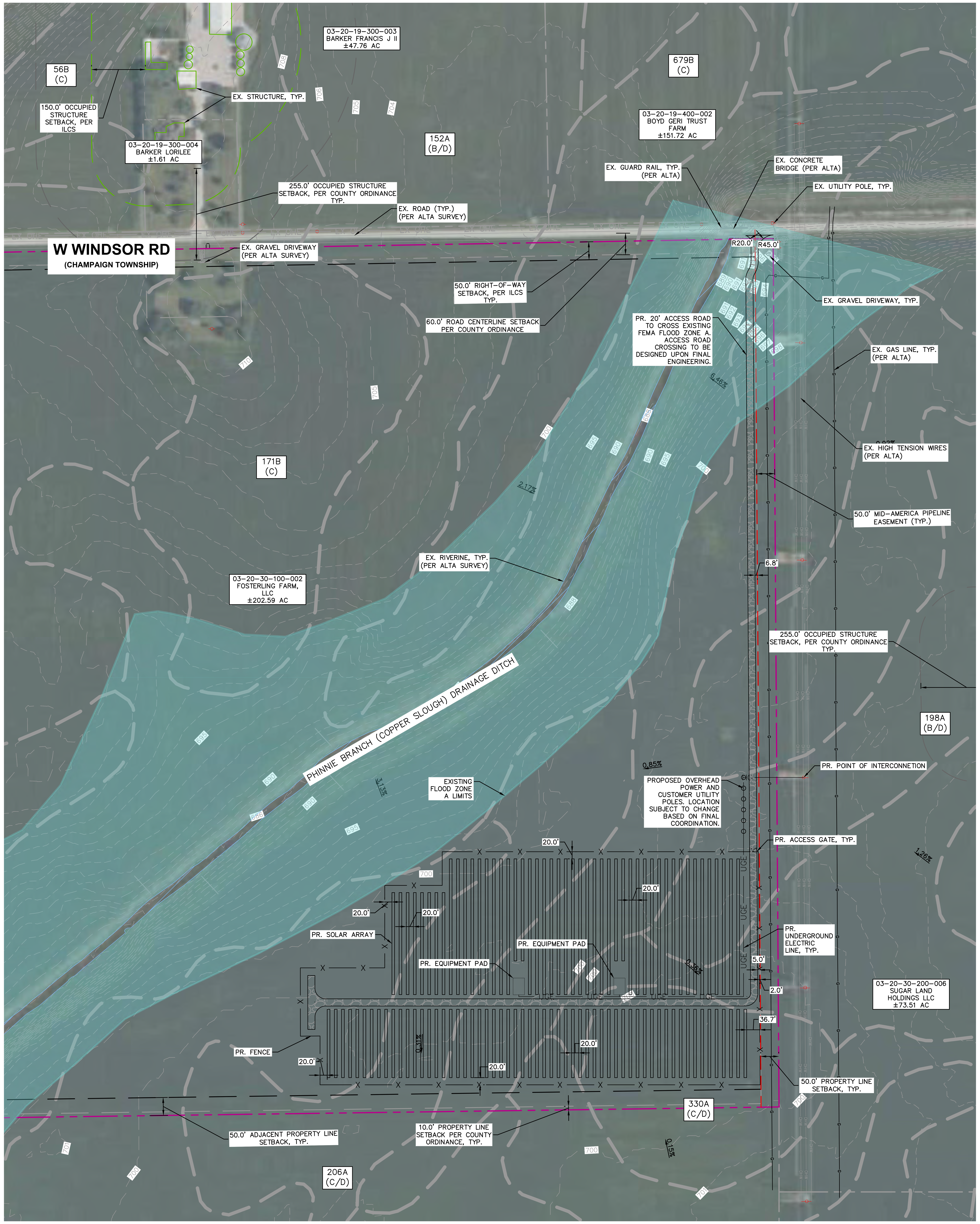
DIMENSION IL 1 LLC,
a Delaware limited liability company

By: ___________________________________
Name: _________________________________
Its: ___________________________________

SCHEDULE 1 TO EXHIBIT D

LEGAL DESCRIPTION OF THE PREMISES

EXHIBIT B: ZONING SITE PLAN



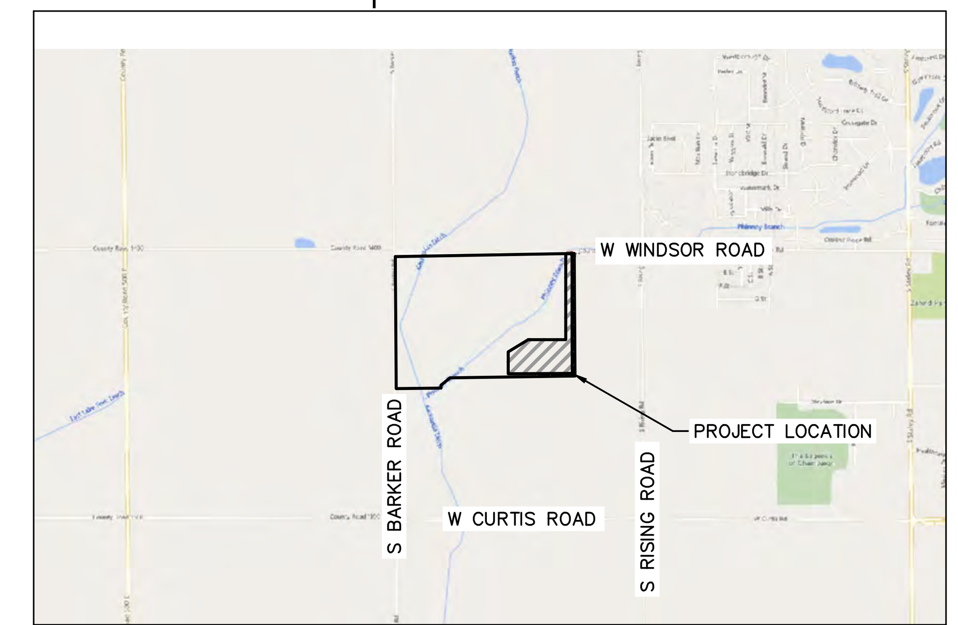
LEGEND

ROAD LABEL	ROAD NAME
PROPERTY LINE	
PROJECT PARCEL LINE	
PROPERTY SETBACK (PER ILCS)	
PROPERTY SETBACK (PER COUNTY ORDINANCE)	
ROAD CENTERLINE SETBACK (PER COUNTY ORDINANCE)	
RESIDENCE/STRUCTURE SETBACK (PER COUNTY ORDINANCE)	
ADJACENT PROPERTY LINE	
EX. RESIDENCE/STRUCTURE	
RESIDENCE/STRUCTURE SETBACK (PER ILCS)	
EX. FLOOD ZONE A (PER ALTA)	
EX. RIVERINE (PER ALTA)	
EX. OVERHEAD WIRE (TRACED PER AERIAL)	EX OHE
EX. UTILITY POLE (TRACED PER AERIAL)	
EX. GAS LINE (PER ALTA)	
EX. MID-AMERICA PIPLINE EASEMENT (PER ALTA)	
EX. SOIL BOUNDARIES (PER NRCS)	
EX. SOILS LABELS	91B (C/D)
EX. HIGH TENSION WIRE (PER ALTA)	
EX. GRAVEL DRIVEWAY (PER ALTA)	
EX. COMMUNICATION STRUCTURE (PER ALTA)	
EX. STORM STRUCTURE (PER ALTA)	
EX. STORM PIPE (PER ALTA)	
EX. WATER VALVE (PER ALTA)	
EX. FENCE (PER ALTA)	
PR. FENCE	X X
PR. ACCESS ROAD	
PR. UNDERGROUND ELECTRIC	UGE
PR. OVERHEAD ELECTRIC	OH
PR. EQUIPMENT PAD	
PR. SOLAR ARRAY	

NORTH

GRAPHIC SCALE IN FEET
0 75 150 300

811 Know what's below. Call before you dig.



SCALE 1" = 3000'

SITE DATA TABLE

PIN #	03-20-30-100-002
PROPERTY OWNER	FOERSTERLING FARM LLC
SITE ADDRESS	ALONG W WINDSOR ROAD (BETWEEN S BARKER ROAD AND S RISING ROAD), CHAMPAIGN, IL 61822
ZONING JURISDICTION	CHAMPAIGN COUNTY
ZONING DISTRICT	8100 – AGRICULTURE*
CURRENT LAND USE	AGRICULTURAL
PROPOSED USE	COMMERCIAL SOLAR ENERGY FACILITY
TOTAL PARCEL AREA	202.59 ± AC
PRELIMINARY DISTURBED AREA (AREA WITHIN FENCE)	16.82 ± AC
PRELIMINARY SOLAR AREA	12.91 ± AC
ROAD RIGHT-OF-WAY SETBACK	50'
PROPERTY LINE SETBACK	50'
RESIDENTIAL LINE SETBACK	150'
TOTAL POWER OUTPUT (DC)	4.49 MW
TOTAL POWER OUTPUT (AC)	3.00 MW
DC/AC RATIO	1.50
GROUND COVER RATIO (GCR)	37.35%
TOTAL NUMBER OF MODULES	7,550

*ZONING SITE PLAN IS BEING SUBMITTED FOR SPECIAL USE PERMIT TO CONSTRUCT/OPERATE A COMMERCIAL SOLAR ENERGY SYSTEM

SOILS DATA TABLE

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
56B	DANA SILT LOAM, 2 TO 5 PERCENT SLOPES	C
149A	BRENTON SILT LOAM, 0 TO 2 PERCENT SLOPES	B/D
152A	DRUMMER SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	B/D
154A	FLANAGAN SILT LOAM, 0 TO 2 PERCENT SLOPES	C/D
171B	CATLIN SILT LOAM, 2 TO 5 PERCENT SLOPES	C
198A	ELBURN SILT LOAM, 0 TO 2 PERCENT SLOPES	B/D
206A	THORP SILT LOAM, 0 TO 2 PERCENT SLOPES	C/D
330A	PEOTONE SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	C/D
622C2	WYANET SILT LOAM, 5 TO 10 PERCENT SLOPES, ERODED	C
679B	BLACKBERRY SILT LOAM, 2 TO 5 PERCENT SLOPES	C

NOTES

1. THE PURPOSE OF THIS PLAN IS FOR CONDITIONAL USE PERMIT REVIEW AND APPROVAL BY CHAMPAIGN COUNTY TO CONSTRUCT A COMMERCIAL SOLAR ENERGY FACILITY.
2. THIS PLAN WAS PRODUCED UTILIZING ALTA SURVEY DATED 04/15/2025, GIS RESOURCES, AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING CHAMPAIGN COUNTY, GOOGLE EARTH, AND USGS TOPOGRAPHIC INFORMATION.
3. SUBJECT PROPERTY DOES LIE WITHIN A SPECIAL FLOOD HAZARD AS SHOWN ON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL 17019C0404D) PUBLISHED BY THE FEDERAL MANAGEMENT AGENCY (FEMA). THE PROPOSED ACCESS ROAD CROSSES THE FLOOD ZONE. COORDINATION WITH USACE EXPECTED TO OCCUR DURING FINAL ENGINEERING.
4. THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: AGGREGATE ACCESS ROAD, FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINE, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS DURING FINAL ENGINEERING.
5. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
6. ALL DIMENSIONS SHOWN ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
8. CONTRACTOR SHALL MAINTAIN ACCESS AND UTILITY SERVICES TO ANY REMAINING BUILDING(S) OR ADJACENT BUILDING(S) THROUGHOUT THE DEMOLITION AND CONSTRUCTION PHASES. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
9. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PROVIDE SIGNS, BARRICADES, WARNING LIGHTS, GUARD RAILS, AND EMPLOY FLAGGERS AS NECESSARY WHEN CONSTRUCTION ENDANGERS EITHER VEHICULAR OR PEDESTRIAN TRAFFIC. THESE DEVICES SHALL REMAIN IN PLACE UNTIL THE TRAFFIC MAY PROCEED NORMALLY AGAIN.
10. SITE WILL HAVE NO DEDICATIONS FOR OPEN SPACE, NATURAL AREA, HISTORIC BUILDING(S)/STRUCTURE(S), OR STORMWATER MANAGEMENT FACILITIES.
11. SITE WILL NOT INCLUDE WATER SOURCE OR SEWAGE DISPOSAL. APPROXIMATE LOCATION OF EXISTING WATER WELL LOCATIONS SHOWN PER THE ILLINOIS WATER WELL INTERACTIVE MAP ONLINE.
12. STORMWATER MANAGEMENT FACILITIES TO BE PROVIDED AS REQUIRED BY COUNTY AND/OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITTING. REQUIREMENTS TO BE DETERMINED DURING FINAL ENGINEERING.
13. THE MAXIMUM HEIGHTS OF ANY SOLAR PANEL SHALL NOT EXCEED 20 FEET AT FULL TILT.
14. SOLAR PANELS WILL BE DESIGNED WITH ANTI-REFLECTIVE COATING TO MINIMIZE GLARE.
15. THERE SHALL BE NO EXTERIOR LIGHTING.
16. SETBACKS SHOWN ON THIS PLAN ARE BASED ON 55 ILCS 5/5-12020 AND CHAMPAIGN COUNTY ORDINANCE SECTION 6.1.5.
17. ALL NECESSARY PERMITS FOR SOIL EROSION CONTROL AND DRIVEWAY CONSTRUCTION WILL BE OBTAINED AS PART OF FINAL ENGINEERING AND PRIOR TO CONSTRUCTION.
18. PROPOSED UTILITY POLE LOCATIONS, LAYOUT, UNDERGROUND, AND OVERHEAD ELECTRIC LINES SUBJECT TO CHANGE BASED ON FINAL ENGINEERING AND COORDINATION WITH AMEREN.
19. ABOVE GROUND DC CABLE MANAGEMENT SYSTEM IS TO BE EMPLOYED WITHIN THE ARRAY BOUNDARIES.

No.	REVISIONS	DATE

DIMENSION RENEWABLE ENERGY

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
570 LAKE COOK ROAD, SUITE 200
DEERFIELD, IL 60015
PHONE: (630) 487-3449
WWW.KIMLEY-HORN.COM

KHA PROJECT	268583013
DATE	7/1/25
SCALE	AS SHOWN
DESIGNED BY	LLR
DRAWN BY	LLR
CHECKED BY	RS

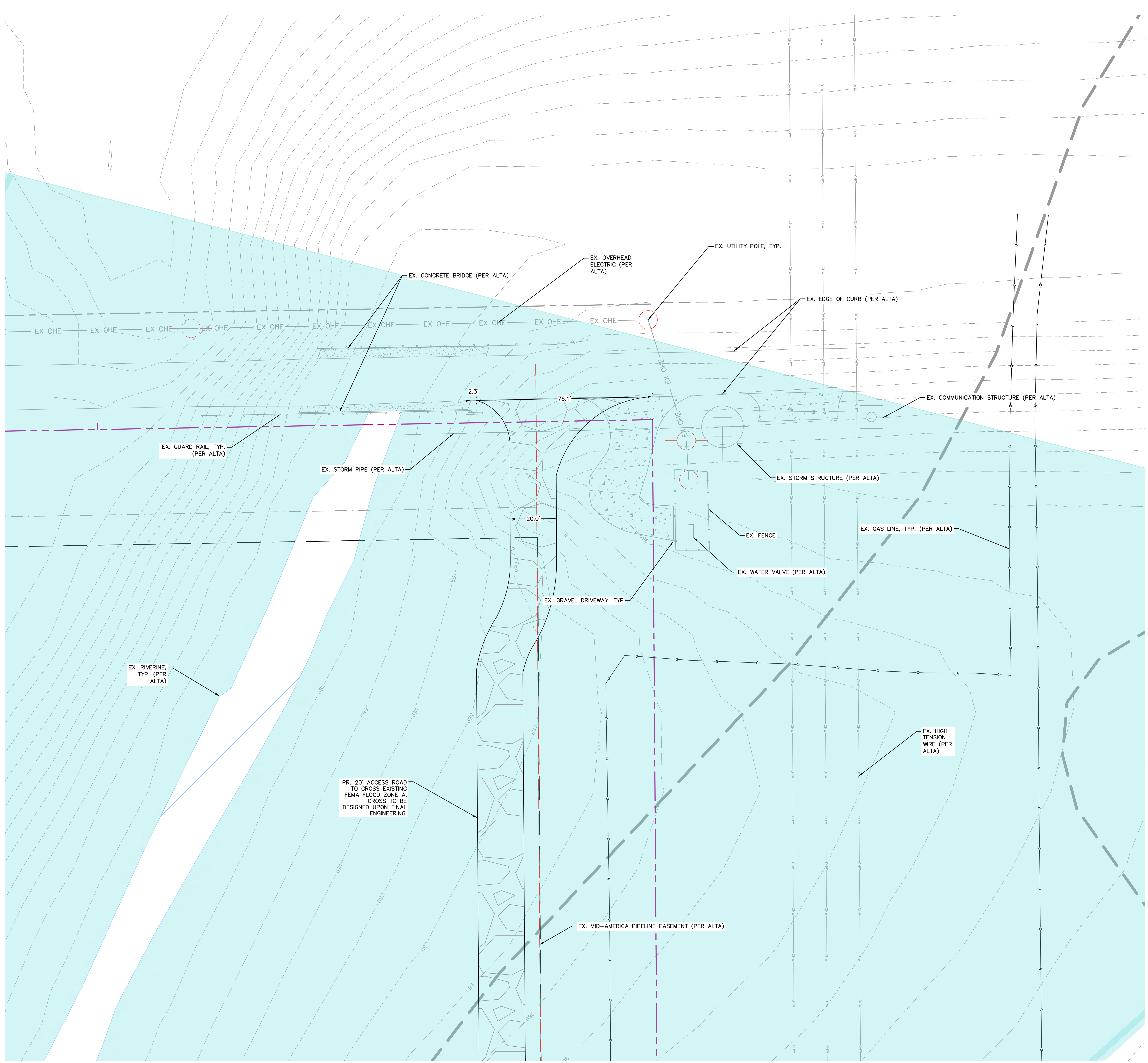
ZONING SITE PLAN

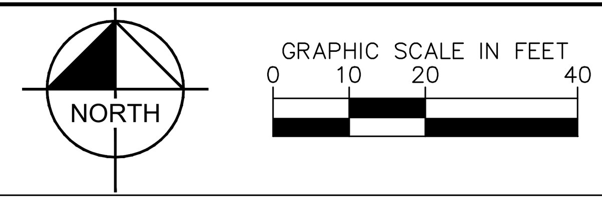
CHAMPAIGN CSG 1 LLC

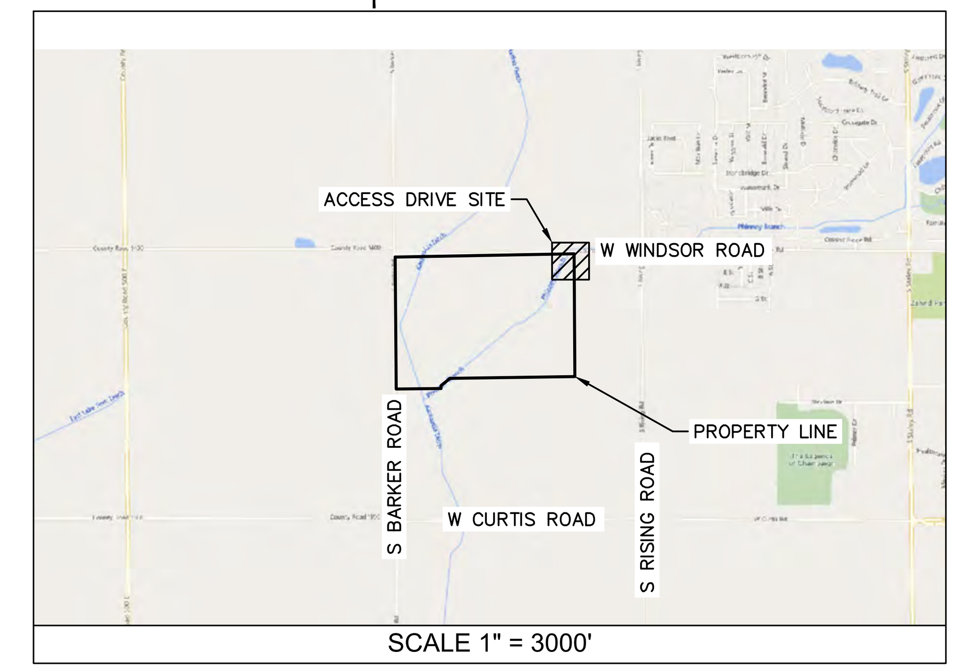
CHAMPAIGN COUNTY, IL

SHEET NUMBER

EX-1







LEGEND

ROAD LABEL	ROAD NAME
PROPERTY LINE	
PROJECT PARCEL LINE	
PROPERTY SETBACK	
ADJACENT PROPERTY LINE	
EX. RESIDENCE/STRUCTURE	
RESIDENCE/STRUCTURE SETBACK	
EX. FLOOD ZONE A (PER ALTA)	
EX. RIVERINE (PER ALTA)	
EX. OVERHEAD WIRE (TRACED PER AERIAL)	EX OHE
EX. UTILITY POLE (TRACED PER AERIAL)	
EX. GAS LINE (PER ALTA)	
EX. MID-AMERICA PIPLINE EASEMENT (PER ALTA)	
EX. SOIL BOUNDARIES (PER NRCS)	
EX. SOILS LABELS	918 (C/D)
EX. HIGH TENSION WIRE (PER ALTA)	
EX. GRAVEL DRIVEWAY (PER ALTA)	
EX. COMMUNICATION STRUCTURE (PER ALTA)	
EX. STORM STRUCTURE (PER ALTA)	
EX. STORM PIPE (PER ALTA)	
EX. WATER VALVE (PER ALTA)	
EX. FENCE (PER ALTA)	
PR. FENCE	X X
PR. ACCESS ROAD	
PR. UNDERGROUND ELECTRIC	UGE
PR. OVERHEAD ELECTRIC	OH
PR. EQUIPMENT PAD	
PR. SOLAR ARRAY	
PR. UTILITY POLE	

No.	REVISIONS	DATE

DIMENSION RENEWABLE ENERGY

Kimley»Horn

570 LAKE COOK ROAD, SUITE 200
DEERFIELD, IL 60015
PHONE: (630) 487-3449
WWW.KIMLEY-HORN.COM

KHA PROJECT 268583013	DATE 7/1/25	SCALE AS SHOWN	DESIGNED BY LLR	DRAWN BY LLR	CHECKED BY RS

ACCESS DRIVE

CHAMPAIGN CSG 1 LLC

CHAMPAIGN COUNTY, IL

SHEET NUMBER
EX-1

EXHIBIT C: VEGETATIVE MANAGEMENT PLAN

VEGETATION MANAGEMENT PLAN

Champaign CSG 1, LLC

Champaign County, IL

Prepared For:

Dimension Energy

Dimension Energy, LLC.

Prepared By:

Kimley»Horn

Kimley-Horn & Associates, Inc.

July 2025

Table of Contents

1.0 - INTRODUCTION

Dimension Energy, LLC (the Developer) is developing Champaign CSG 1, LLC (the Project), located in Champaign County, Illinois. The preliminary development area for the Project is approximately 16.8 acres of a parcel for the development of a solar energy facility. The Developer has established this Vegetation Management Plan (VMP) to guide groundcover, soils, and erosion control management practices for the Project from pre-construction through the life of the Project. This VMP will provide a preliminary review of site conditions and soils, recommendation of seed species, site preparation, timing of seed installation, seed application methods, maintenance and monitoring guidelines, and performance standards related to the proposed groundcover design.

1.1 - Project Goals

To develop a successful project, this VMP is to be used as a general guide, with flexibility to change and evolve with the Project as a benchmark to the on-going development and monitoring of the Project, and throughout the operational life of the Project. Such on-going monitoring may include on-site evaluation reports and coordination regarding potential plan discrepancies, changes to the plans, or changes to the site program. Recommendations or modifications to the Project that vary from the VMP should be evaluated, coordinated, and authorized through the Project owner, the Developer, or an environmental consultant. Adaptive maintenance and monitoring, allowing for the change in pre-prescribed maintenance guidelines, are seen as a advantageous and necessity in order to ensure success of the Project and to address changing conditions and unforeseen circumstances.

The primary goals of this VMP are to establish and maintain height-appropriate, hardy, and regionally appropriate groundcover vegetation and to minimize and control noxious and invasive plant species within the array and open areas of the Project limits throughout the Project lifetime. The proposed vegetation will include a variety of grasses and forbs with multiple benefits to soils, water, and wildlife. The primary composition of the groundcover will be low-growing grasses with a blend of cool-season and warm-season species to maintain a majority soils coverage, supplemented with perennial forbs with various blooming seasons.

2.0 - SITE SOILS

A summary of the existing site soils was prepared from data and mapping provided by the United States Department of Agriculture, Natural Resources Conservation Service. The area of study includes the preliminary area of the parcels within the identified Project limits and encompass the entirety of the subject parcels including areas not proposed for solar energy production. Soil conditions, classifications, and erosional potentials are all based on desktop analysis and may differ on-site and during time of construction from what is identified and summarized as part of this report.

SOILS SUMMARY OF NRCS WEB SOIL SURVEY									
SOILS NAME	TEXTURE CLASS	SLOPE	AREA	%	DRAINAGE CLASS	FLOODING / PONDING	HYDRIC CLASS	RUNOFF CLASS	DEPTH TO WATER TABLE (INCH)
Drummer	Silty clay loam, loam	0-2%	*6.8*	18.8%	Poorly drained	None/Frequent ponding	Yes	Negligible	0-12
Elburn	Silty clay loam, loam	0-2%	*3.9*	10.9%	Somewhat poorly drained	None	No	Low	12-24
Thorp	Silt loam, sandy clay loam	0-2%	*8.2*	22.7%	Poorly drained	None/Frequent ponding	Yes	Negligible	0-12
Peotone	Silty clay loam, silty clay	0-2%	*4.4*	12.2%	Very poorly drained	None/Frequent ponding	Yes	Negligible	0-12
Clare	Silt loam, clay loam	2-5%	*7.1*	19.6%	Moderately well drained	None	No	Low	24-42
Blackberry	Silt loam, loam, sandy loam	2-5%	*5.8*	15.9%	Moderately well drained	None	No	Low	24-42

In review of the existing site conditions, there are 6 major soils identified within the overall Project limits with more than 1% of overall land coverage by aggregate composition. The distribution of these soil types is relatively even throughout the project area, with each type accounting for between about 10% and 20% of the site. This evaluation looks at the aggregate conditions of soils across the major groups and any outlying areas.

The average soil properties of all parcels within the subject area are comprised of somewhat poorly drained to very poorly drained classifications, with more than half of the site by acreage comprised of hydric soil. The typical range of depth to water table within the Project limits varies, with most of the poorly drained soil profiles having a depth to water table of 0-12 inches and both of the moderately well drained soils having a depth to water table of 24-42 inches. More than half of the soils are identified as frequently ponding, and all of the soils have high water supply and a depth to restrictive feature of more than 80 inches. This is indicative of sandy soils with low capacity to hold water during drought periods.

With poor soil drainage, shallow water tables, hydric classifications, and sandy texture horizons, vegetation should be deep rooted and hardy to seasonal flooding and saturated conditions, but should also be hardy to occasional drought conditions. Deep roots can also incorporate organic content into soil horizons to increase water capacity and increase topsoil depth. This will improve soils conditions over time and help mitigate possible impacts from project development. A Soils Map is provided as **Appendix A** as part of this report.

2.1 - Soil Amendment

Soils on site that were previously agricultural usage are recommended to be tested for high levels of herbicides. Soil tests should be conducted at a minimum rate of 2 samples per acre where possible. Soils found to be saturated with herbicides above levels appropriate for common native grasses should be amended or treated to bring saturation down to acceptable levels. A plan should be developed with the input and evaluation of an environmental specialist or soil scientist to determine methods of remediation. No fertilizer or soil amendment with pre-treated herbicide or pesticide are to be used on site in areas of native vegetation.

3.0 - EROSION AND SEDIMENT CONTROL / MITIGATION

Best Management Practices (BMP) shall conform to federal state, and local requirements of practice, as applicable to Erosion and Sediment Control/Mitigation, and defined in this Vegetative Management Plan. With the intention of reducing foot and vehicle traffic, the Project should define temporary parking and storage area to serve equipment maintenance and cleaning, employee parking, and locating site facilities, portable facilities, office trailers, and toilet facilities. Proper storage and disposal of project byproducts (wash water, oil, grease, rubbish, litter, etc.) is to be observed in order to mitigate the degradation of land and on-site resources.

Stabilization is defined as the improvement of soil stability though the addition of material to the soil. Stabilization practices should be initiated as soon as practical, completed at the end of each working day, but in no case more than 7 days where construction has temporarily ceased. Disturbed portions of the Project where construction activity has permanently stopped shall be stabilized with a temporary seed species or mix.

If the action of vehicles traveling over the rocked construction entrances is not sufficient to remove the significant dirt or mud from falling onto paved roads, then the tires should be washed before the vehicles enter a public road. If washing is used, provisions must be made to intercept the wash water and trap the sediment before it is carried off site, as identified above. Slopes shall be left in a roughened condition during the grading phase to reduce runoff velocities and overall erosion.

All measures stated in this Vegetation Management Plan should be maintained in fully functional condition until no longer required for a completed phase of work or final stabilization of the site. All erosion and sedimentation control measures should be checked at least weekly during construction and within 24 hours of a 0.5" rainfall event or exceeds the governing requirements and cleaned/repaired.

3.1 - Soil Compaction Prevention

Compacted soils drastically reduce water infiltration, increase runoff, and promote additional sediment and topsoil erosion. Compacted soils also prevent or inhibit groundcover establishment over a long period of time, leading to additional erosional issues over the life of a project. To prevent soil compaction, construction equipment should be limited to designated access routes or areas identified for necessary construction only.

No equipment should be left outside of designated laydown yards between construction phases or during periods longer than 3 days. All equipment used outside of access routes and equipment laydown yards should be low ground pressure or equipped with wide-spread weight distribution tread/wheels. Personnel transport outside of designated access routes should be limited to small ATV vehicles or similar. No transport or construction equipment should enter or otherwise impact areas on site identified as wetland or surface water features.

Immediately following final construction of photovoltaic and associated equipment, all disturbed and compacted areas should be tilled to a minimum depth of 3 inches prior to seed application. Deep tilling of soils is to be avoided in order to prevent bringing up dormant weedy or invasive seeds to the surface. If decompacted area is anticipated to remain bare longer than 2 weeks, straw mulch or similar cover should be applied to reduce risk of erosion or recompaction due to precipitation. Silt fence check dams may be utilized in areas of concentrated flow or slopes exceeding 5%.

No vegetation identified as noxious or invasive species shall be mulched or remain on site. Mulch may be brought in from off-site to use in temporary construction access locations or areas of erosion in order to prevent soil compaction and reduce surface erosion. Mulch brought from external sources should be untreated, uncolored, and free of contaminants of weedy species to prevent spread of noxious weed Mulch used for temporary purposes should remain on-site after construction, to aid in erosion control while groundcover vegetation establishes. Over time, wood mulch will decompose, providing additional nutrients and organic content to the soils. Mulch brought from external sources should be untreated, uncolored, and free of contaminants of weedy species to prevent spread of noxious weed species on site.

3.2 - Topsoil Management

Topsoil preservation is a key component to site erosion and stormwater mitigation, and establishment of permanent groundcover vegetation. Topsoils should be maintained in existing condition wherever feasible, and should be protected from construction disturbance through best management practices, identification of primary routes, erosion and sediment control barriers, and temporary stabilization. Topsoils in areas of high impact of site construction should be stockpiled in an area with minimally erodible topographic conditions, protected with stabilization measures such as temporary groundcover or other measures. Topsoils should not be used for access road construction, backfill, or berming. No subsoils excavated during project construction should be placed on top of topsoils.

4.0 - PRELIMINARY SITE SEED RECOMMENDATION

4.1 - Temporary Seeding

In areas where construction is not on-going and has disturbed surface conditions, topsoils stockpiles, and areas identified as high concern of erosion, temporary seeding should be utilized for stabilization and protection of site soils. Temporary seeding should be performed in an as-needed basis, and at the earliest feasible timing to encourage quick stabilization. Temporary seeding should be applied either by broadcast with erosion control blanket or straw mulch, or by hydroseeding with straw mulch mix. Temporary seed species should be dependent on site conditions and season timing.

Temporary seeding should be planned for termination to reduce residual residue that can impede permanent seed establishment. The method for temporary seed species termination depends on the application, use, and location of the applied seed. Temporary seeding utilized for stabilization and steep slopes should not be fully removed to prevent erosion during transitional period. These areas should instead be treated with a glyphosate herbicide and mowed short, prior to immediate application of permanent seed mixture.

Areas identified with high amounts of temporary vegetation and residue can be mowed and shallow disked to incorporate residue into the topsoil before application of permanent seed mixture. If temporary cover crop species were utilized with the permanent seed mix, no additional action is required as annual temporary species will be removed over time with general site maintenance, mowing, and dethatching.

TEMPORARY SEEDING TIMELINE

SCIENTIFIC NAME	COMMON NAME	LBS/AC	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Avena sativa	Common Oat	*60*												
Echinochloa esculenta	Japanese Millet	*30*												
Lolium multiflorum	Annual Ryegrass	*20*												
Pisum sativum	Common Pea	*40*												
Secale cereale	Cereal Rye	*60*												
Glycine max	Soybean	*50*												
Triticum aestivum	Winter Wheat	*80*												

4.2 - Permanent Seeding Recommendation

Permanent seeding is used to provide long-term vegetative groundcover during the lifetime of the Project. These mixes aid in the stabilization of soils, stormwater infiltration, slow runoff, and control noxious and invasive weedy species. The seed mixes presented in this VMP are initial recommendations and should be considered preliminary and typical. All plant species to be used on the site should be native or naturalized with additional benefits and designed to meet the Project's specific needs.

The Project seeding should utilize a dual-mix approach, with the "Array Area Seed Mix" specifically designed for shade tolerance and limited plant heights to use in and around photovoltaic panels and around other site electrical equipment. This will reduce potential impacts to solar energy production and safety risks near site equipment and access points.

ARRAY AREA SEED MIX						
% OF MIX BY WEIGHT	SCIENTIFIC NAME	COMMON NAME	HEIGHT	BLOOM TIME	DROUGHT TOLERANCE	FLOOD TOLERANCE
27	*Festuca elatior x Lolium perenne*	Duo Festulolium	1-2.5'	N/A	High	Moderate
23	*Festuca rubra 'Boreal'*	Boreal Creeping Red Fescue	2-3'	N/A	High	Moderate
14	*Chamaecrista fasciculata*	Partridge Pea	2'	Summer	High	Moderate
11	*Poa palustris*	Fowl Bluegrass	2-3'	Summer	High	Moderate
8.5	*Poa pratensis 'Ginger'*	Ginger Kentucky Bluegrass	1-3'	N/A	High	Moderate
4	*Trifolium hybridum*	Alsike Clover	1-2'	Summer/Fall	High	High
3.5	*Trifolium pratense*	Red Clover	1-2'	Summer/Fall	High	Moderate
3.4	*Carex brevior*	Plains Oval Sedge	1-2'	Summer	High	High
3.2	*Trifolium repens*	White Clover	8"	Spring/Summer	High	Moderate
1.6	*Juncus Dudleyi*	Dudley's Rush	1-2'	N/A	Low	High
0.8	*Dalea purpurea*	Purple Prairie Clover	1-3'	Summer	High	Moderate

Application of this mix should be at minimum rate of 24 lbs PLS per Acre. This mix should be supplemented with a nurse crop dependent on season.

The second mix included in this recommended approach is the "Open Area Seed Mix". This mix is intended to be utilized around the perimeter and in larger open spaces outside of the array layout, with a focus on having full-sun exposure. This mix includes more variety of plant species and pollinator and habitat species of forbs and nesting bunch grasses.

PERIMETER AREA SEED MIX						
% OF MIX BY WEIGHT	SCIENTIFIC NAME	COMMON NAME	HEIGHT	BLOOM TIME	DROUGHT TOLERANCE	FLOOD TOLERANCE
18	*Elymus virginicus*	Virginia Wild Rye	2-4'	N/A	High	High
13	*Elymus canadensis*	Canada Wildrye	3-4'	N/A	Moderate	Moderate
12	*Bouteloua curtipendula*	Sideoats Grama	1-3'	N/A	High	Moderate
10	*Chamaecrista fasciculata*	Partridge Pea	2'	Summer	High	Moderate
9	*Medicago sativa*	Alfalfa	2-3'	Summer	High	Moderate
8	*Poa pratensis 'Ginger'*	Ginger Kentucky Bluegrass	1-3'	N/A	High	Moderate
6.5	*Festuca rubra 'Boreal'*	Boreal Creeping Red Fescue	2-3'	N/A	High	Moderate
3.4	*Trifolium hybridum*	Alsike Clover	1-2'	Summer/Fall	High	High
2.7	*Juncus effusus*	Common Rush	2-4'	Summer/Fall	High	High
2.5	*Trifolium pratense*	Red Clover	1-2'	Summer/Fall	High	Moderate
2.2	*Carex brevior*	Plains Oval Sedge	1-2'	Summer	High	High
2.1	*Trifolium repens*	White Clover	8"	Spring/Summer	High	Moderate
1.2	*Echinacea purpurea*	Purple Coneflower	2-4'	Summer	High	High
1	*Carex vulpinoidea*	Fox Sedge	2-3'	N/A	High	High
0.9	*Asclepias syriaca*	Common Milkweed	3-5'	Summer	Moderate	High
0.8	*Solidago nemoralis*	Gray Goldenrod	1-3'	Fall	High	Moderate
0.75	*Juncus Dudleyi*	Dudley's Rush	1-2'	N/A	Low	High
0.7	*Caltha palustris*	Marsh Marigold	2'	Spring	Low	High
0.65	*Echinacea pallida*	Pale Purple Coneflower	2-4'	Summer	High	High
0.6	*Allium cernuum*	Nodding Wild Onion	18"	Summer	High	High
0.6	*Ratibida pinnata*	Yellow Prairie Coneflower	3-4'	Summer	High	High
0.55	*Rudbeckia hirta*	Black Eyed Susan	2-3'	Summer/Fall	High	High
0.53	*Anemone canadensis*	Canada Anemone	1'	Spring	Moderate	High
0.5	*Tradescantia ohiensis*	Common Spiderwort	2-3'	Spring/Summer	Moderate	High
0.425	*Dalea purpurea*	Purple Prairie Clover	1-3'	Summer	High	Moderate
0.35	*Asclepias incarnata*	Swamp Milkweed	3-5'	Summer/Fall	Moderate	High
0.28	*Penstemon digitalis*	Foxglove Beardtongue	2-3'	Spring	High	High
0.245	*Solidago speciosa*	Showy Goldenrod	3'	Summer	High	Moderate
0.225	*Zizia aurea*	Golden Alexanders	1-3'	Spring	High	High
0.175	*Symphyotrichum laeve*	Smooth Blue Aster	2-4'	Fall	High	Moderate
0.12	*Liatris aspera*	Rough Blazingstar	2-3'	Summer/Fall	High	Moderate

Application of this mix should be at minimum rate of 19 lbs PLS per Acre. This mix should be supplemented with a nurse crop dependent on season.

5.0 - SITE PREPARATION

It is essential to prepare the site in order to give vegetation the highest chances of germinating and establishing. To do so it is important to clear the target area of existing weedy vegetation. This can be achieved through mowing and the targeted use of an animal-friendly Glyphosate herbicide. If a significant amount of weedy vegetation is present, it is not recommended to till the site as this can stir up dormant, buried weed seeds which can geminate quickly. If broad-application herbicide is required, seeding can take place one week after last herbicide application.

Soils should be uniform, without excessive furrows, ruts, or ridges, and low areas where water may collect. Areas identified to have rills or small gullies should be filled and blended with adjacent grade to mitigate and stop the continuation of soil erosion in these areas. Areas identified to have erosion should be noted and monitored during the first three years of seed establishment. Soils should be cleared of trash, debris, and invasive species prior to final seeding application. Soil preparation should occur when weather permits, and timing allows for at least a following 48 hours where seeding and stabilization methods may take place.

Since native pollinator species may be slow to establish, annual plant species such as soybean, rye, wheat, or oats may be used to temporarily stabilize the soil, depending on the soil composition and application season, and at rates equal to 10-20 lbs per acre. These should not be allowed to reseed and should be cut between 9 and 12 inches in height during the first season.

If excessive crop residue remains present on-site prior to seeding, residue should be disced or lightly tilled to a depth no more than 3 inches. Crop residue on the surface of soils can provide some soil stabilization and seed protection, however dense residue can hinder seed germination and establishment. If crop residue is identified to be dry and loose, care should be taken to minimize fire risk on site by applying water to the surface, removing residue, tilling residue into the topsoil, or a combination of these measures. No seeding should be performed during periods of excessive drought or where dry crop residue is identified.

6.0 - VEGETATION APPLICATION

With multiple parcels and varied types of existing agricultural use, site-specific preparation and seeding application may differ with potential for varying levels of success. Standard types of seeding application include no-till drilling, broadcast, or hydroseeding. These applications all have potential for successful establishment of groundcover and should be utilized in different ways or times depending on multiple factors such as timing and existing site conditions.

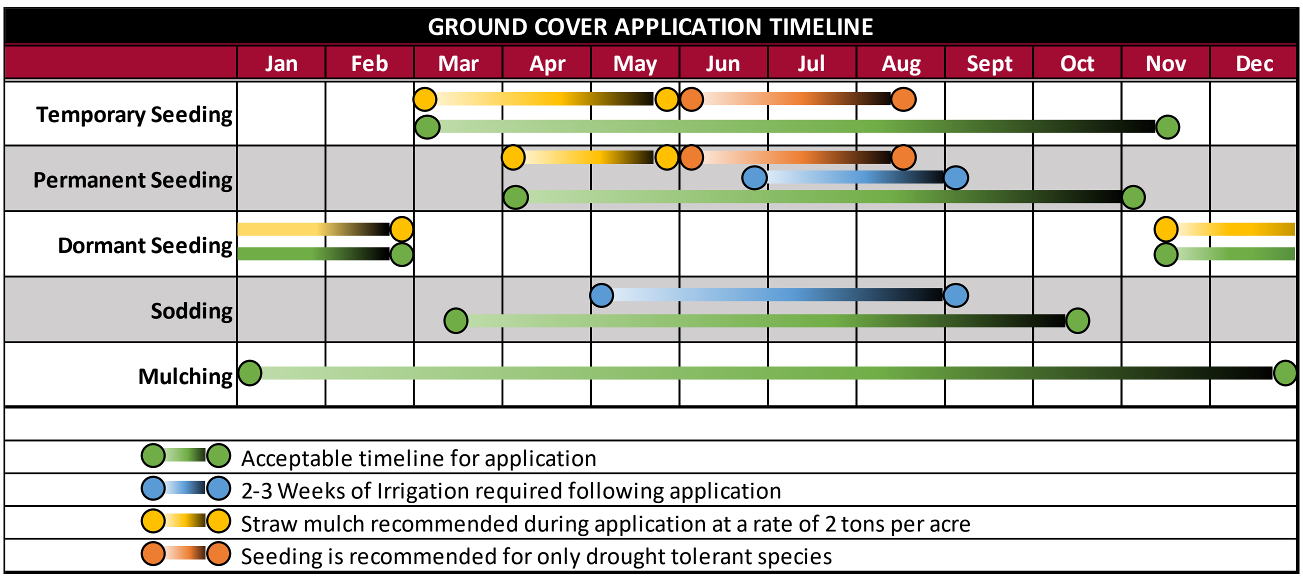
The following table is to be used as a guide to ensure the highest success rate possible for each parcel within the Project limits. Site conditions can vary greatly and should be evaluated for the most appropriate application method prior to seeding.

VEGETATION APPLICATION GUIDELINES			
EXISTING CONDITIONS	**PREPARATION**	**APPLICATION**	**POST-SEEDING**
Crops - Corn (Current or Recent Harvest)	• Cut and remove biomass • Disc or shallow till before seeding	• Drill Seed • Broadcast Seed • Hydroseed	• Roll or pack soils with low-pressure equipment
Crops - Corn (Aged Residue)	• Disc or shallow till before seeding	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment
Crops - Soybean (Current or Recent Harvest)	• Cut and remove biomass • Disc only if heavy residue is present	• Drill Seed • Broadcast Seed • Hydroseed	• Roll or pack soils with low-pressure equipment
Crops - Soybean (Aged Residue)	• Disc only if heavy residue is present	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment
Crops - Grain (Current or Recent Harvest)	• Cut and remove biomass • Disc or shallow till before seeding	• Drill Seed • Broadcast Seed • Hydroseed	• Roll or pack soils with low-pressure equipment
Crops - Grain (Aged Residue)	• Disc or shallow till before seeding	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment
Feed Hay or Fallow Field	• Cut and remove biomass • Herbicide treat vegetation if existing species are undesirable • Disc or shallow till before seeding	• Drill Seed • Broadcast Seed • Hydroseed	• Roll or pack soils with low-pressure equipment
Bare Soils (Minimal Residue)	• If soils are identified to be compacted • Decompact and till soil • Drag smooth and level soils before immediate seeding	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment • Apply erosion control blanket as needed
Bare Soils (Post-Construction, Under Array)	• Decompact and till soil • Drag smooth and level soils before immediate seeding	• Broadcast Seed	• Roll or pack soils with low-pressure equipment • Apply erosion control blanket
Bare Soils (Post-Construction, Open Area)	• Decompact and till soil • Drag smooth and level soils before immediate seeding	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment • Apply erosion control blanket
Bare Soils (Washout / Erosional Area)	• Backfill with soil • Drag smooth and level soils before immediate seeding	• Broadcast Seed • Hydroseed with Straw Mulch	• Apply erosion control blanket and straw bale check dams as needed
Turf Grass	• Herbicide treat vegetation • Disc or shallow till, 2 weeks following herbicide application • Repeat if necessary	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment
Weed-Dominated (Post-Construction, Under Array)	• Herbicide treat vegetation • Disc or shallow till, 2 weeks following herbicide application • Repeat if necessary	• Broadcast Seed	• Roll or pack soils with low-pressure equipment
Weed-Dominated (Post-Construction, Open Area)	• Herbicide treat vegetation • Disc or shallow till, 2 weeks following herbicide application • Repeat if necessary	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment
Weed-Dominated (Pre-Construction)	• Herbicide treat vegetation • Disc or shallow till, 2 weeks following herbicide application • Repeat if necessary	• Drill Seed • Broadcast Seed • Hydroseed with Straw Mulch	• Roll or pack soils with low-pressure equipment

6.1 - Seed Application Timing

To promote early and strong establishment of a specified seed mix, dormant season seed application is recommended to be utilized if possible and as construction timeline permits. Dormant season seeding should occur between November 15th and February 28th utilizing winter-tolerant seed from the specified seed mix, along with a winter nurse crop such as annual rye, winter wheat, or annual oat. To apply dormant seed, the site should be cleared of invasive weeds, lightly tilled or disced, then drill seed applied across the entire area of soil.

Active season seed application should be performed between April 1st and May 30th, after risk of major freezing conditions is minimized, for ideal establishment and minimizing invasive species competition. Seeding may occur outside of the typical and recommended timelines, which may require additional preparation or support measures to increase success rate of germination and establishment. The following chart can be used as a guide for seeding applications based on the type and timing of site development.



6.2 - Seed Application Phasing

Seeding should occur in two phases. The first phase of seeding should occur at least 4 weeks prior to installation of array piles in order to reduce disturbance. During this time, laydown yards, temporary stormwater measures, or access road preparation may be performed only within designated areas. The first application should be mechanically drill seeded with the full nurse crop and at minimum 50% of the final and permanent seed mix. No straw mulch is required unless needed for soil stabilization in areas of concentrated surface flow. Straw mulch should be applied in these areas at a rate of 2 tons per acre during the first application of seed.

The second round of seeding should occur post-panel installation, after piles and array racking is built, and should include the full remainder seed mix by broadcast application and any additional that may be required in areas identified as heavily disturbed during the construction phase. Spot herbicide application should occur during this phase of seeding, focusing on areas where noxious weeds are aggressively outcompeting native vegetation.

7.0 - MAINTENANCE AND MONITORING DEVELOPMENT

Maintenance programs should be site specific and coordinated with the landscape contractor and county for adequate maintenance procedures. A three-year stewardship program is recommended to ensure proper establishment and health of ground cover, to control invasive species, and to prevent overgrowth and impact to solar energy production. After the third growing season, the program is to be reduced to a minimum of one visit per year, dependent upon site conditions and required strategies to maintain good health of the site such as dethatching, additional mowing, or herbicide treatments.

7.1 Timeline of Implementation

First year:

The earliest possible seed application may occur in the Spring of the first year. No maintenance actions are required to be performed during the first season of application. If seed application takes place in summer or fall of the first year, maintenance and monitoring should start the following season.

Site visits are recommended to be performed one to three times throughout the Summer and an additional one to three times throughout the Fall at the beginning, middle, or end of each month, with monitoring and evaluation of vegetation height and presence of invasive species occurring at each visit. If weedy species are identified during an observation, measures to control invasive woody and herbaceous flora through physical removal or spot herbicide treatments is required. Mowing should be conducted during the first year in areas of the site identified to have vegetation over 16 inches in height. Areas with height under 16 inches may remain until the next scheduled monitoring visit. Newly seeded areas should be cut back to 9 inches in height, if possible, as the lower mowing height helps to reduce opportunistic weedy species.

Second year:

Site visits are recommended to be performed one to three times throughout the Spring, Summer, and Fall at the beginning, middle, or end of each month, with monitoring and evaluation of vegetation height and presence of invasive species occurring at each visit. During the first visit of the year, mowing should occur to cut back any vegetation to a height of 10 inches and remove dead stalks and seed heads from the previous growing season. If weedy species are identified during an observation, measures to control invasive woody and herbaceous flora through physical removal or spot herbicide treatments is required. Mowing should be conducted at each additional visit in areas of the site identified to have vegetation over 18 inches in height. Areas with height under 18 inches may remain until the next scheduled monitoring visit. Vegetative areas should be cut back to 9 inches in height.

Third year:

Site visits are recommended to be performed one time during the early Spring, Summer, and Fall with monitoring and evaluation of vegetation height and presence of invasive species occurring at each visit. During the first visit of the year, mowing should occur to cut back any vegetation to a height between 9 and 12 inches to remove dead stalks and seed heads from the previous growing season. If weedy species are identified during an observation, measures to control invasive woody and herbaceous flora through physical removal or spot herbicide treatments is required. Mowing in open areas, along the fence line, and buffer areas should be conducted in areas of the site identified to have vegetation over 36 inches in height. Areas with height under

24 inches may remain until the next scheduled monitoring visit. Vegetative areas should be cut back to 9 inches in height.

Following the third year:

Site visits are recommended to be performed at least once a year, during the early Spring, with monitoring and evaluation of vegetation height and presence of invasive species occurring during the visit. During the Spring, mowing should occur to cut back any vegetation to a height between 9 and 12 inches to remove dead stalks and seed heads from the previous growing season. If weedy species are identified during an observation, measures to control invasive woody and herbaceous flora through physical removal or spot herbicide treatments is required.

For the remainder of the year, vegetation should be mowed in open areas, along the fence line, and buffer areas to maintain a height under 48 inches through the growing season. Areas with height under 36 inches may remain until the next scheduled monitoring visit. Mowing within array areas should be conducted in areas identified to have vegetation over 24 inches in height. Vegetative areas should be cut back to 9 inches in height. All herbicides are to be animal-friendly and applied by trained personnel.

8.0 – PERFORMANCE STANDARDS

Satisfactory groundcover development associated with naturalized vegetation should be evaluated at each monitoring period and based on the following criteria.

Upon completion of project construction:

All disturbed areas or areas identified as bare soils measuring one square meter with no vegetation should receive either temporary cover crop or permanent seed application. No areas of bare soils should remain after substantial completion of the Project.

Three months after seeding:

Within three months of seed application, or three months after the start of the growing season following dormant seeding, approximately 60 percent of the seeded area (excluding access roads, pads, or other hardscape areas), as measured by aerial cover, should be vegetated or otherwise stabilized against erosion. Temporary cover crop may be included in stabilization and seeded area percentage. Supplemental use of straw mulch or blanket should not be included in the seeded area percentage, unless new growth germination is identified within the straw or blanketed areas.

After the first year:

By the end of the first full growing season, all seeded areas should have 80 percent minimum vegetation (excluding access roads, pads, or other hardscape areas), as measured by aerial cover. Temporary cover crop may be included seeded area percentage. All trees, shrubs, or woody vegetation identified to be dead or diseased should be replaced. Woody vegetation identified to have pest presence should be further evaluated to determine if pests can be treated, removed, or if vegetation should be taken off site and replaced. No diseased or pest-infected vegetation is to remain on-site.

After the second year:

By the end of the second growing season, all seeded areas should have a minimum of 90 percent vegetation ground cover, of which 50 percent should be native and naturalized species identified in final seed mix (excluding access roads, pads, or other hardscape areas). Native and naturalized species percentage should not include temporary cover crop, erosion control measures, or undesirable and invasive plant species. All trees, shrubs, or woody vegetation with more than 50 percent dead branches or biomass should be replaced. All woody vegetation identified to be diseased should be replaced. Woody vegetation identified to have pest presence should be further evaluated to determine if pests can be treated, removed, or if vegetation should be taken off site and replaced. No diseased or pest-infected vegetation is to remain on-site.

After the third year and subsequent years:

By the end of the third growing season, all seeded areas should have a minimum of 75 percent ground cover by native and naturalized species identified in final seed mix (excluding access roads, pads, or other hardscape areas). This should not include temporary cover crop, erosion control measures, or undesirable and invasive plant species. No areas identified as bare soils of one square meter or larger should be present within seeded areas. All trees, shrubs, or woody vegetation with more than 20 percent dead branches or biomass should be replaced. All woody vegetation identified to be diseased should be replaced. Woody vegetation identified to have pest presence should be further evaluated to determine if pests can be treated, removed, or if vegetation should be taken off site and replaced. No diseased or pest-infected vegetation is to remain on-site.

If performance standards are not met at each observation period, the landscape contractor should notify the owner and Developer and propose corrective action in order to meet the performance standard by the next observation period. Corrective action may include overseeding, especially areas identified with bare soils, additional erosion control measures, or herbicide treatments.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Champaign County, Illinois

July 18, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:2,830 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 40, 80, 160, 240

Feet: 0, 100, 200, 400, 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

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

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Champaign County, Illinois
Survey Area Data: Version 19, Aug 21, 2024

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

Date(s) aerial images were photographed: Jul 7, 2023—Aug 31, 2023

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
152A	Drummer silty clay loam, 0 to 2 percent slopes	6.8	18.8%
198A	Elburn silt loam, 0 to 2 percent slopes	3.9	10.9%
206A	Thorp silt loam, 0 to 2 percent slopes	8.2	22.7%
330A	Peotone silty clay loam, 0 to 2 percent slopes	4.4	12.2%
663B	Clare silt loam, 2 to 5 percent slopes	7.1	19.6%
679B	Blackberry silt loam, 2 to 5 percent slopes	5.8	15.9%
Totals for Area of Interest		**36.2**	**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 was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Champaign County, Illinois

152A—Drummer silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ssrz
Elevation: 490 to 1,020 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Drummer, drained, and similar soils: 94 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Drummer, Drained

Setting

Landform: Stream terraces on outwash plains, stream terraces on till plains, swales on outwash plains, swales on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loess over stratified loamy outwash

Typical profile

Ap - 0 to 14 inches: silty clay loam
Btg - 14 to 41 inches: silty clay loam
2Btg - 41 to 47 inches: loam
2Cg - 47 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: R108XA013IL - Wet Outwash Prairie, R110XY024IL - Ponded Depressional Sedge Meadow, R111XD020IN - Wet Outwash Mollisol
Hydric soil rating: Yes

Minor Components

Peotone, drained

Percent of map unit: 3 percent
Landform: Depressions on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Harpster, drained

Percent of map unit: 3 percent
Landform: Depressions on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R110XY025IL - Ponded Calcareous Sedge Meadow
Hydric soil rating: Yes

198A—Elburn silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2smzr
Elevation: 430 to 960 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 160 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elburn and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elburn

Setting

Landform: Outwash plains, stream terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over stratified loamy outwash

Typical profile

Ap - 0 to 16 inches: silt loam
Bt - 16 to 49 inches: silty clay loam

2BCtg - 49 to 58 inches: loam
2Cg - 58 to 62 inches: stratified loam to loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B/D
Ecological site: R108XA012IL - Outwash Prairie
Hydric soil rating: No

Minor Components

Drummer, drained

Percent of map unit: 5 percent
Landform: Swales on outwash plains, stream terraces on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R108XA013IL - Wet Outwash Prairie, R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Thorp, drained

Percent of map unit: 2 percent
Landform: Depressions on stream terraces, depressions on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave
Ecological site: R108XA013IL - Wet Outwash Prairie, R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

206A—Thorp silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ytdt
Elevation: 520 to 980 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 150 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Thorp, drained, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Thorp, Drained

Setting

Landform: Outwash plains, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loess over stratified loamy outwash

Typical profile

Ap - 0 to 14 inches: silt loam
Eg - 14 to 19 inches: silt loam
Btg - 19 to 43 inches: silty clay loam
2Btg - 43 to 50 inches: sandy clay loam
2Cg - 50 to 79 inches: stratified loamy sand to loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Ecological site: R108XA007IL - Wet Loess Upland Prairie, R108XA013IL - Wet Outwash Prairie, R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Minor Components

Elburn

Percent of map unit: 5 percent
Landform: Outwash plains, stream terraces
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R108XA012IL - Outwash Prairie
Hydric soil rating: No

330A—Peotone silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2sn05
Elevation: 500 to 1,020 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 140 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Peotone, drained, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peotone, Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey colluvium

Typical profile

Ap - 0 to 7 inches: silty clay loam
Bg1 - 7 to 27 inches: silty clay loam
Bg2 - 27 to 50 inches: silty clay
Cg - 50 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained

Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Minor Components

Peotone, long duration ponding

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

663B—Clare silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2smzh
Elevation: 510 to 1,020 feet
Mean annual precipitation: 33 to 41 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 150 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Clare and similar soils: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clare

Setting

Landform: Stream terraces, outwash plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, tread

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-silty loess over loamy outwash

Typical profile

Ap - 0 to 14 inches: silt loam
Bt1 - 14 to 36 inches: silty clay loam
2Bt2 - 36 to 44 inches: clay loam
2C - 44 to 60 inches: stratified sandy loam to loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R110XY007IL - Moist Glacial Drift Upland Prairie, R108XA012IL - Outwash Prairie
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 1 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

679B—Blackberry silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 84wh
Elevation: 590 to 980 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 160 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Blackberry and similar soils: 90 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blackberry

Setting

Landform: Outwash plains, stream terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over outwash

Typical profile

H1 - 0 to 16 inches: silt loam
H2 - 16 to 47 inches: silty clay loam
H3 - 47 to 62 inches: stratified loam to silt loam
H4 - 62 to 70 inches: stratified silt loam to loam to sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R108XA012IL - Outwash Prairie
Hydric soil rating: No

Minor Components

Drummer

Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R108XA013IL - Wet Outwash Prairie, R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

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EXHIBIT D: DECOMMISSIONING PLAN

DECOMMISSIONING AND SITE RECLAMATION PLAN

CHAMPAIGN CSG 1 LLC
CHAMPAIGN COUNTY, ILLINOIS

Prepared for:

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Prepared on: July 1, 2025

TABLE OF CONTENTS

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1.0 INTRODUCTION

Background

Champaign CSG 1 LLC, a wholly owned entity of Dimension Energy, LLC (collectively, the "**Applicant**" or "**Champaign CSG 1**" or **"Dimension"**), hereby submits this Decommissioning and Site Reclamation Plan ("**Decommissioning Plan**" or "**Plan**") for compliance with the Agricultural Impact Mitigation Agreement and Champaign County Zoning Ordinance Section 6.1.5 to construct, operate, and maintain the Champaign CSG 1 LLC PV Solar Sarm, a proposed 4.49 MWac PV Solar Farm (Project) on approximately 16.82 acres within PIN 03-20-30-100-002 in Champaign County, Illinois. As shown in **Special Use Permit Application Exhibit B: Zoning Site Plan**, the Project's site layout meets the required minimum road right-of-way setbacks and property line setbacks according to Champaign County Zoning Ordinance Section 6.1.5

The Project will be sited on a parcel that is approximately 202.59 acres. In existing conditions, the site is a relatively flat agricultural field.

This Decommissioning Plan (Plan) is developed in compliance with Agricultural Impact Mitigation Agreement (AIMA) and Champaign County Zoning Ordinance Section 6.1.5.

This Plan covers and addresses the following elements outlined in the conditions of the AIMA and Solar Energy Systems of Champaign County:

- Removal of Above Ground and Below Ground Infrastructure;
- Repair of compaction and rutting;
- Prevention of soil erosion;
- Access roads;
- Weed/vegetation control;
- Decommissioning plans and financial assurance of commercial solar energy facilities.

In addition, per Executed Agricultural Impact Mitigation Agreement (AIMA), the Project must be fully decommissioned within six (6) months of the end of the Project's useful life in accordance with the decommissioning plan.

2.0 PROJECT COMPONENTS

The Project Components that are subject to decommission include the equipment summarized below. The decommission activities associated with these components are discussed in Section 3.0 of this Plan.

Solar Photovoltaic (PV) Equipment

The project will use Solar Photovoltaic (PV) modules mounted on single axis tracker racking with steel pile foundations.

Internal Power Collection System

The PV-generated DC power will be collected from each of the multiple rows of PV modules through one or more combiner boxes and conveyed to inverters. The inverters will convert the DC power to AC power, which will be interconnected into the existing power line running along the north side of the project boundary.

Transformers and PV combining switchgear will be mounted on concrete foundations.

Earthwork

It is anticipated that the site will require minimal grading for the Project. Site grading and drainage will be conducted in accordance with Final Civil Construction plans.

Roads

Permanent access to the Project will be off W Windsor Road. The site access will be constructed in accordance with Champaign County and Township requirements and the Final Civil Construction Plans. The on-site site access road is anticipated to be gravel. A culvert may be required and will be designed during Final Engineering.

Fencing

The Project site will be surrounded by a seven-foot fence. An entry gate will be provided near the site access of W Windsor Road along the improved access road.

3.0 PROJECT DECOMMISSION AND RECYCLING

Decommission includes removal of above-ground and below-ground structures. Only minor grading is anticipated during construction; and therefore, will require limited or no grading following decommission. Temporary erosion and sedimentation control Best Management Practices should be implemented during the decommission phase of the Project. Work hours on site will be typical 9 am – 5 pm or as otherwise required by the County.

Decommission Preparation

Prior to commencement of the decommission process, the contractor will assess existing site conditions and prepare the site for demolition. Demolition debris shall be placed in temporary onsite storage area(s) pending final transportation and disposal and/or recycling according to the procedures listed below.

Permits and Approvals

It is anticipated that an NPDES Permit from the Illinois Environmental Protection Agency (IEPA) and a SWPPP will be required. The proposed development area of the site does not contain waters of the United States or Threatened or Endangered species; thus, no federal approvals are expected. Appropriate applications for permits from the state and/or local authorities having jurisdiction (AHJs) shall be submitted and approved prior to decommission activities.

PV Equipment Removal and Recycling

During decommissioning, Project components shall be removed from the site and recycled or disposed of at an appropriately licensed disposal facility. Above ground portions of the PV module supports shall be removed. Below ground portions of the PV module supports shall be removed entirely where practical, but to a depth of five feet at a minimum. Those supports that are more firmly anchored (e.g., such as embedded in bedrock) may be cut off at least five feet below ground or to the depth of bedrock, and the remaining support left in place. This depth will avoid impact of underground equipment on future farming or other construction activities. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the onsite equipment being used. The debris and equipment shall be processed for transportation and delivery to an appropriately licensed disposal facility or recycling center. Modules shall be recycled in accordance with the solar module manufacturer's (or equivalent) recycling program. No hazardous materials or waste will be used during operation of the solar facility, and disposal of hazardous material or waste will not be required during decommission.

Internal Power Collection System

The cables, inverters, and transformers shall be dismantled. The concrete foundations shall be broken up, removed and recycled. If ground-screw foundations are used, they shall be removed and recycled. According to the AIMA, underground cables that are buried to a depth greater than five feet are not required to be removed; however, for this estimate, they will be counted as removed. Overhead conductors shall be removed from the poles, and the poles and pole foundations shall be removed. Aluminum from the conductors shall be recycled or removed from the site to an appropriately licensed disposal facility.

Roads

Gravel from the on-site access road shall be removed and recycled. Once the gravel is removed, the soil below the access road shall be scarified a depth of 18-inches and blended as noted in the Site Restoration section below.

Fencing

Project site perimeter fence shall be removed at the end of the decommission project. Since the project site is not currently fenced, this includes removal of all posts, footings, fencing material, gates, etc. to return the site to pre-project condition.

Landscaping

Unless requested in writing to remain in place by the landowner, all vegetative landscaping and screening installed as part of the Project will be removed. Any weed control equipment used during the project, including weed-control fabrics or other ground covers shall be removed. Landscape areas will be restored as noted in the Site Restoration section below.

Site Restoration

Once removal of all project equipment and landscaping is complete, all areas of the project site that are unvegetated or where vegetation was disturbed/removed as part of decommissioning shall be restored by the applicant. Restoration shall consist of applying additional topsoil, seed, and necessary fertilizer to ensure that adequate vegetation is established throughout the project site. Areas that exhibit compaction and/or rutting shall be scarified a depth of 18-inches prior to placement of topsoil and seed. The existence of drainage tile lines or underground utilities may necessitate less scarification depth. The applicant is responsible for promptly repairing damage to drain tiles and other drainage systems that result from decommissioning of the commercial solar energy facility.

4.0 FUTURE LAND USE

Per the requirements of the Illinois Department of Agriculture (IDOA), an Agricultural Impact Mitigation Agreement (AIMA) must be signed by the Facility owner and filed with the County Board prior to the Commencement of Construction. The IDOA prepared the AIMA to help preserve the integrity of any Agricultural Land that is impacted by the Construction and Decommission of a PV Solar Farm. Per the AIMA, all solar panels shall be removed from the property and the land must be restored to its pre-existing condition for agricultural use at the end of the project life cycle. This Decommissioning Plan is consistent with the AIMA requirements to return the land to its pre-project conditions as an agricultural field. Refer to **Appendix B: Agricultural Impact Mitigation Agreement (AIMA)** for a copy of the executed AIMA.

During the life of the project, per section B.4 of the Champaign County PV Solar Ordinance, the owners of the subject property and the applicant, its successors in interest, and all parties to the decommission plan and site reclamation plan recognize the right of agricultural activities to continue on adjacent land outside of the project boundary as is consistent with the Right to Farm Resolution 3425

5.0 PROJECT DECOMMISSION COSTS AND FINANCIAL ASSURANCE

The following provisions are incorporated into this Decommissioning Plan by reference to Champaign County Zoning Ordinance Section 6.1.5 Subsection Q:

- Prior to issuance of the County building permit, the facility owner shall have the approval of the Decommissioning Plan to include the end of life cost estimate of decommissioning. The cost estimate shall be phased over the life of the project and increases at the inflation rate of the higher of either 2.5% or the average inflation rate of CPI-U of the three prior calendar years, at the time of approval. The base estimate should not be more than 12 months old at the time of consideration.
- Decommissioning of a Facility shall include the removal/disposition of all solar related equipment/facilities.
- All bond issuers must maintain an A+ rating by AM Best for viability and consideration of the County Board. Said revaluation must be performed by a certified third-party Professional Engineer licensed in the State of Illinois and provided for review by the County. Should the County find reason to disagree with the revaluation, the County shall retain the services of an additional State of Illinois Licensed Professional Engineer, at the cost of the Facility Owner.
- Any areas of decommissioning not specifically addressed herein or conflicting with the Department of Agriculture's Agricultural Impact Mitigation Agreement shall adhere to the "Agreement" filed with the State of Illinois.
- The construction method and techniques for the Facility and other similar facilities.
- A comprehensive detailed description of how the Facility Owner plans to pay for the Deconstruction of the Facility.

6.0 PROJECT DECOMMISSION COSTS AND FINANCIAL ASSURANCE

The AIMA and Champaign County Zoning Ordinance Section 6.1.5 requires the Owner and/or Operator to provide a present-day decommission cost estimate and provide the County with Financial Assurance to cover the estimated costs of Decommission of the Facility. Financial Assurance to cover the estimated costs of end of life of decommissioning of the Commercial Solar Energy Facility shall be at ten percent (10%) of the cost estimate submitted and approved by the County on or before the first anniversary of the Commercial Operation Date of the Facility. Financial assurance shall be provided in the form of a surety or like bond and on or before the sixth anniversary, the Financial Assurance shall increase to fifty percent (50%) of the end of life decommissioning cost included in the approved Plan. Following the tenth anniversary of the Commercial Operation Date, and every five years thereafter, the County may re-evaluate the Plan and associated cost estimate. On or before the eleventh anniversary of the Commercial Operation Date, and every five years thereafter, the Financial Assurance shall be increased to one hundred percent (100%) of the end of life decommissioning cost, based upon the most recently re-evaluated version of the Plan. Additional detail can be found in the Standard Solar AIMA and Solar Energy Systems Ordinance of Tazewell County. See **Appendix A: Opinion of Probable Construction Cost with Salvage.** Industry standard prices in 2025 for removal costs were determined using RS Means cost data. Removal cost includes materials, contractor installation/demolition, mobilization and demobilization, overhead and profit, and performance bonding.

APPENDIX A

Opinion of Probable Construction Cost With Salvage

Champaign CSG 1 LLC
Champaign County, IL
Decommissioning Estimate Pro Forma w/ Salvage

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs. LS = Lump Sum, HR = Hours, EA = Each, LF = Linear Feet.

Item	Quantity	Unit	Unit Price	Total Salvage	Total Price (incl. markups)	Total Price
Mobilization	1	LS		$ -	$ 9,930.00	$ (9,930.00)
Temporary Facilities	1	LS		$ -	$ 1,150.00	$ (1,150.00)
Safety	1	LS		$ -	$ 780.00	$ (780.00)
Legal Expenses	1	LS		$ -	$ 210.00	$ (210.00)
General Liability Insurance	1	LS		$ -	$ 840.00	$ (840.00)
Contractor's G&A	1	LS		$ -	$ 1,570.00	$ (1,570.00)
SWPPP, Erosion Control Measures (Disturbed Area)	17	AC	$670.00	$ -	$ 11,390.00	$ (11,390.00)
Seeding	2	AC	$2,937.53	$ -	$ 5,875.06	$ (5,875.06)
Tilling 6" topsoil/scarifying access road and rough grading existing soil	2	AC	$15,266.47	$ -	$ 30,532.94	$ (30,532.94)
Remove and Recycle Chainlink Fence	3,854	LF	$5.75	$ 1,942.42	$ 22,166.73	$ (20,224.31)
Remove Power Pole	6	EA	$1,030.30	$ -	$ 6,181.80	$ (6,181.80)
Remove and Recycle AC Cables	1,224	LF	$5.21	$ 207.47	$ 6,382.52	$ (6,175.05)
Remove and Recycle DC Cables	80,757	LF	$0.30	$ 13,688.24	$ 24,241.84	$ (10,553.59)
Backfill AC and DC trenches	24,785	LF	$0.53	$ -	$ 13,095.96	$ (13,095.96)
Remove and Recycle Inverters/Transformers	2	EA	$4,916.19	$ 10,800.00	$ 9,832.38	$ 967.62
Remove and Recycle Photovoltaic Modules	7,550	EA	$3.21	$ 34,885.00	$ 24,235.50	$ 10,649.50
Remove and Recycle Piles	2,250	EA	$5.20	$ 22,680.00	$ 11,700.00	$ 10,980.00
Remove and Recycle Support Assemblies	346,456	LB	$0.05	$ 31,181.08	$ 18,936.45	$ 12,244.63
Contaminated Soils Testing	1	LS		$ -	$ 4,000.00	$ (4,000.00)
Reclamation Monitoring and Maintenance	1	LS		$ -	$ 10,000.00	$ (10,000.00)
			Subtotal:	**$ 115,384.21**	$ 213,051.18	**$ (97,666.97)**
					40-Year Inflation (2.5%/year)	**($164,575.08)**
					Total:	**$ (288,569.35)**

Notes:
1. Quantites were recorded on 7/02/2025.
2. Labor productivity and unit rates were derived from RSMeans Online (Heavy Construction, 2025 data).
3. Labor, material, and equipment rates are based on the RSMeans City Cost Index (CCI) for Champaign, IL.
4. Material salvage values were based off of current US salvage exchange rates.
6. Equipment rental rates determined from RSMeans and/or local rental facilities.
7. Photovoltaic Module material salvage rate is based on straight-line depreciation of modules (-0.5% per year).
8. For PV Module Removal/Recycle labor and equipment costs are computed at present values, while salvage value is computed at depreciated values.
9. Material salvage values were determined using the most prevalent salvageable metal in each component. Copper Wire @$0.17/LF (AC and DC Cables) and Steel @0.5/LF of fence, @$0.63/pile, and @$0.09/LB.
10. Inverter resale value is dependent on the assumption that all inverters will be decommissioned and resold half way through their useful life (every 5 years).

EXHIBIT B

Executed Agricultural Impact Mitigation Agreement (AIMA)

STANDARD AGRICULTURAL IMPACT MITIGATION AGREEMENT
between
Champaign CSG 1, LLC

and the
ILLINOIS DEPARTMENT OF AGRICULTURE
Pertaining to the Construction of a Commercial Solar Energy Facility
in
Champaign County, Illinois

Pursuant to the Renewable Energy Facilities Agricultural Impact Mitigation Act (505 ILCS 147), the following standards and policies are required by the Illinois Department of Agriculture (IDOA) to help preserve the integrity of any Agricultural Land that is impacted by the Construction and Deconstruction of a Commercial Solar Energy Facility. They were developed with the cooperation of agricultural agencies, organizations, Landowners, Tenants, drainage contractors, and solar energy companies to comprise this Agricultural Impact Mitigation Agreement (AIMA).

Champaign CSG 1, LLC, hereafter referred to as Commercial Solar Energy Facility Owner, or simply as Facility Owner, plans to develop and/or operate a 3.05 Megawatt Commercial Solar Energy Facility in Champaign County [GPS Coordinates: 40.080861, -88.345606], which will consist of up to 35 acres that will be covered by solar facility related components, such as solar panel arrays, racking systems, access roads, an onsite underground collection system, inverters and transformers and any affiliated electric transmission lines. This AIMA is made and entered between the Facility Owner and the IDOA.

If Construction does not commence within four years after this AIMA has been fully executed, this AIMA shall be revised, with the Facility Owner's input, to reflect the IDOA's most current Solar Farm Construction and Deconstruction Standards and Policies. This AIMA, and any updated AIMA, shall be filed with the County Board by the Facility Owner prior to the commencement of Construction.

The below prescribed standards and policies are applicable to Construction and Deconstruction activities occurring partially or wholly on privately owned agricultural land.

Conditions of the AIMA

The mitigative actions specified in this AIMA shall be subject to the following conditions:

A. All Construction or Deconstruction activities may be subject to County or other local requirements. However, the specifications outlined in this AIMA shall be the minimum standards applied to all Construction or Deconstruction activities. IDOA may utilize any legal means to enforce this AIMA.

B. Except for Section 17. B. through F., all actions set forth in this AIMA are subject to modification through negotiation by Landowners and the Facility Owner, provided such changes are negotiated in advance of the respective Construction or Deconstruction activities.

C. The Facility Owner may negotiate with Landowners to carry out the actions that Landowners wish to perform themselves. In such instances, the Facility Owner shall offer Landowners the area commercial rate for their machinery and labor costs.

D. All provisions of this AIMA shall apply to associated future Construction, maintenance, repairs, and Deconstruction of the Facility referenced by this AIMA.

E. The Facility Owner shall keep the Landowners and Tenants informed of the Facility's Construction and Deconstruction status, and other factors that may have an impact upon their farming operations.

F. The Facility Owner shall include a statement of its adherence to this AIMA in any environmental assessment and/or environmental impact statement.

G. Execution of this AIMA shall be made a condition of any Conditional/Special Use Permit. Not less than 30 days prior to the commencement of Construction, a copy of this AIMA shall be provided by the Facility Owner to each Landowner that is party to an Underlying Agreement. In addition, this AIMA shall be incorporated into each Underlying Agreement.

H. The Facility Owner shall implement all actions to the extent that they do not conflict with the requirements of any applicable federal, state and local rules and regulations and other permits and approvals that are obtained by the Facility Owner for the Facility.

I. No later than 45 days prior to the Construction and/or Deconstruction of a Facility, the Facility Owner shall provide the Landowner(s) with a telephone number the Landowner can call to alert the Facility Owner should the Landowner(s) have questions or concerns with the work which is being done or has been carried out on his/her property.

J. If there is a change in ownership of the Facility, the Facility Owner assuming ownership of the Facility shall provide written notice within 90 days of ownership transfer, to the Department, the County, and to Landowners of such change. The Financial Assurance requirements and the other terms of this AIMA shall apply to the new Facility Owner.

K. The Facility Owner shall comply with all local, state and federal laws and regulations, specifically including the worker protection standards to protect workers from pesticide exposure.

L. Within 30 days of execution of this AIMA, the Facility Owner shall use Best Efforts to provide the IDOA with a list of all Landowners that are party to an Underlying Agreement and known Tenants of said Landowner who may be affected by the Facility. As the list of Landowners and Tenants is updated, the Facility Owner shall notify the IDOA of any additions or deletions.

M. If any provision of this AIMA is held to be unenforceable, no other provision shall be affected by that holding, and the remainder of the AIMA shall be interpreted as if it did not contain the unenforceable provision.

Definitions

Abandonment	When Deconstruction has not been completed within 12 months after the Commercial Solar Energy Facility reaches the end of its useful life. For purposes of this definition, a Commercial Solar Energy Facility shall be presumed to have reached the end of its useful life if the Commercial Solar Energy Facility Owner fails, for a period of 6 consecutive months, to pay the Landowner amounts owed in accordance with an Underlying Agreement.

Aboveground Cable	Electrical power lines installed above ground surface to be utilized for conveyance of power from the solar panels to the solar facility inverter and/or point of interconnection to utility grid or customer electric meter.
Agricultural Impact Mitigation Agreement (AIMA)	The Agreement between the Facility Owner and the Illinois Department of Agriculture (IDOA) described herein.
Agricultural Land	Land used for Cropland, hayland, pastureland, managed woodlands, truck gardens, farmsteads, commercial ag-related facilities, feedlots, livestock confinement systems, land on which farm buildings are located, and land in government conservation programs used for purposes as set forth above.
Best Efforts	Diligent, good faith, and commercially reasonable efforts to achieve a given objective or obligation.
Commercial Operation Date	The calendar date of which the Facility Owner notifies the Landowner, County, and IDOA in writing that commercial operation of the facility has commenced. If the Facility Owner fails to provide such notifications, the Commercial Operation Date shall be the execution date of this AIMA plus 6 months.
Commercial Solar Energy Facility (Facility)	A solar energy conversion facility equal to or greater than 500 kilowatts in total nameplate capacity, including a solar energy conversion facility seeking an extension of a permit to construct granted by a county or municipality before June 29, 2018. "Commercial solar energy facility" does not include a solar energy conversion facility: (1) for which a permit to construct has been issued before June 29, 2018; (2) that is located on land owned by the commercial solar energy facility owner; (3) that was constructed before June 29, 2018; or (4) that is located on the customer side of the customer's electric meter and is primarily used to offset that customer's electricity load and is limited in nameplate capacity to less than or equal to 2,000 kilowatts.
Commercial Solar Energy Facility Owner deemed (Facility Owner)	A person or entity that owns a commercial solar energy facility. A Commercial Solar Energy Facility Owner is not nor shall it be to be a public utility as defined in the Public Utilities Act.
County	The County or Counties where the Commercial Solar Energy Facility is located.
Construction	The installation, preparation for installation and/or repair of a Facility.
Cropland	Land used for growing row crops, small grains or hay; includes land which was formerly used as cropland, but is currently enrolled in a government conservation program; also includes pastureland that is classified as Prime Farmland.

Deconstruction	The removal of a Facility from the property of a Landowner and the restoration of that property as provided in the AIMA.
Deconstruction Plan	A plan prepared by a Professional Engineer, at the Facility's expense, that includes: (1) the estimated Deconstruction cost, in current dollars at the time of filing, for the Facility, considering among other things: i. the number of solar panels, racking, and related facilities involved; ii. the original Construction costs of the Facility; iii. the size and capacity, in megawatts of the Facility; iv. the salvage value of the facilities (if all interests in salvage value are subordinate to that of the Financial Assurance holder if abandonment occurs); v. the Construction method and techniques for the Facility and for other similar facilities; and (2) a comprehensive detailed description of how the Facility Owner plans to pay for the Deconstruction of the Facility.
Department	The Illinois Department of Agriculture (IDOA).
Financial Assurance	A reclamation or surety bond or other commercially available financial assurance that is acceptable to the County, with the County or Landowner as beneficiary.
Landowner	Any person with an ownership interest in property that is used for agricultural purposes and that is party to an Underlying Agreement.
Prime Farmland	Agricultural Land comprised of soils that are defined by the USDA Natural Resources Conservation Service (NRCS) as "Prime Farmland" (generally considered to be the most productive soils with the least input of nutrients and management).
Professional Engineer	An engineer licensed to practice engineering in the State of Illinois.
Soil and Water Conservation District (SWCD)	A unit of local government that provides technical and financial assistance to eligible Landowners for the conservation of soil and water resources.
Tenant	Any person, apart from the Facility Owner, lawfully residing or leasing/renting land that is subject to an Underlying Agreement.
Topsoil	The uppermost layer of the soil that has the darkest color or the highest content of organic matter; more specifically, it is defined as the "A" horizon.
Underlying Agreement	The written agreement between the Facility Owner and the Landowner(s) including, but not limited to, an easement, option, lease, or license under the terms of which another person has constructed, constructs, or intends to construct a Facility on the property of the Landowner.

Underground Cable	Electrical power lines installed below the ground surface to be utilized for conveyance of power within a Facility or from a Commercial Solar Energy Facility to the electric grid.
USDA Natural Resources Conservation Service (NRCS)	An agency of the United States Department of Agriculture that provides America's farmers with financial and technical assistance to aid with natural resources conservation.

Construction and Deconstruction Standards and Policies

1. Support Structures

A. Only single pole support structures shall be used for the Construction and operation of the Facility on Agricultural Land. Other types of support structures, such as lattice towers or H-frames, may be used on nonagricultural land.

B. Where a Facility's Aboveground Cable will be adjacent and parallel to highway and/or railroad right-of-way, but on privately owned property, the support structures shall be placed as close as reasonably practicable and allowable by the applicable County Engineer or other applicable authorities to the highway or railroad right-of-way. The only exceptions may be at jogs or weaves on the highway alignment or along highways or railroads where transmission and distribution lines are already present.

C. When it is not possible to locate Aboveground Cable next to highway or railroad right-of-way, Best Efforts shall be expended to place all support poles in such a manner to minimize their placement on Cropland (i.e., longer than normal above ground spans shall be utilized when traversing Cropland).

2. Aboveground Facilities

Locations for facilities shall be selected in a manner that is as unobtrusive as reasonably possible to ongoing agricultural activities occurring on the land that contains or is adjacent to the Facility.

3. Guy Wires and Anchors

Best Efforts shall be made to place guy wires and their anchors, if used, out of Cropland, pastureland and hayland, placing them instead along existing utilization lines and on land other than Cropland. Where this is not feasible, Best Efforts shall be made to minimize guy wire impact on Cropland. All guy wires shall be shielded with highly visible guards.

4. Underground Cabling Depth

A. Underground electrical cables located outside the perimeter of the (fence) of the solar panels shall be buried with:

1. a minimum of 5 feet of top cover where they cross Cropland.
2. a minimum of 5 feet of top cover where they cross pastureland or other non-Cropland classified as Prime Farmland.
3. a minimum of 3 feet of top cover where they cross pastureland and other Agricultural Land not classified as Prime Farmland.

4. a minimum of 3 feet of top cover where they cross wooded/brushy land.

B. Provided that the Facility Owner removes the cables during Deconstruction, underground electric cables may be installed to a minimum depth of 18 inches:

1. Within the fenced perimeter of the Facility; or
2. When buried under an access road associated with the Facility provided that the location and depth of cabling is clearly marked at the surface.

C. If Underground Cables within the fenced perimeter of the solar panels are installed to a minimum depth of 5 feet, they may remain in place after Deconstruction.

5. Topsoil Removal and Replacement

A. Any excavation shall be performed in a manner to preserve topsoil. Best Efforts shall be made to store the topsoil near the excavation site in such a manner that it will not become intermixed with subsoil materials.

B. Best Efforts shall be made to store all disturbed subsoil material near the excavation site and separate from the topsoil.

C. When backfilling an excavation site, Best Efforts shall be used to ensure the stockpiled subsoil material will be placed back into the excavation site before replacing the topsoil.

D. Refer to Section 7 for procedures pertaining to rock removal from the subsoil and topsoil.

E. Refer to Section 8 for procedures pertaining to the repair of compaction and rutting of the topsoil.

F. Best Efforts shall be performed to place the topsoil in a manner so that after settling occurs, the topsoil's original depth and contour will be restored as close as reasonably practicable. The same shall apply where excavations are made for road, stream, drainage ditch, or other crossings. In no instance shall the topsoil materials be used for any other purpose unless agreed to explicitly and in writing by the Landowner.

G. Based on the mutual agreement of the landowner and Facility Owner, excess soil material resulting from solar facility excavation shall either be removed or stored on the Landowner's property and reseeded per the applicable National Pollution Discharge Elimination System (NPDES) permit/Stormwater Pollution Prevention Plan (SWPPP). After the Facility reaches the end of its Useful Life, the excess subsoil material shall be returned to an excavation site or removed from the Landowner's property, unless otherwise agreed to by Landowner.

6. Rerouting and Permanent Repair of Agricultural Drainage Tiles

The following standards and policies shall apply to underground drainage tile line(s) directly or indirectly affected by Construction and/or Deconstruction:

A. Prior to Construction, the Facility Owner shall work with the Landowner to identify drainage tile lines traversing the property subject to the Underlying Agreement to the extent reasonably practicable. All drainage tile lines identified in this manner shall be shown on the Construction and Deconstruction Plans.

B. The location of all drainage tile lines located adjacent to or within the footprint of the Facility shall be recorded using Global Positioning Systems (GPS) technology. Within 60 days after Construction is complete, the Facility Owner shall provide the Landowner, the IDOA, and the respective County Soil and Water Conservation District (SWCD) with "as built" drawings (strip maps) showing the location of all drainage tile lines by survey station encountered in the Construction of the Facility, including any tile line repair location(s), and any underground cable installed as part of the Facility.

C. **Maintaining Surrounding Area Subsurface Drainage**

If drainage tile lines are damaged by the Facility, the Facility Owner shall repair the lines or install new drainage tile line(s) of comparable quality and cost to the original(s), and of sufficient size and appropriate slope in locations that limit direct impact from the Facility. If the damaged tile lines cause an unreasonable disruption to the drainage system, as determined by the Landowner, then such repairs shall be made promptly to ensure appropriate drainage. Any new line(s) may be located outside of, but adjacent to the perimeter of the Facility. Disrupted adjacent drainage tile lines shall be attached thereto to provide an adequate outlet for the disrupted adjacent tile lines.

D. **Re-establishing Subsurface Drainage Within Facility Footprint**

Following Deconstruction and using Best Efforts, if underground drainage tile lines were present within the footprint of the facility and were severed or otherwise damaged during original Construction, facility operation, and/or facility Deconstruction, the Facility Owner shall repair existing drainage tiles or install new drainage tile lines of comparable quality and cost to the original, within the footprint of the Facility with sufficient capacity to restore the underground drainage capacity that existed within the footprint of the Facility prior to Construction. Such installation shall be completed within 12 months after the end of the useful life of the Facility and shall be compliant with Figures 1 and 2 to this Agreement or based on prudent industry standards if agreed to by Landowner.

E. If there is any dispute between the Landowner and the Facility Owner on the method of permanent drainage tile line repair, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

F. During Deconstruction, all additional permanent drainage tile line repairs beyond those included above in Section 6.D. must be made within 30 days of identification or notification of the damage, weather and soil conditions permitting. At other times, such repairs must be made at a time mutually agreed upon by the Facility Owner and the Landowner. If the Facility Owner and Landowner cannot agree upon a reasonable method to complete this restoration, the Facility Owner may implement the recommendations of the appropriate County SWCD and such implementation constitutes compliance with this provision.

G. Following completion of the work required pursuant to this Section, the Facility Owner shall be responsible for correcting all drainage tile line repairs that fail due to Construction and/or Deconstruction for one year following the completion of Construction or Deconstruction, provided those repairs were made by the Facility Owner. The Facility Owner shall not be responsible for drainage tile repairs that the Facility Owner pays the Landowner to perform.

7. Rock Removal

With any excavations, the following rock removal procedures pertain only to rocks found in the uppermost 42 inches of soil, the common freeze zone in Illinois, which emerged or were brought to the site as a result of Construction and/or Deconstruction.

A. Before replacing any topsoil, Best Efforts shall be taken to remove all rocks greater than 3 inches in any dimension from the surface of exposed subsoil which emerged or were brought to the site as a result of Construction and/or Deconstruction.

B. If trenching, blasting, or boring operations are required through rocky terrain, precautions shall be taken to minimize the potential for oversized rocks to become interspersed in adjacent soil material.

C. Rocks and soil containing rocks removed from the subsoil areas, topsoil, or from any excavations, shall be removed from the Landowner's premises or disposed of on the Landowner's premises at a location that is mutually acceptable to the Landowner and the Facility Owner.

8. Repair of Compaction and Rutting

A. Unless the Landowner opts to do the restoration work on compaction and rutting, after the topsoil has been replaced post-Deconstruction, all areas within the boundaries of the Facility that were traversed by vehicles and Construction and/or Deconstruction equipment that exhibit compaction and rutting shall be restored by the Facility Owner. All prior Cropland shall be ripped at least 18 inches deep or to the extent practicable, and all pasture and woodland shall be ripped at least 12 inches deep or to the extent practicable. The existence of drainage tile lines or underground utilities may necessitate less ripping depth. The disturbed area shall then be disked.

B. All ripping and disking shall be done at a time when the soil is dry enough for normal tillage operations to occur on Cropland adjacent to the Facility.

C. The Facility Owner shall restore all rutted land to a condition as close as possible to its original condition upon Deconstruction, unless necessary earlier as determined by the Landowner.

D. If there is any dispute between the Landowner and the Facility Owner as to what areas need to be ripped/disked or the depth at which compacted areas should be ripped/disked, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

9. Construction During Wet Weather

Except as provided below, construction activities are not allowed on agricultural land during times when normal farming operations, such as plowing, disking, planting or harvesting, cannot take place due to excessively wet soils. With input from the landowner, wet weather conditions may be determined on a field by field basis.

A. Construction activities on prepared surfaces, surfaces where topsoil and subsoil have been removed, heavily compacted in preparation, or otherwise stabilized (e.g. through cement mixing) may occur at the discretion of the Facility Owner in wet weather conditions.

B. Construction activities on unprepared surfaces will be done only when work will not result in rutting which may mix subsoil and topsoil. Determination as to the potential of subsoil and topsoil mixing will be made in consultation with the underlying Landowner, or, if approved by the Landowner, his/her designated tenant or designee.

10. Prevention of Soil Erosion

A. The Facility Owner shall work with Landowners and create and follow a SWPPP to prevent excessive erosion on land that has been disturbed by Construction or Deconstruction of a Facility.

B. If the Landowner and Facility Owner cannot agree upon a reasonable method to control erosion on the Landowner's property, the Facility Owner shall consider the recommendations of the appropriate County SWCD to resolve the disagreement.

C. The Facility Owner may, per the requirements of the project SWPPP and in consultation with the Landowner, seed appropriate vegetation around all panels and other facility components to prevent erosion. The Facility Owner must utilize Best Efforts to ensure that all seed mixes will be as free of any noxious weed seeds as possible. The Facility Owner shall consult with the Landowner regarding appropriate varieties to seed.

11. Repair of Damaged Soil Conservation Practices

Consultation with the appropriate County SWCD by the Facility Owner shall be carried out to determine if there are soil conservation practices (such as terraces, grassed waterways, etc.) that will be damaged by the Construction and/or Deconstruction of the Facility. Those conservation practices shall be restored to their preconstruction condition as close as reasonably practicable following Deconstruction in accordance with USDA NRCS technical standards. All repair costs shall be the responsibility of the Facility Owner.

12. Compensation for Damages to Private Property

The Facility Owner shall reasonably compensate Landowners for damages caused by the Facility Owner. Damage to Agricultural Land shall be reimbursed to the Landowner as prescribed in the applicable Underlying Agreement.

13. Clearing of Trees and Brush

A. If trees are to be removed for the Construction or Deconstruction of a Facility, the Facility Owner shall consult with the Landowner to determine if there are trees of commercial or other value to the Landowner.

B. If there are trees of commercial or other value to the Landowner, the Facility Owner shall allow the Landowner the right to retain ownership of the trees to be removed and the disposition of the removed trees shall be negotiated prior to the commencement of land clearing.

14. Access Roads

A. To the extent practicable, access roads shall be designed to not impede surface drainage and shall be built to minimize soil erosion on or near the access roads.

B. Access roads may be left intact during Construction, operation or Deconstruction through mutual agreement of the Landowner and the Facility Owner unless otherwise restricted by federal, state, or local regulations.

C. If the access roads are removed, Best Efforts shall be expended to assure that the land shall be restored to equivalent condition(s) as existed prior to their construction, or as otherwise agreed to by the Facility Owner and the Landowner. All access roads that are removed shall be ripped to a depth of 18 inches. All ripping shall be performed consistent with Section 8.

15. Weed/Vegetation Control

A. The Facility Owner shall provide for weed control in a manner that prevents the spread of weeds. Chemical control, if used, shall be done by an appropriately licensed pesticide applicator.

B. The Facility Owner shall be responsible for the reimbursement of all reasonable costs incurred by owners of agricultural land where it has been determined by the appropriate state or county entity that weeds have spread from the Facility to their property. Reimbursement is contingent upon written notice to the Facility Owner. Facility Owner shall reimburse the property owner within 45 days after notice is received.

C. The Facility Owner shall ensure that all vegetation growing within the perimeter of the Facility is properly and appropriately maintained. Maintenance may include, but not be limited to, mowing, trimming, chemical control, or the use of livestock as agreed to by the Landowner.

D. The Deconstruction plans must include provisions for the removal of all weed control equipment used in the Facility, including weed-control fabrics or other ground covers.

16. Indemnification of Landowners

The Facility Owner shall indemnify all Landowners, their heirs, successors, legal representatives, and assigns from and against all claims, injuries, suits, damages, costs, losses, and reasonable expenses resulting from or arising out of the Commercial Solar Energy Facility, including Construction and Deconstruction thereof, and also including damage to such Facility or any of its appurtenances, except where claims, injuries, suits, damages, costs, losses, and expenses are caused by the negligence or intentional acts, or willful omissions of such Landowners, and/or the Landowners heirs, successors, legal representatives, and assigns.

17. Deconstruction Plans and Financial Assurance of Commercial Solar Energy Facilities

A. Deconstruction of a Facility shall include the removal/disposition of all solar related equipment/facilities, including the following utilized for operation of the Facility and located on Landowner property:

1. Solar panels, cells and modules;
2. Solar panel mounts and racking, including any helical piles, ground screws, ballasts, or other anchoring systems;
3. Solar panel foundations, if used (to depth of 5 feet);

4. Transformers, inverters, energy storage facilities, or substations, including all components and foundations; however, Underground Cables at a depth of 5 feet or greater may be left in place;
5. Overhead collection system components;
6. Operations/maintenance buildings, spare parts buildings and substation/switching gear buildings unless otherwise agreed to by the Landowner;
7. Access Road(s) unless Landowner requests in writing that the access road is to remain;
8. Operation/maintenance yard/staging area unless otherwise agreed to by the Landowner; and
9. Debris and litter generated by Deconstruction and Deconstruction crews.

B. The Facility Owner shall, at its expense, complete Deconstruction of a Facility within twelve (12) months after the end of the useful life of the Facility.

C. During the County permit process, or if none, then prior to the commencement of construction, the Facility Owner shall file with the County a Deconstruction Plan. The Facility Owner shall file an updated Deconstruction Plan with the County on or before the end of the tenth year of commercial operation.

D. The Facility Owner shall provide the County with Financial Assurance to cover the estimated costs of Deconstruction of the Facility. Provision of this Financial Assurance shall be phased in over the first 11 years of the Project's operation as follows:

1. On or before the first anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover ten (10) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
2. On or before the sixth anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover fifty (50) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
3. On or before the eleventh anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover one hundred (100) percent of the estimated costs of Deconstruction of the Facility as determined in the updated Deconstruction Plan provided during the tenth year of commercial operation.

The Financial Assurance shall not release the surety from liability until the Financial Assurance is replaced. The salvage value of the Facility may only be used to reduce the estimated costs of Deconstruction if the County agrees that all interests in the salvage value are subordinate or have been subordinated to that of the County if Abandonment occurs.

E. The County may, but is not required to, reevaluate the estimated costs of Deconstruction of any Facility after the tenth anniversary, and every five years thereafter, of the Commercial Operation Date. Based on any reevaluation, the County may require changes in the level of Financial Assurance used to calculate the phased Financial Assurance levels described in Section 17.D. required from the Facility Owner. If the County is unable to its satisfaction to perform the investigations necessary to approve the Deconstruction Plan filed by the Facility Owner, then the County and Facility may mutually agree on the selection of a Professional Engineer independent of the Facility Owner to conduct any necessary investigations. The Facility Owner shall be responsible for the cost of any such investigations.

F. Upon Abandonment, the County may take all appropriate actions for Deconstruction including drawing upon the Financial Assurance.

Concurrence of the Parties to this AIMA

The Illinois Department of Agriculture and Champaign CSG 1, LLC concur that this AIMA is the complete AIMA governing the mitigation of agricultural impacts that may result from the Construction and Deconstruction of the solar farm project in Champaign County within the State of Illinois.

The effective date of this AIMA commences on the date of execution.

STATE OF ILLINOIS
DEPARTMENT OF AGRICULTURE

Jerry Costello II

By: Jerry Costello II, Director 4

Clay Nordsiek

By Clay Nordsiek, Deputy General Counsel

801 E. Sangamon Avenue,
State Fairgrounds, POB 19281
Springfield, IL 62794-9281

7/11, 2025

Champaign CSG 1, LLC

By Sam Younes

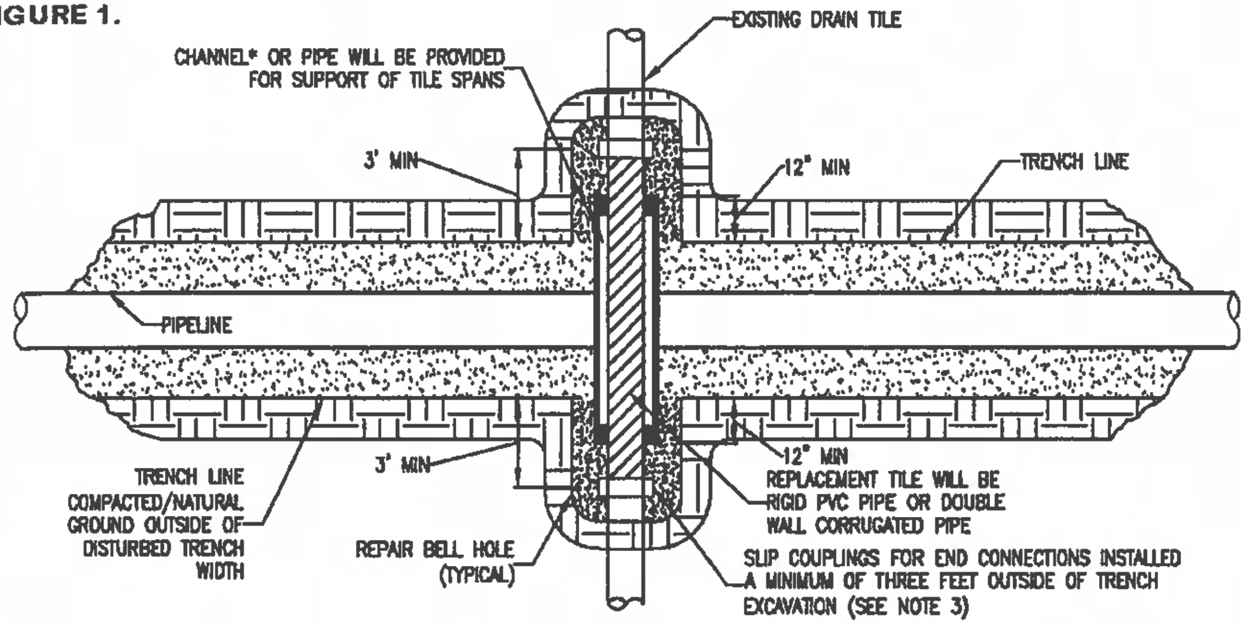
Sam Younes

Address

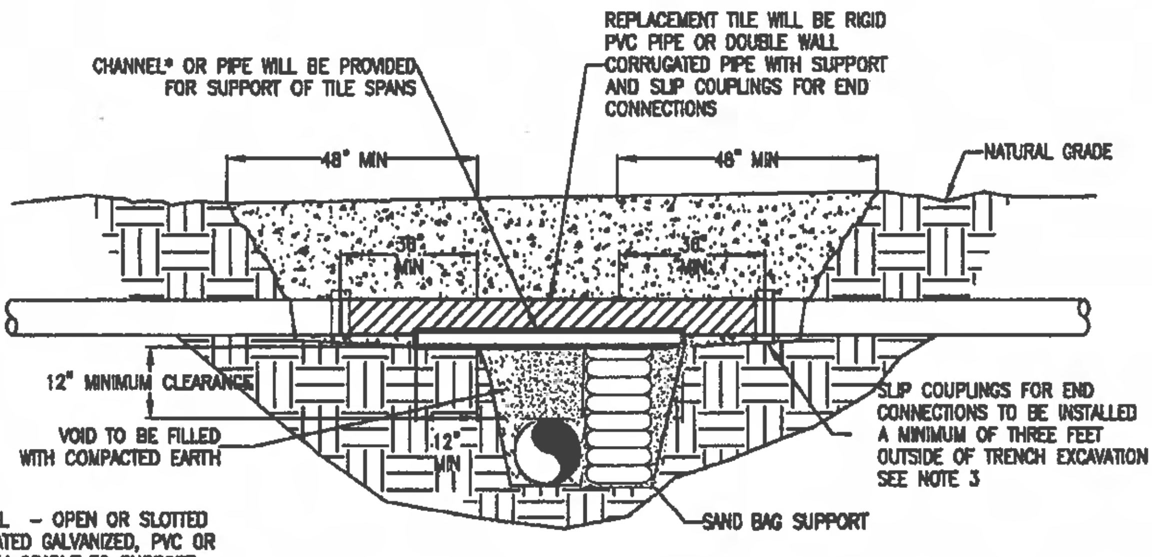
3050 Peachtree Road NW
Suite 350
Atlanta, GA 30305

6/10/2025, 20

FIGURE 1.



PLAN
N.T.S.



*CHANNEL – OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE TO SUPPORT DRAIN TILE.

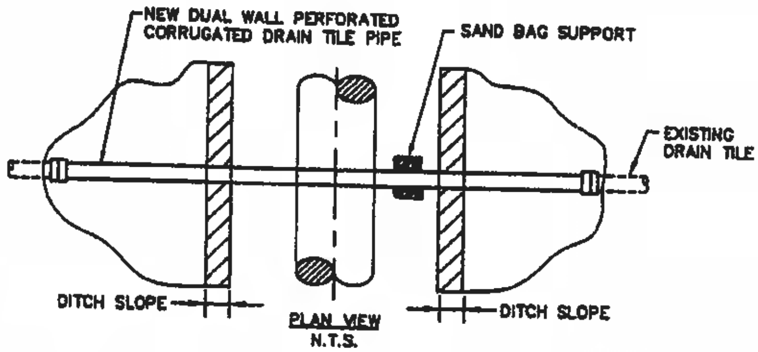
CROSS SECTION
N.T.S.

NOTE:

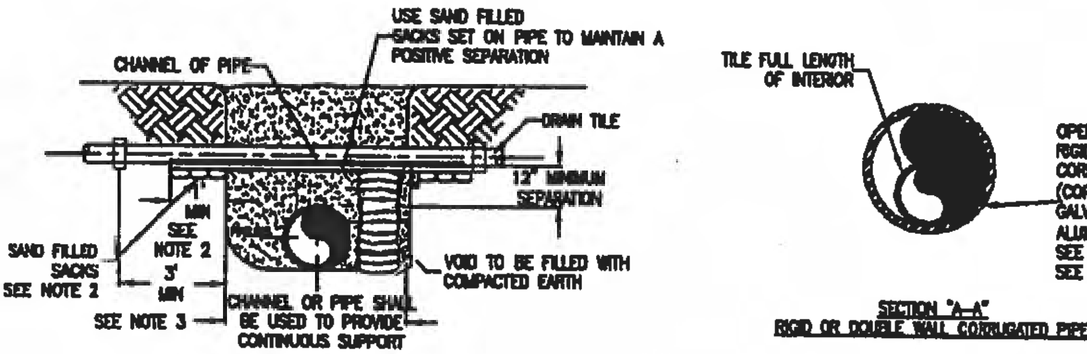
1. IMMEDIATELY REPAIR TILE IF WATER IS FLOWING THROUGH TILE AT TIME OF TRENCHING. IF NO WATER IS FLOWING AND TEMPORARY REPAIR IS DELAYED, OR NOT MADE BY THE END OF THE WORK DAY, A SCREEN OR APPROPRIATE 'NIGHT CAP' SHALL BE PLACED ON OPEN ENDS OF TILE TO PREVENT ENTRAPMENT OF ANIMALS ETC.
2. CHANNEL OR PIPE (OPEN OR SLOTTED) MADE OF CORRUGATED GALVANIZED PIPE, PVC OR ALUMINUM WILL BE USED FOR SUPPORT OF DRAIN TILE SPANS.
3. INDUSTRY STANDARDS SHALL BE FOLLOWED TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES.

TEMPORARY DRAIN TILE REPAIR

FIGURE 2.



PLAN VIEW



END VIEWS

MINIMUM SUPPORT TABLE					
TILE SIZE	CHANNEL SIZE		PIPE SIZE		
3"	4" @ 5.4	#/ft	4"	STD. WT.	
4"-5"	5" @ 6.7	#/ft	6"	STD. WT.	
6"-9"	7" @ 9.8	#/ft	9"-10"	STD. WT.	
10"	10" @ 15.3	#/ft	12"	STD. WT.	

NOTE:

1. TILE REPAIR AND REPLACEMENT SHALL MAINTAIN ORIGINAL ALIGNMENT GRADIENT AND WATER FLOW TO THE GREATEST EXTENT POSSIBLE. IF THE TILE NEEDS TO BE RELOCATED, THE INSTALLATION ANGLE MAY VARY DUE TO SITE SPECIFIC CONDITIONS AND LANDOWNER RECOMMENDATIONS.

2. 1'–0" MINIMUM LENGTH OF CHANNEL OR RIGID PIPE (OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE) SHALL BE SUPPORTED BY UNDISTURBED SOIL, OR IF CROSSING IS NOT AT RIGHT ANGLES TO PIPELINE, EQUIVALENT LENGTH PERPENDICULAR TO TRENCH. SHIM WITH SAND BAGS TO UNDISTURBED SOIL FOR SUPPORT AND DRAINAGE GRADIENT MAINTENANCE (TYPICAL BOTH SIDES).

3. DRAIN TILES WILL BE PERMANENTLY CONNECTED TO EXISTING DRAIN TILES A MINIMUM OF THREE FEET OUTSIDE OF EXCAVATED TRENCH LINE USING INDUSTRY STANDARDS TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES INCLUDING SLIP COUPLINGS.

4. DIAMETER OF RIGID PIPE SHALL BE OF ADEQUATE SIZE TO ALLOW FOR THE INSTALLATION OF THE TILE FOR THE FULL LENGTH OF THE RIGID PIPE.

5. OTHER METHODS OF SUPPORTING DRAIN TILE MAY BE USED IF ALTERNATE PROPOSED IS EQUIVALENT IN STRENGTH TO THE CHANNEL/PIPE SECTIONS SHOWN AND IF APPROVED BY COMPANY REPRESENTATIVES AND LANDOWNER IN ADVANCE. SITE SPECIFIC ALTERNATE SUPPORT SYSTEM TO BE DEVELOPED BY COMPANY REPRESENTATIVES AND FURNISHED TO CONTRACTOR FOR SPANS IN EXCESS OF 20', TILE GREATER THEN 10" DIAMETER, AND FOR "HEADER" SYSTEMS.

6. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.

7. PRIOR TO REPAIRING TILE, CONTRACTOR SHALL PROBE LATERALLY INTO THE EXISTING TILE TO FULL WIDTH OF THE RIGHTS OF WAY TO DETERMINE IF ADDITIONAL DAMAGE HAS OCCURRED. ALL DAMAGED/DISTURBED TILE SHALL BE REPAIRED AS NEAR AS PRACTICABLE TO ITS ORIGINAL OR BETTER CONDITION.

PERMANENT DRAIN TILE REPAIR

EXHIBIT E: STATE HISTORIC PRESERVATION OFFICE (SHPO) RESPONSE

Illinois Department of Natural Resources

JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Champaign County
Champaign
5512 W. Windsor Road
Section:30-Township:19N-Range:8E
IEPA, KHA-268583013
New Construction, Foersterling Farm Solar LLC

PLEASE REFER TO: SHPO LOG #020070924

SURVEY REQUEST

July 24, 2024

Ryan Solum
Kimley-Horn and Associates
570 Lake Cook Road, Suite 200
Deerfield, IL 60015

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted, or licensed undertakings for their effect on cultural resources. We have received information indicating that the referenced project will, pursuant to that law, require comments from our office and our comments follow. Should you have any contrary information, please contact our office at the number below.

According to the information provided there is no federal involvement in your project. Be aware that the state law is less restrictive than the federal cultural resource laws concerning archaeology. Therefore, if your project will use federal loans or grants, need federal agency permits, or is on federal property then your project must be reviewed by us pursuant to the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

A portion of project area is within a zone adjacent to the Phinney Branch of Copper Slough with a high probability of containing significant archaeological resources. Accordingly, a Phase I archaeological **survey** to locate, identify, and record all archaeological resources within that portion of the project area, at a legal minimum, will be **required**. This decision is based upon our understanding that there has not been any large-scale disturbance of the ground surface (excluding agricultural activities) or major construction activity within the project area which would have destroyed existing cultural resources prior to your project. If the area has been disturbed, please contact our office with the appropriate written and/or photographic evidence. Our most recently updated list of archaeological contractors, maintained as a courtesy, is available on our website. A copy of our letter with the SHPO Log Number should be provided to the selected professional archaeological contractor to ensure that the survey results are connected to your project.

If you have further questions, please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

In addition to the archaeological survey, we also require addresses and current color photographs of all structures in or adjacent to the project area. This includes structures within the one-quarter mile (0.25) visual APE in all directions from the outer edge of the array. If there are right-of-way (ROW) issues, please note that in your report. Please submit these, and any eligibility determinations for historic structural/architectural properties, in a separate report. If you have additional questions, please contact Rita Baker, Cultural Resources Manager/Structures, at 217/785-4998 or rita.e.baker@illinois.gov.

Sincerely,

Carey L. Mayer

Carey L. Mayer, AIA
Deputy State Historic
Preservation Officer

EXHIBIT F: AGRICULTURAL IMPACT MITIGATION AGREEMENT (AIMA)

STANDARD AGRICULTURAL IMPACT MITIGATION AGREEMENT
between
Champaign CSG 1, LLC

and the
ILLINOIS DEPARTMENT OF AGRICULTURE
Pertaining to the Construction of a Commercial Solar Energy Facility
in
Champaign County, Illinois

Pursuant to the Renewable Energy Facilities Agricultural Impact Mitigation Act (505 ILCS 147), the following standards and policies are required by the Illinois Department of Agriculture (IDOA) to help preserve the integrity of any Agricultural Land that is impacted by the Construction and Deconstruction of a Commercial Solar Energy Facility. They were developed with the cooperation of agricultural agencies, organizations, Landowners, Tenants, drainage contractors, and solar energy companies to comprise this Agricultural Impact Mitigation Agreement (AIMA).

Champaign CSG 1, LLC, hereafter referred to as Commercial Solar Energy Facility Owner, or simply as Facility Owner, plans to develop and/or operate a 3.05 Megawatt Commercial Solar Energy Facility in Champaign County [GPS Coordinates: 40.080861, -88.345606], which will consist of up to 35 acres that will be covered by solar facility related components, such as solar panel arrays, racking systems, access roads, an onsite underground collection system, inverters and transformers and any affiliated electric transmission lines. This AIMA is made and entered between the Facility Owner and the IDOA.

If Construction does not commence within four years after this AIMA has been fully executed, this AIMA shall be revised, with the Facility Owner's input, to reflect the IDOA's most current Solar Farm Construction and Deconstruction Standards and Policies. This AIMA, and any updated AIMA, shall be filed with the County Board by the Facility Owner prior to the commencement of Construction.

The below prescribed standards and policies are applicable to Construction and Deconstruction activities occurring partially or wholly on privately owned agricultural land.

Conditions of the AIMA

The mitigative actions specified in this AIMA shall be subject to the following conditions:

A. All Construction or Deconstruction activities may be subject to County or other local requirements. However, the specifications outlined in this AIMA shall be the minimum standards applied to all Construction or Deconstruction activities. IDOA may utilize any legal means to enforce this AIMA.

B. Except for Section 17. B. through F., all actions set forth in this AIMA are subject to modification through negotiation by Landowners and the Facility Owner, provided such changes are negotiated in advance of the respective Construction or Deconstruction activities.

C. The Facility Owner may negotiate with Landowners to carry out the actions that Landowners wish to perform themselves. In such instances, the Facility Owner shall offer Landowners the area commercial rate for their machinery and labor costs.

D. All provisions of this AIMA shall apply to associated future Construction, maintenance, repairs, and Deconstruction of the Facility referenced by this AIMA.

E. The Facility Owner shall keep the Landowners and Tenants informed of the Facility's Construction and Deconstruction status, and other factors that may have an impact upon their farming operations.

F. The Facility Owner shall include a statement of its adherence to this AIMA in any environmental assessment and/or environmental impact statement.

G. Execution of this AIMA shall be made a condition of any Conditional/Special Use Permit. Not less than 30 days prior to the commencement of Construction, a copy of this AIMA shall be provided by the Facility Owner to each Landowner that is party to an Underlying Agreement. In addition, this AIMA shall be incorporated into each Underlying Agreement.

H. The Facility Owner shall implement all actions to the extent that they do not conflict with the requirements of any applicable federal, state and local rules and regulations and other permits and approvals that are obtained by the Facility Owner for the Facility.

I. No later than 45 days prior to the Construction and/or Deconstruction of a Facility, the Facility Owner shall provide the Landowner(s) with a telephone number the Landowner can call to alert the Facility Owner should the Landowner(s) have questions or concerns with the work which is being done or has been carried out on his/her property.

J. If there is a change in ownership of the Facility, the Facility Owner assuming ownership of the Facility shall provide written notice within 90 days of ownership transfer, to the Department, the County, and to Landowners of such change. The Financial Assurance requirements and the other terms of this AIMA shall apply to the new Facility Owner.

K. The Facility Owner shall comply with all local, state and federal laws and regulations, specifically including the worker protection standards to protect workers from pesticide exposure.

L. Within 30 days of execution of this AIMA, the Facility Owner shall use Best Efforts to provide the IDOA with a list of all Landowners that are party to an Underlying Agreement and known Tenants of said Landowner who may be affected by the Facility. As the list of Landowners and Tenants is updated, the Facility Owner shall notify the IDOA of any additions or deletions.

M. If any provision of this AIMA is held to be unenforceable, no other provision shall be affected by that holding, and the remainder of the AIMA shall be interpreted as if it did not contain the unenforceable provision.

Definitions

Abandonment	When Deconstruction has not been completed within 12 months after the Commercial Solar Energy Facility reaches the end of its useful life. For purposes of this definition, a Commercial Solar Energy Facility shall be presumed to have reached the end of its useful life if the Commercial Solar Energy Facility Owner fails, for a period of 6 consecutive months, to pay the Landowner amounts owed in accordance with an Underlying Agreement.

Aboveground Cable	Electrical power lines installed above ground surface to be utilized for conveyance of power from the solar panels to the solar facility inverter and/or point of interconnection to utility grid or customer electric meter.
Agricultural Impact Mitigation Agreement (AIMA)	The Agreement between the Facility Owner and the Illinois Department of Agriculture (IDOA) described herein.
Agricultural Land	Land used for Cropland, hayland, pastureland, managed woodlands, truck gardens, farmsteads, commercial ag-related facilities, feedlots, livestock confinement systems, land on which farm buildings are located, and land in government conservation programs used for purposes as set forth above.
Best Efforts	Diligent, good faith, and commercially reasonable efforts to achieve a given objective or obligation.
Commercial Operation Date	The calendar date of which the Facility Owner notifies the Landowner, County, and IDOA in writing that commercial operation of the facility has commenced. If the Facility Owner fails to provide such notifications, the Commercial Operation Date shall be the execution date of this AIMA plus 6 months.
Commercial Solar Energy Facility (Facility)	A solar energy conversion facility equal to or greater than 500 kilowatts in total nameplate capacity, including a solar energy conversion facility seeking an extension of a permit to construct granted by a county or municipality before June 29, 2018. "Commercial solar energy facility" does not include a solar energy conversion facility: (1) for which a permit to construct has been issued before June 29, 2018; (2) that is located on land owned by the commercial solar energy facility owner; (3) that was constructed before June 29, 2018; or (4) that is located on the customer side of the customer's electric meter and is primarily used to offset that customer's electricity load and is limited in nameplate capacity to less than or equal to 2,000 kilowatts.
Commercial Solar Energy Facility Owner deemed (Facility Owner)	A person or entity that owns a commercial solar energy facility. A Commercial Solar Energy Facility Owner is not nor shall it be to be a public utility as defined in the Public Utilities Act.
County	The County or Counties where the Commercial Solar Energy Facility is located.
Construction	The installation, preparation for installation and/or repair of a Facility.
Cropland	Land used for growing row crops, small grains or hay; includes land which was formerly used as cropland, but is currently enrolled in a government conservation program; also includes pastureland that is classified as Prime Farmland.

Deconstruction	The removal of a Facility from the property of a Landowner and the restoration of that property as provided in the AIMA.
Deconstruction Plan	A plan prepared by a Professional Engineer, at the Facility's expense, that includes: (1) the estimated Deconstruction cost, in current dollars at the time of filing, for the Facility, considering among other things: i. the number of solar panels, racking, and related facilities involved; ii. the original Construction costs of the Facility; iii. the size and capacity, in megawatts of the Facility; iv. the salvage value of the facilities (if all interests in salvage value are subordinate to that of the Financial Assurance holder if abandonment occurs); v. the Construction method and techniques for the Facility and for other similar facilities; and (2) a comprehensive detailed description of how the Facility Owner plans to pay for the Deconstruction of the Facility.
Department	The Illinois Department of Agriculture (IDOA).
Financial Assurance	A reclamation or surety bond or other commercially available financial assurance that is acceptable to the County, with the County or Landowner as beneficiary.
Landowner	Any person with an ownership interest in property that is used for agricultural purposes and that is party to an Underlying Agreement.
Prime Farmland	Agricultural Land comprised of soils that are defined by the USDA Natural Resources Conservation Service (NRCS) as "Prime Farmland" (generally considered to be the most productive soils with the least input of nutrients and management).
Professional Engineer	An engineer licensed to practice engineering in the State of Illinois.
Soil and Water Conservation District (SWCD)	A unit of local government that provides technical and financial assistance to eligible Landowners for the conservation of soil and water resources.
Tenant	Any person, apart from the Facility Owner, lawfully residing or leasing/renting land that is subject to an Underlying Agreement.
Topsoil	The uppermost layer of the soil that has the darkest color or the highest content of organic matter; more specifically, it is defined as the "A" horizon.
Underlying Agreement	The written agreement between the Facility Owner and the Landowner(s) including, but not limited to, an easement, option, lease, or license under the terms of which another person has constructed, constructs, or intends to construct a Facility on the property of the Landowner.

Underground Cable	Electrical power lines installed below the ground surface to be utilized for conveyance of power within a Facility or from a Commercial Solar Energy Facility to the electric grid.
USDA Natural Resources Conservation Service (NRCS)	An agency of the United States Department of Agriculture that provides America's farmers with financial and technical assistance to aid with natural resources conservation.

Construction and Deconstruction Standards and Policies

1. Support Structures

A. Only single pole support structures shall be used for the Construction and operation of the Facility on Agricultural Land. Other types of support structures, such as lattice towers or H-frames, may be used on nonagricultural land.

B. Where a Facility's Aboveground Cable will be adjacent and parallel to highway and/or railroad right-of-way, but on privately owned property, the support structures shall be placed as close as reasonably practicable and allowable by the applicable County Engineer or other applicable authorities to the highway or railroad right-of-way. The only exceptions may be at jogs or weaves on the highway alignment or along highways or railroads where transmission and distribution lines are already present.

C. When it is not possible to locate Aboveground Cable next to highway or railroad right-of-way, Best Efforts shall be expended to place all support poles in such a manner to minimize their placement on Cropland (i.e., longer than normal above ground spans shall be utilized when traversing Cropland).

2. Aboveground Facilities

Locations for facilities shall be selected in a manner that is as unobtrusive as reasonably possible to ongoing agricultural activities occurring on the land that contains or is adjacent to the Facility.

3. Guy Wires and Anchors

Best Efforts shall be made to place guy wires and their anchors, if used, out of Cropland, pastureland and hayland, placing them instead along existing utilization lines and on land other than Cropland. Where this is not feasible, Best Efforts shall be made to minimize guy wire impact on Cropland. All guy wires shall be shielded with highly visible guards.

4. Underground Cabling Depth

A. Underground electrical cables located outside the perimeter of the (fence) of the solar panels shall be buried with:

1. a minimum of 5 feet of top cover where they cross Cropland.
2. a minimum of 5 feet of top cover where they cross pastureland or other non-Cropland classified as Prime Farmland.
3. a minimum of 3 feet of top cover where they cross pastureland and other Agricultural Land not classified as Prime Farmland.

4. a minimum of 3 feet of top cover where they cross wooded/brushy land.

B. Provided that the Facility Owner removes the cables during Deconstruction, underground electric cables may be installed to a minimum depth of 18 inches:

1. Within the fenced perimeter of the Facility; or

2. When buried under an access road associated with the Facility provided that the location and depth of cabling is clearly marked at the surface.

C. If Underground Cables within the fenced perimeter of the solar panels are installed to a minimum depth of 5 feet, they may remain in place after Deconstruction.

5. Topsoil Removal and Replacement

A. Any excavation shall be performed in a manner to preserve topsoil. Best Efforts shall be made to store the topsoil near the excavation site in such a manner that it will not become intermixed with subsoil materials.

B. Best Efforts shall be made to store all disturbed subsoil material near the excavation site and separate from the topsoil.

C. When backfilling an excavation site, Best Efforts shall be used to ensure the stockpiled subsoil material will be placed back into the excavation site before replacing the topsoil.

D. Refer to Section 7 for procedures pertaining to rock removal from the subsoil and topsoil.

E. Refer to Section 8 for procedures pertaining to the repair of compaction and rutting of the topsoil.

F. Best Efforts shall be performed to place the topsoil in a manner so that after settling occurs, the topsoil's original depth and contour will be restored as close as reasonably practicable. The same shall apply where excavations are made for road, stream, drainage ditch, or other crossings. In no instance shall the topsoil materials be used for any other purpose unless agreed to explicitly and in writing by the Landowner.

G. Based on the mutual agreement of the landowner and Facility Owner, excess soil material resulting from solar facility excavation shall either be removed or stored on the Landowner's property and reseeded per the applicable National Pollution Discharge Elimination System (NPDES) permit/Stormwater Pollution Prevention Plan (SWPPP). After the Facility reaches the end of its Useful Life, the excess subsoil material shall be returned to an excavation site or removed from the Landowner's property, unless otherwise agreed to by Landowner.

6. Rerouting and Permanent Repair of Agricultural Drainage Tiles

The following standards and policies shall apply to underground drainage tile line(s) directly or indirectly affected by Construction and/or Deconstruction:

A. Prior to Construction, the Facility Owner shall work with the Landowner to identify drainage tile lines traversing the property subject to the Underlying Agreement to the extent reasonably practicable. All drainage tile lines identified in this manner shall be shown on the Construction and Deconstruction Plans.

B. The location of all drainage tile lines located adjacent to or within the footprint of the Facility shall be recorded using Global Positioning Systems (GPS) technology. Within 60 days after Construction is complete, the Facility Owner shall provide the Landowner, the IDOA, and the respective County Soil and Water Conservation District (SWCD) with "as built" drawings (strip maps) showing the location of all drainage tile lines by survey station encountered in the Construction of the Facility, including any tile line repair location(s), and any underground cable installed as part of the Facility.

C. **Maintaining Surrounding Area Subsurface Drainage**

If drainage tile lines are damaged by the Facility, the Facility Owner shall repair the lines or install new drainage tile line(s) of comparable quality and cost to the original(s), and of sufficient size and appropriate slope in locations that limit direct impact from the Facility. If the damaged tile lines cause an unreasonable disruption to the drainage system, as determined by the Landowner, then such repairs shall be made promptly to ensure appropriate drainage. Any new line(s) may be located outside of, but adjacent to the perimeter of the Facility. Disrupted adjacent drainage tile lines shall be attached thereto to provide an adequate outlet for the disrupted adjacent tile lines.

D. **Re-establishing Subsurface Drainage Within Facility Footprint**

Following Deconstruction and using Best Efforts, if underground drainage tile lines were present within the footprint of the facility and were severed or otherwise damaged during original Construction, facility operation, and/or facility Deconstruction, the Facility Owner shall repair existing drainage tiles or install new drainage tile lines of comparable quality and cost to the original, within the footprint of the Facility with sufficient capacity to restore the underground drainage capacity that existed within the footprint of the Facility prior to Construction. Such installation shall be completed within 12 months after the end of the useful life of the Facility and shall be compliant with Figures 1 and 2 to this Agreement or based on prudent industry standards if agreed to by Landowner.

E. If there is any dispute between the Landowner and the Facility Owner on the method of permanent drainage tile line repair, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

F. During Deconstruction, all additional permanent drainage tile line repairs beyond those included above in Section 6.D. must be made within 30 days of identification or notification of the damage, weather and soil conditions permitting. At other times, such repairs must be made at a time mutually agreed upon by the Facility Owner and the Landowner. If the Facility Owner and Landowner cannot agree upon a reasonable method to complete this restoration, the Facility Owner may implement the recommendations of the appropriate County SWCD and such implementation constitutes compliance with this provision.

G. Following completion of the work required pursuant to this Section, the Facility Owner shall be responsible for correcting all drainage tile line repairs that fail due to Construction and/or Deconstruction for one year following the completion of Construction or Deconstruction, provided those repairs were made by the Facility Owner. The Facility Owner shall not be responsible for drainage tile repairs that the Facility Owner pays the Landowner to perform.

7. Rock Removal

With any excavations, the following rock removal procedures pertain only to rocks found in the uppermost 42 inches of soil, the common freeze zone in Illinois, which emerged or were brought to the site as a result of Construction and/or Deconstruction.

A. Before replacing any topsoil, Best Efforts shall be taken to remove all rocks greater than 3 inches in any dimension from the surface of exposed subsoil which emerged or were brought to the site as a result of Construction and/or Deconstruction.

B. If trenching, blasting, or boring operations are required through rocky terrain, precautions shall be taken to minimize the potential for oversized rocks to become interspersed in adjacent soil material.

C. Rocks and soil containing rocks removed from the subsoil areas, topsoil, or from any excavations, shall be removed from the Landowner's premises or disposed of on the Landowner's premises at a location that is mutually acceptable to the Landowner and the Facility Owner.

8. Repair of Compaction and Rutting

A. Unless the Landowner opts to do the restoration work on compaction and rutting, after the topsoil has been replaced post-Deconstruction, all areas within the boundaries of the Facility that were traversed by vehicles and Construction and/or Deconstruction equipment that exhibit compaction and rutting shall be restored by the Facility Owner. All prior Cropland shall be ripped at least 18 inches deep or to the extent practicable, and all pasture and woodland shall be ripped at least 12 inches deep or to the extent practicable. The existence of drainage tile lines or underground utilities may necessitate less ripping depth. The disturbed area shall then be disked.

B. All ripping and disking shall be done at a time when the soil is dry enough for normal tillage operations to occur on Cropland adjacent to the Facility.

C. The Facility Owner shall restore all rutted land to a condition as close as possible to its original condition upon Deconstruction, unless necessary earlier as determined by the Landowner.

D. If there is any dispute between the Landowner and the Facility Owner as to what areas need to be ripped/disked or the depth at which compacted areas should be ripped/disked, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

9. Construction During Wet Weather

Except as provided below, construction activities are not allowed on agricultural land during times when normal farming operations, such as plowing, disking, planting or harvesting, cannot take place due to excessively wet soils. With input from the landowner, wet weather conditions may be determined on a field by field basis.

A. Construction activities on prepared surfaces, surfaces where topsoil and subsoil have been removed, heavily compacted in preparation, or otherwise stabilized (e.g. through cement mixing) may occur at the discretion of the Facility Owner in wet weather conditions.

B. Construction activities on unprepared surfaces will be done only when work will not result in rutting which may mix subsoil and topsoil. Determination as to the potential of subsoil and topsoil mixing will be made in consultation with the underlying Landowner, or, if approved by the Landowner, his/her designated tenant or designee.

10. Prevention of Soil Erosion

A. The Facility Owner shall work with Landowners and create and follow a SWPPP to prevent excessive erosion on land that has been disturbed by Construction or Deconstruction of a Facility.

B. If the Landowner and Facility Owner cannot agree upon a reasonable method to control erosion on the Landowner's property, the Facility Owner shall consider the recommendations of the appropriate County SWCD to resolve the disagreement.

C. The Facility Owner may, per the requirements of the project SWPPP and in consultation with the Landowner, seed appropriate vegetation around all panels and other facility components to prevent erosion. The Facility Owner must utilize Best Efforts to ensure that all seed mixes will be as free of any noxious weed seeds as possible. The Facility Owner shall consult with the Landowner regarding appropriate varieties to seed.

11. Repair of Damaged Soil Conservation Practices

Consultation with the appropriate County SWCD by the Facility Owner shall be carried out to determine if there are soil conservation practices (such as terraces, grassed waterways, etc.) that will be damaged by the Construction and/or Deconstruction of the Facility. Those conservation practices shall be restored to their preconstruction condition as close as reasonably practicable following Deconstruction in accordance with USDA NRCS technical standards. All repair costs shall be the responsibility of the Facility Owner.

12. Compensation for Damages to Private Property

The Facility Owner shall reasonably compensate Landowners for damages caused by the Facility Owner. Damage to Agricultural Land shall be reimbursed to the Landowner as prescribed in the applicable Underlying Agreement.

13. Clearing of Trees and Brush

A. If trees are to be removed for the Construction or Deconstruction of a Facility, the Facility Owner shall consult with the Landowner to determine if there are trees of commercial or other value to the Landowner.

B. If there are trees of commercial or other value to the Landowner, the Facility Owner shall allow the Landowner the right to retain ownership of the trees to be removed and the disposition of the removed trees shall be negotiated prior to the commencement of land clearing.

14. Access Roads

A. To the extent practicable, access roads shall be designed to not impede surface drainage and shall be built to minimize soil erosion on or near the access roads.

B. Access roads may be left intact during Construction, operation or Deconstruction through mutual agreement of the Landowner and the Facility Owner unless otherwise restricted by federal, state, or local regulations.

C. If the access roads are removed, Best Efforts shall be expended to assure that the land shall be restored to equivalent condition(s) as existed prior to their construction, or as otherwise agreed to by the Facility Owner and the Landowner. All access roads that are removed shall be ripped to a depth of 18 inches. All ripping shall be performed consistent with Section 8.

15. Weed/Vegetation Control

A. The Facility Owner shall provide for weed control in a manner that prevents the spread of weeds. Chemical control, if used, shall be done by an appropriately licensed pesticide applicator.

B. The Facility Owner shall be responsible for the reimbursement of all reasonable costs incurred by owners of agricultural land where it has been determined by the appropriate state or county entity that weeds have spread from the Facility to their property. Reimbursement is contingent upon written notice to the Facility Owner. Facility Owner shall reimburse the property owner within 45 days after notice is received.

C. The Facility Owner shall ensure that all vegetation growing within the perimeter of the Facility is properly and appropriately maintained. Maintenance may include, but not be limited to, mowing, trimming, chemical control, or the use of livestock as agreed to by the Landowner.

D. The Deconstruction plans must include provisions for the removal of all weed control equipment used in the Facility, including weed-control fabrics or other ground covers.

16. Indemnification of Landowners

The Facility Owner shall indemnify all Landowners, their heirs, successors, legal representatives, and assigns from and against all claims, injuries, suits, damages, costs, losses, and reasonable expenses resulting from or arising out of the Commercial Solar Energy Facility, including Construction and Deconstruction thereof, and also including damage to such Facility or any of its appurtenances, except where claims, injuries, suits, damages, costs, losses, and expenses are caused by the negligence or intentional acts, or willful omissions of such Landowners, and/or the Landowners heirs, successors, legal representatives, and assigns.

17. Deconstruction Plans and Financial Assurance of Commercial Solar Energy Facilities

A. Deconstruction of a Facility shall include the removal/disposition of all solar related equipment/facilities, including the following utilized for operation of the Facility and located on Landowner property:

1. Solar panels, cells and modules;
2. Solar panel mounts and racking, including any helical piles, ground screws, ballasts, or other anchoring systems;
3. Solar panel foundations, if used (to depth of 5 feet);

4. Transformers, inverters, energy storage facilities, or substations, including all components and foundations; however, Underground Cables at a depth of 5 feet or greater may be left in place;
5. Overhead collection system components;
6. Operations/maintenance buildings, spare parts buildings and substation/switching gear buildings unless otherwise agreed to by the Landowner;
7. Access Road(s) unless Landowner requests in writing that the access road is to remain;
8. Operation/maintenance yard/staging area unless otherwise agreed to by the Landowner; and
9. Debris and litter generated by Deconstruction and Deconstruction crews.

B. The Facility Owner shall, at its expense, complete Deconstruction of a Facility within twelve (12) months after the end of the useful life of the Facility.

C. During the County permit process, or if none, then prior to the commencement of construction, the Facility Owner shall file with the County a Deconstruction Plan. The Facility Owner shall file an updated Deconstruction Plan with the County on or before the end of the tenth year of commercial operation.

D. The Facility Owner shall provide the County with Financial Assurance to cover the estimated costs of Deconstruction of the Facility. Provision of this Financial Assurance shall be phased in over the first 11 years of the Project's operation as follows:

1. On or before the first anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover ten (10) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
2. On or before the sixth anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover fifty (50) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
3. On or before the eleventh anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover one hundred (100) percent of the estimated costs of Deconstruction of the Facility as determined in the updated Deconstruction Plan provided during the tenth year of commercial operation.

The Financial Assurance shall not release the surety from liability until the Financial Assurance is replaced. The salvage value of the Facility may only be used to reduce the estimated costs of Deconstruction if the County agrees that all interests in the salvage value are subordinate or have been subordinated to that of the County if Abandonment occurs.

E. The County may, but is not required to, reevaluate the estimated costs of Deconstruction of any Facility after the tenth anniversary, and every five years thereafter, of the Commercial Operation Date. Based on any reevaluation, the County may require changes in the level of Financial Assurance used to calculate the phased Financial Assurance levels described in Section 17.D. required from the Facility Owner. If the County is unable to its satisfaction to perform the investigations necessary to approve the Deconstruction Plan filed by the Facility Owner, then the County and Facility may mutually agree on the selection of a Professional Engineer independent of the Facility Owner to conduct any necessary investigations. The Facility Owner shall be responsible for the cost of any such investigations.

F. Upon Abandonment, the County may take all appropriate actions for Deconstruction including drawing upon the Financial Assurance.

Concurrence of the Parties to this AIMA

The Illinois Department of Agriculture and Champaign CSG 1, LLC concur that this AIMA is the complete AIMA governing the mitigation of agricultural impacts that may result from the Construction and Deconstruction of the solar farm project in Champaign County within the State of Illinois.

The effective date of this AIMA commences on the date of execution.

STATE OF ILLINOIS
DEPARTMENT OF AGRICULTURE

Jerry Costello II

By: Jerry Costello II, Director 4

Clay Nordsiek

By Clay Nordsiek, Deputy General Counsel

801 E. Sangamon Avenue,
State Fairgrounds, POB 19281
Springfield, IL 62794-9281

7/11, 2025

Champaign CSG 1, LLC

By Sam Younes

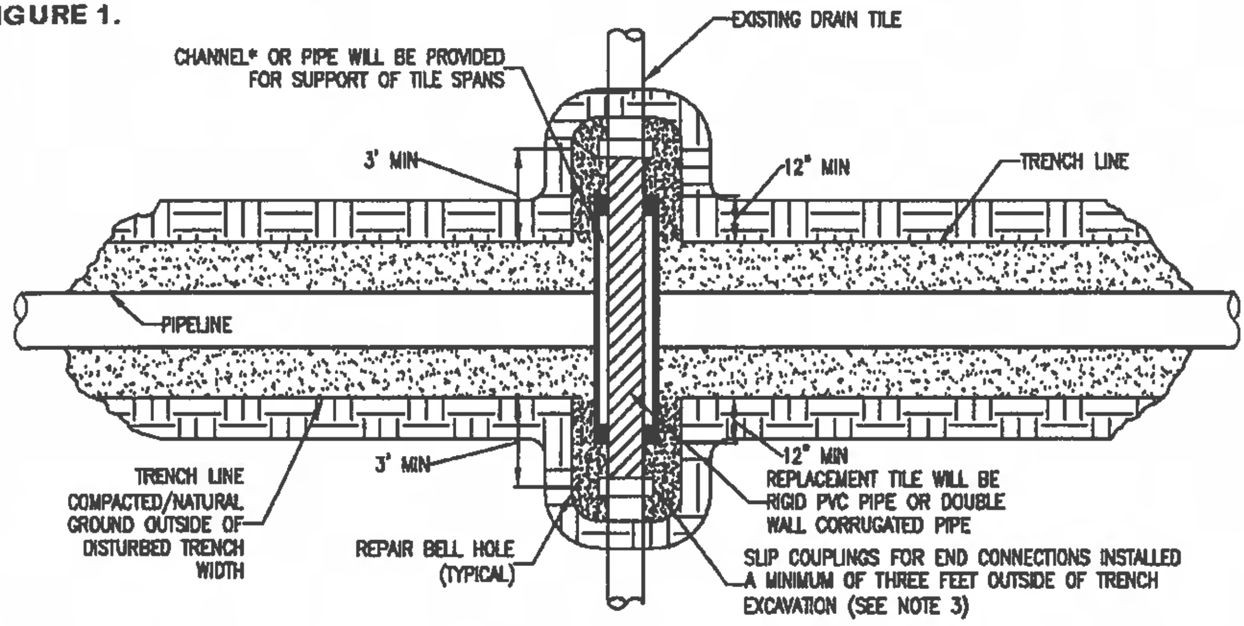
Sam Younes

Address

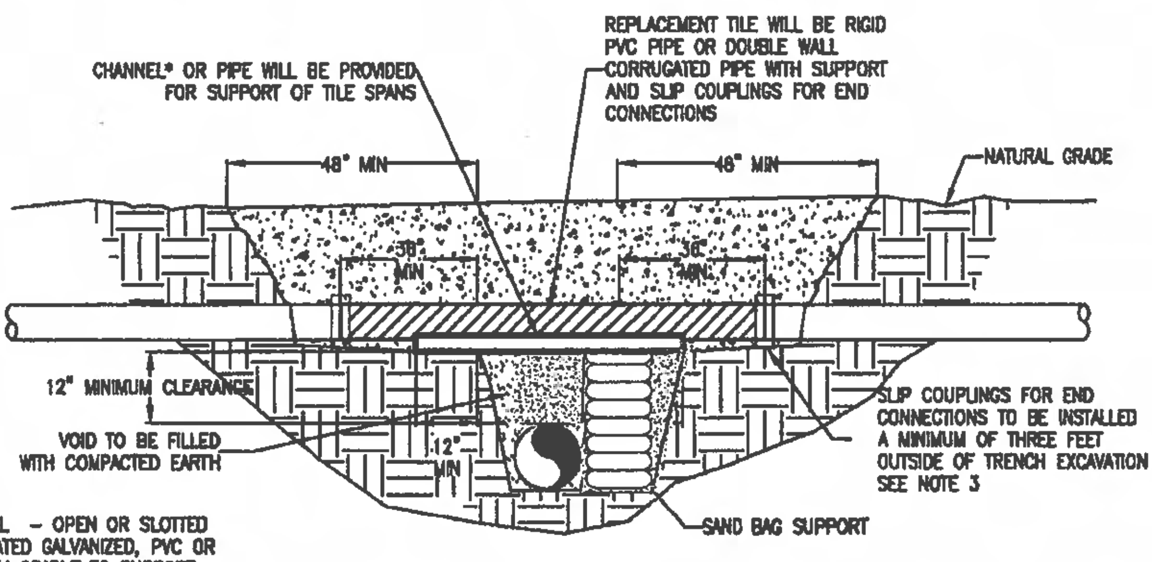
3050 Peachtree Road NW
Suite 350
Atlanta, GA 30305

6/10/2025, 20

FIGURE 1.



PLAN
N.T.S.



*CHANNEL – OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE TO SUPPORT DRAIN TILE.

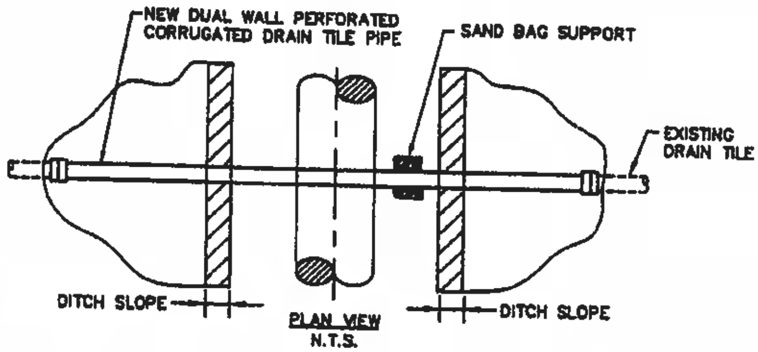
CROSS SECTION
N.T.S.

NOTE:

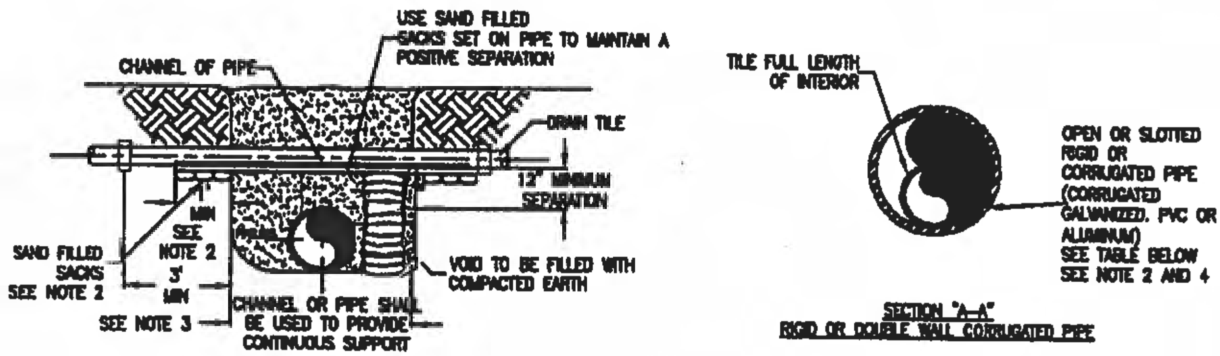
1. IMMEDIATELY REPAIR TILE IF WATER IS FLOWING THROUGH TILE AT TIME OF TRENCHING. IF NO WATER IS FLOWING AND TEMPORARY REPAIR IS DELAYED, OR NOT MADE BY THE END OF THE WORK DAY, A SCREEN OR APPROPRIATE 'NIGHT CAP' SHALL BE PLACED ON OPEN ENDS OF TILE TO PREVENT ENTRAPMENT OF ANIMALS ETC.
2. CHANNEL OR PIPE (OPEN OR SLOTTED) MADE OF CORRUGATED GALVANIZED PIPE, PVC OR ALUMINUM WILL BE USED FOR SUPPORT OF DRAIN TILE SPANS.
3. INDUSTRY STANDARDS SHALL BE FOLLOWED TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES.

TEMPORARY DRAIN TILE REPAIR

FIGURE 2.



PLAN VIEW



END VIEWS

MINIMUM SUPPORT TABLE		
TILE SIZE	CHANNEL SIZE	PIPE SIZE
3"	4" @ 5.4 #/ft	4" STD. WT.
4"-5"	5" @ 6.7 #/ft	6" STD. WT.
6"-9"	7" @ 9.8 #/ft	9"-10" STD. WT.
10"	10" @ 15.3 #/ft	12" STD. WT.

NOTE:

1. TILE REPAIR AND REPLACEMENT SHALL MAINTAIN ORIGINAL ALIGNMENT GRADIENT AND WATER FLOW TO THE GREATEST EXTENT POSSIBLE. IF THE TILE NEEDS TO BE RELOCATED, THE INSTALLATION ANGLE MAY VARY DUE TO SITE SPECIFIC CONDITIONS AND LANDOWNER RECOMMENDATIONS.

2. 1'–0" MINIMUM LENGTH OF CHANNEL OR RIGID PIPE (OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE) SHALL BE SUPPORTED BY UNDISTURBED SOIL, OR IF CROSSING IS NOT AT RIGHT ANGLES TO PIPELINE, EQUIVALENT LENGTH PERPENDICULAR TO TRENCH. SHIM WITH SAND BAGS TO UNDISTURBED SOIL FOR SUPPORT AND DRAINAGE GRADIENT MAINTENANCE (TYPICAL BOTH SIDES).

3. DRAIN TILES WILL BE PERMANENTLY CONNECTED TO EXISTING DRAIN TILES A MINIMUM OF THREE FEET OUTSIDE OF EXCAVATED TRENCH LINE USING INDUSTRY STANDARDS TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES INCLUDING SLIP COUPLINGS.

4. DIAMETER OF RIGID PIPE SHALL BE OF ADEQUATE SIZE TO ALLOW FOR THE INSTALLATION OF THE TILE FOR THE FULL LENGTH OF THE RIGID PIPE.

5. OTHER METHODS OF SUPPORTING DRAIN TILE MAY BE USED IF ALTERNATE PROPOSED IS EQUIVALENT IN STRENGTH TO THE CHANNEL/PIPE SECTIONS SHOWN AND IF APPROVED BY COMPANY REPRESENTATIVES AND LANDOWNER IN ADVANCE. SITE SPECIFIC ALTERNATE SUPPORT SYSTEM TO BE DEVELOPED BY COMPANY REPRESENTATIVES AND FURNISHED TO CONTRACTOR FOR SPANS IN EXCESS OF 20', TILE GREATER THEN 10" DIAMETER, AND FOR "HEADER" SYSTEMS.

6. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.

7. PRIOR TO REPAIRING TILE, CONTRACTOR SHALL PROBE LATERALLY INTO THE EXISTING TILE TO FULL WIDTH OF THE RIGHTS OF WAY TO DETERMINE IF ADDITIONAL DAMAGE HAS OCCURRED. ALL DAMAGED/DISTURBED TILE SHALL BE REPAIRED AS NEAR AS PRACTICABLE TO ITS ORIGINAL OR BETTER CONDITION.

PERMANENT DRAIN TILE REPAIR

Illinois Department of Agriculture

JB Pritzker, Governor
Jerry Costello II, Director

Bureau of Land and Water Resources
State Fairgrounds • P.O. Box 19281 • Springfield, IL 62794-9281 • 217/782-6297 • TDD 866/287-2999 • Fax 217/557-0993

July 15, 2025

Dear Landowner:

As the landowner across which the Champaign CSG 1, LLC is planning to construct a community scale solar farm and related ±3.05 MW Commercial Solar Energy Facility, that will consist of solar panel arrays, racking systems, access roads, an onsite underground collection system, inverters and transformers, the Illinois Department of Agriculture would like to inform you of the following matter.

Effective July 11, 2025, Champaign CSG 1, LLC and the Illinois Department of Agriculture (IDOA) entered into an Agricultural Impact Mitigation Agreement (AIMA) establishing standards and policies that Champaign CSG 1, LLC will follow as it constructs a ±3.05 MW community scale commercial Solar Energy Facility over agricultural land in Champaign County. The enclosed AIMA will provide a high level of protection to such land, but it may not address specific concerns that you may have. Such concerns must be addressed individually in your own easement contract to accomplish your specific goals.

As you review the AIMA, you may identify procedures that you would like to change. Your right to negotiate changes is preserved by Paragraph B. on page one of the AIMA. It states, "Except for Section 17B. through F., all actions set forth in this AIMA are subject to modification through negotiation by Landowners and the Facility Owner, provided such changes are negotiated in advance of the respective Construction or Deconstruction activities." It is your decision as to whether you discuss the changes you desire with the right-of-way agent that is assigned to you. Of course, you also have the option to seek your own attorney to make sure your interests are protected.

As you consider your personal interests, you may want to include the owner indemnification clause in your individual easement agreement to protect yourself, your family and future heirs against future claims or expenses arising from the commercial solar energy facility's construction, repairs and maintenance. This item is covered in Section 16 of the AIMA. We feel it is best that such issues are left to landowners to address in their individual easement contracts if specific items are of concern.

Please note that although the IDOA has entered the AIMA with the Champaign CSG 1, LLC it does not constitute our endorsement of the project. The AIMA's sole purpose is to provide a high level of protection to landowners and agricultural land that will be impacted by the construction of the Solar Farm.

If you have questions, feel free to contact Jeffrey Evers of my staff at 217-785-5594, the address listed above or agr.aima@illinois.gov.

Sincerely,

Michelle Curby

Michelle Curby, Chief
Bureau of Land and Water Resources

Enclosure
MC:HC

cc: Jerry Costello II, IDOA Director
Clay Nordsiek, IDOA
Bill Bodine, Laura Harmon - IL Farm Bureau
Garrett W. Thalgott – IL Farm Bureau
Champaign Co. Farm Bureau Manager
Champaign Co. Soil and Water Conservation District (SWCD)
Regional Representatives

EXHIBIT G: GLARE STUDY

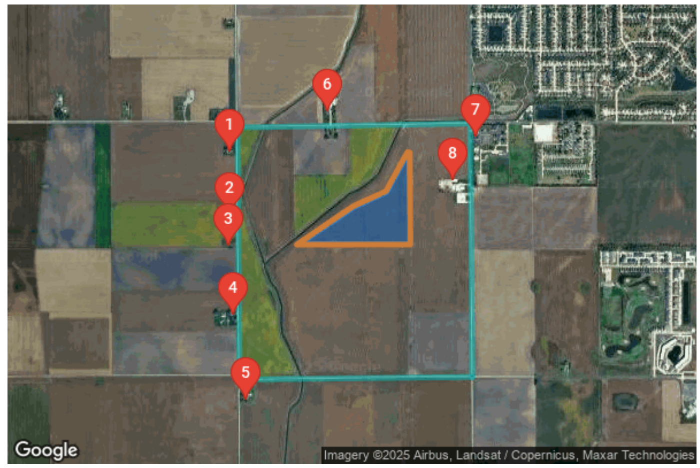
ForgeSolar

Foersterling Farm

Untitled

Created Jun 25, 2025
Updated Jun 26, 2025
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 153160.25646

Project type Advanced
Project status: active
Category 1 MW to 5 MW



Misc. Analysis Settings

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

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

Summary of Results

Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
Champaign CSG LLC	SA tracking	SA tracking	1,132	166	-

Component Data

PV Array(s)

Total PV footprint area: 39.7 acres

Name: Champaign CSG LLC
Footprint area: 39.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 0.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 6.55 mrad

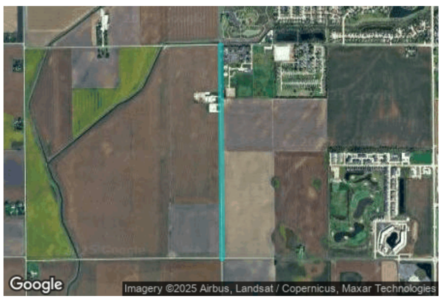
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.082509	-88.337564	703.83	6.00	709.83
2	40.077305	-88.337542	700.35	6.00	706.35
3	40.077305	-88.345653	694.77	6.00	700.77
4	40.079341	-88.341705	696.79	6.00	702.79
5	40.080211	-88.339237	701.82	6.00	707.82

Route Receptor(s)

Name: County Rd 1400 N
Route type Two-way
View angle: 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.083946	-88.350368	700.14	6.00	706.14
2	40.084173	-88.332980	704.11	6.00	710.11

Name: County Rd 700 E
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.084169	-88.332985	704.13	6.00	710.13
2	40.069676	-88.332850	699.44	6.00	705.44

Name: Curtis Rd
Route type Two-way
View angle: 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.069536	-88.350184	702.50	6.00	708.50
2	40.069684	-88.332847	699.44	6.00	705.44

Name: S Barker Rd
Route type Two-way
View angle: 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.069536	-88.350218	702.62	6.00	708.62
2	40.083958	-88.350375	700.00	6.00	706.00

Discrete Observation Receptors

Number	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total Elevation ft
OP 1	40.082566	-88.350962	700.46	13.00	713.46
OP 2	40.078905	-88.350940	703.37	14.00	717.37
OP 3	40.077153	-88.350997	704.88	14.00	718.88
OP 4	40.073235	-88.350717	705.46	14.00	719.46
OP 5	40.068382	-88.349747	701.18	15.00	716.18
OP 6	40.084821	-88.343659	710.77	15.00	725.77
OP 7	40.083359	-88.332542	707.34	14.00	721.34
OP 8	40.080887	-88.334265	703.01	6.00	709.01

Obstruction Components

Name: Planted Vegetative Screen
Upper edge height: 6.0 ft

Vertex	Latitude deg	Longitude deg	Ground elevation ft
1	40.082512	-88.337517	703.74
2	40.077255	-88.337481	700.58
3	40.077247	-88.345951	694.77
4	40.079431	-88.341778	696.73
5	40.080301	-88.339299	701.16
6	40.082542	-88.337690	703.46
7	40.082512	-88.337517	703.74

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt deg	Orientation deg	"Green" Glare min	"Yellow" Glare min	Energy Produced kWh	Data File
Champaign CSG LLC	SA tracking	SA tracking	1,132	166	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
champaign-cs (green)	59	53	109	102	62	0	0	0	57	98	160	193
champaign-cs (yellow)	47	11	0	0	0	0	0	0	1	4	44	59

PV & Receptor Analysis Results

Results for each PV array and receptor

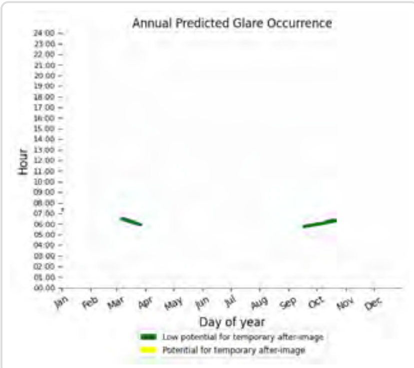
Champaign CSG LLC potential temporary after-image

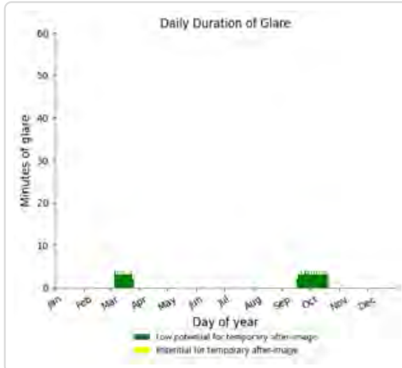
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	177	0
OP: OP 2	258	0
OP: OP 3	58	1
OP: OP 4	32	0
OP: OP 5	0	0
OP: OP 6	136	0
OP: OP 7	228	0
OP: OP 8	0	0
Route: County Rd 1400 N	243	165
Route: County Rd 700 E	0	0
Route: Curtis Rd	0	0
Route: S Barker Rd	0	0

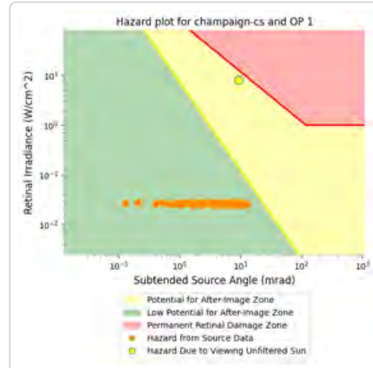
Champaign CSG LLC: OP 1

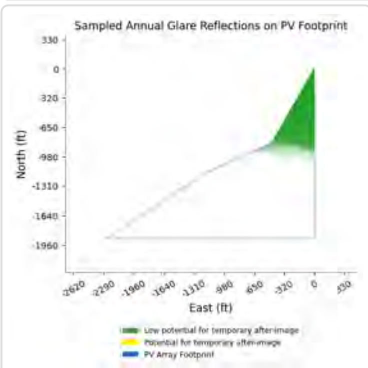
PV array is expected to produce the following glare for this receptor:

- 177 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





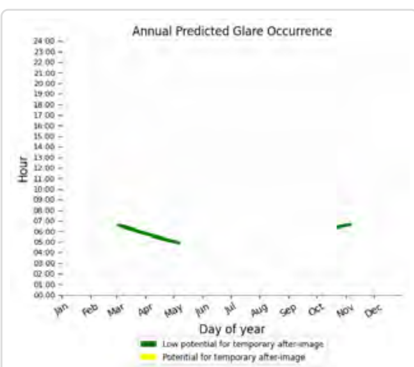


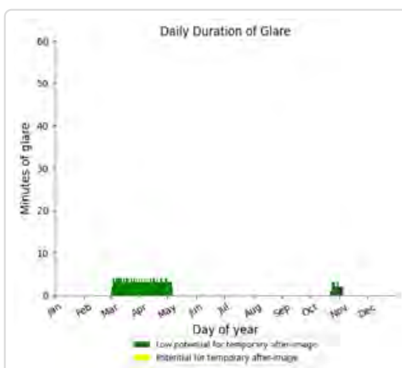


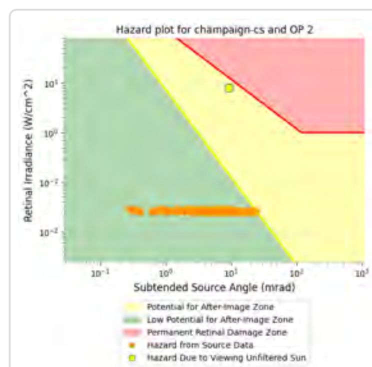
Champaign CSG LLC: OP 2

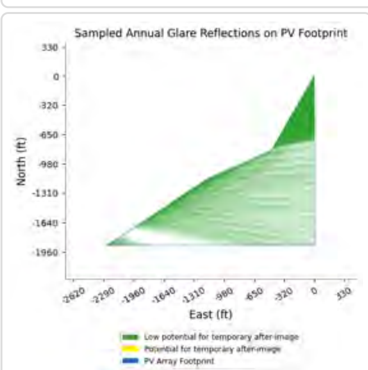
PV array is expected to produce the following glare for this receptor:

- 258 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





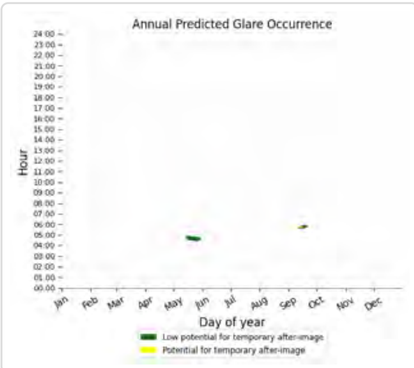


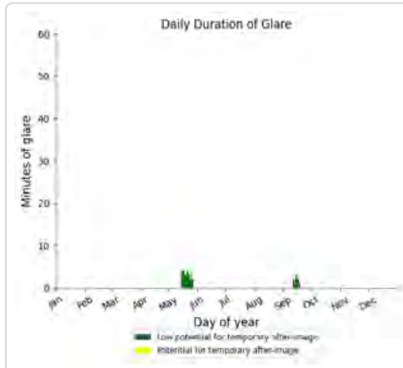


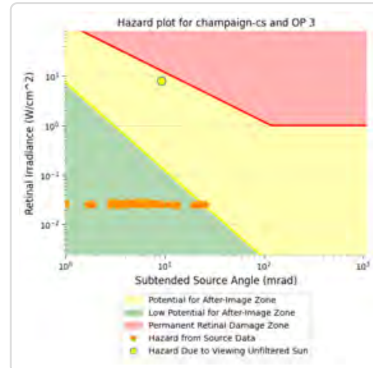
Champaign CSG LLC: OP 3

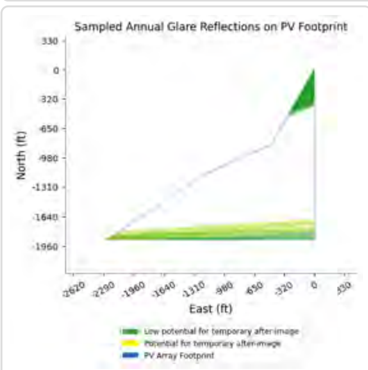
PV array is expected to produce the following glare for this receptor:

- 58 minutes of "green" glare with low potential to cause temporary after-image.
- 1 minutes of "yellow" glare with potential to cause temporary after-image.





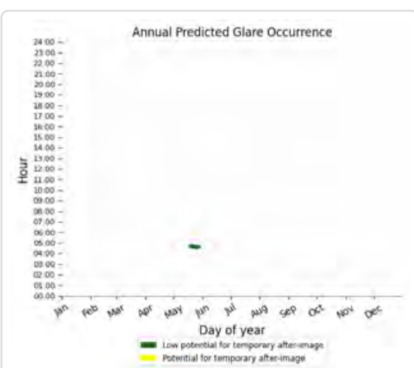


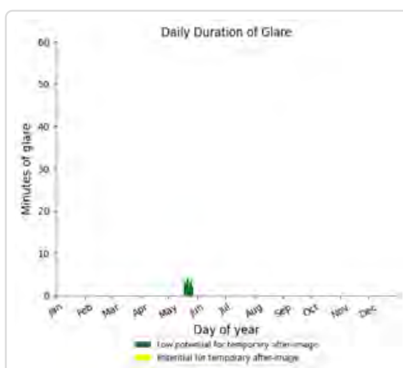


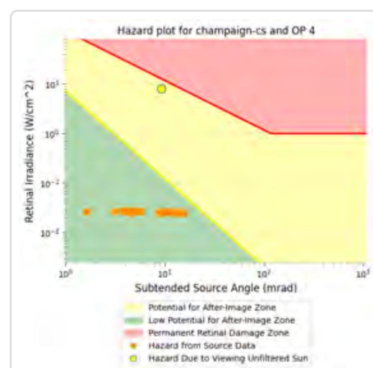
Champaign CSG LLC: OP 4

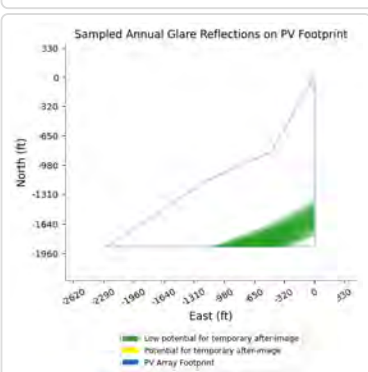
PV array is expected to produce the following glare for this receptor:

- 32 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









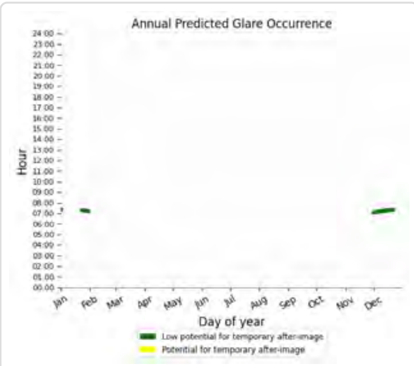
Champaign CSG LLC: OP 5

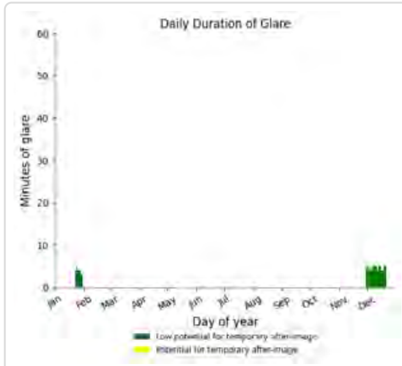
No glare found

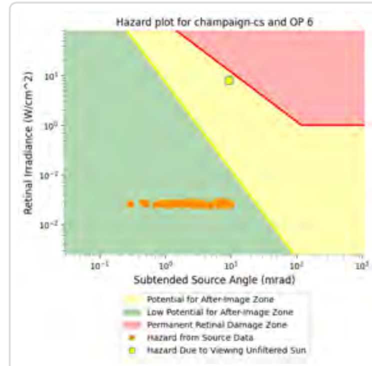
Champaign CSG LLC: OP 6

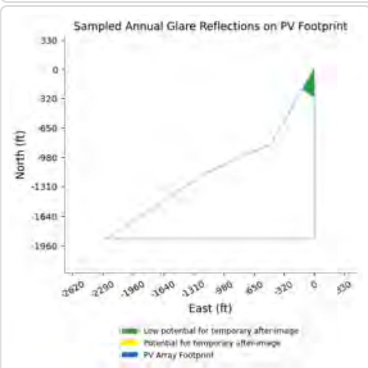
PV array is expected to produce the following glare for this receptor:

- 136 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





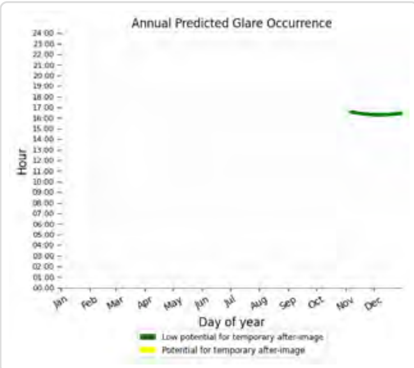


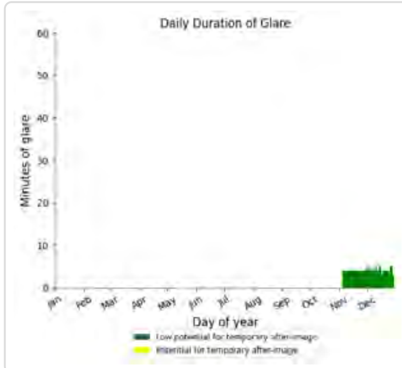


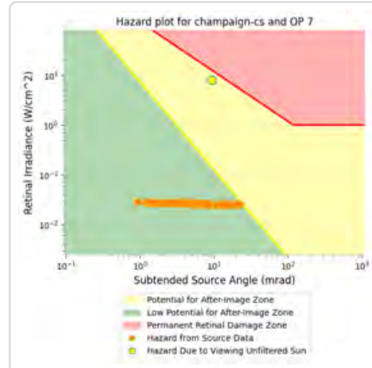
Champaign CSG LLC: OP 7

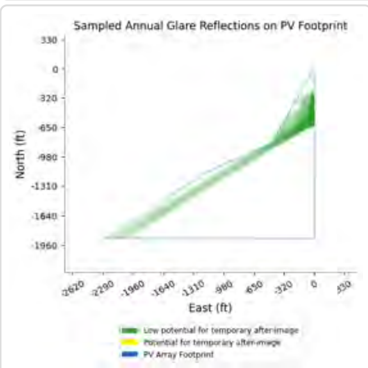
PV array is expected to produce the following glare for this receptor:

- 228 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









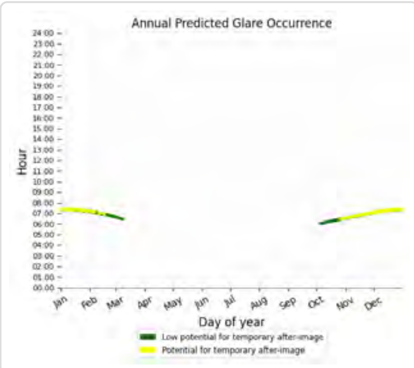
Champaign CSG LLC: OP 8

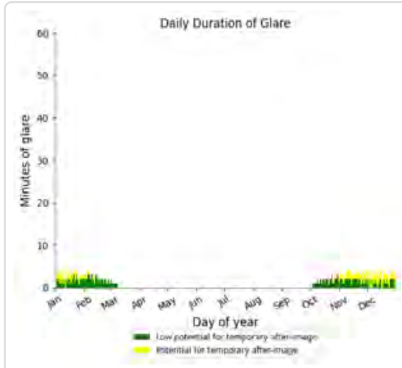
No glare found

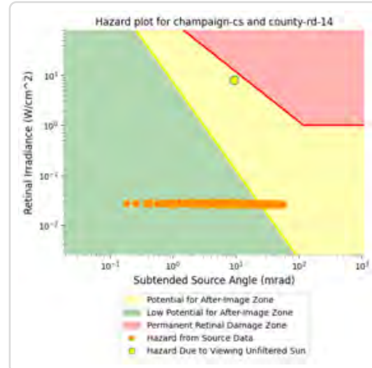
Champaign CSG LLC: County Rd 1400 N

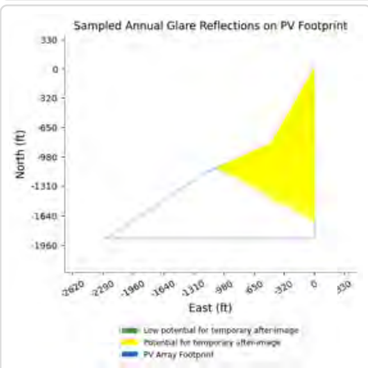
PV array is expected to produce the following glare for this receptor:

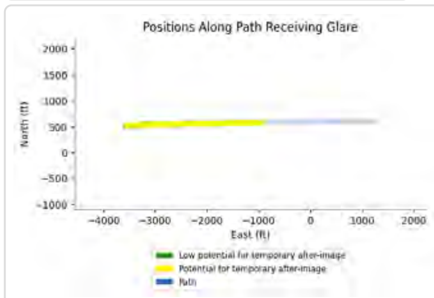
- 243 minutes of "green" glare with low potential to cause temporary after-image.
- 165 minutes of "yellow" glare with potential to cause temporary after-image.











Champaign CSG LLC: County Rd 700 E

No glare found

Champaign CSG LLC: Curtis Rd

No glare found

Champaign CSG LLC: S Barker Rd

No glare found

Summary of Vertical Surface Glare Analysis

Assumptions

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

- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

EXHIBIT H: FEDERAL AVIATION AGENCY (FAA) NOTICE OF CRITERIA

Federal Aviation Administration

The FAA is currently experiencing delays in processing off-airport aeronautical studies. These delays are currently resulting in an approximate 15 additional days in processing time. The FAA will continue to work aeronautical studies on a first come, first served basis. Please take this possible delay into consideration when determining when to submit your case. If your submitted aeronautical study requires priority and 60 days has elapsed since submission, please contact the OEG Specialist for your state with the rationale for your request and it will be reviewed for escalation. The issue causing these delays is actively being mitigated and is expected to be resolved around August.

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

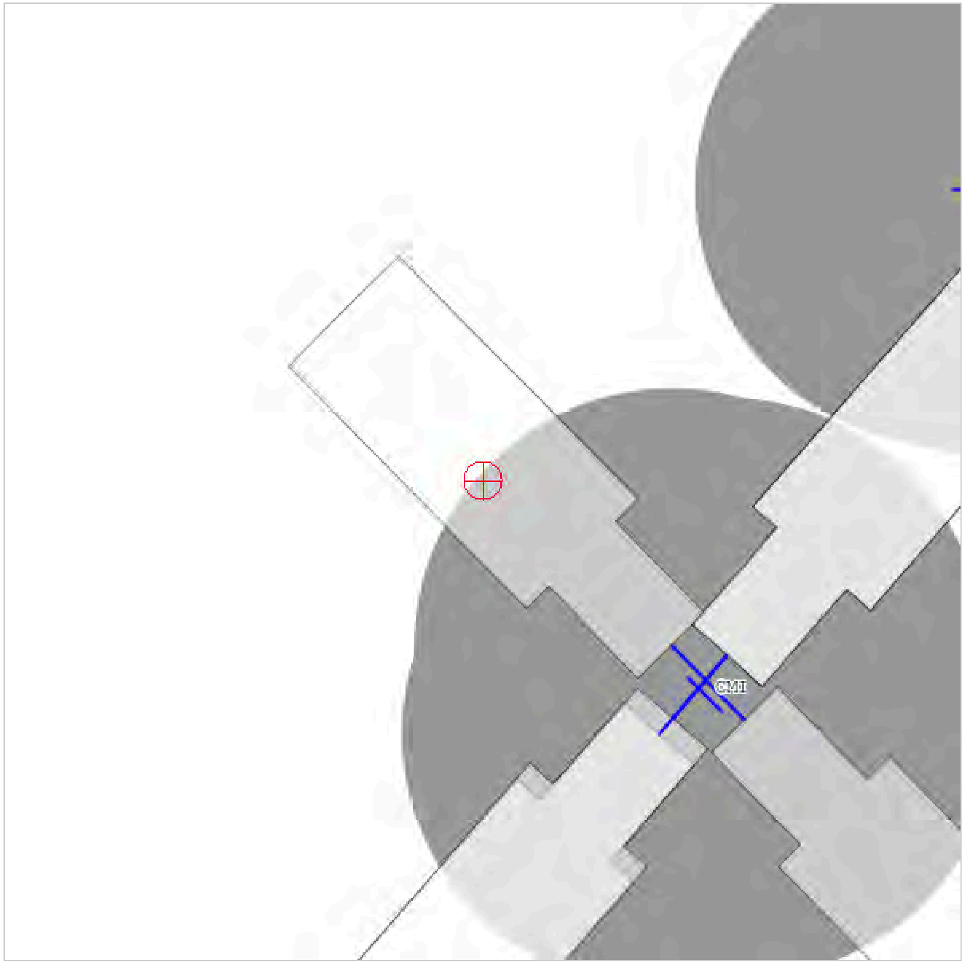
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

* **Structure Type:**	SOLAR | Solar Panel Please select structure type and complete location point information.
Latitude:	40 Deg 04 M 56.79 S N
Longitude:	88 Deg 20 M 17.94 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	705 (nearest foot)
Structure Height :	20 (nearest foot)
Is structure on airport:	(●) No ( ) Yes

Results

You do not exceed Notice Criteria.



CMI

EXHIBIT I: ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR) ECOCAT

Ecological Compliance Assessment Tool

Applicant:	Dimension Renewable Energy	*IDNR Project Number:*	2416313
Contact:	Ryan Solum	*Date:*	06/10/2024
Address:	3050 Peachtree Road, Suite 460 Atlanta, GA 30305		
Project:	Foersterling Farm, LLC.		
Address:	South of 5512 W Windsor Rd, Champaign		

Description: Construction of 32 acre Solar Farm with associated access roads and utilities.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Champaign

Township, Range, Section:
19N, 8E, 30

IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
IL Emergency Management Agency
Terri LeMasters
1020 North Grand Avenue East
Springfield, Illinois 62794 -9276

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

EXHIBIT J: ECOSPHERE INFORMATION FOR PLANNING AND CONSULTATION (IPAC)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southern Illinois Sub-Office
Southern Illinois Sub-office
8588 Route 148
Marion, IL 62959-5822
Phone: (618) 998-5945
Email Address: Marion@fws.gov
https://www.fws.gov/office/illinois-iowa-ecological-services

In Reply Refer To: 06/13/2024 19:50:36 UTC
Project Code: 2024-0103785
Project Name: Foersterling Farm Solar

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The attached species list identifies federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat, if present, within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement Section 7 of the Endangered Species Act) **the accuracy of this species list should be verified after 90 days**. This verification can be completed formally or informally. You may verify the list by visiting the Information for Planning and Consultation (IPaC) website https://ipac.ecosphere.fws.gov at regular intervals during project planning and implementation and completing the same process you used to receive the attached list.

Section 7 Consultation

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-federal representative) must consult with the U.S. Fish and Wildlife Service (Service) if they determine their project "may affect" listed species or designated critical habitat. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action may affect endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service to make "no effect" determinations. If you determine that your proposed action will have no effect on threatened or endangered species or their respective designated critical habitat, you do not need to seek concurrence with the Service.

Note: For some species or projects, IPaC will present you with *Determination Keys*. You may be able to use one or more Determination Keys to conclude consultation on your action for species covered by those keys.

Technical Assistance for Listed Species

1. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain information on the species life history, species status, current range, and other documents by selecting the species from the thumbnails or list view and visiting the species profile page.???????

No Effect Determinations for Listed Species

1. If there are *no* species or designated critical habitats on the Endangered Species portion of the species list: conclude "no species and no critical habitat present" and document your finding in your project records. No consultation under ESA section 7(a)(2) is required if the action would result in no effects to listed species or critical habitat. Maintain a copy of this letter and IPaC official species list for your records.
2. If any species or designated critical habitat are listed as potentially present in the **action area** of the proposed project the project proponents are responsible for determining if the proposed action will have “no effect” on any federally listed species or critical habitat. No effect, with respect to species, means that no individuals of a species will be exposed to any consequence of a federal action or that they will not respond to such exposure.
3. If the species habitat is not present within the action area or current data (surveys) for the species in the action area are negative: conclude “no species habitat or species present” and document your finding in your project records. For example, if the project area is located entirely within a “developed area” (an area that is already graveled/paved or supports structures and the only vegetation is limited to frequently mowed grass or conventional landscaping, is located within an existing maintained facility yard, or is in cultivated cropland conclude no species habitat present. Be careful when assessing actions that affect: 1) rights-of-ways that contains natural or semi-natural vegetation despite periodic mowing or other management; structures that have been known to support listed species (example: bridges), and 2) surface water or groundwater. Several species inhabit rights-of-ways, and you should carefully consider effects to surface water or groundwater, which often extend outside of a project’s immediate footprint.
4. Adequacy of Information & Surveys - Agencies may base their determinations on the best evidence that is available or can be developed during consultation. Agencies must give the benefit of any doubt to the species when there are any inadequacies in the

information. Inadequacies may include uncertainty in any step of the analysis. To provide adequate information on which to base a determination, it may be appropriate to conduct surveys to determine whether listed species or their habitats are present in the action area. Please contact our office for more information or see the survey guidelines that the Service has made available in IPaC.

May Effect Determinations for Listed Species

1. If the species habitat is present within the action area and survey data is unavailable or inconclusive: assume the species is present or plan and implement surveys and interpret results in coordination with our office. If assuming species present or surveys for the species are positive continue with the may affect determination process. May affect, with respect to a species, is the appropriate conclusion when a species might be exposed to a consequence of a federal action and could respond to that exposure. For critical habitat, ‘may affect’ is the appropriate conclusion if the action area overlaps with mapped areas of critical habitat and an essential physical or biological feature may be exposed to a consequence of a federal action and could change in response to that exposure.
2. Identify stressors or effects to the species and to the essential physical and biological features of critical habitat that overlaps with the action area. Consider all consequences of the action and assess the potential for each life stage of the species that occurs in the action area to be exposed to the stressors. Deconstruct the action into its component parts to be sure that you do not miss any part of the action that could cause effects to the species or physical and biological features of critical habitat. Stressors that affect species’ resources may have consequences even if the species is not present when the project is implemented.
3. If no listed or proposed species will be exposed to stressors caused by the action, a ‘no effect’ determination may be appropriate – be sure to separately assess effects to critical habitat, if any overlaps with the action area. If you determined that the proposed action or other activities that are caused by the proposed action may affect a species or critical habitat, the next step is to describe the manner in which they will respond or be altered. Specifically, to assess whether the species/critical habitat is "not likely to be adversely affected" or "likely to be adversely affected."
4. Determine how the habitat or the resource will respond to the proposed action (for example, changes in habitat quality, quantity, availability, or distribution), and assess how the species is expected to respond to the effects to its habitat or other resources. Critical habitat analyses focus on how the proposed action will affect the physical and biological features of the critical habitat in the action area. If there will be only beneficial effects or the effects of the action are expected to be insignificant or discountable, conclude "may affect, not likely to adversely affect" and submit your finding and supporting rationale to our office and request concurrence.
5. If you cannot conclude that the effects of the action will be wholly beneficial, insignificant, or discountable, check IPaC for species-specific Section 7 guidance and conservation measures to determine whether there are any measures that may be implemented to avoid or minimize the negative effects. If you modify your proposed action to include conservation measures, assess how inclusion of those measures will likely change the

effects of the action. If you cannot conclude that the effects of the action will be wholly beneficial, insignificant, or discountable, contact our office for assistance.

6. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

For additional information on completing Section 7 Consultation including a Glossary of Terms used in the Section 7 Process, information requirements for completing Section 7, and example letters visit the Midwest Region Section 7 Consultations website at: https://www.fws.gov/library/collections/midwest-region-section-7-consultations.
You may find more specific information on completing Section 7 on communication towers and transmission lines on the following websites:

- Incidental Take Beneficial Practices: Power Lines - https://www.fws.gov/story/incidental-take-beneficial-practices-power-lines
- Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning. - https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation

Tricolored Bat Update

On September 14, 2022, the Service published a proposal in the Federal Register to list the tricolored bat (Perimyotis subflavus) as endangered under the Endangered Species Act (ESA). The Service has up to 12-months from the date the proposal published to make a final determination, either to list the tricolored bat under the Act or to withdraw the proposal. The Service determined the bat faces extinction primarily due to the rangewide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across North America. Because tricolored bat populations have been greatly reduced due to WNS, surviving bat populations are now more vulnerable to other stressors such as human disturbance and habitat loss. Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective (typically 30 days after publication of the final rule in the Federal Register), the prohibitions against jeopardizing its continued existence and “take” will apply. Therefore, if your future or existing project has the potential to adversely affect tricolored bats after the potential new listing goes into effect, we recommend that the effects of the project on tricolored bat and their habitat be analyzed to determine whether authorization under ESA section 7 or 10 is necessary. Projects with an existing section 7 biological opinion may require reinitiation of consultation, and projects with an existing section 10 incidental take permit may require an amendment to provide uninterrupted authorization for covered activities. Contact our office for assistance.

Bald and Golden Eagles

Although no longer protected under the Endangered Species Act, be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act, as are golden eagles. Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near an eagle nest or winter roost area, please contact our office for further coordination. For more information on permits and other eagle information visit our website https://www.fws.gov/library/collections/bald-and-golden-eagle-management.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Southern Illinois Sub-Office
Southern Illinois Sub-office
8588 Route 148
Marion, IL 62959-5822
(618) 998-5945

PROJECT SUMMARY

Project Code: 2024-0103785
Project Name: Foersterling Farm Solar
Project Type: Power Gen - Solar
Project Description: Proposed solar project in Champaign County, Illinois.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.0800229,-88.33870262947242,14z

Counties: Champaign County, Illinois

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

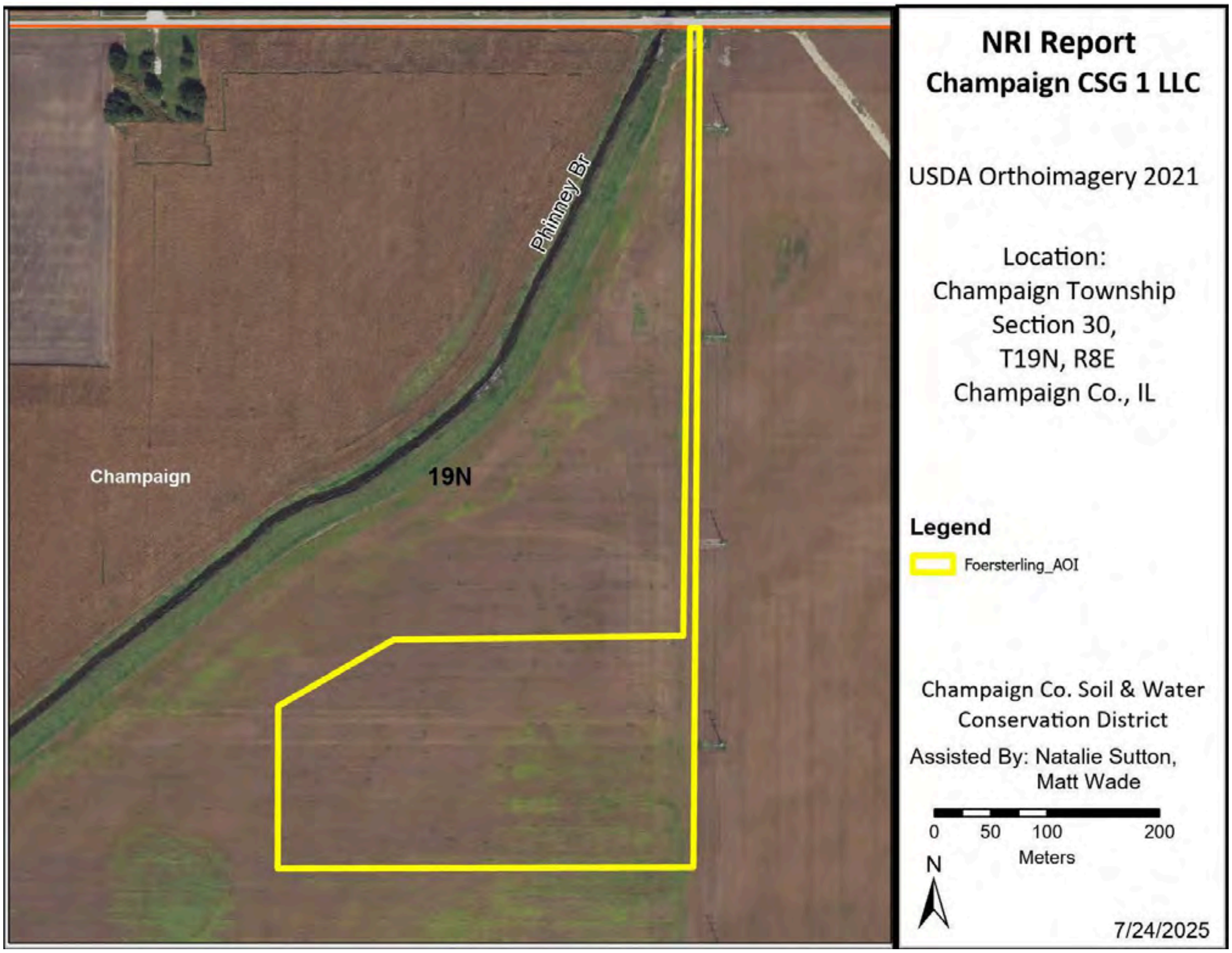
IPAC USER CONTACT INFORMATION

Agency:	Kimley-Horn & Associates
Name:	Cameo Neumann
Address:	14800 Galaxie Avenue
City:	St. Paul
State:	MN
Zip:	55124
Email	cameo.neumann@kimley-horn.com
Phone:	3207666128

EXHIBIT K: SOIL AND WATER CONSERVATION DISTRICT NRI REPORT AND LESA

NATURAL RESOURCE INFORMATION (NRI) REPORT 2025.07.03

PETITIONER: CHAMPAIGN CSG 1, LLC



Date District Board Reviewed Application	July 30th, 2025
Applicant's Name	Sam Younes
Contact Person	Ryan Solum
Size of Subject Property	20 acres
Present Zoning	AG-1

PREPARED BY: CHAMPAIGN COUNTY SOIL & WATER CONSERVATION DISTRICT
2110 W PARK CT, STE C, CHAMPAIGN, IL 61821
(217) 352-3536 EXT 3 | WWW.CCSWCD.COM

Champaign County Soil and Water Conservation District Natural Resource Information Report (NRI)	
Proposed Zoning	
Present Land Use	Agricultural
Proposed Land Use	Commercial Solar Energy Facility

Copies of this report or notification of the proposed land-use change were provided to:	***Yes***	***No***
The Applicant	x	
The Contact Person	x	
The Local/Township Planning Commission	n/a	n/a
The Village/City/County Planning & Zoning Department	x	
The Champaign County Soil & Water Conservation District Files	x	

Report Prepared By: Natalie Sutton, Resource Conservationist

Table of Contents

Forward

Soil and Water Conservation Districts are required to prepare Natural Resource Information (NRI) Reports under the Illinois Soil and Water Conservation Act of 1977, Illinois Revised Statutes, Chapter Five.

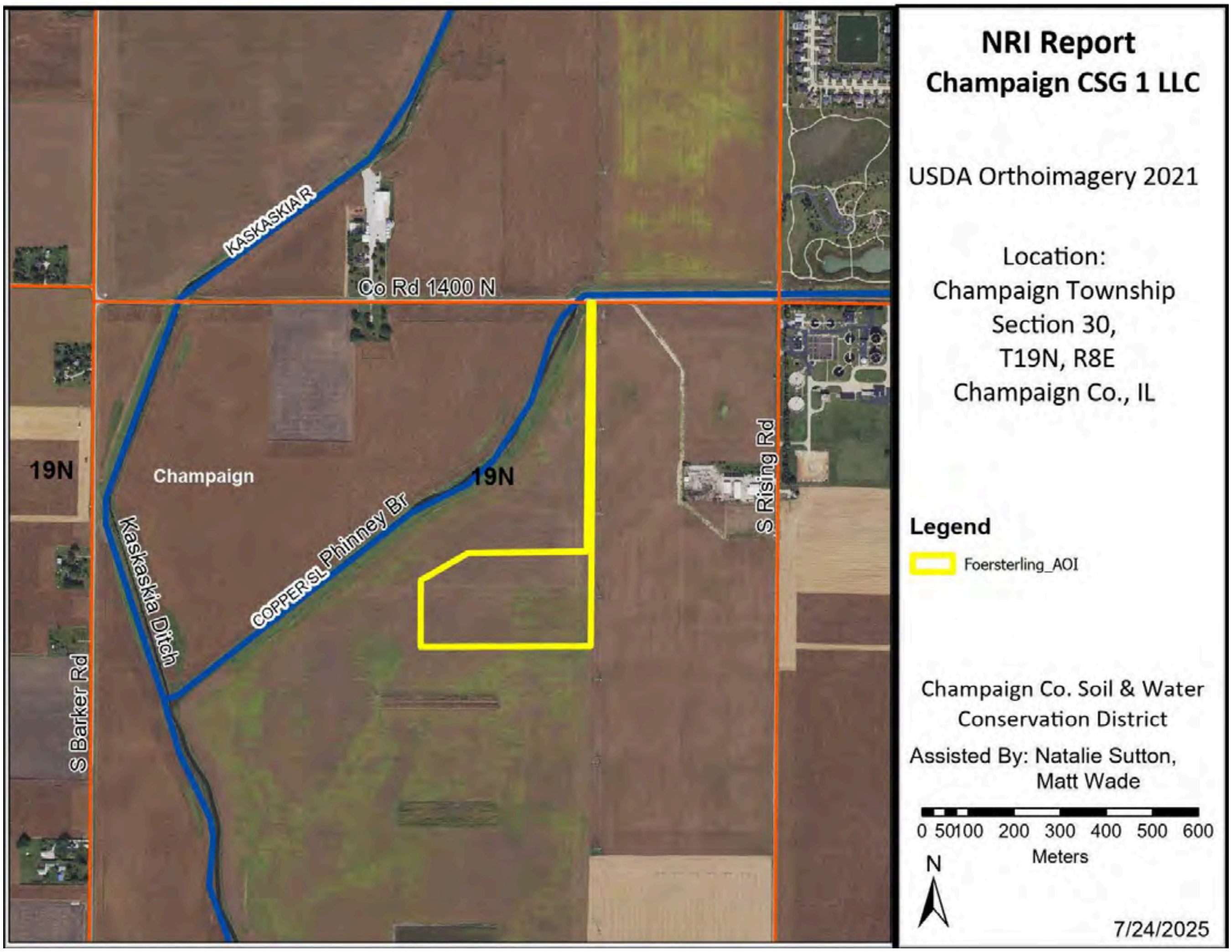
Section 22.02a The Soil and Water Conservation District shall make all natural resource information available to the appropriate county agency or municipality in the promulgation of zoning, ordinances or variances. Any person who petitions any municipality or county agency in the district for variation, amendment, or other relief from municipality's or county's zoning ordinance or who proposes to sub-divide vacant or agricultural lands therein shall furnish a copy of such petition or proposal to the Soil and Water Conservation District. The Soil and Water Conservation District shall be given not more than thirty days from the time of receipt of the petition or proposal to issue its written opinion concerning the petition or proposal and submit the same to the appropriate county agency or municipality for further action. Added by Act approved December 3, 1971.

This report provides technical data necessary to evaluate the natural resources of a specific area and the impacts or limitations associated with the proposed land use change. The report is limited to information researched by the Champaign County Soil and Water Conservation District staff. (Technical information is obtained from several different sources and may be subject to modification based on detailed site investigations or new technical information.) The information gathered in this report comes from several key reference materials and are cited throughout this report and listed in the Reference section. Any questions on the information contained in this report can be directed to:

Champaign County Soil and Water Conservation District
2110 W. Park Court, Suite C
Champaign, IL 61821
Phone 217-352-3536 ext. 3

Subject Property Location

Location Map for Natural Resources Information Report for Champaign CSG 1 LLC Solar Energy Facility. The property is located in the northwest quarter of Section 30, Township 19N, Range 8E in Champaign County, Illinois.



Summary and Concerns of the Board

The Champaign County Soil and Water Conservation District has reviewed the proposed land use change and has the following concerns relevant to the impact on the area's natural resources.

1. All soils on the subject property are not suitable sanitary facilities or dwellings. It is advised to perform onsite investigations with a professional to determine construction strategy before moving forward. See pages 8-9.
2. A portion of the soils on the subject property are not suitable for dwellings or small commercial buildings. It is advised to consult with a professional to determine safety and quality of current and future construction projects. See page 9.
3. The subject property is located in the *34. Fountainhead* drainage district. Please contact drainage district officials for questions or concerns regarding drainage management.
4. The average Land Evaluation (LE) score for this site is: 92.7. See pages 13-14.
5. A portion of the project area is in the floodplain. See pages 16-17.
6. Wetlands and streams are present near the subject property. It is recommended to take precautions to protect wetland and water quality and health during project lifespan. See pages 17-18.
7. There are no identified protected resources on or near the project site as determined by the Ecological Compliance Assessment Tool. See page 20.

Soil Information

The soil information comes from the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) Soil Survey of Champaign County. This information is important to all parties involved in determining the suitability of the proposed land use change. Each polygon is given a number with letters, which represents its soil type, slope, flooding, etc., and is then called a map unit. Each soil map unit has limitations for a variety of land uses, which are explained using interpretations.

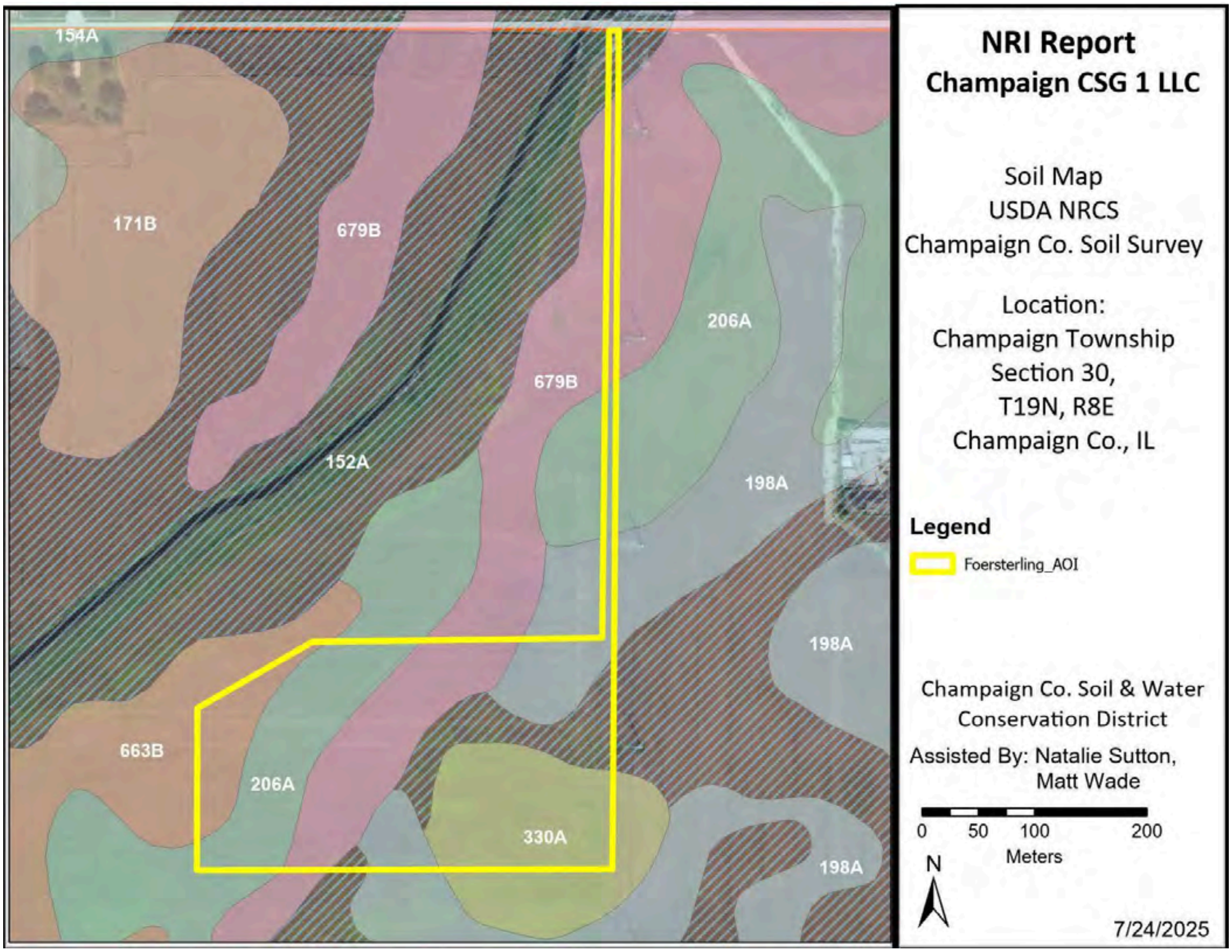


Table 1. Soil map unit descriptions.

Map Unit Symbol	Description	Acres	Percent of Area
152A	Drummer silty clay loam, 0 to 2 percent slope	2.4	11.9%
198A	Elburn silt loam, 0 to 2 percent slopes	2.1	10.6%
206A	Thorp silt loam, 0 to 2 percent slopes	3.9	19.5%
330A	Peotone silty clay loam, 0 to 2 percent slopes	4.1	20.5%
663B	Clare silt loam, 2 to 5 percent slopes	3.1	16.3%
679B	Blackberry silt loam, 2 to 5 percent slopes	4.3	21.2%
Total:		20	100%

Introduction to Soil Interpretations

Non-agricultural soil interpretations are ratings that help engineers, planners, and others understand how soil properties influence behavior when used for nonagricultural uses such as building site development or construction materials. This report gives ratings for proposed uses in terms of limitations and restrictive features. The tables list only the most restrictive features. Other features may need treatment to overcome soil limitations for a specific purpose.

Ratings come from the soil's "natural" state, that is, no unusual modification occurs other than that which is considered normal practice for the rated use. Even though soils may have limitations, an engineer may alter soil features or adjust building plans for a structure to compensate for most degrees of limitations. However, most of these practices are costly. The final decision in selecting a site for a land use generally involves weighing the costs for site preparation and maintenance.

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Soil limitation ratings of slight, moderate, and severe are given for the types of proposed improvements that are listed or inferred by the petitioner as entered on the report application and/or zoning petition. The most common type of building limitation this report gives limitations ratings for is septic systems. It is understood that engineering practices can overcome most limitations for buildings with and without basements, and small commercial buildings. Organic soils, when present on the subject property, are referenced in the hydric soils section of the report.

The area of development will be susceptible to erosion both during and after construction. Any areas left bare for more than 7 days should be temporarily seeded or mulched and permanent vegetation needs to be established as soon as possible.

Limitation Ratings

1. *Not limited*- This soil has favorable properties for the intended use. The degree of limitation is minor and easy to overcome. Those involved can expect good performance and low maintenance.
2. *Somewhat limited*- This soil has moderately favorable properties for the intended use. Special planning, design, or maintenance can overcome this degree of limitation. During some part of the year, the expected performance is less desirable than for soils rated “*not limited*.”
3. *Very limited*- This soil has one or more properties that are unfavorable for the rated use. These may include the following: steep slopes, bedrock near the surface, flooding, high shrink-swell potential, a seasonally high water table, or low strength. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance, which in most situations is difficult and costly.

Soil Interpretations

Sanitary Facilities

The table below shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons.

<u>Septic Tank Absorption Fields</u>: Areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, high water table, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of

effluent, surfacing of effluent, and hillside seepage can affect public health. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively.

Table 2. Septic tank absorption fields.

Map Unit Symbol	Septic Tank Absorption Fields	Acres	Percent of Area
152A	Very Limited; ponding, depth to saturated zone, slow water movement	2.4	11.9%
198A	Very Limited; depth to saturated zone, bottom layer seepage, slow water movement, ponding	2.1	10.6%
206A	Very Limited; ponding, depth to saturated zone, slow water movement, bottom layer seepage	3.9	19.5%
330A	Very Limited; ponding, depth to saturated zone, slow water movement	4.1	20.5%
663B	Very Limited; depth to saturated zone, bottom layer seepage, slow water movement	3.1	16.3%
679B	Very Limited; depth to saturated zone, slow water movement, ponding, depth to saturated zone	4.3	21.2%
Total:		20	100%

For the subject property: 100% of the soils on the property are very limited for the use of septic tank absorption fields and special design is required for any septic tank absorption field.

Building Site Development

The table below shows the degree and the kind of soil limitations that affect dwellings with or without basements and small commercial buildings.

Dwellings and Small Commercial Buildings: Structures built on a shallow foundation on undisturbed soil that are three stories or less. The ratings are based on soil properties, site features, and observed performance of the soils. High water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding effect the ease of excavation, construction, and maintenance.

Table 3. Dwellings and small commercial buildings limitations.

Map Unit Symbol	Dwellings with Basements	Dwellings without Basements	Small Commercial Buildings	Acres	Percent of Area
152A	Very limited: ponding, depth to saturated zone, shrink-swell	Very limited: ponding, depth to saturated zone, shrink-swell	Very limited: ponding, flooding, depth to saturated zone, shrink-swell	2.4	11.9%
198A	Very limited: depth to saturated zone, ponding, shrink-swell	Somewhat limited: depth to saturated zone, shrink-swell	Somewhat limited: depth to saturated zone, shrink-swell	2.1	10.6%
206A	Very limited: ponding, depth to saturated zone, shrink-swell	Very limited: ponding, depth to saturated zone, shrink-swell	Very limited: ponding, depth to saturated zone, shrink-swell	3.9	19.5%
330A	Very limited: ponding, depth to saturated zone, shrink-swell	Very limited: ponding, depth to saturated zone, shrink-swell	Very Limited: ponding, depth to saturated zone, shrink-swell	4.1	20.5%
663B	Somewhat limited: depth to saturated zone, shrink-swell	Somewhat limited: shrink-swell	Somewhat limited: shrink-swell	3.1	16.3%

679B	Somewhat limited: depth to saturated zone, shrink-swell	Somewhat limited: shrink-swell	Somewhat limited: shrink-swell	4.3	21.2%

Soil Water (Wetness) Features

This section gives estimates of various soil water (wetness) features that should be taken into consideration when reviewing engineering for a land use project.

Hydrologic Soil Groups (HSGs): The groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

- Group A: Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
- Group B: Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- Group C: Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Note: if a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D) the first letter is for drained areas and the second is for undrained areas.

Surface Runoff: Refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based upon slope, climate, and vegetative cover and indicates relative runoff for very specific conditions (it is assumed that the surface of the soil is bare and that the retention of surface water resulting from the irregularities in the ground surface is minimal). The classes are negligible, very low, low, medium, high, and very high.

Water Table: Refers to a saturated zone in the soil and the data indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. These estimates are based upon observations of the water table at selected sites and on evidence of a saturated zone (grayish colors or mottles, called redoximorphic features) in the soil. Note: a saturated zone that lasts for less than a month is not considered a water table.

Ponding: Refers to standing water in a closed depression and the data indicates duration and frequency of ponding.

- Duration: expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days and *very long* if more than 30 days.
- Frequency: expressed as *none* (ponding is not possible), *rare* (unlikely but possible under unusual weather conditions), *occasional* (occurs, on average, once or less in 2 years), *frequent* (occurs, on average, more than once in 2 years).

<u>Flooding</u>: The temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

- Duration: Expressed as *extremely brief* if 0.1 hour to 4 hours; *very brief* if 4 hours to 2 days; *brief* if 2 to 7 days; *long* if 7 to 30 days; and *very long* if more than 30 days.
- Frequency: Expressed as *none* (flooding is not probable), *very rare* (very unlikely but possible under extremely unusual weather conditions (chance of flooding is less than 1% in any year)), *rare* (unlikely but possible under unusual weather conditions (chance of flooding is 1 to 5% in any year)), *occasional* (occurs infrequently under normal weather conditions (chance of flooding is 5 to 50% in any year but is less than 50% in all months in any year)), and *very frequent* (likely to occur very often under normal weather conditions (chance of flooding is more than 50% in all months of any year)).

Note: The information is based on evidence in the soil profile. In addition, consideration is also given to local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Table 4. Soil water (wetness) features.

Map Unit Symbol	HSG	Surface Runoff	Depth to Water Table (ft)			Ponding		Flooding	
			Upper Limit	Lower Limit	Kind	Duration	Frequency	Duration	Frequency
152A	B/D	Neg	0.0-1.0	6.0	Apparent	Brief	Frequent	-	None
198A	B/D	Low	1.0-2.0	6.0	Apparent	-	None	-	None
206A	C/D	Neg	0.0-1.0	6.0	Apparent	Brief	Frequent	-	None
330A	C/D	Neg	0.0-1.0	6.0	Apparent	Brief	Frequent	-	None
663B	C	Low	2.0-3.5	6.0	Apparent	-	None	-	None
679B	C	Low	2.0-3.5	6.0	Apparent	-	None	-	None

Hydric Soils

Hydric soils by definition have seasonal high water at or near the soil surface and/or have potential flooding or ponding problems. All hydric soils range from poorly suited to unsuitable for building. Soil maps may not be small enough to show inclusions of hydric soils, so it is important to consult a soil scientist if building residential areas on hydric soils or soils with hydric inclusions.

On most agricultural soils in the county that are poorly or somewhat poorly drained, subsurface agriculture drainage tile occurs. This expedites drainage but must be maintained and undisturbed so the soil does not return to its original hydrologic condition.

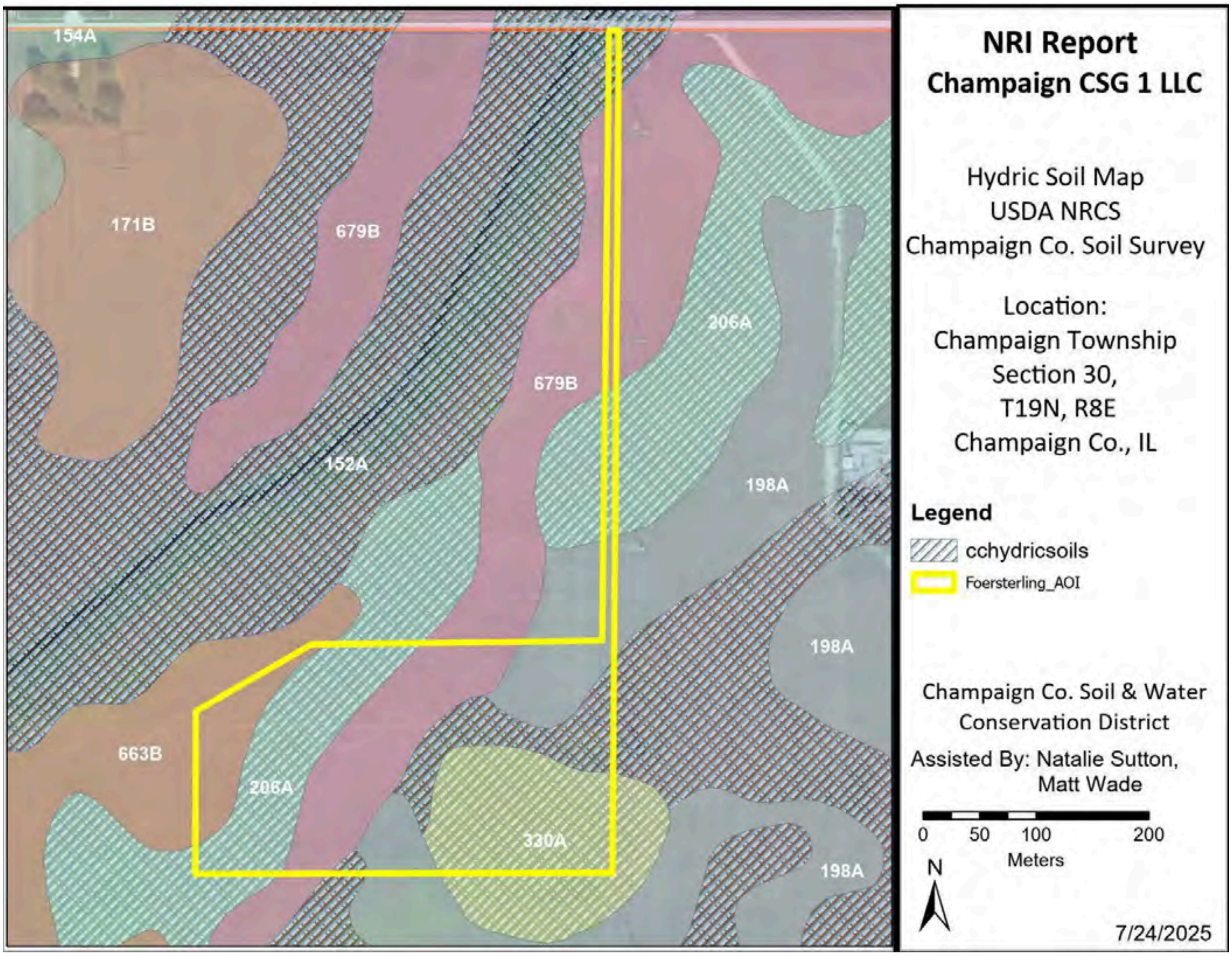
The Champaign County SWCD recommends the following for an intense land use, such as a subdivision:

1. A topographical survey with 1-foot contour intervals to define the flood area.
2. An intensive soil survey to define locations of hydric inclusions.
3. A drainage tile survey to locate tiles that must be preserved.

Table 5. Hydric soils.

Map Unit Symbol	Drainage Class	Hydric Designation	Acres	Percent of Area
152A	Poorly Drained	Hydric	2.4	11.9%
198A	Somewhat poorly drained	Non-hydric	2.1	10.6%

206A	Poorly Drained	Non-hydric	3.9	19.5%
330A	Very Poorly Drained	Hydric	4.1	20.5%
663B	Moderately well drained	Hydric	3.3	16.3%
679B	Moderately well drained	Non-hydric	4.3	21.2
			Percent Hydric	**48.7%**



Soil Erosion and Sediment Control

Erosion is the wearing away of the soil by water, wind, and other forces and a soil's erodibility is mainly determined by the following properties: soil texture, slope, soil structure, soil organic matter content. Soil erosion threatens the nation's soil productivity and contributes to pollutants in waterways. Sediment entering creeks, rivers, and lakes degrade water quality and reduce capacity, which increases the risk of flooding and disrupts ecosystems. Sediment also carries other possible pollutants, such as chemicals and metals, by adhering to the sediment's surface.

Erosion Control at Construction Sites

Construction sites can experience 20 to 200 tons/acre/year of soil loss, which is greater than other land uses, like agriculture, averaging 4-5 tons/acre/year. It is extremely important that the developer employ Best Management Practices, like the ones listed below, to help reduce soil erosion and protect water quality during and after construction.

- **Silt Fencing:** A woven geotextile fabric stretched across and attached to supporting posts used to intercept sediment-laden runoff from small drainage areas of disturbed soil. The purpose is to filter out sediment from runoff before it enters a water body.
- **Construction Road Stabilization:** The stabilization of temporary construction access routes, subdivision roads, on-site vehicle transportation routes, and construction parking areas with stone immediately after grading the area to reduce erosion.
- **Vegetative Cover:** One of the most important means to control runoff is to plant temporary vegetation around the perimeter of the construction site. This provides a natural buffer to filter sediment and chemicals. The CCSWCD recommends that temporary grass be planted (i.e. smooth bromegrass, oats, cereal rye) to help protect soil from erosion during construction.

EPA Stormwater Pollution Prevention Plan (SWPPP) Reference Tool

EPA requires a plan to control storm water pollution for all construction sites over 1 acre in size. *A Guide for Construction Sites* is a reference tool for construction site operators who must prepare a SWPPP to obtain NPDES permit coverage for their storm water discharges. More information at the following website: http://www.epa.gov/npdes/stormwater-discharges-construction-activities#resources.

Table 6. Soil erosion potential.

Map Unit Symbol	Slope	Rating	Acres	Percent of Area
152A	0.5%	Slight	2.4	11.9%
198A	1.0%	Slight	2.1	10.6%
206A	0.5%	Slight	3.9	19.5%
330A	0.5%	Slight	4.1	20.5%
663B	3%	Moderate	3.3	16.3%
679B	3.5%	Moderate	4.3	21.2%

Prime Farmland Soils

Prime farmland soils are an important resource to Champaign County. Some of the most productive soils in the world occur locally. Each soil map unit in the United States is assigned a prime or non-prime rating. Urban or built-up land on prime farmland soils is <u>not</u> prime farmland.

Table 7. Prime farmland designation.

Map Unit Symbol	Prime Designation	Acres	Percent of Area
152A	Prime farmland if drained	2.4	11.9%
198A	All areas are prime farmland	2.1	10.6%
206A	Prime farmland if drained	3.9	19.5%
330A	Prime farmland if drained	4.1	20.5%
663B	All areas are prime farmland	3.1	16.3%
679B	All areas are prime farmland	4.3	21.2%
		Percent Prime Farmland	**100%**

The Land Evaluation and Site Assessment System

Decision-makers in Champaign County use the Land Evaluation and Site Assessment (LESA) system to determine the suitability of a land use change and/or a zoning request as it relates to agricultural land. The LESA system was developed by the USDA-NRCS and takes into consideration local conditions, such as physical characteristics of the land, compatibility of surrounding land uses, and urban growth factors. The LESA system is a two-step procedure:

- Land Evaluation (LE) – the soils of a given area are rated and placed in groups ranging from the best to worst suited for a stated agricultural use. The best group is assigned a value of 100 and is based on data from the Champaign County Soil Survey. The Champaign County LE designates soils with a score of 91 to 100 as best prime farmland, as reported in Bulletin 811 Optimum Crop Productivity Ratings for Illinois Soils. Best Prime Farmland consists of:
  a) Soils identified as agricultural value groups 1, 2, 3, and/or 4
  b) Soils that, in combination on a subject site, have an average LE of 91 or higher
  c) Any site that includes a significant amount (10% or more of the area proposed to be developed) of agriculture value groups 1, 2, 3, and/or 4
- Site Assessment (SA) – the site is numerically evaluated according to important factors that contribute to the quality of the site. Each factor selected is assigned values in accordance with the local needs and objectives.

The Champaign County LESA system is designed to provide officials with a systematic objective means to numerically rate a site in terms of its agricultural importance.

- To assist officials in evaluating the proposed conversion of farmland on a parcel or site in zoning cases that include farmland conversion to a non-agricultural land use.
- To assist in the review of state and federal projects for compliance with the Illinois Farmland Preservation Act and the Federal Farmland Protection Policy Act in terms of their impact on important farmland.

Note: A land evaluation (LE) score will be compiled for every project property, but a site assessment score is not applicable in most cases, making the full LESA score unavailable.

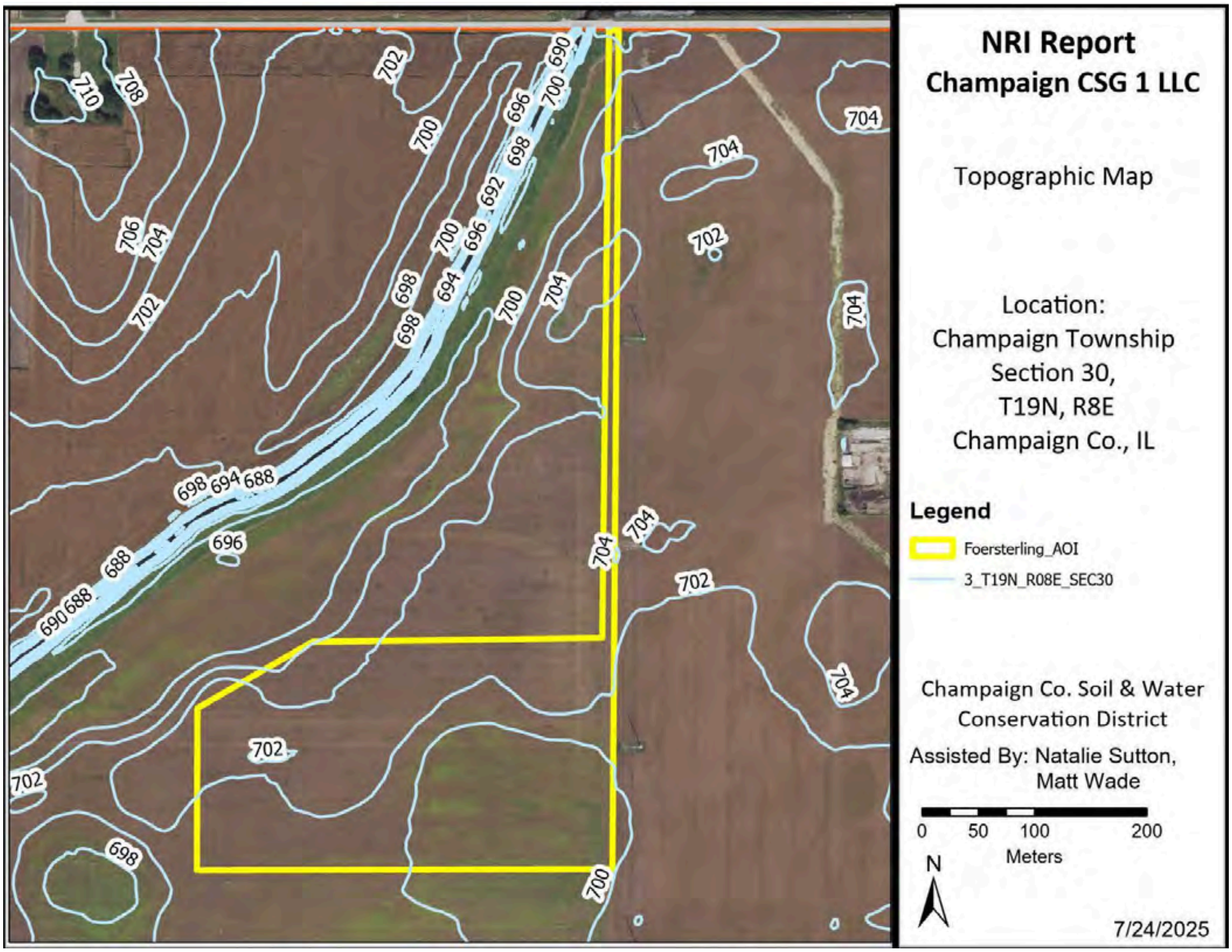
Table 8. Land Evaluation and Site Assessment System score.

Map Unit Symbol	**Value Group**	**Relative Value**	**Acres**	**Product (Relative Value*Acres)**
152A	2	100	2.4	240
198A	1	100	2.1	210
206A	5	88	3.9	343.2
330A	7	85	4.1	348.5
663B	4	91	3.3	300.3
679B	2	100	4.3	430
			20.2	
LE Score		LE = 1872/20.2		**LE = 92.7**

For the subject property: the overall Land Evaluation (LE) score is 92.7.

Topographic Information

United States Geologic Survey (USGA) topographic maps give information on elevation, which are important mostly to determine slope, drainage direction, and watershed information. Elevation determines the area of impact of floods. Slope information determines steepness and erosion potential. Drainage directions determine where water leaves the subject property, possibly impacting surrounding natural resources.



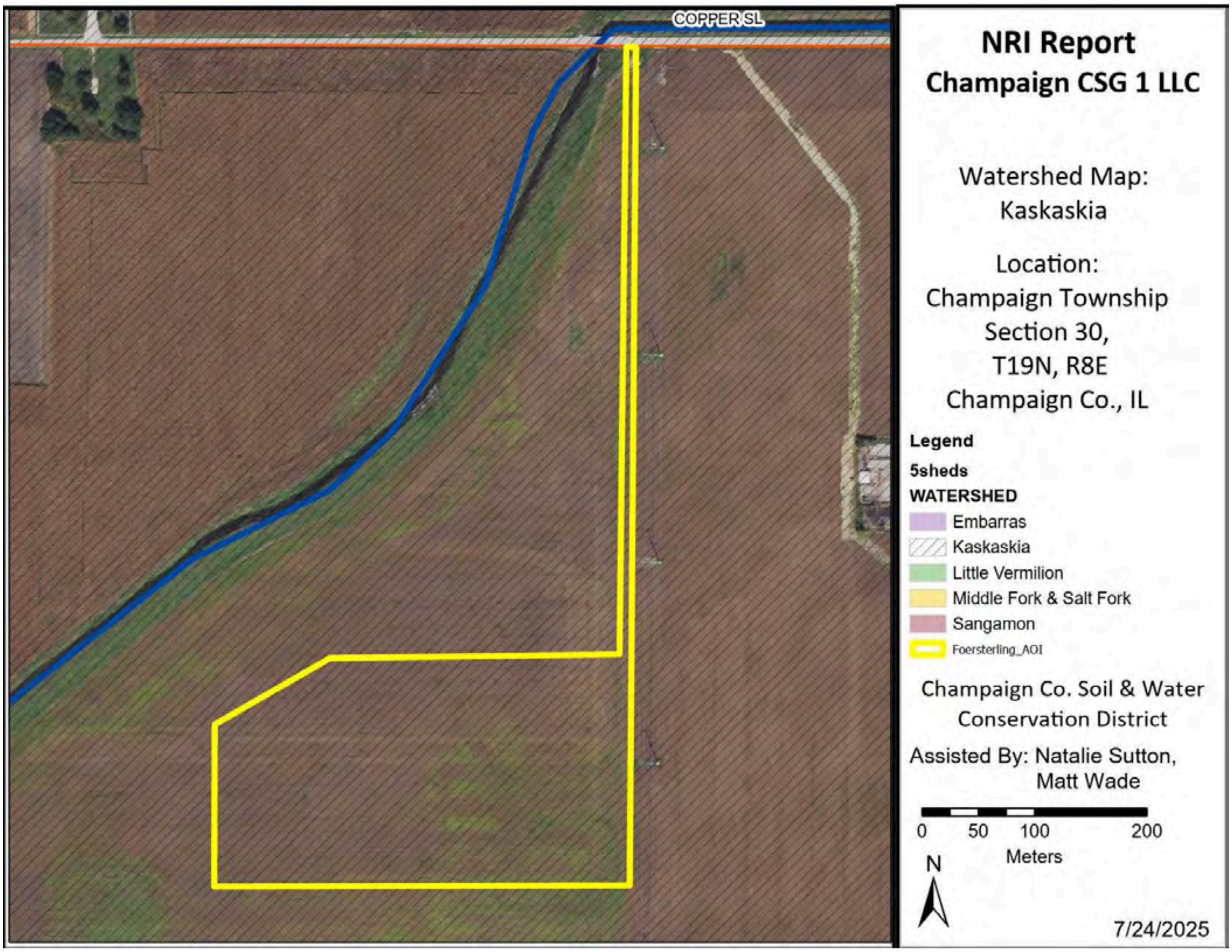
Watershed Information

Watershed information is given when land use is changed to a subdivision type of development on parcels greater than 10 acres. A watershed is an area of land that drains to an associated water resource, such as a wetland, river, or lake. Rainwater carries pollutants through watersheds, impacting natural resources and people living downstream. Residents can minimize this impact by being aware of their environment and implications of their activities.

The following are recommendations to developers for protection of watersheds:

- Preserve open space
- Maintain wetlands as part of development
- Use natural water management
- Prevent soil from leaving construction sites
- Protect subsurface drainage
- Use native vegetation
- Retain natural features
- Mix housing and style types
- Decrease impervious surfaces
- Reduce area disturbed by mass grading
- Treat water where it falls

For the subject property: the property is located in the Kaskaskia Watershed.



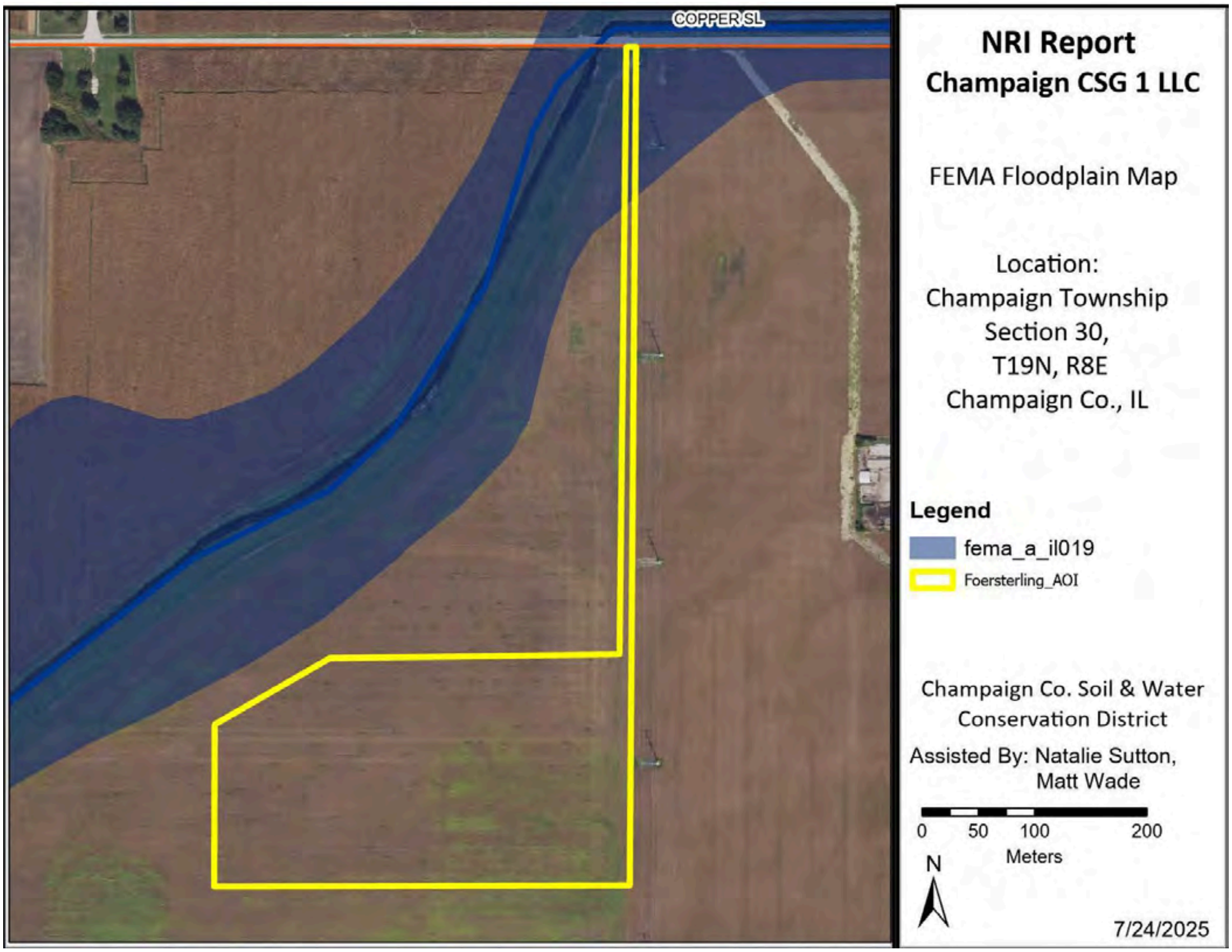
Floodplain and Wetland Information

Floodplain Information

A floodplain is defined as land adjoining a watercourse (riverine) or an inland depression (non-riverine) that is subject to periodic inundation by high water. Floodplains are important areas that demand protection since they have water storage and conveyance functions that affect upstream and downstream flows, water quality and quantity, and suitability of the land for human activity. Since floodplains play distinct and vital roles in the hydrologic cycle, development that interferes with their hydrologic and biologic functions should be carefully considered.

Flooding is dangerous to people and destructive to their properties. The following map can help developers and future homeowners to "sidestep" potential flooding or ponding problems. The Flood Insurance Rate Map (FIRM) was produced by the Federal Emergency Management Agency (FEMA) to define flood elevation adjacent to tributaries and major bodies of water that are superimposed onto a simplified USGS topographic map.

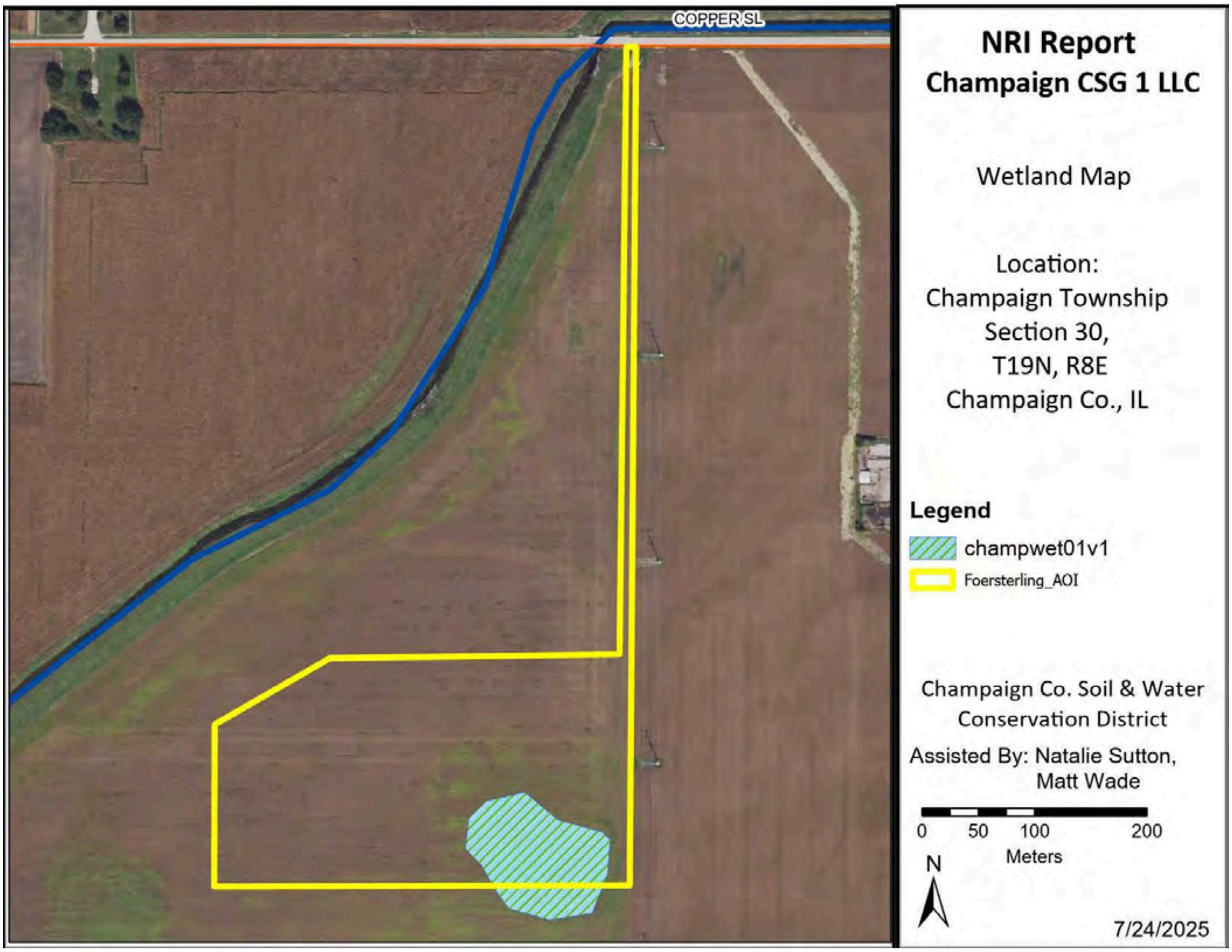
<u>For the subject property</u>: A portion of the property is in the floodplain.



Wetland Information

Wetlands function in many ways to provide numerous benefits to society and the environment, including flood control, cleanse water, recharge groundwater, and provide a wildlife habitat. However, approximately 95% of the wetlands that were historically present in Illinois have been destroyed. It is crucial that we take steps to conserve current wetlands and reestablish new wetlands where once destroyed. Wetland determinations are made by a certified NRCS staff.

<u>For the subject property</u>: a wetland is present on the subject property.



Wetland and Floodplain Regulations

Please read the following if you are planning to do any work near a stream, lake, wetland, or floodway, including: dredge, fill, rip rap, or otherwise alter the banks or beds of, or construct, operate, or maintain any dock, pier, wharf, sluice, dam, piling, wall, fence, utility, flood plain, or floodway subject to State or Federal regulatory jurisdiction.

The laws of the United States and the State of Illinois assign certain agencies specific and different regulatory roles to protect the waters within the State's boundaries. These roles, when considered together, include protection of navigation channels and harbors, protection against flood way encroachments, maintenance and enhancement of water quality, protection of fish and wildlife habitat and recreational resources, and, in general, the protection of total public interest. Unregulated used of the waters within the State of Illinois could permanently destroy and adversely impact the public. Therefore, please contact the proper authorities when planning any work associated with Illinois waters so that proper consideration and approval can be obtained.

Regulatory Agencies:

- Wetlands or U.S. Waters: U.S. Army Corps of Engineers
- Floodplains: Illinois Department of Natural Resources/Office of Water Resources, Natural Resources Way, Springfield, IL
- Water Quality/Erosion Control: Illinois Environmental Protection Agency

Coordination: we recommend early coordination with the agencies BEFORE finalizing work plans. This allows the agencies to recommend measures to mitigate or compensate for adverse impacts. This could reduce time required to process necessary approvals and reduce expense.

Cultural and Animal Resources

Cultural Resources

The most common cultural resources found during changes in land use are historical properties or non-structural archaeological sites. These sites often extend below the soil surface and must be protected against disruption by development or other earth moving activity if possible. Cultural resources are non-renewable because there is no way to grow a site to replace a disrupted site. Landowners with historical properties on their land have ownership of that historical property. However, the State of Illinois owns all of the following: human remains, grave markers, burial mounds, and artifacts associated with graves and human remains. Non-grave artifacts from archaeological sites and historical buildings are the property of the landowner. The landowner may choose to disturb a historical property but may not receive federal or state assistance to do so. If an earth-moving activity disturbs human remains, the landowner must contact the county coroner within 48 hours.

The Illinois Historic Preservation Agency may require a Phase 1 Archaeological review to identify any cultural resources that may be on the site. The IHPA has not been contacted by the Champaign County SWCD. The applicant may need to contact the IHPA according to current Illinois law.

Animal Resources

According to the Illinois Endangered Species Protection Act & Illinois Natural Areas Preservation Act, state agencies or local units of government must consult Illinois Department of Natural Resources (IDNR) about proposed actions that they will authorize, fund, or perform. Private parties do not have to consult, but they are liable for prohibited taking of state-listed plants and animals or for adversely modifying a Nature Preserve or a Land and Water Preserve. Home rule governments may delegate this responsibility through duly enacted ordinances to the parties seeking authorization or funding of the action.

Ecologically Sensitive Areas

Biodiversity is the sum of total of all the plants, animals, fungi, and microorganisms in the world, or in a particular area that make up the fabric of the Earth and allow it to function. Biodiversity must be protected, as it is diminishing, which weakens entire natural systems. It is intrinsically valuable for an ecosystem to be biologically diverse to sustain ecosystem health and support life.

As part of the Natural Resources Information Report, staff checks if any nature preserves are in the general vicinity of the subject property. If there is a nature preserve in the area, then that resource will be identified as part of the report. The SWCD recommends that every effort be made to protect that resource. Such efforts should include but are not limited to erosion control, sediment control, stormwater management, and groundwater monitoring.

<u>For the subject property</u>: as shown on the below EcoCAT, there is no record of sensitive areas or endangered species in or near the subject property.

EcoCAT
Ecological Compliance Assessment Tool

Applicant:	NRCS Champaign County Field Office	*IDNR Project Number:*	2601742
Contact:	Natalie Sutton	*Date:*	07/29/2025
Address:	2110 W Park Ct. Ste C Champaign, IL 61821		
Project:	Ehler Bros Company		
Address:	Champaign , Champaign		

Description: Agri-business

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Spoon River INAI Site

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Champaign

Township, Range, Section:
20N, 11E, 19

IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
U.S. Department of Agriculture

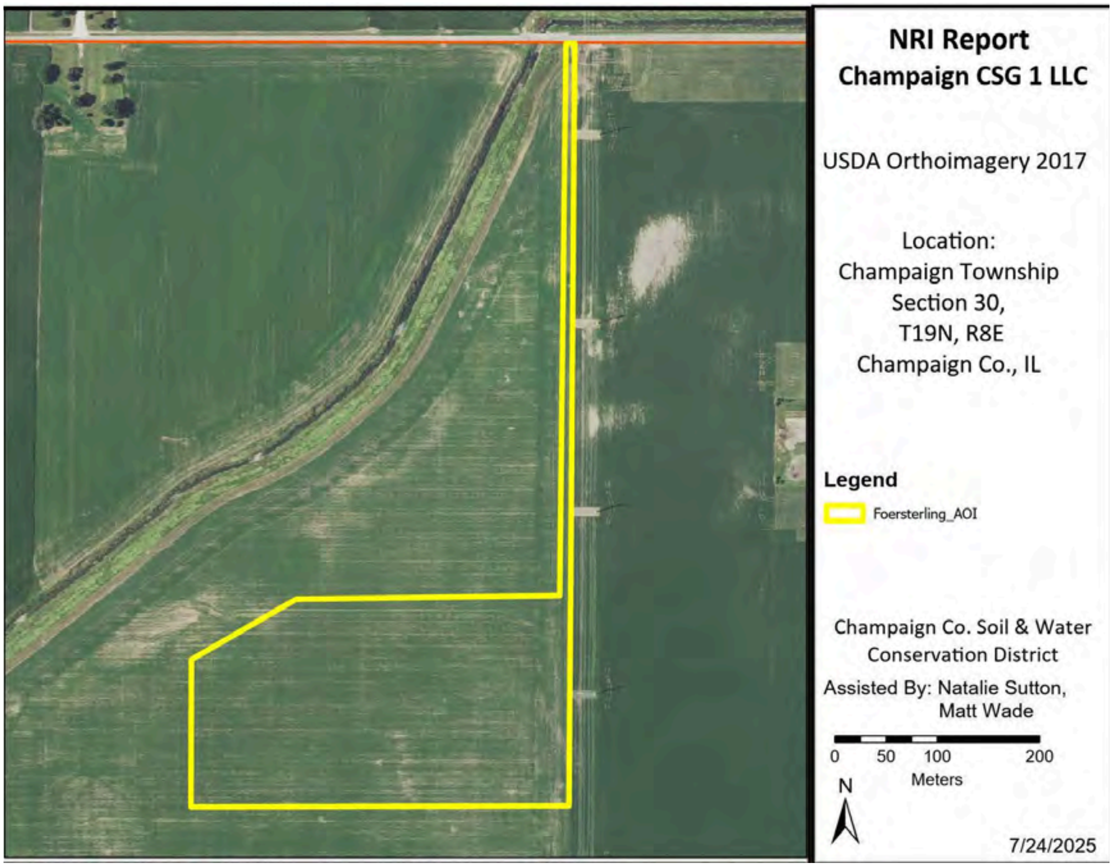
Disclaimer

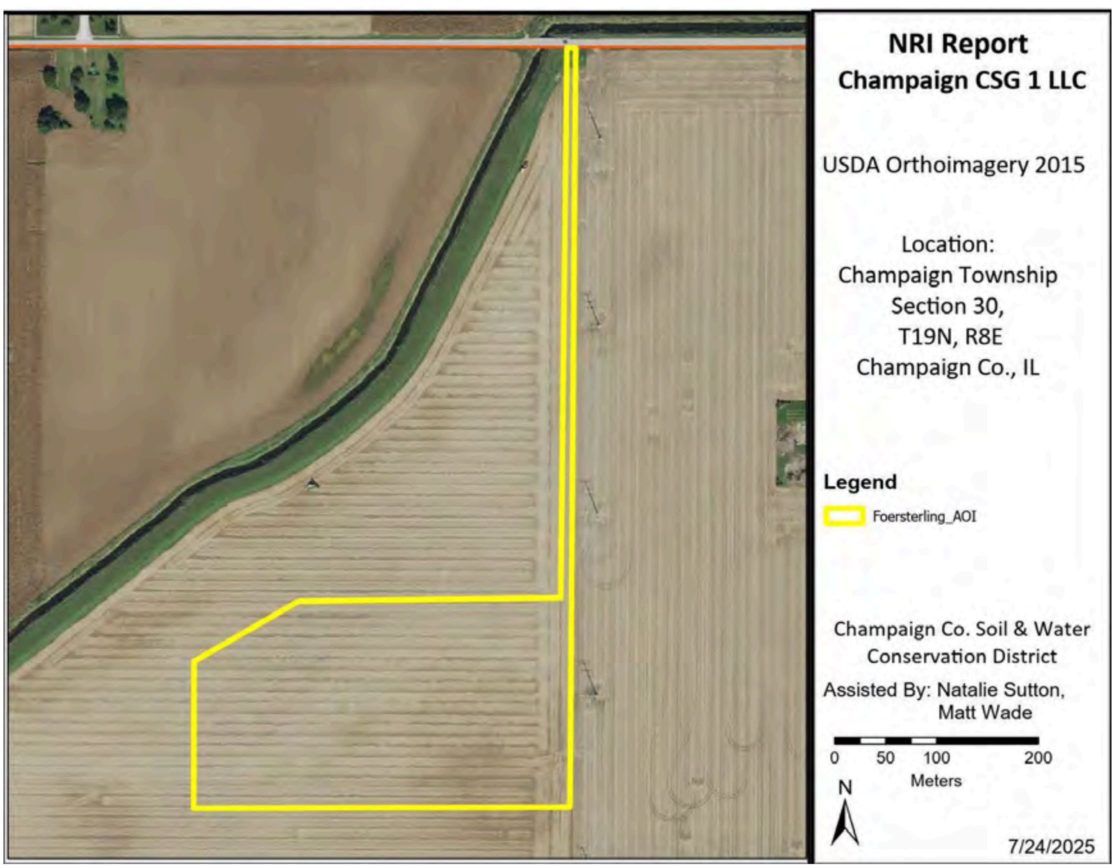
The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

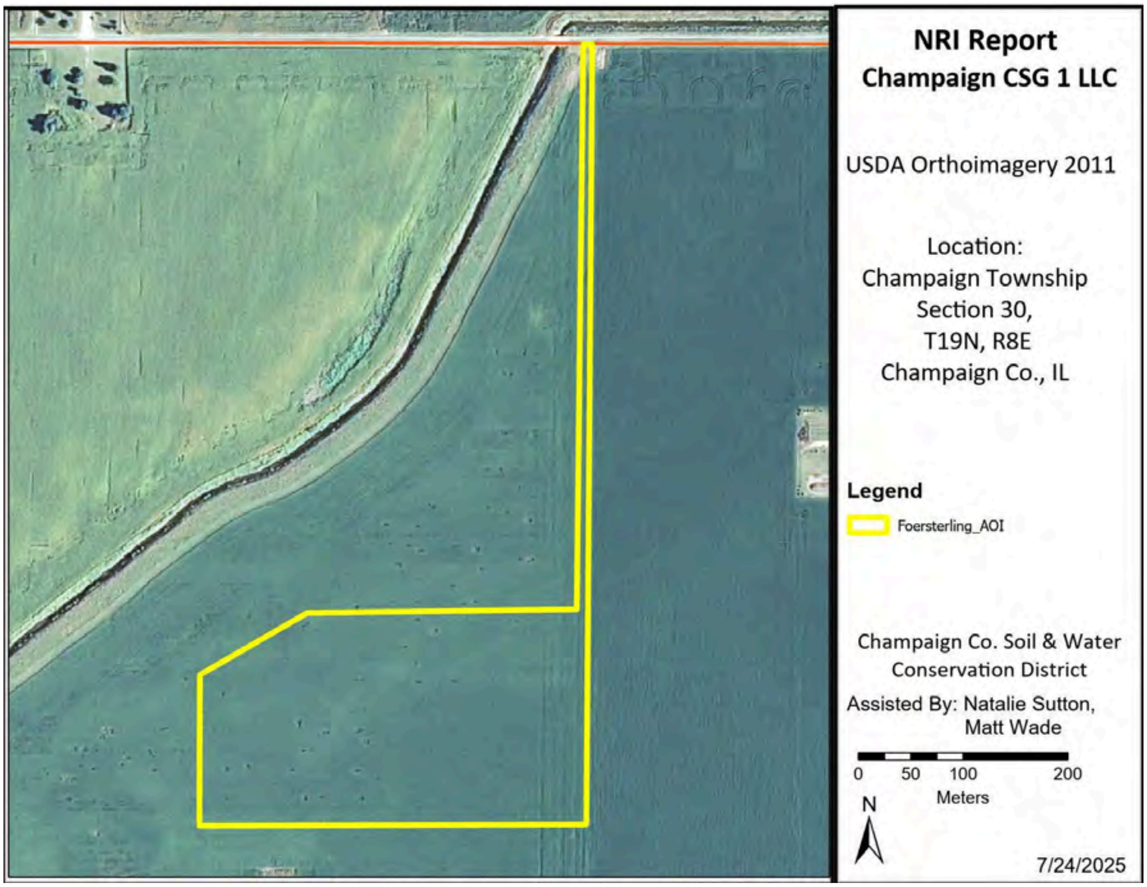
Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

Historic Aerial Photos






NRI Report
Champaign CSG 1 LLC
USDA Orthoimagery 2011
Location:
Champaign Township
Section 30,
T19N, R8E
Champaign Co., IL
Legend
Foersterling_AOI
Champaign Co. Soil & Water
Conservation District
Assisted By: Natalie Sutton,
Matt Wade
0 50 100 200
Meters
N
7/24/2025

Glossary and Acronyms

Agriculture – The growing, harvesting, and storing of crops, including legumes, hay, grain, fruit; and truck or vegetables, including dairy, poultry, swine, sheep, beef cattle, pony and horse, fur, and fish and wildlife; farm buildings used for growing, harvesting, and preparing crop products for market, or for use on the farm; roadside stands, farm buildings for storing and protecting farm machinery and equipment from the elements, or for housing livestock or poultry and for preparing livestock or poultry products for market; farm dwellings occupied by farm owners, operators, tenants, or seasonal or year around hired farm workers.

ADT – average daily traffic that a local road normally receives, based upon records by the County Superintendent of Highways.

B.G. – below grade. Under the surface of the Earth.

Bedrock – indicates depth at which bedrock occurs. Also lists hardness as rippable or hard.

Flooding – indicates frequency, duration, and period during year when floods are likely to occur.

High Level Management – the application of effective practices adapted to different crops, soils, and climatic conditions. Such practices include providing for adequate soil drainage, protection from flooding, erosion and runoff control, near optimum tillage, and planting the correct kind and amount of high-quality seed. Weeds, diseases, and harmful insects are controlled. Favorable soil reaction and near-optimum levels of available nitrogen, phosphorus, and potassium for individual crops are maintained. Efficient sue is made of available crop residues, barnyard manure, and/or green manure crops. All operations, when combined efficiently and timely, can create favorable growing conditions and reduce harvesting losses (within limits imposed by weather).

High Water Table – a seasonal highwater table is a zone of saturation at the highest average depth during the wettest part of the year. May be apparent, perched, or artesian.

> Water Table, Apparent – a thick zone of free water in the soil indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.
>
> Water Table, Artesian – a water table under hydrostatic head, generally beneath an impermeable layer. When layer is penetrated, the water level rises in the uncased borehole.
>
> Water Table, Perched – a water table standing above an unsaturated zone, often separated from a lower wet zone by a dry zone.

Delineation – (for wetlands) a series of orange flags placed on the ground by a certified professional that outlines the wetland boundary on a parcel.

Determination – (for wetlands) a polygon drawn on a map using map information that gives an outline of a wetland.

Hydric Soil – soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (USDA Natural Resources Conservation Service, 1987).

Intensive Soil Mapping – mapping done on a small, intensive scale than a modern soil survey to determine soil properties of a specific site, i.e. mapping for septic suitability.

Land Evaluation Site Assessment (L.E.S.A.) – LESA is a systematic approach for evaluating a parcel of land and to determine a numerical value for the parcel for farmland preservation purposes.

Modern Soil Survey – a soil survey is a field investigation of the soils of a specific area, supported by information from other sources. The kinds of soil in the survey area are identified and their extent is shown on a map. An accompanying report describes, defines, classifies, and interprets the soils. Interpretations predict the behavior of soils under different uses and the soils' response to management. Predictions are made for areas of soil at specific places. Soil information collected in a soil survey are useful in developing land use plans and alternatives.

Palustrine – name given to inland fresh water wetlands.

Permeability – values listed estimate the range of time it takes for downward movement of water in the major soil layers when saturated but allowed to drain freely. The estimates are based on soil texture, soil structure, available data on permeability and infiltration tests, and observation of water movement through soils or other geologic materials.

PIQ – parcel in question

Potential Frost Action – damage that may occur to structures and roads due to ice lens formation, causing upward and lateral soil movement. Based primarily on soil texture and wetness.

Prime Farmland – lands that are best suited for food, feed, forage, fiber, and oilseed crops. It may be cropland, pasture, woodland, or other land, but it is not urban, built up land, or water areas. When well-managed, the soil qualities and moisture supply provide a sustained high yield of crops with minimum inputs of energy and economic resources in the least damage to the environment. Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooding during the growing season. The slope ranges from 0 to 5 percent. (USDA Natural Resources Conservation Service)

Productivity Indexes – express the estimated yields of the major grain crops in Illinois as a single percentage of the average yields obtained under basic management from several of the more productive soils in the state (Muscatine, Ipava, Sable, Lisbon, Drummer, Flanagan, Littleton, Elburn, Joy soil series). See Circular 1156 from the Illinois Cooperative Extension Service.

Seasonal – when used in reference to wetlands, indicates the area flooded only during a portion of the year.

Shrink-Swell Potential – indicates volume changes to be expected for the specific soil material with changes in moisture content.

Soil Mapping Unit – collection of soil and miscellaneous areas delineated in mapping. Generally, an aggregate of the delineations of many different bodies of a kind of soil or miscellaneous area but may consist of only one delineated body. Taxonomic class names and accompanying terms are used to name soil map units. They are described in terms of ranges of soil properties within the limits defined for tax and in terms of ranges of tax adjuncts and inclusions.

Soil Series – a group of soils formed from a type of parent material, having horizons that, except for texture of the surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, mineralogy, and chemical composition.

Subsidence – applies mainly to organic soils after drainage. Soil material subsides due to shrinkage and oxidation.

Terrain – the area or surface over which a particular rock or group of rocks is prevalent.

Topsoil – portion of the soil profile where higher concentrations or organic material, fertility, bacterial activity, and plant growth take place. Depths of topsoil vary between soil types.

Watershed – an area of land that drains to an associated water resource, such as a wetland, river, or lake. Depending on the size and topography, watersheds can contain numerous tributaries, such as streams, ditches, and ponding areas, such as detention structures, natural ponds, or wetlands.

Wetland – an area that has a predominance of hydric soils that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophilic vegetation typically adapted for life in saturated soil conditions.

References

Field Office Technical Guide. USDA Natural Resources Conservation Service.

Flood Insurance Rate Map. National Flood Insurance Program, Federal Emergency Management Agency.

Illinois Urban Manual. 2016. Association of Illinois Soil & Water Conservation Districts.

Soil Survey of Champaign County. USDA Natural Resources Conservation Service.

Wetlands Inventory Maps. Department of the Interior.

Potential for Contamination of Shallow Aquifers in Illinois. Illinois Department of Energy and Natural Resources, State Geological Survey Division.

Land Evaluation and Site Assessment System. The Kendall County Department of Planning, Building, and Zoning, and the Champaign County Soil and Water Conservation District. In cooperation with USDA Natural Resources Conservation Service.

EXHIBIT L: TRANSPORTATION AND ACCESS PLAN

MEMORANDUM

To: Champaign CSG 1 LLC
Daniel Solarzano

From: Ryan Solum, P.E.
Kimley-Horn and Associates, Inc.

Date: July 30th, 2025

Re: ***Champaign CSG 1 LLC – Transportation and Access Plan***
South of W Windsor/County Rd 1400 N, Champaign Township, Champaign County, IL

Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) serves as the engineering consultant for Champaign CSG 1 LLC. It is our understanding Champaign CSG 1 LLC is submitting for a Special Use Permit to construct an approximate 4.49 MWac Commercial Solar Energy Facility on parcel 03-20-30-100-002 (Assessor PIN). This parcel is located between South Barker Road to the west, and South Rising Road to the East. It is bordered by Windsor Road to the north.

This memorandum provides information on the proposed Construction and Operations Access as well as anticipated traffic and routes based on the project location and projects of similar size.

Pre-Development

The proposed project area is predominantly agricultural field. The site is bound to the north by W Windsor Road (also called County Rd 1400N), east and south by agricultural land, and west by S Barker Rd. The site has a proposed access on the northeastern corner of the parcel to W Windsor/County Rd 1400N to avoid an existing bridge on the W Windsor Road.

See Exhibits 1 and 2 attached for project location.

Construction

At the time of this memorandum, it is anticipated that site access during construction will be located approximately 1322' west of the intersection of West Windsor Road and S Rising Rd directly east of the bridge on West Windsor Road and nearby a suspected water meter. Prior to the beginning of construction, a temporary stabilized construction entrance consisting of 1-1/2" to 3" rock a minimum of 8-inches thick, 20' wide, and 3370' long will be installed to provide a stable entrance for construction traffic at the proposed entrance location.

Based on similar commercial solar energy facilities of this size, it is estimated that approximately 25 deliveries via WB-67 Semi-Tractor Trailers will be required during the construction phase to deliver the piles, racking, modules, inverters, electrical, and switchyard equipment. It is anticipated that at the peak of construction approximately 20 construction workers will be needed. Construction of the Solar facility is projected to be completed within six months. Equipment deliveries will typically occur between months two and four of the construction period and taper off dramatically by the end of the fourth month. The peak for construction workers on site will occur around month four and will taper off by the end of month five.

Based on the project location, we anticipate delivery trucks will access the site from I-57 (IDOT District 5), west to Curtis Rd (IDOT District 5, Champaign County Highway Department, the City of Champaign, and Champaign Township Highway Department), north to South Rising Rd (Champaign Township Highway Department and the City of Champaign), and west to West Windsor/County Rd 1400 N (Champaign Township Highway Department), and turn left on to the site access road approximately 1322 west of the intersection of S Rising Rd and County Rd 1400 N/W Windsor Rd and before the bridge on County Rd 1400 N.

See attached **Exhibit 1 and 2** for roadway jurisdictions and proposed access routes.

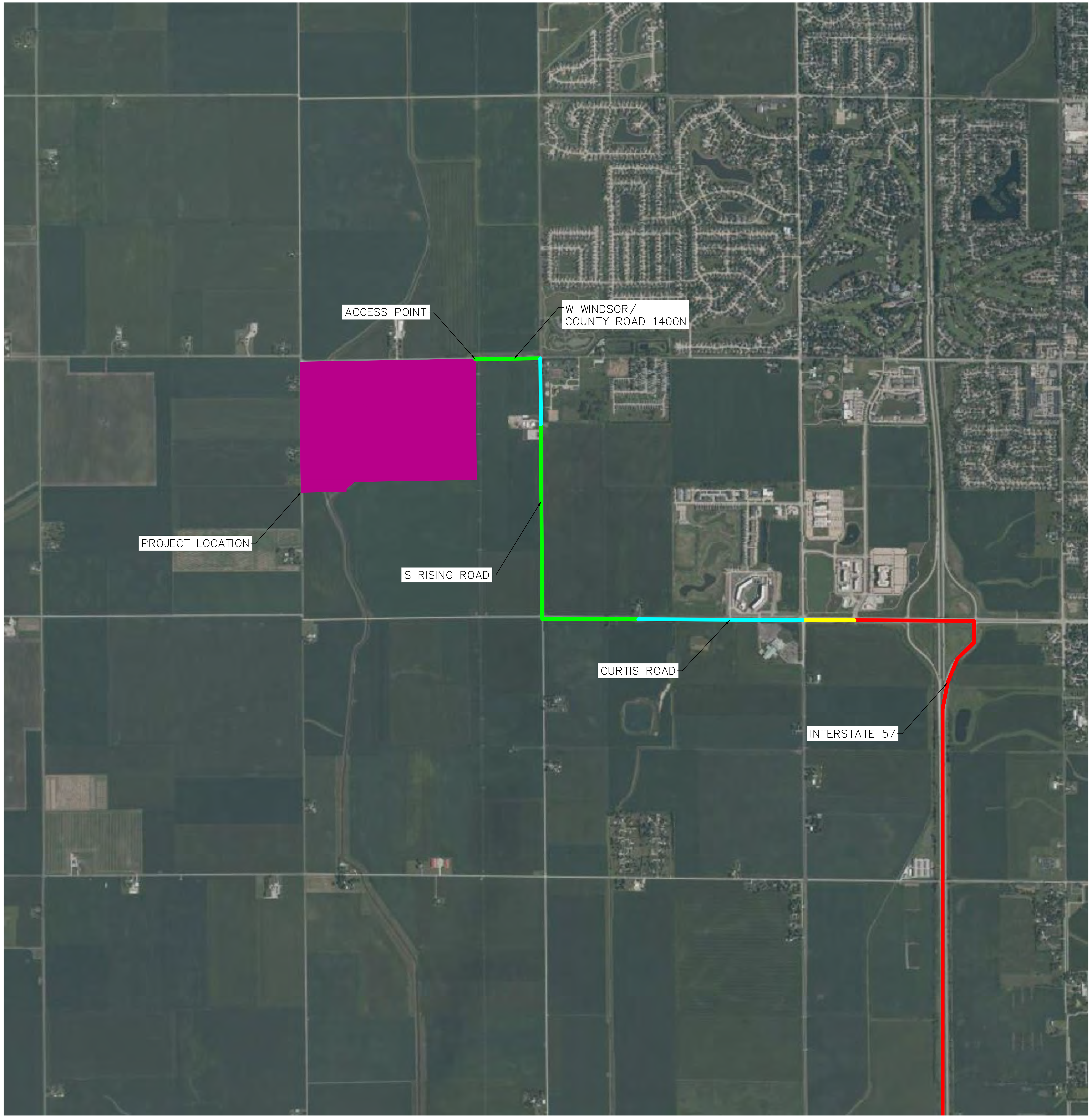
Post-Development

After construction is complete, the site will be accessed via the same entry location that was utilized during construction. The temporary laydown area will be removed upon completion as well. Compacted gravel access roads will be utilized to access the interior of the site for operations and maintenance. Once the site is fully operational, it is anticipated that no more than four vehicles will visit the site on a quarterly basis for routine maintenance.

See the Zoning Site Plan for proposed access roads.

Attachments

- Road Jurisdiction Map
- Construction and Operations Access Plan
- Zoning Site Plan



NORTH

GRAPHIC SCALE IN FEET
0 500 1000 2000

ROAD JURISDICTION LEGEND

- STATE (IDOT)
- TOWNSHIP (CHAMPAIGN TOWNSHIP)
- COUNTY (CHAMPAIGN COUNTY)
- CITY (CITY OF CHAMPAIGN)
- PROPERTY LINE
- PROJECT LOCATION

ROAD JURISDICTION INFORMATION

ROAD NAME	JURISDICTION LEVEL	JURISDICTION (AHJ)	CONTACT	CONTACT PHONE NUMBER
I-57	STATE	IDOT	IDOT DISTRICT 5 BUREAU OF OPERATIONS	217-465-4181
CURTIS ROAD	TOWNSHIP	CHAMPAIGN TOWNSHIP	CHAMPAIGN TOWNSHIP HIGHWAY DEPARTMENT	217-841-4155
CURTIS ROAD	CITY	CITY OF CHAMPAIGN	PUBLIC WORKS DEPARTMENT	217-403-4700
CURTIS ROAD	COUNTY	CHAMPAIGN COUNTY	CHAMPAIGN COUNTY HIGHWAY DEPARTMENT	217-384-3800
S RISING ROAD	TOWNSHIP	CHAMPAIGN TOWNSHIP	CHAMPAIGN TOWNSHIP HIGHWAY DEPARTMENT	217-841-4155
S RISING ROAD	CITY	CITY OF CHAMPAIGN	PUBLIC WORKS DEPARTMENT	217-403-4700
W WINDSOR/ COUNTY ROAD 1400N	TOWNSHIP	CHAMPAIGN TOWNSHIP	CHAMPAIGN TOWNSHIP HIGHWAY DEPARTMENT	217-841-4155

No.	REVISIONS	DATE

DIMENSION RENEWABLE ENERGY

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
570 LAKE COOK ROAD, SUITE 200
DEERFIELD, IL 60015
PHONE: (630) 487-3449
WWW.KIMLEY-HORN.COM

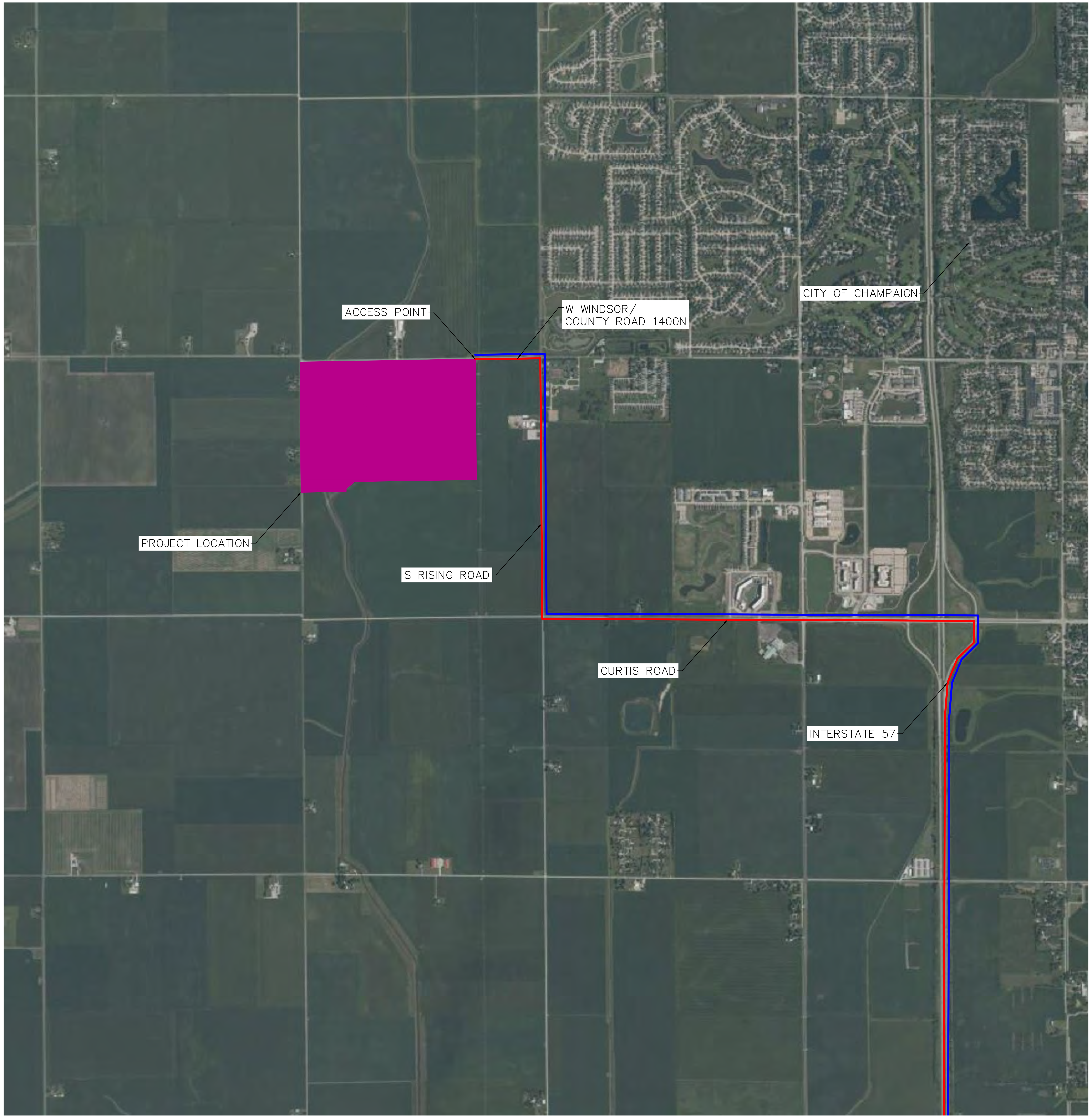
KHA PROJECT 268583013
DATE 7/30/25
SCALE AS SHOWN
DESIGNED BY LLR
DRAWN BY LLR
CHECKED BY RS

ROAD JURISDICTION MAP

CHAMPAIGN CSG 1 LLC

CHAMPAIGN COUNTY, IL

SHEET NUMBER
EX-1



NORTH

GRAPHIC SCALE IN FEET
0 500 1000 2000

811 Know what's below. Call before you dig.

LEGEND

(blue line)	DELIVERY TRUCK ROUTE (WB-67 SEMI)
(red line)	PASSENGER VEHICLE ROUTE (CONSTRUCTION/MAINTENANCE)
(magenta line)	PROPERTY LINE
(magenta fill)	PROJECT LOCATION

No.	REVISIONS	DATE

DIMENSION RENEWABLE ENERGY

Kimley»Horn

© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
570 LAKE COOK ROAD, SUITE 200
DEERFIELD, IL 60015
PHONE: (630) 487-3449
WWW.KIMLEY-HORN.COM

KHA PROJECT	268583013
DATE	7/30/25
SCALE	AS SHOWN
DESIGNED BY	LLR
DRAWN BY	LLR
CHECKED BY	RS

CONSTRUCTION AND OPERATIONS ACCESS PLAN

CHAMPAIGN CSG 1 LLC

CHAMPAIGN COUNTY, IL

SHEET NUMBER
EX-2

EXHIBIT M: NOISE STUDY

Kimley»Horn

July 10, 2025

Cale Skagen
Dimension Renewable Energy

Subject: ***Champaign CSG 1 LLC – Sound Study***
Champaign County, Illinois

Executive Summary

The purpose of this technical memorandum is to summarize the evaluated sound levels associated with the operational equipment located throughout the proposed Champaign CSG 1 LLC Solar Site in Champaign County, IL. The proposed solar photovoltaic project site is located just west of the jurisdiction of Champaign, approximately 1.5 miles southeast of Bondville, approximately 3.5 miles northwest of Savoy, approximately 6 southwest of Urbana, and approximately 11 miles northeast of Monticello. The site is generally located south of County Road 1400 North/Windsor Road, east of County Road 600 East/South Barker Road, north of Curtis Road, and west of County Road 700 East/ South Rising Road. The solar site will be located on agricultural land with residential properties surrounding the project site and recreational areas to the northeast and southeast. Additionally, Willard Airport is located approximately 3.5 miles southeast of the site. The location of the proposed Champaign CSG 1 LLC Solar Site is shown in **Figure 1**.

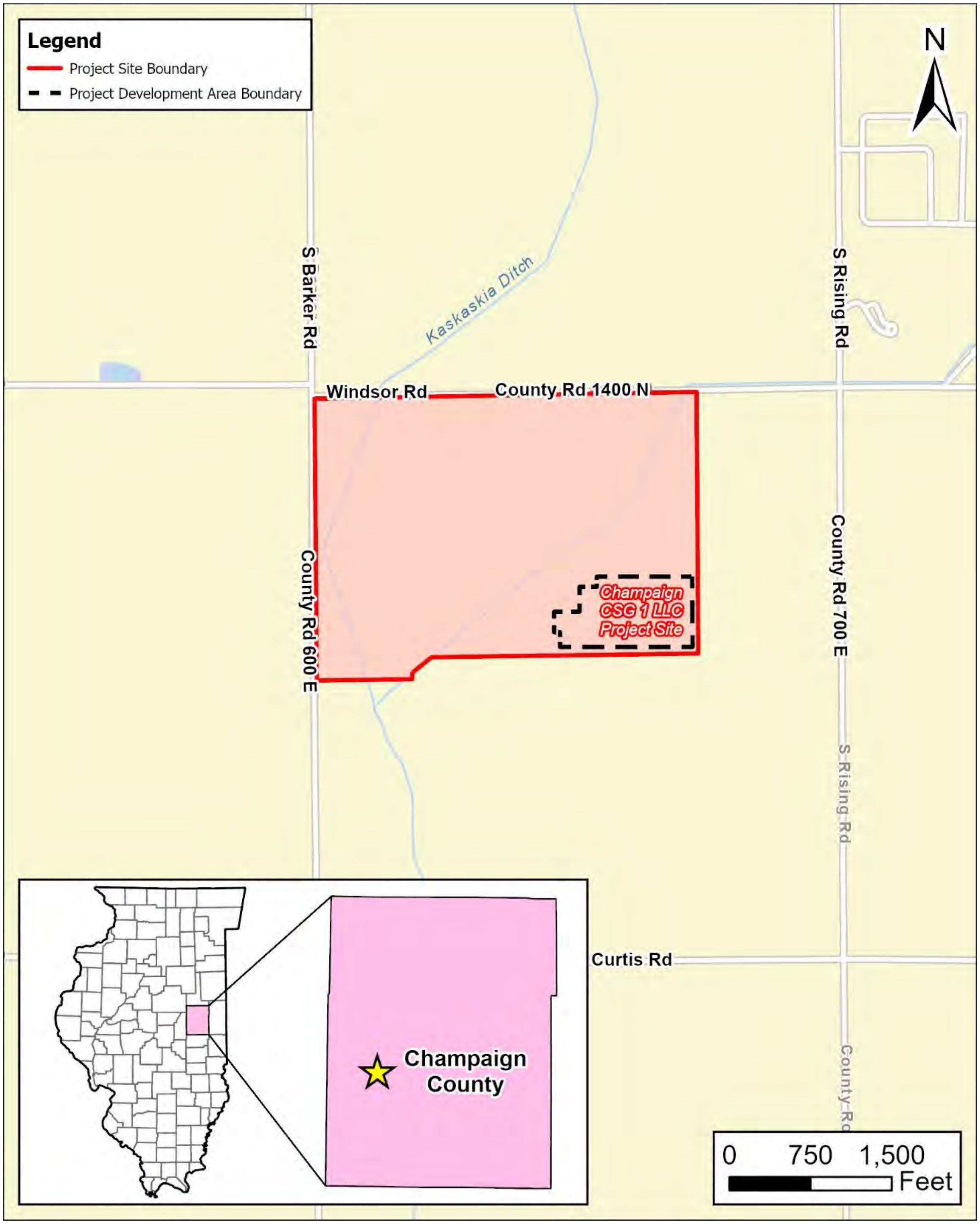
Analysis Findings

- *The solar site will be located on agricultural land with residential properties surrounding the site and recreational areas to the northeast and southeast. Additionally, an airport is located southeast of the site. The Illinois Pollution Control Board (IPCB) noise regulations are based on allowable octave band sound pressure levels that vary depending on the category of land the noise is generated from and the category of land the noise is received at. Modeled operational octave band sound pressure levels at surrounding Class A properties (i.e., residences and recreational areas) are not anticipated to exceed the limits established by IPCB; therefore, noise mitigation is not recommended at this time.*

Project Description

The proposed Champaign CSG 1 LLC Solar Site will be developed on 17 acres of an approximately 203-acre parcel of agricultural land in an unincorporated portion of Champaign County, IL. The solar site will consist of solar arrays throughout the project area with twenty (20) string inverters and two (2) transformers located on two (2) equipment pads, near the central portion of the site, with ten (10) string inverters and one (1) transformer on each equipment pad.

Figure 1: Site Location and Vicinity



Characteristics of Noise

Noise is generally defined as unwanted sound. It is emitted from many natural and man-made sources. Sound pressure levels are usually measured and expressed in decibels (dB). The decibel scale is logarithmic and expresses the ratio of the sound pressure unit being measured to a standard reference level. Most sounds occurring in the environment do not consist of a single frequency, but rather a broad band of differing frequencies. The intensities of each frequency add together to generate sound. Because the human ear does not respond to all frequencies equally, the method commonly used to quantify environmental noise consists of evaluating all of the frequencies of a sound according to a weighting system. It has been found that the A-weighted decibel [dB(A)] filter on a sound level meter, which includes circuits to differentially measure selected audible frequencies, best approximates the frequency response of the human ear.

The degree of disturbance from exposure to unwanted sound – noise – depends upon three factors:

1. The amount, nature, and duration of the intruding noise
2. The relationship between the intruding noise and the existing sound environment; and
3. The situation in which the disturbing noise is heard

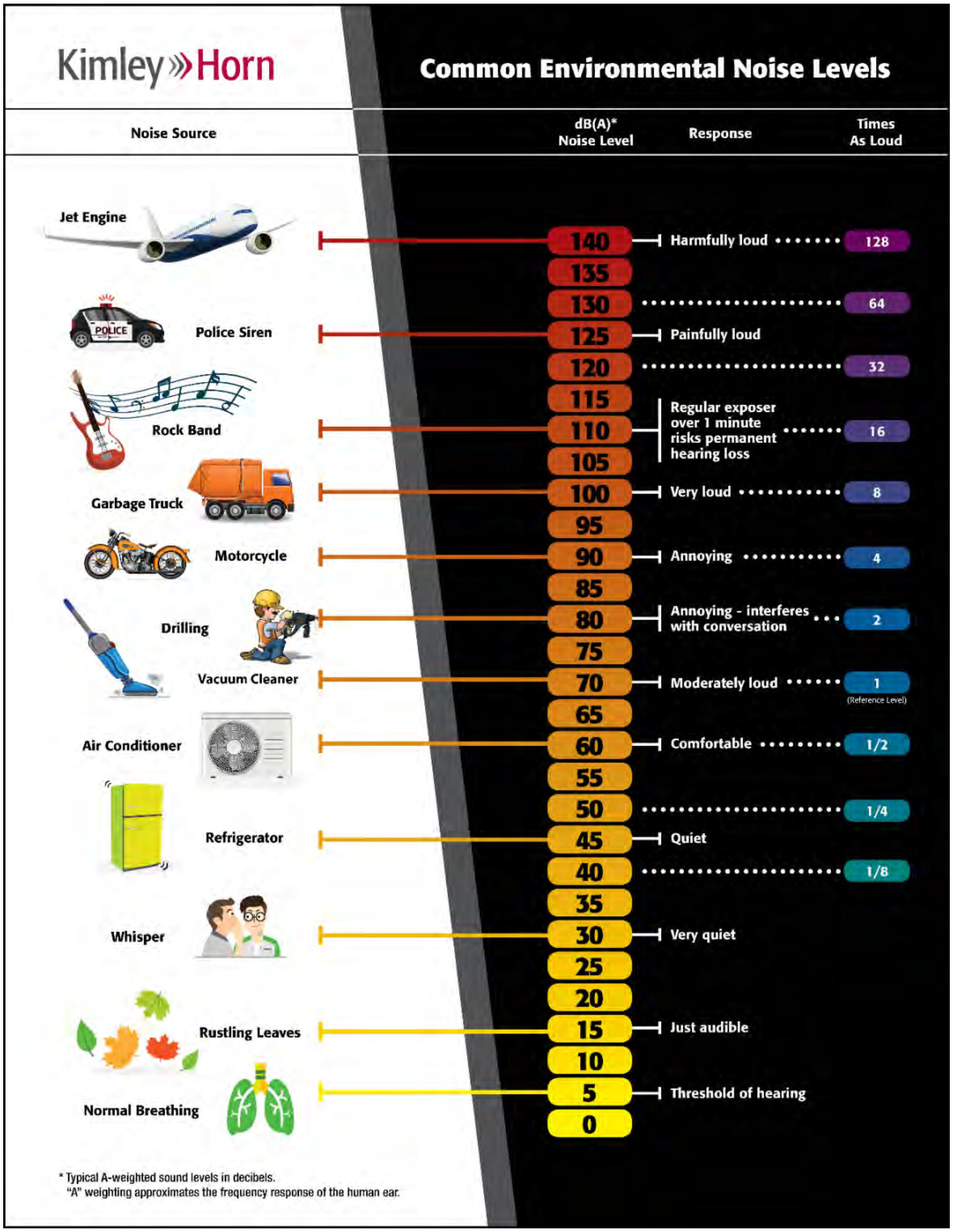
In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people, and some individuals become increasingly upset if an unwanted noise persists. The time patterns and durations of noise(s) also affect perception as to whether or not it is offensive. For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noise levels are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime an illuminated bulb simply adds to the ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding.

The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

As shown in **Figure 2**, most individuals are exposed to fairly high noise levels from many sources on a regular basis. To perceive sounds of greatly varying pressure levels, human hearing has a non-linear sensitivity to sound pressure exposure. Doubling the sound pressure results in a three decibel change in the noise level; however, variations of three decibels [3 dB(A)] or less are commonly considered “barely perceptible” to normal human hearing. A five decibel [5 dB(A)] change is more readily noticeable. A ten-fold increase in the sound pressure level correlates to a 10 decibel [10 dB(A)] noise level increase; however, it is judged by most people as only sounding “twice as loud”.

Figure 2: Common Noise Levels



Over time, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces and has been theorized to pose health risks.

Local Regulations

The Champaign CSG 1 LLC Solar Site is located in an unincorporated portion of Champaign County, IL. Section 6.1.5(I)(1) of the Champaign County Zoning Ordinance states that “Noise levels from any PV SOLAR FARM shall be in compliance with the applicable Illinois Pollution Control Board (IPCB) regulations (35 Illinois Administrative Code, Subtitle H: Noise, Parts 900, 901, 910).”

The IPCB noise regulations are state-level, applicable, noise level limits based on allowable octave band sound pressure levels during daytime and nighttime hours. According to Title 35 (Environmental Protection), Subtitle H (Noise), Chapter I (Pollution Control Board), Part 901 (Sound Emission Standards and Limitations for Property Line-Noise Sources), a facility operating in an industrial land use (Class C Land) cannot cause an exceedance of sound levels at any point within a residential or recreational land use (Class A Land) during daytime hours as shown in **Table 1**.

Table 1: Maximum Allowable Sound Emitted to Class A Land During Daytime Hours

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from		
	Class C Land	Class B Land	Class A Land
31.5	**75**	72	72
63	**74**	71	71
125	**69**	65	65
250	**64**	57	57
500	**58**	51	51
1000	**52**	45	45
2000	**47**	39	39
4000	**43**	34	34
8000	**40**	32	32

The IPCB has also established the allowable octave band sound pressure levels for nighttime hours shown in **Table 2**. However, these values are not applicable to the proposed solar site, as it will not be operational during nighttime hours. These values are included for reference purposes only.

Table 2: Maximum Allowable Sound Emitted to Class A Land During Nighttime Hours

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from		
	Class C Land	Class B Land	Class A Land
31.5	**69**	63	63
63	**67**	61	61
125	**62**	55	55
250	**54**	47	47
500	**47**	40	40
1000	**41**	35	35
2000	**36**	30	30
4000	**32**	25	25
8000	**32**	25	25

Noise Analysis

Sound levels from the proposed Champaign CSG 1 LLC Solar Site were evaluated using SoundPLAN. This program computes predicted sound levels at noise-sensitive areas through a series of adjustments to reference sound levels. SoundPLAN also accounts for topography, groundcover type, and intervening structures. Sound levels generated from the inverter equipment is anticipated to be the main source of sound from the proposed solar photovoltaic project site.

It should be noted that noise from surrounding roadways was not modeled in this analysis although County Road 1400 North/Windsor Road, County Road 600 East/South Barker Road, Curtis Road, County Road 700 East/South Rising Road, and other roadways are anticipated to contribute to the ambient noise environment throughout the entire day.

Inverters

Photovoltaic (PV) inverter equipment can generate steady, unvarying sound that may create issues when located near noise-sensitive areas. It was assumed that twenty (20) PV string inverters will be located on two (2) equipment pads, near the central portion of the site, with ten (10) string inverters on each equipment pad. Based on provided noise emission levels for SMA Sunny Highpower PEAK3 150 inverter equipment, a maximum operational sound power level approximately of 76 dB(A) for each of the PV string inverters was used. **Table 3** shows the octave band emission levels for a single PV string inverter used for reference. The sound from the simultaneous operation of the PV string inverters was calculated at the closest noise-sensitive receptors surrounding the project area using SoundPLAN.

Table 3: Sound Emissions for Inverter

Octave Band Center Frequency	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz
Frequency Sound Level	23	22	21	25	25	27	33	32	38
Octave Band Center Frequency	**200 Hz**	**250 Hz**	**315 Hz**	**400 Hz**	**500 Hz**	**630 Hz**	**800 Hz**	**1 kHz**	**1.25 kHz**
Frequency Sound Level	42	48	55	66	68	62	66	67	65
Octave Band Center Frequency	**1.6 kHz**	**2 kHz**	**2.5 kHz**	**3.15 kHz**	**4 kHz**	**5 kHz**	**6.3 kHz**	**8 kHz**	**10 kHz**
Frequency Sound Level	62	63	65	65	62	58	55	53	48

Sound generated by the string inverters is not anticipated to significantly contribute to the existing environmental sound levels surrounding the site. Also, sound generated by the string inverters is expected to be mitigated by providing sufficient offsets between the string inverters and surrounding noise-sensitive land uses as well as by the physical presence of the solar arrays, which are anticipated to shield and disperse some of the sound generated by the string inverters.

Transformers

Transformer equipment can also generate steady, unvarying noise that may create issues when located near noise-sensitive uses. It was assumed that two (2) transformers would be located within the proposed solar site with one (1) on each equipment pad. Based on noise emissions for typical transformer equipment, a reference sound level of approximately 75 dB(A) at 1 meter was used. **Table 4** shows the octave band emission levels for a typical transformer. The sound from the operation of the transformers was calculated using SoundPLAN.

Table 4: Sound Emissions for Transformer

Octave Band Center Frequency	16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	16 kHz
Frequency Sound Level	52	63	68	76	73	70	67	65	66	59	48

Sound generated by the transformers is not anticipated to significantly contribute to the existing environmental sound levels surrounding the site

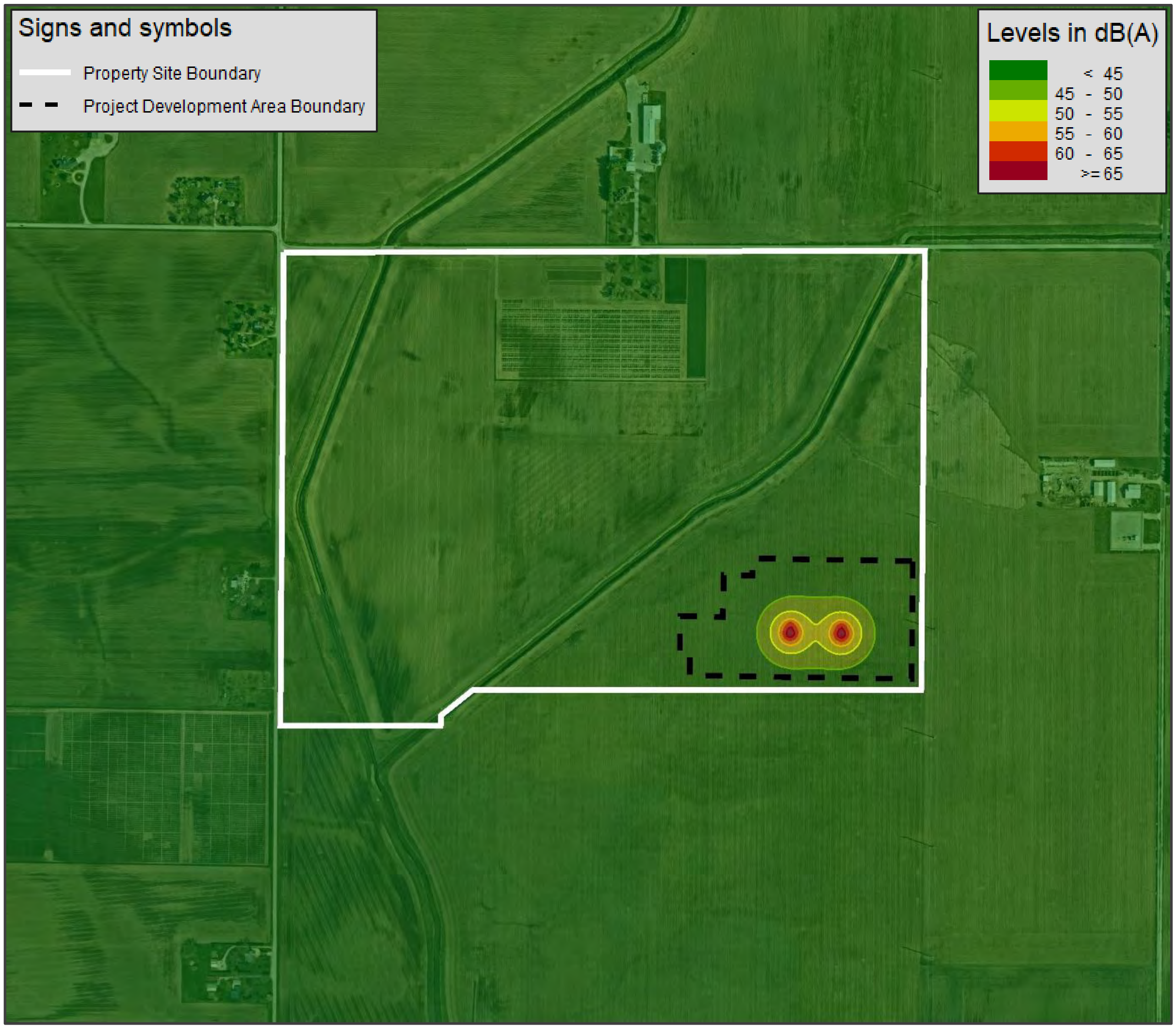
Results

The SoundPLAN-predicted maximum octave band noise levels at surrounding Class A properties are not anticipated to exceed the applicable limits established by IPCB; therefore, noise mitigation measures do not need to be considered in the project design at this time. See **Table 5** below for the maximum predicted octave band emissions at the closest Class A property. The anticipated operational sound contours are shown in **Figure 3**.

Table 5 Predicted Maximum Sound Emissions at Class A Properties

Octave Band Center Frequency	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Maximum Octave Band SPLs from Inverters	-	0.6	4.4	2.2	1.1	12.4	10.7	5.8	-

Figure 3: Operational Sound Contours



Conclusions

The site is generally located south of County Road 1400 North/Windsor Road, east of County Road 600 East/South Barker Road, north of Curtis Road, and west of County Road 700 East/South Rising Road. The solar site will be located on agricultural land with residential properties surrounding the project site and recreational areas to the northeast and southeast. Additionally, Willard Airport is located approximately 3.5 miles southeast of the site.

After modeling and analyzing the anticipated operational sound levels throughout the proposed solar site, it was determined that noise mitigation measures are not needed at this time since the anticipated operational sound levels will remain below the IPCB allowable octave band noise levels at the surrounding Class A land uses during daytime hours.

EXHIBIT N: HEALTH AND SAFETY STUDIES

WHITE PAPER

Health and Safety Impacts of Solar Photovoltaics

By Tommy Cleveland

May 2017

NC CLEAN ENERGY TECHNOLOGY CENTER

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Contents

Health and Safety Impacts of Solar Photovoltaics

The increasing presence of utility-scale solar photovoltaic (PV) systems (sometimes referred to as solar farms) is a rather new development in North Carolina's landscape. Due to the new and unknown nature of this technology, it is natural for communities near such developments to be concerned about health and safety impacts. Unfortunately, the quick emergence of utility-scale solar has cultivated fertile grounds for myths and half-truths about the health impacts of this technology, which can lead to unnecessary fear and conflict.

Photovoltaic (PV) technologies and solar inverters are not known to pose any significant health dangers to their neighbors. The most important dangers posed are increased highway traffic during the relative short construction period and dangers posed to trespassers of contact with high voltage equipment. This latter risk is mitigated by signage and the security measures that industry uses to deter trespassing. As will be discussed in more detail below, risks of site contamination are much less than for most other industrial uses because PV technologies employ few toxic chemicals and those used are used in very small quantities. Due to the reduction in the pollution from fossil-fuel-fired electric generators, the overall impact of solar development on human health is overwhelmingly positive. This pollution reduction results from a partial replacement of fossil-fuel fired generation by emission-free PV-generated electricity, which reduces harmful sulfur dioxide (SO2), nitrogen oxides (NOx), and fine particulate matter (PM2.5). Analysis from the National Renewable Energy Laboratory and the Lawrence Berkeley National Laboratory, both affiliates of the U.S. Department of Energy, estimates the health-related air quality benefits to the southeast region from solar PV generators to be worth 8.0 ¢ per kilowatt-hour of solar generation.[1] This is in addition to the value of the electricity and suggests that the air quality benefits of solar are worth more than the electricity itself.

Even though we have only recently seen large-scale installation of PV technologies, the technology and its potential impacts have been studied since the 1950s. A combination of this solar-specific research and general scientific research has led to the scientific community having a good understanding of the science behind potential health and safety impacts of solar energy. This paper utilizes the latest scientific literature and knowledge of solar practices in N.C. to address the health and safety risks associated with solar PV technology. These risks are extremely small, far less than those associated with common activities such as driving a car, and vastly outweighed by health benefits of the generation of clean electricity.

This paper addresses the potential health and safety impacts of solar PV development in North Carolina, organized into the following four categories:
(1) Hazardous Materials
(2) Electromagnetic Fields (EMF)
(3) Electric Shock and Arc Flash
(4) Fire Safety

1 • Hazardous Materials

One of the more common concerns towards solar is that the panels (referred to as "modules" in the solar industry) consist of toxic materials that endanger public health. However, as shown in this section, solar energy systems may contain small amounts of toxic materials, but these materials do not endanger public health. To understand potential toxic hazards coming from a solar project, one must understand system installation, materials used, the panel end-of-life protocols, and system operation. This section will examine these aspects of a solar farm and the potential for toxicity impacts in the following subsections:

(1.2) Project Installation/Construction
(1.2) System Components
  1.2.1 Solar Panels: Construction and Durability
  1.2.2 Photovoltaic technologies
    (a) Crystalline Silicon
    (b) Cadmium Telluride (CdTe)
    (c) CIS/CIGS
  1.2.3 Panel End of Life Management
  1.2.4 Non-panel System Components
(1.3) Operations and Maintenance

1.1 Project Installation/ Construction

The system installation, or construction, process does not require toxic chemicals or processes. The site is mechanically cleared of large vegetation, fences are constructed, and the land is surveyed to layout exact installation locations. Trenches for underground wiring are dug and support posts are driven into the ground. The solar panels are bolted to steel and aluminum support structures and wired together. Inverter pads are installed, and an inverter and transformer are installed on each pad. Once everything is connected, the system is tested, and only then turned on.

Figure 1: Utility-scale solar facility (5 MWAC) located in Catawba County. *Source: Strata Solar*

1.2 • System Components

1.2.1 Solar Panels: Construction and Durability

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials that can be recovered and recycled at the end of their useful life.[2] Today there are two PV technologies used in PV panels at utility-scale solar facilities, silicon, and thin film. As of 2016, all thin film used in North Carolina solar facilities are cadmium telluride (CdTe) panels from the US manufacturer First Solar, but there are other thin film PV panels available on the market, such as Solar Frontier's CIGS panels. Crystalline silicon technology consists of silicon wafers which are made into cells and assembled into panels, thin film technologies consist of thin layers of semiconductor material deposited onto glass, polymer or metal substrates. While there are differences in the components and manufacturing processes of these two types of solar technologies, many aspects of their PV panel construction are very similar. Specifics about each type of PV chemistry as it relates to toxicity are covered in subsections a, b, and c in section 1.2.2; on crystalline silicon, cadmium telluride, and CIS/CIGS respectively. The rest of this section applies equally to both silicon and thin film panels.

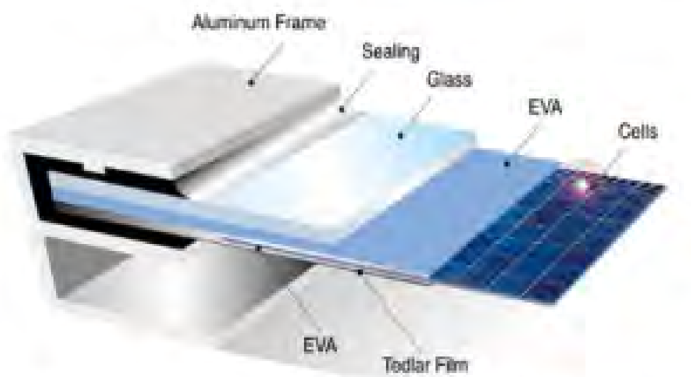

Figure 2: Components of crystalline silicon panels. The vast majority of silicon panels consist of a glass sheet on the topside with an aluminum frame providing structural support. Image Source: www.riteksolar.com.tw

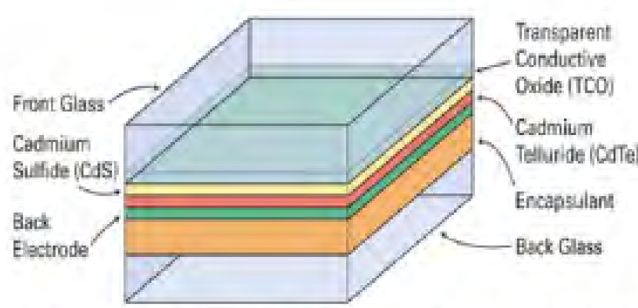

Figure 3: Layers of a common frameless thin-film panel (CdTe). Many thin film panels are frameless, including the most common thin-film panels, First Solar's CdTe. Frameless panels have protective glass on both the front and back of the panel. Layer thicknesses not to scale. Image Source: www.homepower.com

To provide decades of corrosion-free operation, PV cells in PV panels are encapsulated from air and moisture between two layers of plastic. The encapsulation layers are protected on the top with a layer of tempered glass and on the backside with a polymer sheet. Frameless modules include a protective layer of glass on the rear of the panel, which may also be tempered. The plastic ethylene-vinyl acetate (EVA) commonly provides the cell encapsulation. For decades, this same material has been used between layers of tempered glass to give car windshields and hurricane windows their great strength. In the same way that a car windshield cracks but stays intact, the EVA layers in PV panels keep broken panels intact (see Figure 4). Thus, a damaged module does not generally create small pieces of debris; instead, it largely remains together as one piece.

Figure 4: The mangled PV panels in this picture illustrate the nature of broken solar panels; the glass cracks but the panel is still in one piece. Image Source: http://img.alibaba.com/photo/115259576/broken_solar_panel.jpg

PV panels constructed with the same basic components as modern panels have been installed across the globe for well over thirty years.[3] The long-term durability and performance demonstrated over these decades, as well as the results of accelerated lifetime testing, helped lead to an industrystandard 25-year power production warranty for PV panels. These power warranties warrant a PV panel to produce at least 80% of their original nameplate production after 25 years of use. A recent SolarCity and DNV GL study reported that today's quality PV panels should be expected to reliably and efficiently produce power for thirty-five years.[4]

Local building codes require all structures, including ground mounted solar arrays, to be engineered to withstand anticipated wind speeds, as defined by the local wind speed requirements. Many racking products are available in versions engineered for wind speeds of up to 150 miles per hour, which is significantly higher than the wind speed requirement anywhere in North Carolina. The strength of PV mounting structures were demonstrated during Hurricane Sandy in 2012 and again during Hurricane Matthew in 2016. During Hurricane Sandy, the many large-scale solar facilities in New Jersey and New York at that time suffered only minor damage.[5] In the fall of 2016, the US and Caribbean experienced destructive winds and torrential rains from Hurricane Matthew, yet one leading solar tracker manufacturer reported that their numerous systems in the impacted area received zero damage from wind or flooding.[6]

In the event of a catastrophic event capable of damaging solar equipment, such as a tornado, the system will almost certainly have property insurance that will cover the cost to cleanup and repair the project. It is in the best interest of the system owner to protect their investment against such risks. It is also in their interest to get the project repaired and producing full power as soon as possible. Therefore, the investment in adequate insurance is a wise business practice for the system owner. For the same reasons, adequate insurance coverage is also generally a requirement of the bank or firm providing financing for the project.

1.2.2 Photovoltaic (PV) Technologies

a. Crystalline Silicon

This subsection explores the toxicity of silicon-based PV panels and concludes that they do not pose a material risk of toxicity to public health and safety. Modern crystalline silicon PV panels, which account for over 90% of solar PV panels installed today, are, more or less, a commodity product. The overwhelming majority of panels installed in North Carolina are crystalline silicon panels that are informally classified as Tier I panels. Tier I panels are from well-respected manufacturers that have a good chance of being able to honor warranty claims. Tier I panels are understood to be of high quality, with predictable performance, durability, and content. Well over 80% (by weight) of the content of a PV panel is the tempered glass front and the aluminum frame, both of which are common building materials. Most of the remaining portion are common plastics, including polyethylene terephthalate in the backsheet, EVA encapsulation of the PV cells, polyphenyl ether in the junction box, and polyethylene insulation on the wire leads. The active, working components of the system are the silicon photovoltaic cells, the small electrical leads connecting them together, and to the wires coming out of the back of the panel. The electricity generating and conducting components makeup less than 5% of the weight of most panels. The PV cell itself is nearly 100% silicon, and silicon is the second most common element in the Earth's crust. The silicon for PV cells is obtained by high-temperature processing of quartz sand (SiO2) that removes its oxygen molecules. The refined silicon is converted to a PV cell by adding extremely small amounts of boron and phosphorus, both of which are common and of very low toxicity.

The other minor components of the PV cell are also generally benign; however, some contain lead, which is a human toxicant that is particularly harmful to young children. The minor components include an extremely thin antireflective coating (silicon nitride or titanium dioxide), a thin layer of aluminum on the rear, and thin strips of silver alloy that are screen-printed on the front and rear of cell.[7] In order for the front and rear electrodes to make effective electrical contact with the proper layer of the PV cell, other materials (called glass frit) are mixed with the silver alloy and then heated to etch the metals into the cell. This glass frit historically contains a small amount of lead (Pb) in the form of lead oxide. The 60 or 72 PV cells in a PV panel are connected by soldering thin solder-covered copper tabs from the back of one cell to the front of the next cell. Traditionally a tin-based solder containing some lead (Pb) is used, but some manufacturers have switched to lead-free solder. The glass frit and/or the solder may contain trace amounts of other metals, potentially including some with human toxicity such as cadmium. However, testing to simulate the potential for leaching from broken panels, which is discussed in more detail below, did not find a potential toxicity threat from these trace elements. Therefore, the tiny amount of lead in the grass frit and the solder is the only part of silicon PV panels with a potential to create a negative health impact. However, as described below, the very limited amount of lead involved and its strong physical and chemical attachment to other components of the PV panel means that even in worst-case scenarios the health hazard it poses is insignificant.

As with many electronic industries, the solder in silicon PV panels has historically been a leadbased solder, often 36% lead, due to the superior properties of such solder. However, recent advances in lead-free solders have spurred a trend among PV panel manufacturers to reduce or remove the lead in their panels. According to the 2015 Solar Scorecard from the Silicon Valley Toxics Coalition, a group that tracks environmental responsibility of photovoltaic panel manufacturers, fourteen companies (increased from twelve companies in 2014) manufacture PV panels certified to meet the European Restriction of Hazardous Substances (RoHS) standard. This means that the amount of cadmium and lead in the panels they manufacture fall below the RoHS thresholds, which are set by the European Union and serve as the world's de facto standard for hazardous substances in manufactured goods.[8] The Restriction of Hazardous Substances (RoHS) standard requires that the maximum concentration found in any homogenous material in a produce is less than 0.01% cadmium and less than 0.10% lead, therefore, any solder can be no more than 0.10% lead.[9]

While some manufacturers are producing PV panels that meet the RoHS standard, there is no requirement that they do so because the RoHS Directive explicitly states that the directive does not apply to photovoltaic panels.[10] The justification for this is provided in item 17 of the current RoHS Directive: "The development of renewable forms of energy is one of the Union's key objectives, and the contribution made by renewable energy sources to environmental and climate objectives is crucial. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources (4) recalls that there should be coherence between those objectives and other Union environmental legislation. Consequently, this Directive should not prevent the development of renewable energy technologies that have no negative impact on health and the environment and that are sustainable and economically viable."

The use of lead is common in our modern economy. However, only about 0.5% of the annual lead consumption in the U.S. is for electronic solder for all uses; PV solder makes up only a tiny portion of this 0.5%. Close to 90% of lead consumption in the US is in batteries, which do not encapsulate the pounds of lead contained in each typical automotive battery. This puts the lead in batteries at great risk of leaching into the environment. Estimates for the lead in a single PV panel with lead-based solder range from 1.6 to 24 grams of lead, with 13g (less than half of an ounce) per panel seen most often in the literature.[11] At 13 g/panel[12], each panel contains one-half of the lead in a typical 12-gauge shotgun shell. This amount equates to roughly 1/750th of the lead in a single car battery. In a panel, it is all durably encapsulated from air or water for the full life of the panel.[14]

As indicated by their 20 to 30-year power warranty, PV modules are designed for a long service life, generally over 25 years. For a panel to comply with its 25-year power warranty, its internal components, including lead, must be sealed from any moisture. Otherwise, they would corrode and the panel's output would fall below power warranty levels. Thus, the lead in operating PV modules is not at risk of release to the environment during their service lifetime. In extreme experiments, researchers have shown that lead can leach from crushed or pulverized panels.[15, 16] However, more real-world tests designed to represent typical trash compaction that are used to classify waste as hazardous or non-hazardous show no danger from leaching.[17,18] For more information about PV panel end-of-life, see the Panel Disposal section.

As illustrated throughout this section, silicon-based PV panels do not pose a material threat to public health and safety. The only aspect of the panels with potential toxicity concerns is the very small amount of lead in some panels. However, any lead in a panel is well sealed from environmental exposure for the operating lifetime of the solar panel and thus not at risk of release into the environment.

b. Cadmium Telluride (CdTe) PV Panels

This subsection examines the components of a cadmium telluride (CdTe) PV panel. Research demonstrates that they pose negligible toxicity risk to public health and safety while significantly reducing the public's exposure to cadmium by reducing coal emissions. As of mid-2016, a few hundred MWs of cadmium telluride (CdTe) panels, all manufactured by the U.S. company First Solar, have been installed in North Carolina.

Questions about the potential health and environmental impacts from the use of this PV technology are related to the concern that these panels contain cadmium, a toxic heavy metal. However, scientific studies have shown that cadmium telluride differs from cadmium due to its high chemical and thermal stability.[19] Research has shown that the tiny amount of cadmium in these panels does not pose a health or safety risk.[20] Further, there are very compelling reasons to welcome its adoption due to reductions in unhealthy pollution associated with burning coal. Every GWh of electricity generated by burning coal produces about 4 grams of cadmium air emissions.[21] Even though North Carolina produces a significant fraction of our electricity from coal, electricity from solar offsets much more natural gas than coal due to natural gas plants being able to adjust their rate of production more easily and quickly. If solar electricity offsets 90% natural gas and 10% coal, each 5-megawatt (5 MWAC, which is generally 7 MWDC) CdTe solar facility in North Carolina keeps about 157 grams, or about a third of a pound, of cadmium *out* of our environment.[22, 23]

Cadmium is toxic, but all the approximately 7 grams of cadmium in one CdTe panel is in the form of a chemical compound cadmium telluride,[24] which has 1/100th the toxicity of free cadmium.[25] Cadmium telluride is a very stable compound that is non-volatile and non-soluble in water. Even in the case of a fire, research shows that less than 0.1% of the cadmium is released when a CdTe panel is exposed to fire. The fire melts the glass and encapsulates over 99.9% of the cadmium in the molten glass.[27]

It is important to understand the source of the cadmium used to manufacture CdTe PV panels. The cadmium is a byproduct of zinc and lead refining. The element is collected from emissions and waste streams during the production of these metals and combined with tellurium to create the CdTe used in PV panels. If the cadmium were not collected for use in the PV panels or other products, it would otherwise either be stockpiled for future use, cemented and buried, or disposed of.[28] Nearly all the cadmium in old or broken panels can be recycled which can eventually serve as the primary source of cadmium for new PV panels.[29]

Similar to silicon-based PV panels, CdTe panels are constructed of a tempered glass front, one instead of two clear plastic encapsulation layers, and a rear heat strengthened glass backing (together >98% by weight). The final product is built to withstand exposure to the elements without significant damage for over 25 years. While not representative of damage that may occur in the field or even at a landfill, laboratory evidence has illustrated that when panels are ground into a fine powder, very acidic water is able to leach portions of the cadmium and tellurium,[30] similar to the process used to recycle CdTe panels. Like many silicon-based panels, CdTe panels are reported (as far back ask 1998[31] to pass the EPA's Toxic Characteristic Leaching Procedure (TCLP) test, which tests the potential for crushed panels in a landfill to leach hazardous substances into groundwater.[32] Passing this test means that they are classified as non-hazardous waste and can be deposited in landfills.[33,34] For more information about PV panel end-of-life, see the Panel Disposal section.

There is also concern of environmental impact resulting from potential catastrophic events involving CdTe PV panels. An analysis of worst-case scenarios for environmental impact from CdTe PV panels, including earthquakes, fires, and floods, was conducted by the University of Tokyo in 2013. After reviewing the extensive international body of research on CdTe PV technology, their report concluded, “Even in the worst-case scenarios, it is unlikely that the Cd concentrations in air and sea water will exceed the environmental regulation values.”[35] In a worst-case scenario of damaged panels abandoned on the ground, insignificant amounts of cadmium will leach from the panels. This is because this scenario is much less conducive (larger module pieces, less acidity) to leaching than the conditions of the EPA’s TCLP test used to simulate landfill conditions, which CdTe panels pass.[36]

First Solar, a U.S. company, and the only significant supplier of CdTe panels, has a robust panel take-back and recycling program that has been operating commercially since 2005.[37] The company states that it is “committed to providing a commercially attractive recycling solution for photovoltaic (PV) power plant and module owners to help them meet their module (end of life) EOL obligation simply, costeffectively and responsibly.” First Solar global recycling services to their customers to collect and recycle panels once they reach the end of productive life whether due to age or damage. These recycling service agreements are structured to be financially attractive to both First Solar and the solar panel owner. For First Solar, the contract provides the company with an affordable source of raw materials needed for new panels and presumably a diminished risk of undesired release of Cd. The contract also benefits the solar panel owner by allowing them to avoid tipping fees at a waste disposal site. The legal contract helps provide peace of mind by ensuring compliance by both parties when considering the continuing trend of rising disposal costs and increasing regulatory requirements.

c. CIS/CIGS and other PV technologies

Copper indium gallium selenide PV technology, often referred to as CIGS, is the second most common type of thin-film PV panel but a distant second behind CdTe. CIGS cells are composed of a thin layer of copper, indium, gallium, and selenium on a glass or plastic backing. None of these elements are very toxic, although selenium is a regulated metal under the Federal Resource Conservation and Recovery Act (RCRA).[38] The cells often also have an extremely thin layer of cadmium sulfide that contains a tiny amount of cadmium, which is toxic. The promise of high efficiency CIGS panels drove heavy investment in this technology in the past. However, researchers have struggled to transfer high efficiency success in the lab to low-cost full-scale panels in the field.[39] Recently, a CIGS manufacturer based in Japan, Solar Frontier, has achieved some market success with a rigid, glass-faced CIGS module that competes with silicon panels. Solar Frontier produces the majority of CIS panels on the market today.[40] Notably, these panels are RoHS compliant,[41] thus meeting the rigorous toxicity standard adopted by the European Union even thought this directive exempts PV panels. The authors are unaware of any completed or proposed utility-scale system in North Carolina using CIS/CIGS panels.

1.2.3 Panel End-of-Life Management

Concerns about the volume, disposal, toxicity, and recycling of PV panels are addressed in this subsection. To put the volume of PV waste into perspective, consider that by 2050, when PV systems installed in 2020 will reach the end of their lives, it is estimated that the global annual PV panel waste tonnage will be 10% of the 2014 global e-waste tonnage.[42] In the U.S., end-of-life disposal of solar products is governed by the Federal Resource Conservation and Recovery Act (RCRA), as well as state policies in some situations. RCRA separates waste into hazardous (not accepted at ordinary landfill) and solid waste (generally accepted at ordinary landfill) based on a series of rules. According to RCRA, the way to determine if a PV panel is classified as hazardous waste is the Toxic Characteristic Leaching Procedure (TCLP) test. This EPA test is designed to simulate landfill disposal and determine the risk of hazardous substances leaching out of the landfill.[43,44,45] Multiple sources report that most modern PV panels (both crystalline silicon and cadmium telluride) pass the TCLP test.[46,47] Some studies found that some older (1990s) crystalline silicon panels, and perhaps some newer crystalline silicon panels (specifics are not given about vintage of panels tested), do not pass the lead (Pb) leachate limits in the TCLP test.[48,49]

The test begins with the crushing of a panel into centimeter-sized pieces. The pieces are then mixed in an acid bath. After tumbling for eighteen hours, the fluid is tested for forty hazardous substances that all must be below specific threshold levels to pass the test. Research comparing TCLP conditions to conditions of damaged panels in the field found that simulated landfill conditions provide overly conservative estimates of leaching for field-damaged panels.[50] Additionally, research in Japan has found no detectable Cd leaching from cracked CdTe panels when exposed to simulated acid rain.[51]

Although modern panels can generally be landfilled, they can also be recycled. Even though recent waste volume has not been adequate to support significant PV-specific recycling infrastructure, the existing recycling industry in North Carolina reports that it recycles much of the current small volume of broken PV panels. In an informal survey conducted by the NC Clean Energy Technology Center survey in early 2016, seven of the eight large active North Carolina utility-scale solar developers surveyed reported that they send damaged panels back to the manufacturer and/or to a local recycler. Only one developer reported sending damaged panels to the landfill. The developers reported at that time that they are usually paid a small amount per panel by local recycling firms. In early 2017, a PV developer reported that a local recycler was charging a small fee per panel to recycle damaged PV panels. The local recycling firm known to authors to accept PV panels described their current PV panel recycling practice as of early 2016 as removing the aluminum frame for local recycling and removing the wire leads for local copper recycling. The remainder of the panel is sent to a facility for processing the non-metallic portions of crushed vehicles, referred to as “fluff” in the recycling industry.[52] This processing within existing general recycling plants allows for significant material recovery of major components, including glass which is 80% of the module weight, but at lower yields than PV-specific recycling plants. Notably almost half of the material value in a PV panel is in the few grams of silver contained in almost every PV panel produced today. In the long-term, dedicated PV panel recycling plants can increase treatment capacities and maximize revenues resulting in better output quality and the ability to recover a greater fraction of the useful materials.[53] PV-specific panel recycling technologies have been researched and implemented to some extent for the past decade, and have been shown to be able to recover over 95% of PV material (semiconductor) and over 90% of the glass in a PV panel.[54]

A look at global PV recycling trends hints at the future possibilities of the practice in our country. Europe installed MW-scale volumes of PV years before the U.S. In 2007, a public-private partnership between the European Union and the solar industry set up a voluntary collection and recycling system called PV CYCLE. This arrangement was later made mandatory under the EU’s WEEE directive, a program for waste electrical and electronic equipment.[55] Its member companies (PV panel producers) fully finance the association. This makes it possible for end-users to return the member companies’ defective panels for recycling at any of the over 300 collection points around

Europe without added costs. Additionally, PV CYCLE will pick up batches of 40 or more used panels at no cost to the user. This arrangement has been very successful, collecting and recycling over 13,000 tons by the end of 2015.[56]

In 2012, the WEEE Directive added the end-of-life collection and recycling of PV panels to its scope.[57] This directive is based on the principle of extended-producer-responsibility. It has a global impact because producers that want to sell into the EU market are legally responsible for end-of-life management. Starting in 2018, this directive targets that 85% of PV products “put in the market” in Europe are recovered and 80% is prepared for reuse and recycling.

The success of the PV panel collection and recycling practices in Europe provides promise for the future of recycling in the U.S. In mid-2016, the US Solar Energy Industry Association (SEIA) announced that they are starting a national solar panel recycling program with the guidance and support of many leading PV panel producers.[58] The program will aggregate the services offered by recycling vendors and PV manufacturers, which will make it easier for consumers to select a cost-effective and environmentally responsible end-of-life management solution for their PV products. According to SEIA, they are planning the program in an effort to make the entire industry landfill-free. In addition to the national recycling network program, the program will provide a portal for system owners and consumers with information on how to responsibly recycle their PV systems.

While a cautious approach toward the potential for negative environmental and/or health impacts from retired PV panels is fully warranted, this section has shown that the positive health impacts of reduced emissions from fossil fuel combustion from PV systems more than outweighs any potential risk. Testing shows that silicon and CdTe panels are both safe to dispose of in landfills, and are also safe in worst case conditions of abandonment or damage in a disaster. Additionally, analysis by local engineers has found that the current salvage value of the equipment in a utility scale PV facility generally exceeds general contractor estimates for the cost to remove the entire PV system.[59,60,61]

1.2.4 Non-Panel System Components

(racking, wiring, inverter, transformer)

While previous toxicity subsections discussed PV panels, this subsection describes the non-panel components of utility-scale PV systems and investigates any potential public health and safety concerns. The most significant non-panel component of a ground-mounted PV system is the mounting structure of the rows of panels, commonly referred to as “racking”. The vertical post portion of the racking is galvanized steel and the remaining above-ground racking components are either galvanized steel or aluminum, which are both extremely common and benign building materials. The inverters that make the solar generated electricity ready to send to the grid have weather-proof steel enclosures that protect the working components from the elements. The only fluids that they might contain are associated with their cooling systems, which are not unlike the cooling system in a computer. Many inverters today are RoHS compliant.

The electrical transformers (to boost the inverter output voltage to the voltage of the utility connection point) do contain a liquid cooling oil. However, the fluid used for that function is either a nontoxic mineral oil or a biodegradable non-toxic vegetable oil, such as BIOTEMP from ABB. These vegetable transformer oils have the additional advantage of being much less flammable than traditional mineral oils. Significant health hazards are associated with old transformers containing cooling oil with toxic PCBs. Transfers with PCB-containing oil were common before PCBs were outlawed in the U.S. in 1979. PCBs still exist in older transformers in the field across the country.

Other than a few utility research sites, there are no batteries on- or off-site associated with utility-scale solar energy facilities in North Carolina, avoiding any potential health or safety concerns related to battery technologies. However, as battery technologies continue to improve and prices continue to decline we are likely to start seeing some batteries at solar facilities. Lithium ion batteries currently dominate the world utility-scale battery market, which are not very toxic. No non-panel system components were found to pose any health or environmental dangers.

1.4 Operations and Maintenance – Panel Washing and Vegetation Control

Throughout the eastern U.S., the climate provides frequent and heavy enough rain to keep panels adequately clean. This dependable weather pattern eliminates the need to wash the panels on a regular basis. Some system owners may choose to wash panels as often as once a year to increase production, but most in N.C. do not regularly wash any PV panels. Dirt build up over time may justify panel washing a few times over the panels' lifetime; however, nothing more than soap and water are required for this activity.

The maintenance of ground-mounted PV facilities requires that vegetation be kept low, both for aesthetics and to avoid shading of the PV panels. Several approaches are used to maintain vegetation at NC solar facilities, including planting of limited-height species, mowing, weed-eating, herbicides, and grazing livestock (sheep). The following descriptions of vegetation maintenance practices are based on interviews with several solar developers as well as with three maintenance firms that together are contracted to maintain well over 100 of the solar facilities in N.C. The majority of solar facilities in North Carolina maintain vegetation primarily by mowing. Each row of panels has a single row of supports, allowing sickle mowers to mow under the panels. The sites usually require mowing about once a month during the growing season. Some sites employ sheep to graze the site, which greatly reduces the human effort required to maintain the vegetation and produces high quality lamb meat.[62]

In addition to mowing and weed eating, solar facilities often use some herbicides. Solar facilities generally do not spray herbicides over the entire acreage; rather they apply them only in strategic locations such as at the base of the perimeter fence, around exterior vegetative buffer, on interior dirt roads, and near the panel support posts. Also unlike many row crop operations, solar facilities generally use only general use herbicides, which are available over the counter, as opposed to restricted use herbicides commonly used in commercial agriculture that require a special restricted use license. The herbicides used at solar facilities are primarily 2-4-D and glyphosate (Round-up®), which are two of the most common herbicides used in lawns, parks, and agriculture across the country. One maintenance firm that was interviewed sprays the grass with a class of herbicide known as a growth regulator in order to slow the growth of grass so that mowing is only required twice a year. Growth regulators are commonly used on highway roadsides and golf courses for the same purpose. A commercial pesticide applicator license is required for anyone other than the landowner to apply herbicides, which helps ensure that all applicators are adequately educated about proper herbicide use and application. The license must be renewed annually and requires passing of a certification exam appropriate to the area in which the applicator wishes to work. Based on the limited data available, it appears that solar facilities in N.C. generally use significantly less herbicides per acre than most commercial agriculture or lawn maintenance services.

2. Electromagnetic Fields (EMF)

PV systems do not emit any material during their operation; however, they do generate electromagnetic fields (EMF), sometimes referred to as radiation. EMF produced by electricity is non-ionizing radiation, meaning the radiation has enough energy to move atoms in a molecule around (experienced as heat), but not enough energy to remove electrons from an atom or molecule (ionize) or to damage DNA. As shown below, modern humans are all exposed to EMF throughout our daily lives without negative health impact. Someone outside of the fenced perimeter of a solar facility is not exposed to significant EMF from the solar facility. Therefore, there is no negative health impact from the EMF produced in a solar farm. The following paragraphs provide some additional background and detail to support this conclusion.

Since the 1970s, some have expressed concern over potential health consequences of EMF from electricity, but no studies have ever shown this EMF to cause health problems.[63] These concerns are based on some epidemiological studies that found a slight increase in childhood leukemia associated with average exposure to residential power-frequency magnetic fields above 0.3 to 0.4 μT (microteslas) (equal to 3.0 to 4.0 mG (milligauss)). μT and mG are both units used to measure magnetic field strength. For comparison, the average exposure for people in the U.S. is one mG or 0.1 μT, with about 1% of the population with an average exposure in excess of 0.4 μT (or 4 mG).[64] These epidemiological studies, which found an association but not a causal relationship, led the World Health Organization's International Agency for Research on Cancer (IARC) to classify ELF magnetic fields as "possibly carcinogenic to humans". Coffee also has this classification. This classification means there is limited evidence but not enough evidence to designate as either a "probable carcinogen" or "human carcinogen". Overall, there is very little concern that ELF EMF damages public health. The only concern that does exist is for long-term exposure above 0.4 μT (4 mG) that may have some connection to increased cases of childhood leukemia. In 1997, the National Academies of Science were directed by Congress to examine this concern and concluded:

"Based on a comprehensive evaluation of published studies relating to the effects of power-frequency electric and magnetic fields on cells, tissues, and organisms (including humans), the conclusion of the committee is that the current body of evidence does not show that exposure to these fields presents a human-health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential electric and magnetic fields produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects."[65]

There are two aspects to electromagnetic fields, an electric field and a magnetic field. The electric field is generated by voltage and the magnetic field is generated by electric current, i.e., moving electrons. A task group of scientific experts convened by the World Health Organization (WHO) in 2005 concluded that there were no substantive health issues related to electric fields (0 to 100,000 Hz) at levels generally encountered by members of the public.[66] The relatively low voltages in a solar facility and the fact that electric fields are easily shielded (i.e., blocked) by common materials, such as plastic, metal, or soil means that there is no concern of negative health impacts from the electric fields generated by a solar facility. Thus, the remainder of this section addresses magnetic fields. Magnetic fields are not shielded by most common materials and thus can easily pass through them. Both types of fields are strongest close to the source of electric generation and weaken quickly with distance from the source.

The direct current (DC) electricity produced by PV panels produce stationary (0 Hz) electric and magnetic fields. Because of minimal concern about potential risks of stationary fields, little scientific research has examined stationary fields' impact on human health.[67] In even the largest PV facilities, the DC voltages and currents are not very high. One can illustrate the weakness of the EMF generated by a PV panel by placing a compass on an operating solar panel and observing that the needle still points north.

While the electricity throughout the majority of a solar site is DC electricity, the inverters convert this DC electricity to alternating current (AC) electricity matching the 60 Hz frequency of the grid. Therefore, the inverters and the wires delivering this power to the grid are producing non-stationary EMF, known as extremely low frequency (ELF) EMF, normally oscillating with a frequency of 60 Hz. This frequency is at the low-energy end of the electromagnetic spectrum. Therefore, it has less energy than other commonly encountered types of non-ionizing radiation like radio waves, infrared radiation, and visible light.

The wide use of electricity results in background levels of ELF EMFs in nearly all locations where people spend time – homes, workplaces, schools, cars, the supermarket, etc. A person's average exposure depends upon the sources they encounter, how close they are to them, and the amount of time they spend there.[68] As stated above, the average exposure to magnetic fields in the U.S. is estimated to be around one mG or 0.1 μT, but can vary considerably depending on a person's exposure to EMF from electrical devices and wiring.[69] At times we are often exposed to much higher ELF magnetic fields, for example when standing three feet from a refrigerator the ELF magnetic field is 6 mG and when standing three feet from a microwave oven the field is about 50 mG.[70] The strength of these fields diminish quickly with distance from the source, but when surrounded by electricity in our homes and other buildings moving away from one source moves you closer to another. However, unless you are inside of the fence at a utility-scale solar facility or electrical substation it is impossible to get very close to the EMF sources. Because of this, EMF levels at the fence of electrical substations containing high voltages and currents are considered "generally negligible".[71,72]

The strength of ELF-EMF present at the perimeter of a solar facility or near a PV system in a commercial or residential building is significantly lower than the typical American's average EMF exposure.[73,74] Researchers in Massachusetts measured magnetic fields at PV projects and found the magnetic fields dropped to very low levels of 0.5 mG or less, and in many cases to less than background levels (0.2 mG), at distances of no more than nine feet from the residential inverters and 150 feet from the utility-scale inverters.[75] Even when measured within a few feet of the utility-scale inverter, the ELF magnetic fields were well below the International Commission on Non-Ionizing Radiation Protection's recommended magnetic field level exposure limit for the general public of 2,000 mG.[76] It is typical that utility scale designs locate large inverters central to the PV panels that feed them because this minimizes the length of wire required and shields neighbors from the sound of the inverter's cooling fans. Thus, it is rare for a large PV inverter to be within 150 feet of the project's security fence.

Anyone relying on a medical device such as pacemaker or other implanted device to maintain proper heart rhythm may have concern about the potential for a solar project to interfere with the operation of his or her device. However, there is no reason for concern because the EMF outside of the solar facility's fence is less than 1/1000 of the level at which manufacturers test for ELF EMF interference, which is 1,000 mG.[77] Manufacturers of potentially affected implanted devices often provide advice on electromagnetic interference that includes avoiding letting the implanted device get too close to certain sources of fields such as some household appliances, some walkie-talkies, and similar transmitting devices. Some manufacturers' literature does not mention high-voltage power lines, some say that exposure in public areas should not give interference, and some advise not spending extended periods of time close to power lines.[78]

3. Electric Shock and Arc Flash Hazards

There is a real danger of electric shock to anyone entering any of the electrical cabinets such as combiner boxes, disconnect switches, inverters, or transformers; or otherwise coming in contact with voltages over 50 Volts.[79] Another electrical hazard is an arc flash, which is an explosion of energy that can occur in a short circuit situation. This explosive release of energy causes a flash of heat and a shockwave, both of which can cause serious injury or death. Properly trained and equipped technicians and electricians know how to safely install, test, and repair PV systems, but there is always some risk of injury when hazardous voltages and/or currents are present. Untrained individuals should not attempt to inspect, test, or repair any aspect of a PV system due to the potential for injury or death due to electric shock and arc flash, The National Electric Code (NEC) requires appropriate levels of warning signs on all electrical components based on the level of danger determined by the voltages and current potentials. The national electric code also requires the site to be secured from unauthorized visitors with either a six-foot chain link fence with three strands of barbed wire or an eight-foot fence, both with adequate hazard warning signs.

4. Fire Safety

The possibility of fires resulting from or intensified by PV systems may trigger concern among the general public as well as among firefighters. However, concern over solar fire hazards should be limited because only a small portion of materials in the panels are flammable, and those components cannot self-support a significant fire. Flammable components of PV panels include the thin layers of polymer encapsulates surrounding the PV cells, polymer backsheets (framed panels only), plastic junction boxes on rear of panel, and insulation on wiring. The rest of the panel is composed of non-flammable components, notably including one or two layers of protective glass that make up over three quarters of the panel's weight.

Heat from a small flame is not adequate to ignite a PV panel, but heat from a more intense fire or energy from an electrical fault can ignite a PV panel.[80] One real-world example of this occurred during July 2015 in an arid area of California. Three acres of grass under a thin film PV facility burned without igniting the panels mounted on fixed-tilt racks just above the grass.[81] While it is possible for electrical faults in PV systems on homes or commercial buildings to start a fire, this is extremely rare.[82] Improving understanding of the PV-specific risks, safer system designs, and updated fire-related codes and standards will continue to reduce the risk of fire caused by PV systems.

PV systems on buildings can affect firefighters in two primary ways, 1) impact their methods of fighting the fire, and 2) pose safety hazard to the firefighters. One of the most important techniques that firefighters use to suppress fire is ventilation of a building's roof. This technique allows superheated toxic gases to quickly exit the building. By doing so, the firefighters gain easier and safer access to the building, Ventilation of the roof also makes the challenge of putting out the fire easier. However, the placement of rooftop PV panels may interfere with ventilating the roof by limiting access to desired venting locations.

New solar-specific building code requirements are working to minimize these concerns. Also, the latest National Electric Code has added requirements that make it easier for first responders to safely and effectively turn off a PV system. Concern for firefighting a building with PV can be reduced with proper fire fighter training, system design, and installation. Numerous organizations have studied fire fighter safety related to PV. Many organizations have published valuable guides and training programs. Some notable examples are listed below.

- The International Association of Fire Fighters (IAFF) and International Renewable Energy Council (IREC) partnered to create an online training course that is far beyond the PowerPoint click-andview model. The self-paced online course, "Solar PV Safety for Fire Fighters," features rich video content and simulated environments so fire fighters can practice the knowledge they've learned. www.iaff.org/pvsafetytraining
- Photovoltaic Systems and the Fire Code: Office of NC Fire Marshal
- Fire Service Training, Underwriter's Laboratory
- Firefighter Safety and Response for Solar Power Systems, National Fire Protection Research Foundation
- Bridging the Gap: Fire Safety & Green Buildings, National Association of State Fire Marshalls
- Guidelines for Fire Safety Elements of Solar Photovoltaic Systems, Orange County Fire Chiefs Association
- Solar Photovoltaic Installation Guidelines, California Department of Forestry & Fire Protection, Office of the State Fire Marshall
- PV Safety & Firefighting, Matthew Paiss, Homepower Magazine
- PV Safety and Code Development: Matthew Paiss, Cooperative Research Network

Summary

The purpose of this paper is to address and alleviate concerns of public health and safety for utility-scale solar PV projects. Concerns of public health and safety were divided and discussed in the four following sections: (1) Toxicity, (2) Electromagnetic Fields, (3) Electric Shock and Arc Flash, and (4) Fire. In each of these sections, the negative health and safety impacts of utility-scale PV development were shown to be negligible, while the public health and safety benefits of installing these facilities are significant and far outweigh any negative impacts.

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Solar Panels. Photo by Mariana Proenca on Unsplash

“Clean Energy in Michigan” Series, Number 12

Facts about solar panels: PFAS contamination

By Dr. Annick Anctil, Michigan State University

Q: Do solar panels contribute to PFAS contamination?

Multiple states have raised concerns about PFAS contamination from solar farms, largely citing academic research on how PFAS could *potentially* be used in photovoltaic (PV) solar panels.[1] The fact is that PFAS is *not* customarily used in solar panels because safer, effective alternatives have already been developed and commercialized. Moreover, no studies have shown the presence or leaching of PFAS from PV panels—either while they are in active use or at the end of their life (e.g., in a landfill).

Anatomy of a solar panel

These three parts of a solar panel cause confusion about the presence of PFAS.

Self-Cleaning Coat

A self-cleaning coating on the top of a solar panel helps reduce dust, pollen, and snow adhesion, extending both the power output and the lifetime of the panel.[2] Multiple self-cleaning coating options are available on the market, many of which make use of non-hazardous silicon-based chemistry.[3] Confusion comes from the fact that some other commercialized self-cleaning coating options do make use of PFAS-based chemicals, although even those do not degrade under normal use.

Adhesives

PV panels are sealed from the elements to maximize power output and lifetime. While PFAS chemicals are found in certain adhesives, such as carpentry glues, they are not typically used in sealant adhesives for solar panels.[4] Instead, solar adhesives are based on silicone polymers, which are well known for their lack of negative health impacts and remarkable stability.[5]

Substrate

PV modules are housed in a weather-resistant substrate that offers additional protection from the elements. Thin-film PV units use glass as the substrate, while crystalline silicon PV units use a polymer substrate, which has led to the rumors of

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potential PFAS use in solar panels. The most common polymer used in silicon PV units is Tedlar, a weather resistant polymer that is *not* a PFAS compound itself and makes no use of PFAS during its manufacturing process.[6] Far more common materials, like those used in construction projects and weather resistant fabrics, present a higher risk of PFAS exposure than PV. In fact, a recent study found that these more common materials release PFAS under conditions where solar panels do not, indicating that PFAS exposure risk may be higher sitting on outdoor furniture, for example, than living next to a solar farm.[7]

What is PFAS anyway?

Per/Poly Fluoro-Alkyl Substances, PFAS for short, are a class of chemical compounds. PFAS are used in several industries for their unique properties, notably their ability to create coatings that are highly water repellent.

PFAS are extremely persistent within the environment, not breaking down over time. Certain PFAS compounds have been linked to human health issues–notably low infant birth weights, increased risk of certain cancers, and thyroid issues. As a result of their persistence and toxicity, those PFAS compounds that pose a significant risk have been banned from use and production, and subsequently replaced with safer alternatives.

It's important to note that not all PFAS compounds are dangerous. Some PFAS compounds, such as Teflon, are much more stable and present no risk to human health under normal conditions of use.[8]

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EXHIBIT O: HYDROLOGIC RESPONSE OF SOLAR FARMS

Hydrologic Response of Solar Farms

Lauren M. Cook, S.M.ASCE[1]; and Richard H. McCuen, M.ASCE[2]

Abstract: Because of the benefits of solar energy, the number of solar farms is increasing; however, their hydrologic impacts have not been studied. The goal of this study was to determine the hydrologic effects of solar farms and examine whether or not storm-water management is needed to control runoff volumes and rates. A model of a solar farm was used to simulate runoff for two conditions: the pre- and postpaneled conditions. Using sensitivity analyses, modeling showed that the solar panels themselves did not have a significant effect on the runoff volumes, peaks, or times to peak. However, if the ground cover under the panels is gravel or bare ground, owing to design decisions or lack of maintenance, the peak discharge may increase significantly with storm-water management needed. In addition, the kinetic energy of the flow that drains from the panels was found to be greater than that of the rainfall, which could cause erosion at the base of the panels. Thus, it is recommended that the grass beneath the panels be well maintained or that a buffer strip be placed after the most downgradient row of panels. This study, along with design recommendations, can be used as a guide for the future design of solar farms. **DOI: 10.1061/(ASCE)HE.1943-5584.0000530.** *© 2013 American Society of Civil Engineers.*

CE Database subject headings: Hydrology; Land use; Solar power; Floods; Surface water; Runoff; Stormwater management.

Author keywords: Hydrology; Land use change; Solar energy; Flooding; Surface water runoff; Storm-water management.

Introduction

Storm-water management practices are generally implemented to reverse the effects of land-cover changes that cause increases in volumes and rates of runoff. This is a concern posed for new types of land-cover change such as the solar farm. Solar energy is a renewable energy source that is expected to increase in importance in the near future. Because solar farms require considerable land, it is necessary to understand the design of solar farms and their potential effect on erosion rates and storm runoff, especially the impact on offsite properties and receiving streams. These farms can vary in size from 8 ha (20 acres) in residential areas to 250 ha (600 acres) in areas where land is abundant.

The solar panels are impervious to rain water; however, they are mounted on metal rods and placed over pervious land. In some cases, the area below the panel is paved or covered with gravel. Service roads are generally located between rows of panels. Although some panels are stationary, others are designed to move so that the angle of the panel varies with the angle of the sun. The angle can range, depending on the latitude, from 22° during the summer months to 74° during the winter months. In addition, the angle and direction can also change throughout the day. The issue posed is whether or not these rows of impervious panels will change the runoff characteristics of the site, specifically increase runoff volumes or peak discharge rates. If the increases are hydrologically significant, storm-water management facilities may be needed. Additionally, it is possible that the velocity of water draining from the edge of the panels is sufficient to cause erosion of the soil below the panels, especially where the maintenance roadways are bare ground.

The outcome of this study provides guidance for assessing the hydrologic effects of solar farms, which is important to those who plan, design, and install arrays of solar panels. Those who design solar farms may need to provide for storm-water management. This study investigated the hydrologic effects of solar farms, assessed whether or not storm-water management might be needed, and if the velocity of the runoff from the panels could be sufficient to cause erosion of the soil below the panels.

Model Development

Solar farms are generally designed to maximize the amount of energy produced per unit of land area, while still allowing space for maintenance. The hydrologic response of solar farms is not usually considered in design. Typically, the panels will be arrayed in long rows with separations between the rows to allow for maintenance vehicles. To model a typical layout, a unit width of one panel was assumed, with the length of the downgradient strip depending on the size of the farm. For example, a solar farm with 30 rows of 200 panels each could be modeled as a strip of 30 panels with space between the panels for maintenance vehicles. Rainwater that drains from the upper panel onto the ground will flow over the land under the 29 panels on the downgradient strip. Depending on the land cover, infiltration losses would be expected as the runoff flows to the bottom of the slope.

To determine the effects that the solar panels have on runoff characteristics, a model of a solar farm was developed. Runoff in the form of sheet flow without the addition of the solar panels served as the prepaneled condition. The paneled condition assumed a downgradient series of cells with one solar panel per ground cell. Each cell was separated into three sections: wet, dry, and spacer.

The dry section is that portion directly underneath the solar panel, unexposed directly to the rainfall. As the angle of the panel from the horizontal increases, more of the rain will fall directly onto

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the ground; this section of the cell is referred to as the wet section. The spacer section is the area between the rows of panels used by maintenance vehicles. Fig. 1 is an image of two solar panels and the spacer section allotted for maintenance vehicles. Fig. 2 is a schematic of the wet, dry, and spacer sections with their respective dimensions. In Fig. 1, tracks from the vehicles are visible on what is modeled within as the spacer section. When the solar panel is horizontal, then the length longitudinal to the direction that runoff will occur is the length of the dry and wet sections combined. Runoff from a dry section drains onto the downgradient spacer section. Runoff from the spacer section flows to the wet section of the next downgradient cell. Water that drains from a solar panel falls directly onto the spacer section of that cell.

The length of the spacer section is constant. During a storm event, the loss rate was assumed constant for the 24-h storm because a wet antecedent condition was assumed. The lengths of the wet and dry sections changed depending on the angle of the solar panel. The total length of the wet and dry sections was set equal to the length of one horizontal solar panel, which was assumed to be 3.5 m. When a solar panel is horizontal, the dry section length would equal 3.5 m and the wet section length would be zero. In the paneled condition, the dry section does not receive direct rainfall because the rain first falls onto the solar panel then drains onto the spacer section. However, the dry section does infiltrate some of the runoff that comes from the upgradient wet section. The wet section was modeled similar to the spacer section with rain falling directly onto the section and assuming a constant loss rate.

For the presolar panel condition, the spacer and wet sections are modeled the same as in the paneled condition; however, the cell does not include a dry section. In the prepaneled condition, rain falls directly onto the entire cell. When modeling the prepaneled condition, all cells receive rainfall at the same rate and are subject to losses. All other conditions were assumed to remain the same such that the prepaneled and paneled conditions can be compared.

Rainfall was modeled after an natural resources conservation service (NRCS) Type II Storm (McCuen 2005) because it is an accurate representation of actual storms of varying characteristics that are imbedded in intensity-duration-frequency (IDF) curves. For each duration of interest, a dimensionless hyetograph was developed using a time increment of 12 s over the duration of the storm (see Fig. 3). The depth of rainfall that corresponds to each storm magnitude was then multiplied by the dimensionless hyetograph. For a 2-h storm duration, depths of 40.6, 76.2, and 101.6 mm were used for the 2-, 25-, and 100-year events. The 2- and 6-h duration hyetographs were developed using the center portion of the 24-h storm, with the rainfall depths established with the Baltimore IDF curve. The corresponding depths for a 6-h duration were 53.3, 106.7, and 132.1 mm, respectively. These magnitudes were chosen to give a range of storm conditions.

During each time increment, the depth of rain is multiplied by the cell area to determine the volume of rain added to each section of each cell. This volume becomes the storage in each cell. Depending on the soil group, a constant volume of losses was subtracted from the storage. The runoff velocity from a solar panel was calculated using Manning's equation, with the hydraulic radius for sheet flow assumed to equal the depth of the storage on the panel (Bedient and Huber 2002). Similar assumptions were made to compute the velocities in each section of the surface sections.

Fig. 1. Maintenance or "spacer" section between two rows of solar panels (photo by John E. Showler, reprinted with permission)

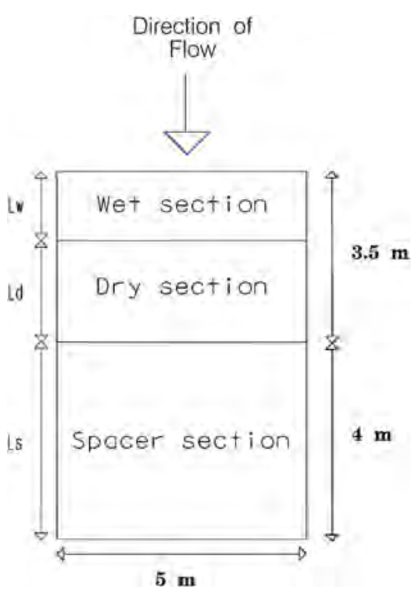

Fig. 2. Wet, dry, and spacer sections of a single cell with lengths *Lw*, *Ls*, and *Ld* with the solar panel covering the dry section

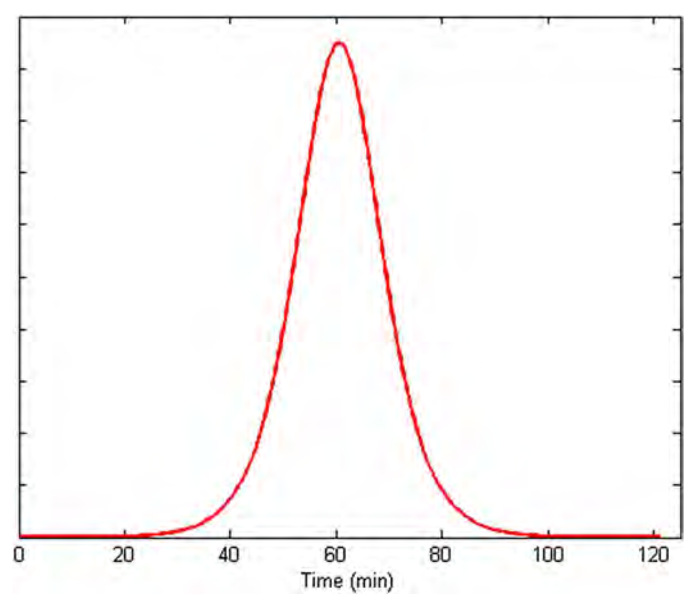

Fig. 3. Dimensionless hyetograph of 2-h Type II storm

Runoff from one section to the next and then to the next downgradient cell was routed using the continuity of mass. The routing coefficient depended on the depth of flow in storage and the velocity of runoff. Flow was routed from the wet section to the dry section to the spacer section, with flow from the spacer section draining to the wet section of the next cell. Flow from the most downgradient cell was assumed to be the outflow. Discharge rates and volumes from the most downgradient cell were used for comparisons between the prepaneled and paneled conditions.

Alternative Model Scenarios

To assess the effects of the different variables, a section of 30 cells, each with a solar panel, was assumed for the base model. Each cell was separated individually into wet, dry, and spacer sections. The area had a total ground length of 225 m with a ground slope of 1% and width of 5 m, which was the width of an average solar panel. The roughness coefficient (Engman 1986) for the silicon solar panel was assumed to be that of glass, 0.01. Roughness coefficients of 0.15 for grass and 0.02 for bare ground were also assumed. Loss rates of 0.5715 cm/h (0.225 in./h) and 0.254 cm/h (0.1 in./h) for B and C soils, respectively, were assumed.

The prepaneled condition using the 2-h, 25-year rainfall was assumed for the base condition, with each cell assumed to have a good grass cover condition. All other analyses were made assuming a paneled condition. For most scenarios, the runoff volumes and peak discharge rates from the paneled model were not significantly greater than those for the prepaneled condition. Over a total length of 225 m with 30 solar panels, the runoff increased by 0.26 m^3, which was a difference of only 0.35%. The slight increase in runoff volume reflects the slightly higher velocities for the paneled condition. The peak discharge increased by 0.0013 m^3, a change of only 0.31%. The time to peak was delayed by one time increment, i.e., 12 s. Inclusion of the panels did not have a significant hydrologic impact.

Storm Magnitude

The effect of storm magnitude was investigated by changing the magnitude from a 25-year storm to a 2-year storm. For the 2-year storm, the rainfall and runoff volumes decreased by approximately 50%. However, the runoff from the paneled watershed condition increased compared to the prepaneled condition by approximately the same volume as for the 25-year analysis, 0.26 m^3. This increase represents only a 0.78% increase in volume. The peak discharge and the time to peak did not change significantly. These results reflect runoff from a good grass cover condition and indicated that the general conclusion of very minimal impacts was the same for different storm magnitudes.

Ground Slope

The effect of the downgradient ground slope of the solar farm was also examined. The angle of the solar panels would influence the velocity of flows from the panels. As the ground slope was increased, the velocity of flow over the ground surface would be closer to that on the panels. This could cause an overall increase in discharge rates. The ground slope was changed from 1 to 5%, with all other conditions remaining the same as the base conditions.

With the steeper incline, the volume of losses decreased from that for the 1% slope, which is to be expected because the faster velocity of the runoff would provide less opportunity for infiltration. However, between the prepaneled and paneled conditions, the increase in runoff volume was less than 1%. The peak discharge and the time to peak did not change. Therefore, the greater ground slope did not significantly influence the response of the solar farm.

Soil Type

The effect of soil type on the runoff was also examined. The soil group was changed from B soil to C soil by varying the loss rate. As expected, owing to the higher loss rate for the C soil, the depths of runoff increased by approximately 7.5% with the C soil when compared with the volume for B soils. However, the runoff volume for the C soil condition only increased by 0.17% from the prepaneled condition to the paneled condition. In comparison with the B soil, a difference of 0.35% in volume resulted between the two conditions. Therefore, the soil group influenced the actual volumes and rates, but not the relative effect of the paneled condition when compared to the prepaneled condition.

Panel Angle

Because runoff velocities increase with slope, the effect of the angle of the solar panel on the hydrologic response was examined. Analyses were made for angles of 30° and 70° to test an average range from winter to summer. The hydrologic response for these angles was compared to that of the base condition angle of 45°. The other site conditions remained the same. The analyses showed that the angle of the panel had only a slight effect on runoff volumes and discharge rates. The lower angle of 30° was associated with an increased runoff volume, whereas the runoff volume decreased for the steeper angle of 70° when compared with the base condition of 45°. However, the differences (~0.5%) were very slight. Nevertheless, these results indicate that, when the solar panel was closer to horizontal, i.e., at a lower angle, a larger difference in runoff volume occurred between the prepaneled and paneled conditions. These differences in the response result are from differences in loss rates.

The peak discharge was also lower at the lower angle. At an angle of 30°, the peak discharge was slightly lower than at the higher angle of 70°. For the 2-h storm duration, the time to peak of the 30° angle was 2 min delayed from the time to peak of when the panel was positioned at a 70° angle, which reflects the longer travel times across the solar panels.

Storm Duration

To assess the effect of storm duration, analyses were made for 6-h storms, testing magnitudes for 2-, 25-, and 100-year return periods, with the results compared with those for the 2-h rainfall events. The longer storm duration was tested to determine whether a longer duration storm would produce a different ratio of increase in runoff between the prepaneled and paneled conditions. When compared to runoff volumes from the 2-h storm, those for the 6-h storm were 34% greater in both the paneled and prepaneled cases. However, when comparing the prepaneled to the paneled condition, the increase in the runoff volume with the 6-h storm was less than 1% regardless of the return period. The peak discharge and the time-to-peak did not differ significantly between the two conditions. The trends in the hydrologic response of the solar farm did not vary with storm duration.

Ground Cover

The ground cover under the panels was assumed to be a native grass that received little maintenance. For some solar farms, the area beneath the panel is covered in gravel or partially paved because the panels prevent the grass from receiving sunlight. Depending on the

J. Hydrol. Eng. 2013.18:536-541.

volume of traffic, the spacer cell could be grass, patches of grass, or bare ground. Thus, it was necessary to determine whether or not these alternative ground-cover conditions would affect the runoff characteristics. This was accomplished by changing the Manning's n for the ground beneath the panels. The value of n under the panels, i.e., the dry section, was set to 0.015 for gravel, with the value for the spacer or maintenance section set to 0.02, i.e., bare ground. These can be compared to the base condition of a native grass ($n = 0.15$). A good cover should promote losses and delay the runoff.

For the smoother surfaces, the velocity of the runoff increased and the losses decreased, which resulted in increasing runoff volumes. This occurred both when the ground cover under the panels was changed to gravel and when the cover in the spacer section was changed to bare ground. Owing to the higher velocities of the flow, runoff rates from the cells increased significantly such that it was necessary to reduce the computational time increment. Fig. 4(a) shows the hydrograph from a 30-panel area with a time increment of 12 s. With a time increment of 12 s, the water in each cell is discharged at the end of every time increment, which results in no attenuation of the flow; thus, the undulations shown in Fig. 4(a) result. The time increment was reduced to 3 s for the 2-h storm, which resulted in watershed smoothing and a rational hydrograph shape [Fig. 4(b)]. The results showed that the storm runoff increased by 7% from the grass-covered scenario to the scenario with gravel under the panel. The peak discharge increased by 73% for the gravel ground cover when compared with the grass cover without the panels. The time to peak was 10 min less with the gravel than with the grass, which reflects the effect of differences in surface roughness and the resulting velocities.

If maintenance vehicles used the spacer section regularly and the grass cover was not adequately maintained, the soil in the spacer section would be compacted and potentially the runoff volumes and rates would increase. Grass that is not maintained has the potential to become patchy and turn to bare ground. The grass under the panel may not get enough sunlight and die. Fig. 1 shows the result of the maintenance trucks frequently driving in the spacer section, which diminished the grass cover.

The effect of the lack of solar farm maintenance on runoff characteristics was modeled by changing the Manning's n to a value of 0.02 for bare ground. In this scenario, the roughness coefficient for the ground under the panels, i.e., the dry section, as well as in the spacer cell was changed from grass covered to bare ground ($n = 0.02$).The effects were nearly identical to that of the gravel. The runoff volume increased by 7% from the grass-covered to the bare-ground condition. The peak discharge increased by 72% when compared with the grass-covered condition. The runoff for the bare-ground condition also resulted in an earlier time to peak by approximately 10 min. Two other conditions were also modeled, showing similar results. In the first scenario, gravel was placed directly under the panel, and healthy grass was placed in the spacer section, which mimics a possible design decision. Under these conditions, the peak discharge increased by 42%, and the volume of runoff increased by 4%, which suggests that storm-water management would be necessary if gravel is placed anywhere.

Fig. 5 shows two solar panels from a solar farm in New Jersey. The bare ground between the panels can cause increased runoff rates and reductions in time of concentration, both of which could necessitate storm-water management. The final condition modeled involved the assumption of healthy grass beneath the panels and bare ground in the spacer section, which would simulate the condition of unmaintained grass resulting from vehicles that drive over the spacer section. Because the spacer section is 53% of the cell, the change in land cover to bare ground would reduce losses and decrease runoff travel times, which would cause runoff to amass as it

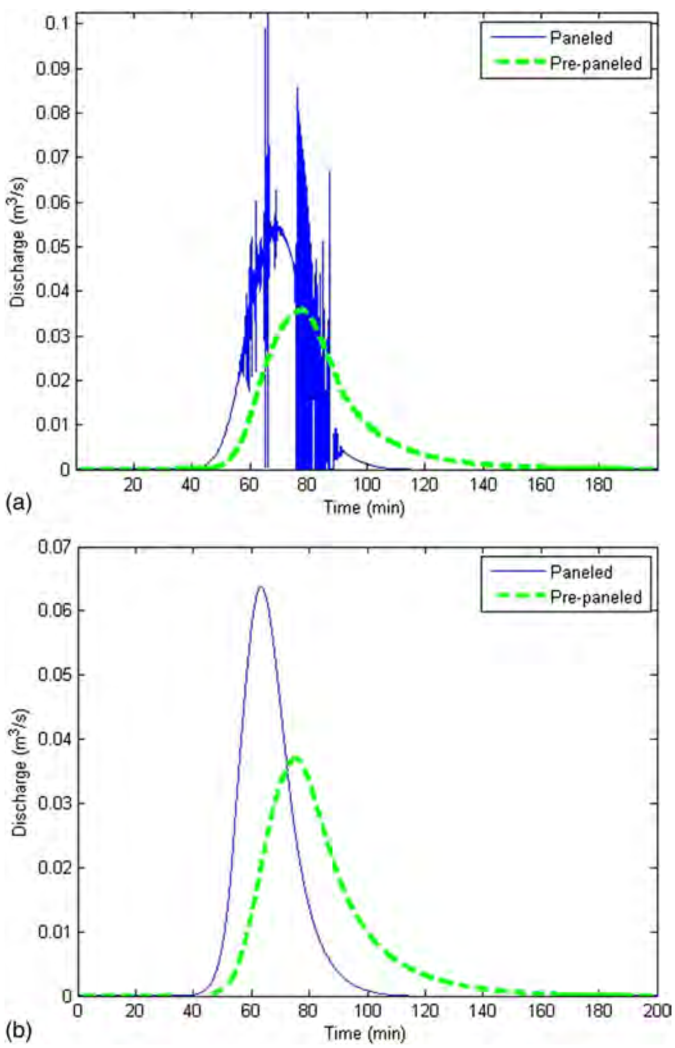

Fig. 4. Hydrograph with time increment of (a) 12 s; (b) 3 s with Manning's n for bare ground

Fig. 5. Site showing the initiation of bare ground below the panels, which increases the potential for erosion (photo by John Showler, reprinted with permission)

J. Hydrol. Eng. 2013.18:536-541.

moves downgradient. With the spacer section as bare ground, the peak discharge increased by 100%, which reflected the increases in volume and decrease in timing. These results illustrate the need for maintenance of the grass below and between the panels.

Design Suggestions

With well-maintained grass underneath the panels, the solar panels themselves do not have much effect on total volumes of the runoff or peak discharge rates. Although the panels are impervious, the rainwater that drains from the panels appears as runoff over the downgradient cells. Some of the runoff infiltrates. If the grass cover of a solar farm is not maintained, it can deteriorate either because of a lack of sunlight or maintenance vehicle traffic. In this case, the runoff characteristics can change significantly with both runoff rates and volumes increasing by significant amounts. In addition, if gravel or pavement is placed underneath the panels, this can also contribute to a significant increase in the hydrologic response.

If bare ground is foreseen to be a problem or gravel is to be placed under the panels to prevent erosion, it is necessary to counteract the excess runoff using some form of storm-water management. A simple practice that can be implemented is a buffer strip (Dabney et al. 2006) at the downgradient end of the solar farm. The buffer strip length must be sufficient to return the runoff characteristics with the panels to those of runoff experienced before the gravel and panels were installed. Alternatively, a detention basin can be installed.

A buffer strip was modeled along with the panels. For approximately every 200 m of panels, or 29 cells, the buffer must be 5 cells long (or 35 m) to reduce the runoff volume to that which occurred before the panels were added. Even if a gravel base is not placed under the panels, the inclusion of a buffer strip may be a good practice when grass maintenance is not a top funding priority. Fig. 6 shows the peak discharge from the graveled surface versus the length of the buffer needed to keep the discharge to prepaneled peak rate.

Water draining from a solar panel can increase the potential for erosion of the spacer section. If the spacer section is bare ground, the high kinetic energy of water draining from the panel can cause soil detachment and transport (Garde and Raju 1977; Beuselinck et al. 2002). The amount and risk of erosion was modeled using the velocity of water coming off a solar panel compared with the velocity and intensity of the rainwater. The velocity of panel runoff was calculated using Manning's equation, and the velocity of falling rainwater was calculated using the following:

$$V_t = 120\, d_r^{0.35} \tag{1}$$

where d_r = diameter of a raindrop, assumed to be 1 mm. The relationship between kinetic energy and rainfall intensity is

$$K_e = 916 + 330 \log_{10} i \tag{2}$$

where i = rainfall intensity (in./h) and K_e = kinetic energy (ft-tons per ac-in. of rain) of rain falling onto the wet section and the panel, as well as the water flowing off of the end of the panel (Wischmeier and Smith 1978). The kinetic energy (Salles et al. 2002) of the rainfall was greater than that coming off the panel, but the area under the panel (i.e., the product of the length, width, and cosine of the panel angle) is greater than the area under the edge of the panel where the water drains from the panel onto the ground. Thus, dividing the kinetic energy by the respective areas gives a more accurate representation of the kinetic energy experienced by the soil. The energy of the water draining from the panel onto the ground can be nearly 10 times greater than the rain itself falling onto the ground area. If the solar panel runoff falls onto an unsealed soil, considerable detachment can result (Motha et al. 2004). Thus, because of the increased kinetic energy, it is possible that the soil is much more prone to erosion with the panels than without. Where panels are installed, methods of erosion control should be included in the design.

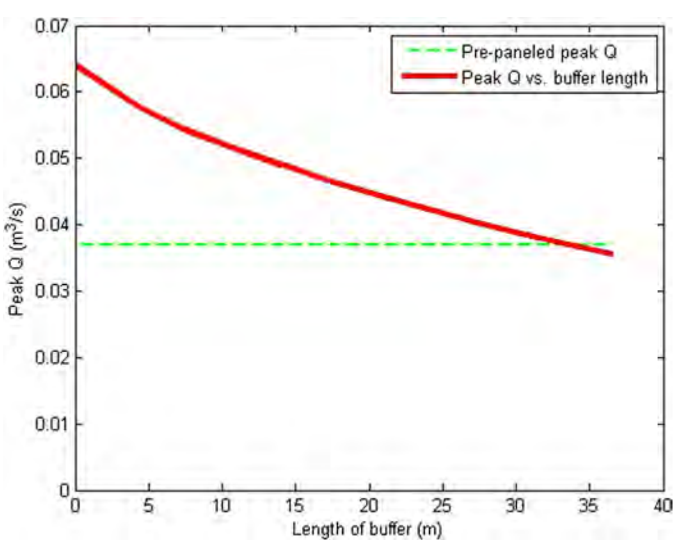

Fig. 6. Peak discharge over gravel compared with buffer length

Conclusions

Solar farms are the energy generators of the future; thus, it is important to determine the environmental and hydrologic effects of these farms, both existing and proposed. A model was created to simulate storm-water runoff over a land surface without panels and then with solar panels added. Various sensitivity analyses were conducted including changing the storm duration and volume, soil type, ground slope, panel angle, and ground cover to determine the effect that each of these factors would have on the volumes and peak discharge rates of the runoff.

The addition of solar panels over a grassy field does not have much of an effect on the volume of runoff, the peak discharge, nor the time to peak. With each analysis, the runoff volume increased slightly but not enough to require storm-water management facilities. However, when the land-cover type was changed under the panels, the hydrologic response changed significantly. When gravel or pavement was placed under the panels, with the spacer section left as patchy grass or bare ground, the volume of the runoff increased significantly and the peak discharge increased by approximately 100%. This was also the result when the entire cell was assumed to be bare ground.

The potential for erosion of the soil at the base of the solar panels was also studied. It was determined that the kinetic energy of the water draining from the solar panel could be as much as 10 times greater than that of rainfall. Thus, because the energy of the water draining from the panels is much higher, it is very possible that soil below the base of the solar panel could erode owing to the concentrated flow of water off the panel, especially if there is bare ground in the spacer section of the cell. If necessary, erosion control methods should be used.

Bare ground beneath the panels and in the spacer section is a realistic possibility (see Figs. 1 and 5). Thus, a good, well-maintained grass cover beneath the panels and in the spacer section is highly recommended. If gravel, pavement, or bare ground is

J. Hydrol. Eng. 2013.18:536-541.

deemed unavoidable below the panels or in the spacer section, it may necessary to add a buffer section to control the excess runoff volume and ensure adequate losses. If these simple measures are taken, solar farms will not have an adverse hydrologic impact from excess runoff or contribute eroded soil particles to receiving streams and waterways.

Acknowledgments

The authors appreciate the photographs (Figs. 1 and 5) of Ortho Clinical Diagnostics, 1001 Route 202, North Raritan, New Jersey, 08869, provided by John E. Showler, Environmental Scientist, New Jersey Department of Agriculture. The extensive comments of reviewers resulted in an improved paper.

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EXHIBIT P: FEMA FIRMETTE

National Flood Hazard Layer FIRMette

FEMA

88°20'34"W 40°5'4"N

88°19'57"W 40°4'36"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) *Zone A, V, A99*
		With BFE or Depth *Zone AE, AO, AH, VE, AR*
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
		Future Conditions 1% Annual Chance Flood Hazard *Zone X*
		Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
		Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN	Area of Minimal Flood Hazard *Zone X*
		Effective LOMRs
		Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 / 17.5	Cross Sections with 1% Annual Chance Water Surface Elevation
	8	Coastal Transect
	513	Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/25/2025 at 9:59 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

EXHIBIT Q: OPERATION AND MAINTENANCE & EMERGENCY RESPONSE PLAN

Champaign CSG 1 LLC Solar Project Operations & Maintenance and Emergency Preparedness Plan

July 2025
Champaign CSG 1 LLC

Contents

Introduction

Champaign CSG 1 LLC proposes to construct and operate a ground-mounted, single-axis tracking photovoltaic (PV) solar system, approximately 3.00 MWac in capacity (the Project). The Project is proposed to be located on a privately owned parcel in Champaign Township, Champaign County, Illinois. The purpose of this plan is to outline the ongoing operations and maintenance activities that will be performed at the Project site from the time it is operational until decommissioning.

The Operations and Maintenance Plan aims to outline a strategy for ensuring that Champaign CSG 1 LLC operates in a sustainable and safe manner utilizing industry best practices. These facilities are designed and built to last for 30+ years of operations. Therefore, this plan outlines the necessary processes and procedures to ensure these operational objectives are achieved. This Operations & Maintenance Plan will be updated as necessary in the future to ensure that changes in technology, inspection, and maintenance methods will be taken into consideration.

Site Monitoring, Preventative Maintenance & Inspections

Champaign CSG 1 LLC will work with an Operations & Maintenance contractor. The system will be remotely monitored 24/7 and responds to all alarms and/or notifications indicating the facility is not operating properly. After identifying the nature of the issue, a technician may be deployed to the site to investigate within 24 hours. Technicians servicing the site have the appropriate licenses and training to be working on this equipment to ensure both their safety and optimal performance of the site, troubleshoot, and/or repair the issue. Staff will be continuously available to communicate with Ameren Illinois utility operations and local emergency personnel on a 24/7 basis.

The key to effective facility operations is to inspect equipment, clean, maintain, repair and/or replace according to approved procedures. Regular inspections are scheduled at least twice a year to ensure that the site is clean and secure, and that equipment is running properly and securely. During each maintenance visit the site will be inspected for signs of erosion. Any areas of concern will be immediately communicated to Champaign CSG 1 LLC to evaluate and implement corrective measures.

Routine Site Inspection

On a routine basis, a representative of the owner/operator will perform a site inspection with the code enforcement officer of Champaign County. The site inspection will include the following schedule of services:

Routine Site Inspection	
Equipment	**Inspection Details**
PV Panel Condition	Inspect for cleanliness, cracked/chipped/scratched/shattered panels, fading/discoloration, burn marks, seal condition, frame damage or rust
PV Mounting Structure	Inspect mounts and mounting structures (loose panels, loose rack/clips missing hardware, rusted bolts, rack anchor condition)
PV Array Ventilation	Inspect conditions under panels, removal of any large debris or pests; visual check to ensure maximum ventilation under panels
PV System Foundations	Visual inspection of grounds and vegetation, identify issues related to mud, water pooling, soil erosion
Balance of System	▪ Inspect conduit runs (separated/cracked conduits, misaligned wire runs) ▪ Inspect panel interconnectivity and string lines (wire/cable wear, wire fading, chewed wire due to pests, identify loose/detached wires) ▪ Inspect junction/combiner enclosure(s) condition (seals, rust, damage, locks) ▪ Inspect electrical equipment enclosure(s) (seals, rust, damage, door condition, locks, equipment pad(s))
Inverter(s)	▪ Inspect inverter structure(s) and enclosure(s) (seals, rust, damage, door condition, switch/handle condition, locks) ▪ Inspect inverter equipment pad(s) (cracks, base damage, soil erosion)
Data Acquisition System (DAS)	▪ Weather stations condition (alignment of irradiance sensor, condition of wind and temperature meters) ▪ DAS device condition (screen, seals, rust, damage)
Shading Conditions	Visual inspection to identify any shading issues (trees/grass, landscape, structures)

Routine Site Inspection	
Equipment	**Inspection Details**
System Security	▪ Visually inspect fence line or confinement structures for wear, damage, breach, vandalism, or other problems ▪ Check condition of any locks, chains, or other protection measures preventing unauthorized access to the system.

Disposal of System Equipment: All equipment and materials will be evaluated to determine the appropriate facility for salvage, recycling, or disposal. Disposal and recycling of materials will occur at facilities outside of Champaign County. The PV modules will be disconnected from the inverters and removed from the steel racking system. The PV modules are made of silicon, glass, and aluminum and are not considered hazardous waste. PV modules will be recycled or resold on the market if determined to still be usable. All electric conductors made of copper and aluminum can be recycled. All hazardous wastes, if any, will be disposed of in accordance with laws in effect at the time disposal is performed. Any solid waste generated during dismantling will be disposed of as necessary to comply with the solid waste regulations then in place.

Snow Removal: Snow removal on access roads will be limited to times when equipment needs inspection/repair. Routine snow removal will not be necessary, as the system is monitored remotely.

Vegetation Management Plan

Prior to construction, the site will be stabilized with a cover crop consisting of wheat or rye. Following construction of the solar facility, the disturbed grounds will be re-seeded with low growth/low maintenance, native/non-invasive, pollinator-friendly ground cover under and around the solar panels according to the Landscaping and Vegetation Management Plans. This is to provide foraging habitat beneficial to game birds, songbirds, and pollinators. The use of low growth vegetation will minimize the need for mowing. The site will be monitored so vegetation height does not reach above the lowest point of the solar modules - assumed max height of 24-30 inches. All vegetation planted for screening will be monitored during routine maintenance visits. Should any of the vegetative screening plantings need to be replaced due to declining condition, they will be replaced during the next seasonal growing cycle. Should the County have any concerns, the Code Enforcement Officer can reach out to the Project owner and the issue will be addressed in a timely manner. Final emergency contact information will be given to the appropriate emergency response departments and to the Code Enforcement Officer. Emergency contact information will be posted at the site.

The Project shall contract a local landscaping contractor to manage the full scope of vegetative maintenance on site throughout the life of the project. The vegetative maintenance contractor will be responsible for inspecting and maintaining the vegetative integrity of the solar facility and will adjust site maintenance frequency based on time of year and weather conditions. Before mowing or cutting, maintenance staff will check the weather forecast and perform an on-site inspection to avoid rutting, erosion, and soil compaction. Any use of pesticides, herbicide, or other chemicals will follow all local, state, and federal regulations. Such treatments are not anticipated. In the event of any changes, a list will be provided to the County to approve prior to application. Selection of the specific contractor that shall provide vegetative maintenance has not yet been finalized, however this can be provided to the County prior to construction.

General Exterior Maintenance: The fence line will be inspected for trash. Trash will be collected and disposed of offsite. Vegetative growth along the fence line will also be trimmed and maintained to prevent the growth of weeds or tall grasses. The condition of the fence and gates will be assessed, and necessary repairs made. Evidence of irregular activity such as trespassing, tampering, illegal dumping, or wildlife intrusion will be resolved. The access roads will be monitored and inspected for sediment buildup/obstruction, drainage issues, rutting and pitting or other failures. All stormwater practices should be inspected and maintained consistent with the approved SWPPP on record with the County.

Mowing: Staff will mow the site as follows. First, the mower trims the large areas. Second, trimmers are used to cut around structural elements and other places the mower could not reach. Finally, any vegetation that was thrown and stuck to the modules will be cleaned off. Additionally, staff may spot mow to reduce invasive plants while native species are becoming established. Spot-mowing will be done at a raised height to avoid damaging native plants. Should the mowing contractor notice areas of diminished/removed grass growth, they shall contact the Project owner/developer and ensure that this area is reseeded. Alternative vegetative maintenance methods such as livestock grazing may also be explored.

Vegetative Screening Maintenance: If vegetative screening is planted at the facility at the request of the County, the contractor will be responsible for monitoring the general health of each plant, weed intrusion, and general appearance. If any planting fails to establish itself, the contractor will work with the responsible nursery to redeem the warranty and replace the deceased plant with another in accordance with the approved landscaping plan. Replacement plants will be installed according to the landscaping plan on record with the County and will occur within the following growing season.

Site Visit(s) & Service Report(s)

Upon reasonable notice, Champaign County Code Enforcement Officer, or his or her designee, may enter the property for the purpose of determining compliance with any requirements or conditions of Champaign County's code or any approval given, or permit issued pursuant to Champaign County's solar law. Twenty-four (24) hours' notice by telephone to the owner/operator or designated contact person shall be deemed reasonable notice. Furthermore, Champaign CSG 1 LLC shall be inspected by an Illinois State licensed Professional Engineer that has been approved by Champaign County at any time upon a determination by the County's Code Enforcement Officer that damage to such system might have occurred, and a copy of the written inspection report shall be submitted to the Code Enforcement Officer. Any fee or expense associated with this inspection shall be borne entirely by Champaign CSG 1 LLC and shall be reimbursed to Champaign County within thirty 30 days after delivery to the permit holder of an invoice substantiating such charges. Champaign County reserves the right to levy all such un-reimbursed expenses onto the real property tax bill associated with the real property upon which the Solar Energy System is located.

Stakeholders

Title: Landowner
Name: Foersterling Farm LLC – Bob Foersterling
Phone Number: 847-977-9574

Title: Operator / Asset Manager
Name: Champaign CSG 1 LLC (Attn: Caitlin Blaisdell)
Phone Number: 1-877-277-8506 ext. 48
Email: cblaisdell@dimension-energy.com

Title: Champaign County Senior Planner / Zoning Officer
Name: Charlie Campo
Phone Number: 217-384-3708
Email: cwc43700@champaigncountyil.gov

Purpose

Champaign CSG 1 LLC (Project) Emergency Response and Fire Safety Plan (ERFSP) describes actions to ensure the safety of Project employees, emergency service members serving the Project, and the surrounding community in the event of an emergency. ERFSP provides emergency personnel contact information and outlines procedures to prevent, mitigate, and effectively respond to an incident should one arise at the Project.

General Facility Information

The Project is a 4.49 MWdc single-axis tracker, ground-mounted (PV) solar electric generation facility located in Champaign County (the County), Illinois. The Project is owned by Champaign CSG 1 LLC, which is a wholly owned subsidiary of Dimension Energy LLC. Dimension Energy LLC (DRE) is the Operator of the Project. The proposed Project site is located on County Road 1400 N in unincorporated Champaign County, IL on approx. 18 acres approximately 35 acres in size total. The site is bordered farmland on all sides, with a waste water treatment facility located to the east, and County Rd 1400 N located to the north.

Access Roads

The site will be accessed via a new driveway constructed from County Road 1400 N. The access road will be installed using gravel substrate and will terminate with a hammerhead turnaround to accommodate maintenance vehicles. The entrance within the ROW will comply with IDOT standards for commercial access driveways. The road will also be wide enough to accommodate emergency vehicles and designed in compliance with County/State standards.

Fencing

The solar array and all balance of system equipment will be enclosed in a six-foot-tall chain link fence in compliance with the National Electric Code. The fence will have at least one vehicle access gate at the boundary of the array, which will always remain locked, except during operations and maintenance activities.

The Project consists of approximately 7,550 solar panels oriented in linear rows spaced approximately 12 feet apart. Panels are connected by electrical cables hung on the underside of the panels and buried underground at various points. “Blocks” of panels are connected to an inverter. The Project contains approximately 20 inverters that convert direct current (DC) electricity to alternating current (AC). The AC power is then routed via collector lines to the Project substation and utility switchyard (collectively, the Substation). Gravel roads are constructed throughout the Project to facilitate access for maintenance and repair as noted above.

Fire Detection

In the event of a fire, the appointed Operations Center will detect equipment faults which will then lead to dispatch site-personnel to investigate accordingly.

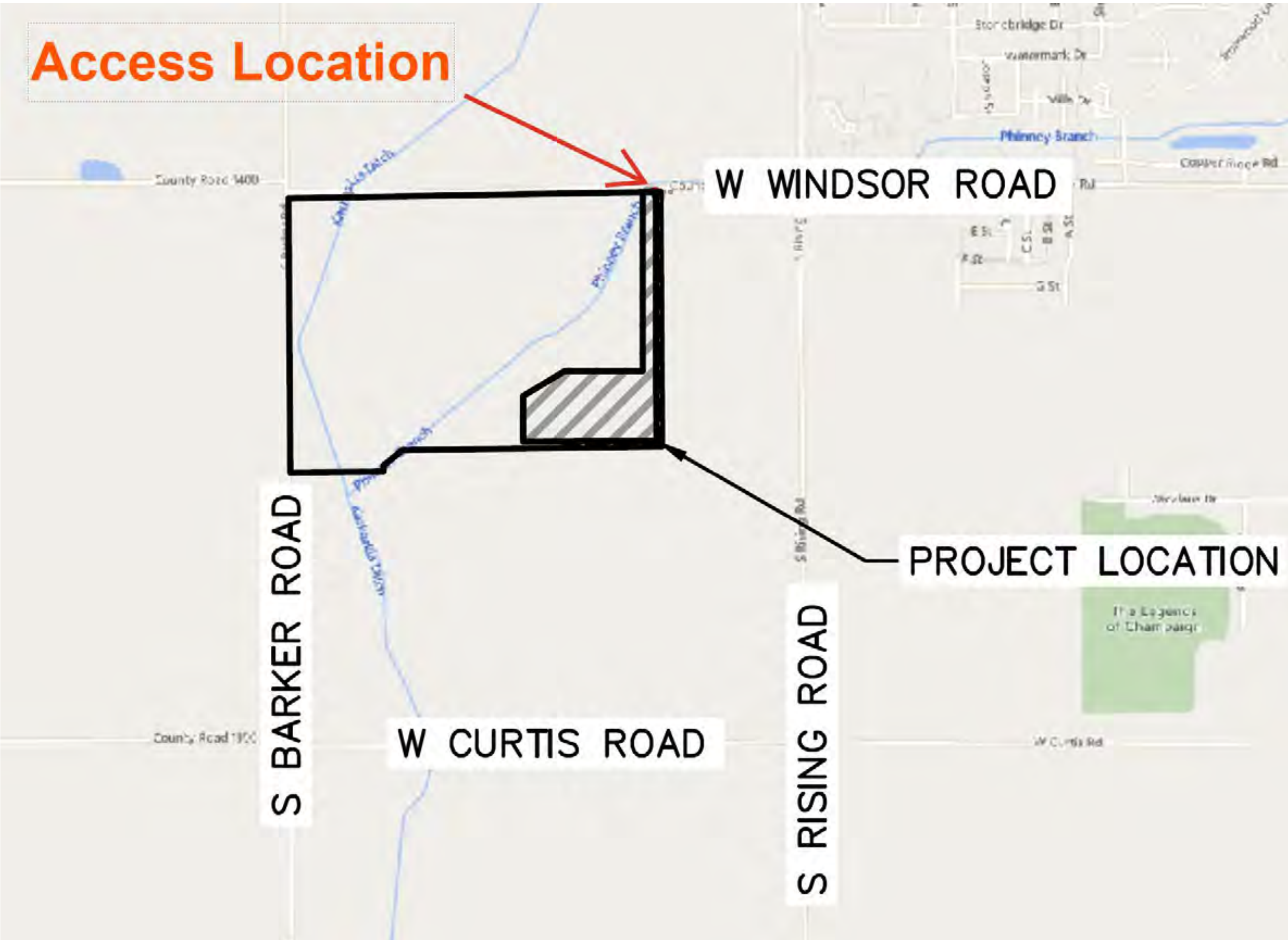
Shutoff Procedures and Locations

Entry of the Project should only be attempted at the direction of the Operator. Contact information for the Operator will be proved in the Operational Contacts section. In the event of an emergency requiring shutdown, the solar system may be de-energized/isolated remotely, but local disconnects require manual operation by a qualified DRE representative to confirm breaker open. Emergency responders shall not assume the system is de-energized nor attempt to deenergize equipment due to arc flash risk. DRE Representatives should execute any Lock out tag out.
In an emergency, only DRE representatives may disconnect power blocks within the solar arrays at each inverter according to the following procedures:

1. The ON/OFF switch on each inverter shall be manually turned to the OFF position, shutting off both the AC and DC switches inside the inverter.
2. After the system has been turned off, the DC Disconnect Switch shall be turned off, and a lock placed on it to keep it from being re-energized.

Champaign CSG 1 LLC will coordinate with Champaign County regarding locking procedures for the inverters, and shutdown and locking procedures will be updated, as needed, in the final ERFSP. The final ERFSP will be completed prior to commencing Project operations and will be provided to the Champaign County Emergency Management Agency and the Scott Fire Protection District.

FIGURE 1


Access Location
W WINDSOR ROAD
PROJECT LOCATION
S BARKER ROAD
W CURTIS ROAD
S RISING ROAD

Operational Contacts

The following people are responsible for the operation, maintenance, and safety of the Champaign CSG 1 Project. The Operator conducts local monitoring of the site on a regular basis. Should issues arise, central control will dispatch local operations personnel to the site, as necessary.

Champaign CSG 1 Solar Project

Renewable Operations Center: 877-277-8506
The Renewable Operations Center is the primary contact for notification in the event of an emergency. Additional contacts that may require coordination regarding this plan and operation of the Project include the following departments and agencies.

Champaign County Emergency Management Agency

Email: EMA@champaigncountyil.gov
Office Phone: 217-384-3826
24hr Phone: 911
Address: 102 E. Main St., Urbana, IL 61801

Scott Fire Protection District

Name: Fire Chiefs
Phone Number: 217-369-1429 (Bondville Fire Dept.), 217-202-6560 (Seymour Fire Dept.)
Email: bondvillefire@yahoo.com, marknib@gmail.com (Seymour Fire Dept.)
Address: 476 County Road 1700 N, Champaign, IL 61822

General Safety and Operational Information

Solar panels, located throughout the Project, convert sunlight to electricity. The process involves solid-state technology that consumes no materials and is completely self-contained. As such, the primary concern for first responders is exposure to electrical components that present a hazard to electric shock. During a response, it should be assumed that:

- All solar equipment on site contains lethal AC and DC voltages;
- All inverters contain energy storage devices that require 15 minutes to safely discharge lethal voltages;
- Electricity is supplied from multiple sources; and
- The site should only be accessed by personnel or emergency responders under the direction of the Operator.

The following are the most hazardous locations within the Project:

- Inverters and disconnects;
- Vicinity of the solar electric photovoltaic panels;
- Field wiring, collection lines, and all electrical boxes associated with the system; and
- Substation

Precautions while in the vicinity of the Solar Electric System

1. Only trained personnel should work near the solar arrays, modules, electrical boxes, or wiring.

2. It is recommended to always have at least two persons present when working on the array or handling modules. Do not attempt to service or respond to an emergency unless another person capable of rendering first aid and cardiopulmonary resuscitation (CPR) is also present.
3. Any accidents should be immediately reported to the Operator, as soon as it is safe to do so.
4. Photovoltaic panels are made of glass and may break. If any cracks occur in the modules, touching a crack may expose a person to the full voltage and current of the array. **Do not touch the modules without wearing electrical insulating gloves**.

Orientation

Appropriate training of first responders is key to their understanding of the hazards that are present within the Project area and to mitigate potential risks to their life during a response. As such, first responders that could be dispatched to the Project in the event of an emergency will be trained prior to commencement of operation and on a periodic basis thereafter. The Operator will work with Fire and other County Departments, as well as county and state safety officials, as appropriate, to provide biennial site-specific orientation to emergency response leadership and their assigned staff.

Emergency Situations

Emergency situation critical points:

- In the event of an emergency, dial 911.
- Entry and shutdown of the Project should only be attempted at the direction of the Operator.
- Solar and substation components are always hot and should always be considered electrically energized. DC voltage is always present (even at night).
- All inverters contain energy storage devices that require 15 minutes to safely discharge lethal voltages.
- Do not touch the modules without wearing electrical insulating gloves.

Fire Response

In the event of a fire, the individual discovering the emergency shall:

1. Assess the situation to determine potential safety concerns to life and the environment, with life safety as the priority.
2. Notify the appropriate local authorities by dialing 911 and direct them to the entry point identified on Figure 1.
3. Local authorities should contact the Operator to determine the appropriate response.

Upon arrival to the Project, responders shall:

1. Evacuate and secure the area and keep people a minimum of 300 feet away, provided there are no immediate threats to people or non-solar property.
2. Let the facility burn. Burning electrical equipment is already damaged and must be replaced.
3. Protect adjacent exposures, such as homes and forested areas, as needed, to limit the potential of the fire spreading.
4. If fire must be suppressed within the array fence line, the Operator will direct local authorities on how to proceed.

The following are the most important considerations when responding to a fire or other emergency at the Project:

- Solar and substation components are always hot and should always be considered electrically energized. DC voltage is always present, even at night.
- Identify and validate the hazard in order to minimize injury.
- Electrical components produce gas during combustion. All responders should use a self-contained breathing apparatus (SCBA).
- Before committing apparatus to the access roads within any of the fenced panel array enclosures, understand that turn arounds will often be well over 1,000 feet away.
- Under the direction of the Operator, isolate or shutdown the electrical power at the site of the fire, if possible.
- Do not assume the system is de-energized and do not attempt to de-energize any equipment.
- Do not open any inverter doors until at least 48 hours have passed since the initiation of the event or conditions are verified safe and entry is approved by the Operator.
- Leave the scene in a safe condition after mitigating hazards.

Natural Disasters

Severe weather events such as snowstorms, thunderstorms, and tornadoes are possible at the Project. Although much less common, there is also the potential for minor earthquakes, flooding, or high wind events (e.g., microbursts). These events should have limited impact on the Project site. The Project is designed and constructed to withstand the extreme weather likely to occur at the Project site (e.g. high winds, hail, lightning, snowstorms, etc.). After an extreme weather event, the Operator will evaluate all equipment for damages and repair, as necessary, to restore full Project operations.

Public Safety

Access to the Project is limited to trained staff and maintenance personnel only. Solar panel arrays and the Substation are surrounded by a six-foot-tall chain link fence per requirements of the National Electric Safety Code (NESC). Access to the Project site occurs through gates in the chain-link fence that are secured with a padlock, and only Operator personnel have access to the Project.

In the event of personnel injury from electric shock or if personnel should become incapacitated while within the Project site, the following procedures should be followed:

1. Assess the area for hazards and secure the area to protect additional life from injury.
2. Notify the appropriate local authorities by dialing 911 and direct them to the Project access point identified on Figure 1.
3. Local authorities should contact the Operator to determine the appropriate response procedures and methods for shutting down the nearest components to ensure safe access.

EXHIBIT R: USACE NO PERMIT REQUIRED AND APPROVED JURISDICTIONAL DETERMINATION

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103

September 13, 2024

Regulatory Division
File Number: MVS-2024-478

Daniel Solorzano
Dimension RE LLC
3050 Peachtree Road NE Suite 460
Atlanta, Georgia 30305

Dear Mr. Solorzano:

We have reviewed the delineation report and associated request for delineation concurrence submitted on your behalf on September 4, 2024, by Kimley-Horn for the proposed Foersterling Farm Solar Project in Champaign County, Illinois. Per Kimley-Horn, the project seeks to avoid potentially jurisdictional water features during the planning and design phase to avoid future permitting requirements associated with Section 404 of the Clean Water Act (CWA). Section 404 of the CWA assigns responsibility to the Secretary of the Army to administer a permit program to regulate the placement of dredged or fill material into waters of the United States. The placement of any dredged or fill material into waters of the United States below ordinary high-water elevation, or in wetlands adjacent to these waters, must be authorized by a Section 404 permit.

After a review of the submitted documentation and other available resources, we have determined the site contains one non-jurisdictional feature lacking a continuous surface connection to a jurisdictional feature. The non-jurisdictional feature is covered by an Approved Jurisdictional Determination (AJD). There are no jurisdictional features proposed to be impacted by this project, **therefore a Section 404 permit for this project is not required.** Regulations regarding the use of pilings (33 CFR 323.3(c)) are outlined below.

If you object to the AJD, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Mississippi Valley Division Office at the address shown on the form. For an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the enclosed NAP. It is not necessary to submit an RFA form to the division office if you do not object to the determination in this letter.

(1) **Placement of pilings in waters of the United States constitutes a discharge of fill material and requires a section 404 permit when such placement has or would have the effect of a discharge of fill material.** Examples of such activities that have the effect of a discharge of fill material include, but are not limited to, the following: Projects where the pilings are so closely spaced that sedimentation rates would be increased; projects in which the pilings themselves effectively would replace the bottom of a waterbody; projects involving the placement of pilings that would reduce the reach or impair the flow or circulation of waters of the United States; and projects involving the placement of pilings which would result in the adverse alteration or elimination of aquatic functions.

(2) **Placement of pilings in waters of the United States that does not have or would not have the effect of a discharge of fill material shall not require a Section 404 permit.** Placement of pilings for linear projects, such as bridges, elevated walkways, and powerline structures, **generally does not have the effect of a discharge of fill material**. Furthermore, placement of pilings in waters of the United States for piers, wharves, and an individual house on stilts generally does not have the effect of a discharge of fill material. All pilings, however, placed in the navigable waters of the United States, as that term is defined in part 329 of this chapter, require authorization under Section 10 of the Rivers and Harbors Act of 1899 (see part 322 of this chapter).

If you have any questions, please contact Henry Heyer at (314) 331-8251 or Henry.R.Heyer@usace.army.mil. In any correspondence or inquiries, please refer to the File Number **MVS-2024-478**. The St. Louis District Regulatory Division is committed to providing quality and timely service to our customers. To improve customer service, please take a moment to go to our Customer Service Survey found on our web site at: https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

Tyson Zobrist
Illinois Section Chief
Regulatory Division

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103

RD 10 September 2024

MEMORANDUM FOR RECORD

SUBJECT: US Army Corps of Engineers (Corps) Approved Jurisdictional Determination in accordance with the "Revised Definition of 'Waters of the United States'"; (88 FR 3004 (January 18, 2023) as amended by the "Revised Definition of 'Waters of the United States'; Conforming" (8 September 2023) ,[1] MVS-2024-478

BACKGROUND. An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.[2] AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.[3]

On January 18, 2023, the Environmental Protection Agency (EPA) and the Department of the Army ("the agencies") published the "Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023) ("2023 Rule"). On September 8, 2023, the agencies published the "Revised Definition of 'Waters of the United States'; Conforming", which amended the 2023 Rule to conform to the 2023 Supreme Court decision in *Sackett v. EPA*, 598 U.S., 143 S. Ct. 1322 (2023) ("*Sackett*").

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. For the purposes of this AJD, we have relied on Section 10 of the Rivers and Harbors Act of 1899 (RHA),[4] the 2023 Rule as amended, as well as other applicable guidance, relevant case law, and longstanding practice in evaluating jurisdiction.

1. SUMMARY OF CONCLUSIONS.

---

[1] While the Revised Definition of "Waters of the United States"; Conforming had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.
[2] 33 CFR 331.2.
[3] Regulatory Guidance Letter 05-02.
[4] USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

a. Provide a list of each individual feature within the review area and the jurisdictional status of each one (i.e., identify whether each feature is/is not a water of the United States and/or a navigable water of the United States).

    i. MVS-2024-478 Wetland 1, Non-Jurisdictional (0.24 Acres)

2. REFERENCES.

    a. “Revised Definition of ‘Waters of the United States,’” 88 FR 3004 (January 18, 2023) (“2023 Rule”)

    b. “Revised Definition of ‘Waters of the United States’; Conforming” 88 FR 61964 (September 8, 2023))

    c. *Sackett v. EPA*, 598 U.S. _, 143 S. Ct. 1322 (2023)

3. REVIEW AREA. The review area is an approximately 32 acres. The center of the review area is approximate geographic coordinates 40.078664, -88.339318. The review area is located in Champaign, Champaign County, Illinois. See Attachment 1 for extent of the Review Area.

4. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), THE TERRITORIAL SEAS, OR INTERSTATE WATER TO WHICH THE AQUATIC RESOURCE IS CONNECTED. The Kaskaskia River is the closet TNW to the review area. The Kaskaskia River has a navigation channel maintained by the Army Corps of Engineers.

5. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, THE TERRITORIAL SEAS, OR INTERSTATE WATER. MVS-2024-478 Wetland 1 sheet flows out of the review area and into the Kaskaskia River.

6. SECTION 10 JURISDICTIONAL WATERS[5]: Describe aquatic resources or other features within the review area determined to be jurisdictional in accordance with Section 10 of the Rivers and Harbors Act of 1899. Include the size of each aquatic

[5] 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as “navigable in law” even though it is not presently used for commerce, or is presently incapable of such use because of changed conditions or the presence of obstructions.

resource or other feature within the review area and how it was determined to be jurisdictional in accordance with Section 10.[6] N/A

7. SECTION 404 JURISDICTIONAL WATERS: Describe the aquatic resources within the review area that were found to meet the definition of waters of the United States in accordance with the 2023 Rule as amended, consistent with the Supreme Court's decision in *Sackett*. List each aquatic resource separately, by name, consistent with the naming convention used in section 1, above. Include a rationale for each aquatic resource, supporting that the aquatic resource meets the relevant category of "waters of the United States" in the 2023 Rule as amended. The rationale should also include a written description of, or reference to a map in the administrative record that shows, the lateral limits of jurisdiction for each aquatic resource, including how that limit was determined, and incorporate relevant references used. Include the size of each aquatic resource in acres or linear feet and attach and reference related figures as needed.

    a. Traditional Navigable Waters (TNWs) (a)(1)(i): N/A

    b. The Territorial Seas (a)(1)(ii): N/A

    c. Interstate Waters (a)(1)(iii): N/A

    d. Impoundments (a)(2): N/A

    e. Tributaries (a)(3): N/A

    f. Adjacent Wetlands (a)(4): N/A

    g. Additional Waters (a)(5): N/A

8. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES

    a. Describe aquatic resources and other features within the review area identified in the 2023 Rule as amended as not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(2) through (5). Include the type of excluded aquatic resource or feature, the size of the aquatic resource or feature within the review area and describe how it was determined to meet one of the exclusions listed in 33 CFR 328.3(b).[7] N/A

---

[6] This MFR is not to be used to make a report of findings to support a determination that the water is a navigable water of the United States. The district must follow the procedures outlined in 33 CFR part 329.14 to make a determination that water is a navigable water of the United States subject to Section 10 of the RHA.
[7] 88 FR 3004 (January 18, 2023)

b. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the 2023 Rule as amended (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water).

   MVS-2024-478 Wetland 1 – MVS-2024-478 Wetland 1 drains to the south via sheet flow out of the review area. As seen in Att No discrete features enter or exit MVS-2024-478 Wetland 1. Therefore, MVS-2024-478 Wetland 1 does not have a continuous surface connection to a jurisdictional water. See Attachments indicating lack of CSC. Black border is the review area; the red border is MVS-2024-478 Wetland 1 boundary.

9. DATA SOURCES. List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.

   a. Wetland Delineation Report submitted by Kimley Horn, dated 3 September 2024

   b. Google Earth Imagery (Various Years), accessed 10 September 2024

   c. Historicaerials.com/viewer (Various Years), accessed 10 September 2024

   d. Bondville, IL 2024 (US Topo) Scale 1:24000, accessed 10 September 2024

   e. USFWS National Wetlands Inventory Mapper, accessed 10 September 2024

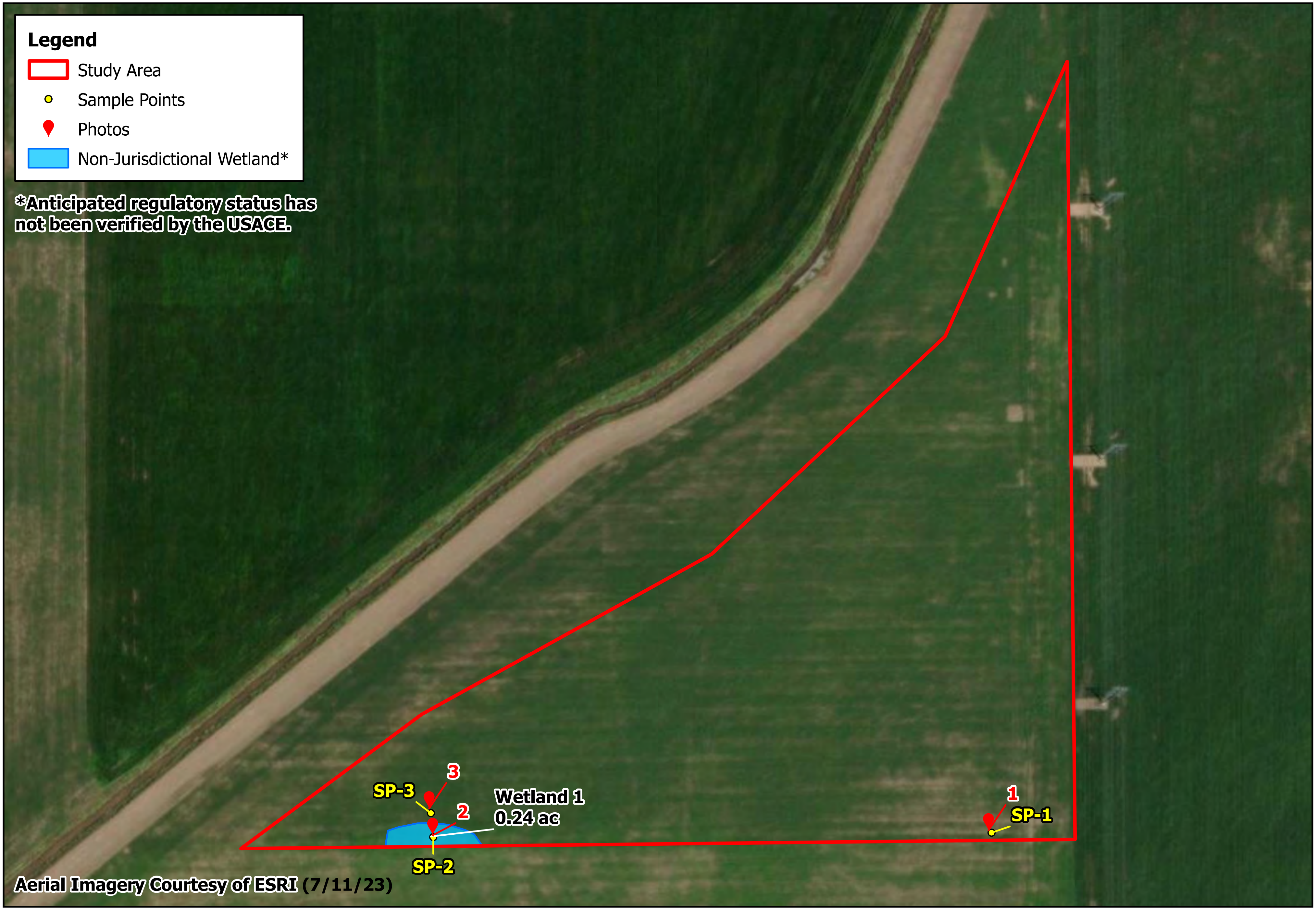
   f. IL Statewide LiDAR DEM WGS Hillshade, accessed 10 September 2024

   g. 3DEP Digital Elevation Model, accessed 10 September 2024

   h. FEMA Floodplain Map, Map Number 17019C0404D, accessed 11 September 2024

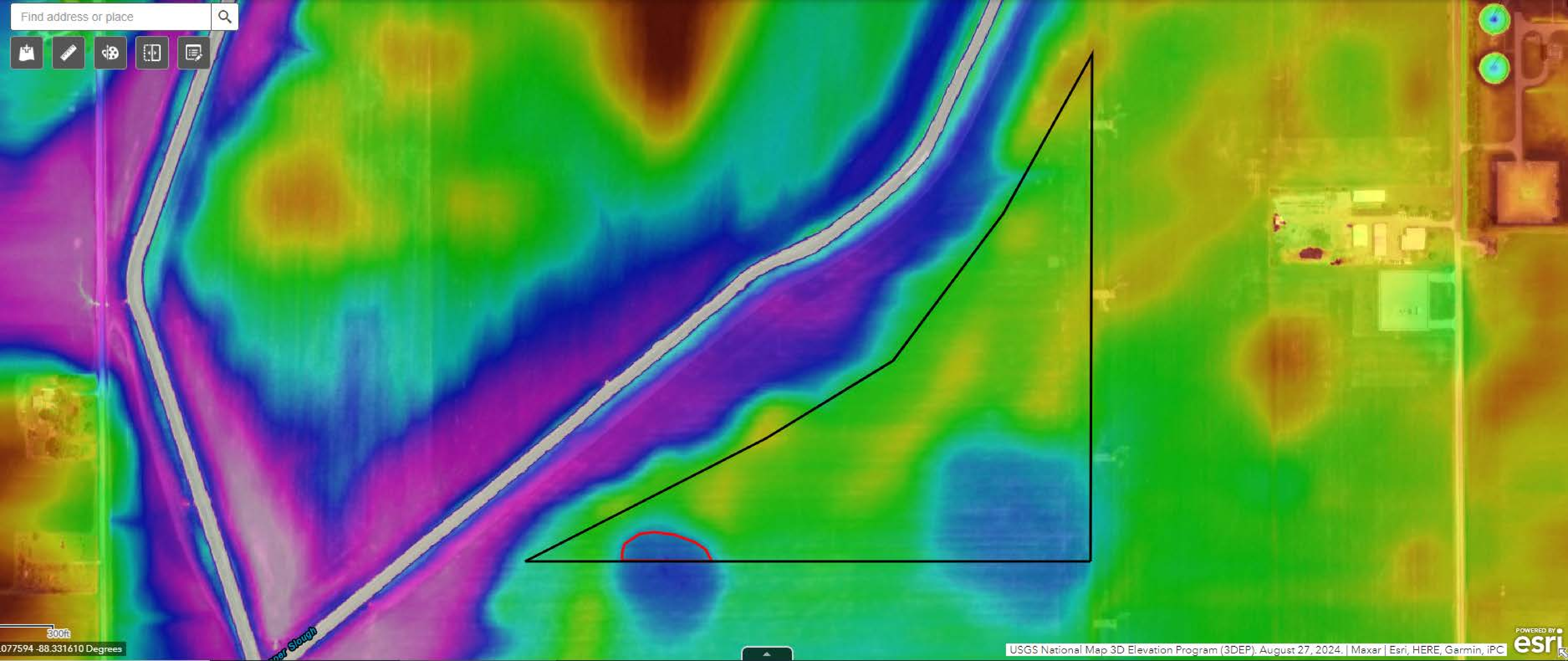
10. OTHER SUPPORTING INFORMATION. N/A

11. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR’s structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.



Kimley»Horn

Figure 6. Delineation Summary Map
Foersterling Solar
Dimension RE LLC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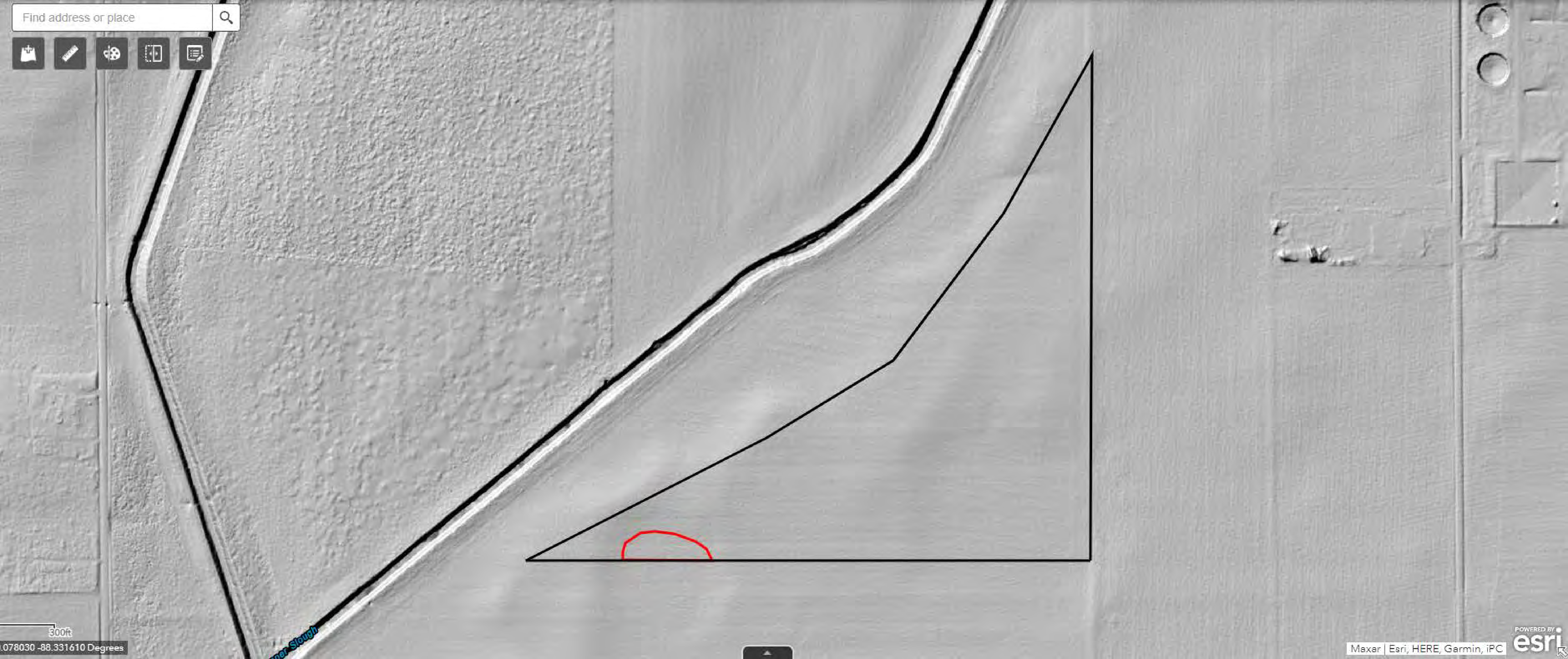
USGS National Map 3D Elevation Program (3DEP). August 27, 2024. | Maxar | Esri, HERE, Garmin, iPC
POWERED BY
esri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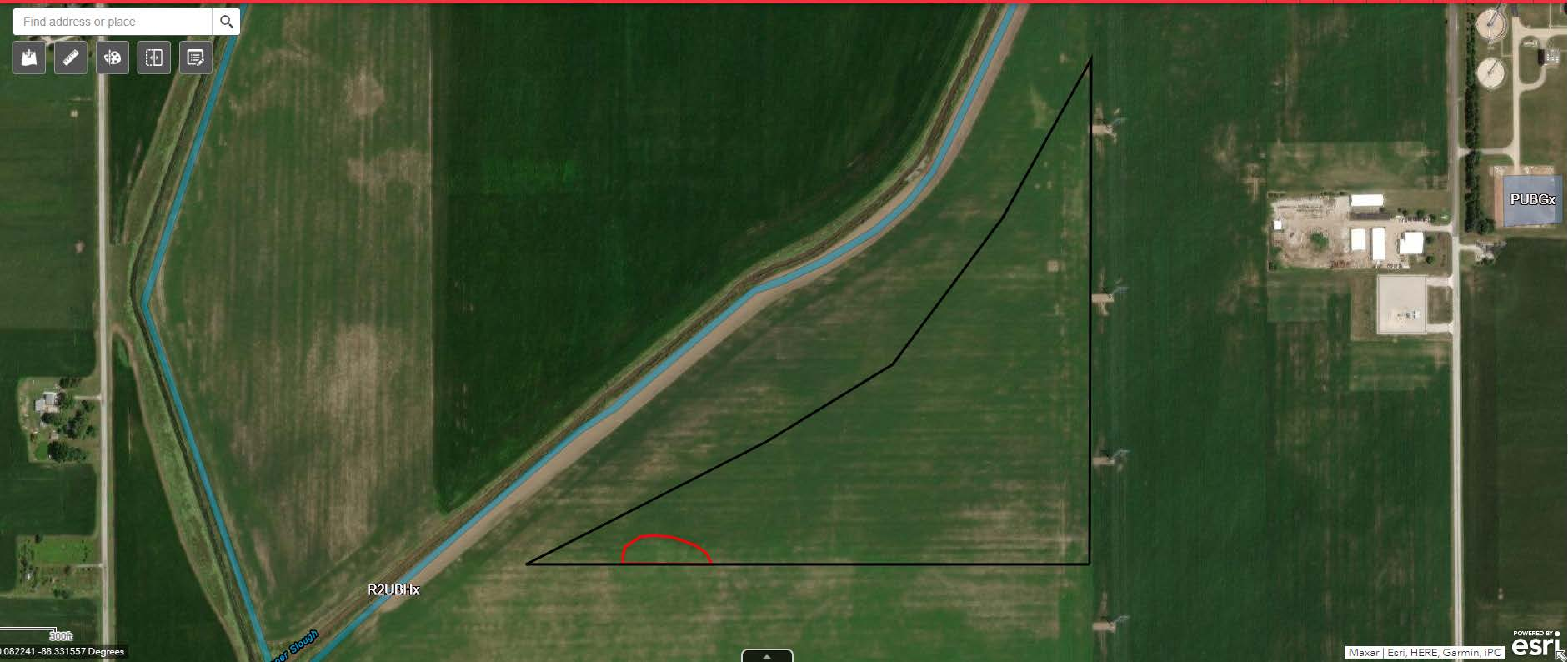
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esri

EXHIBIT S: DRAIN TILE SURVEY

Kimley»Horn

MEMORANDUM

To:	Daniel Solorzano *Dimension RE LLC*
From:	Ashley Payne Keller Leet-Otley *Kimley-Horn and Associates, Inc.*
Date:	April 15, 2025
Subject:	*Champaign Township, Champaign County, Illinois – Foersterling Farm Solar Desktop Drain Tile Memorandum*

INTRODUCTION

Kimley-Horn & Associates, Inc. (Kimley-Horn) was contracted by Dimension RE LLC to review the Foersterling Farm Solar Project study area for potential drain tile locations. The study area is located in Champaign Township, Champaign County, Illinois. The study area is approximately 32 acres in size and located in Section 30 of Township 19N, Range 8E. Kimley-Horn reviewed available background data to assist in determining if there are any potential drain tile locations in the study area.

DATA REVIEWED:

- USGS Topography (See **Figure 1**)
- National Hydrography Dataset (See **Figure 2**)
- National Wetlands Inventory (See **Figure 2**)
- LiDAR (See **Figure 2**)
- Champaign County Soil Survey (See **Figure 3**)
- Potential Drain Tile Locations (See **Figure 4**)
- Available historic aerials from Google Earth (See **Appendix A**)

CONCLUSIONS AND RECOMMENDATIONS:

Based on hydric soil areas, existing topography, and historic aerials from Google Earth and Champaign County, the study area showed evidence of drain tiles in the existing study area. Based on the desktop review, drain tiles are anticipated within the study area, see **Figure 4** for potential locations; therefore, a drain tile survey or further coordination with a surveyor is recommended prior to construction.

If you have any questions or concerns, please feel free to contact Ashley Payne via phone (507.216.0763) or email (ashley.payne@kimley-horn.com), or Keller Leet-Otley via phone (507.216.0288) or email (keller.leet-otley@kimley-horn.com).

Sincerely,

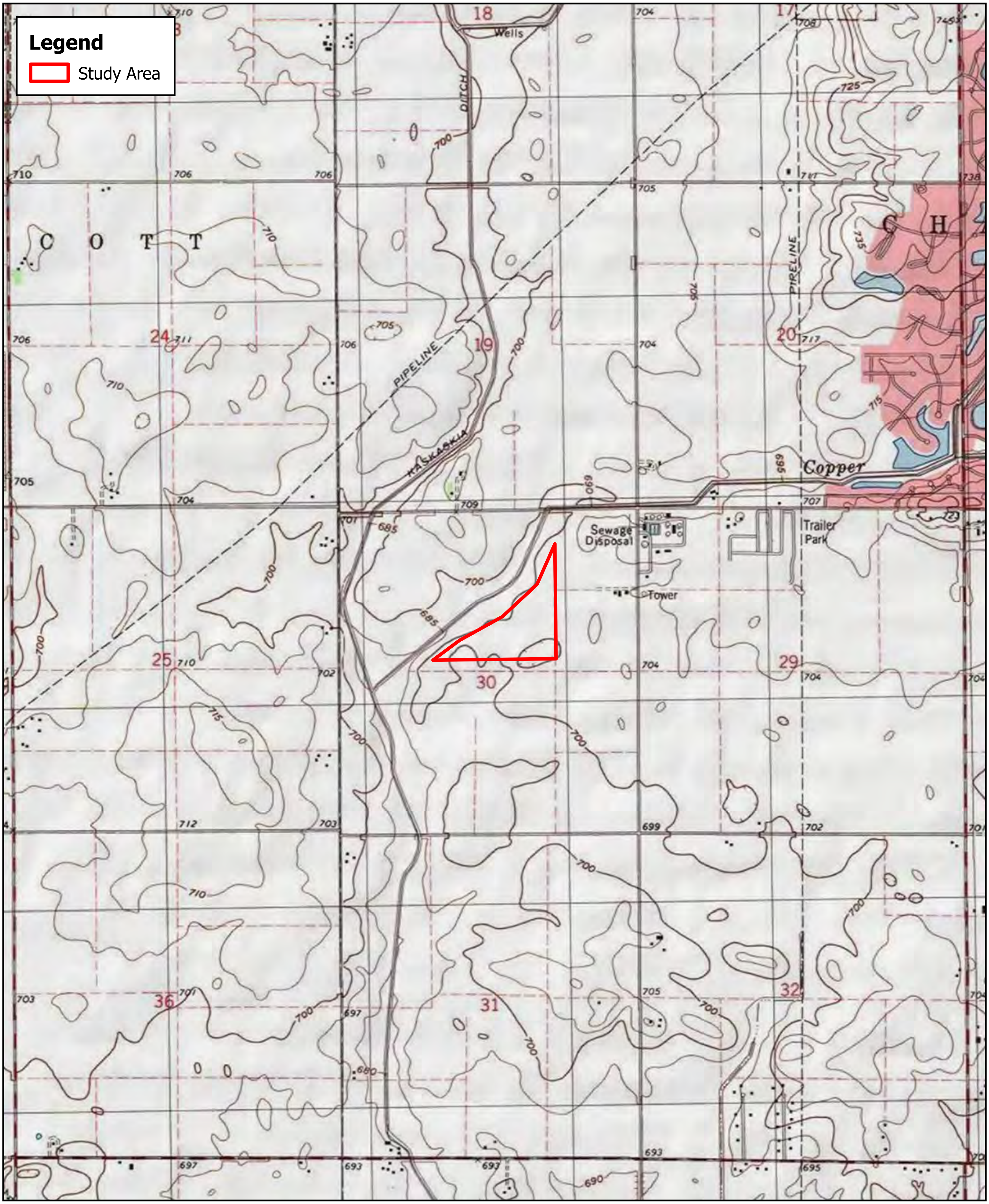
Ashley Payne

Ashley Payne, Kimley-Horn

Keller Leet-Otley

Keller Leet-Otley, Kimley-Horn

Figures



Kimley»Horn

0 1,000 2,000 US Feet

N

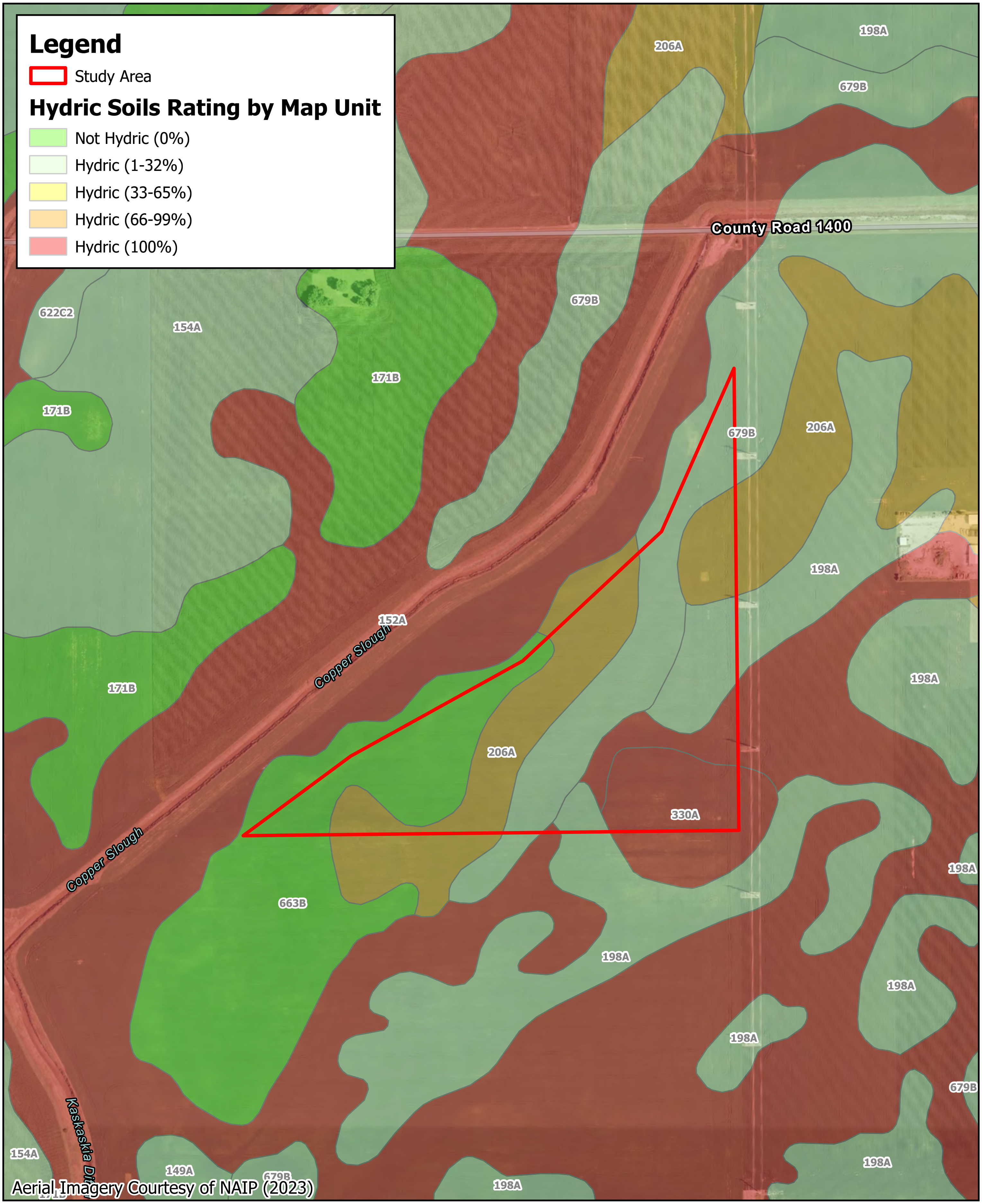
Figure 1. USGS Topographic Map
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

Figure 2. NWI, NHD, and 2-ft Contours

Champaign Township, Champaign County

Dimension RE LLC



Kimley»Horn

Figure 3. Hydric Soils
Champaign Township, Champaign County
Dimension RE LLC

Figure 4. Potential Drain Tile Locations Map
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

ATTACHMENT A

Historic Aerials

Kimley»Horn

0 250 500
Feet

N

Historic Aerials Map (April 1993)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

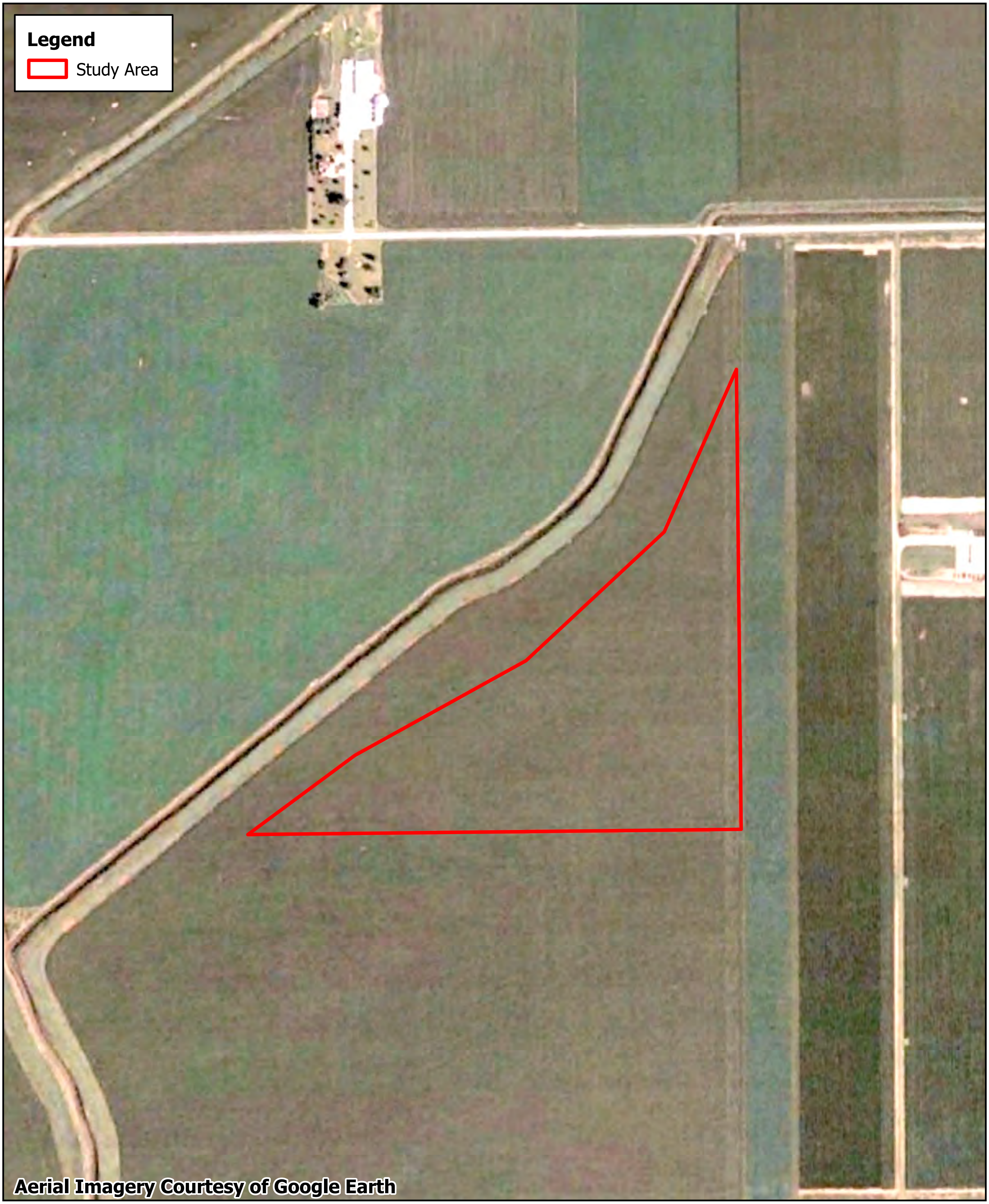
Historic Aerials Map (April 1998)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

Historic Aerials Map (May 2003)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

Historic Aerials Map (April 2005)
Champaign Township, Champaign County
Dimension RE LLC

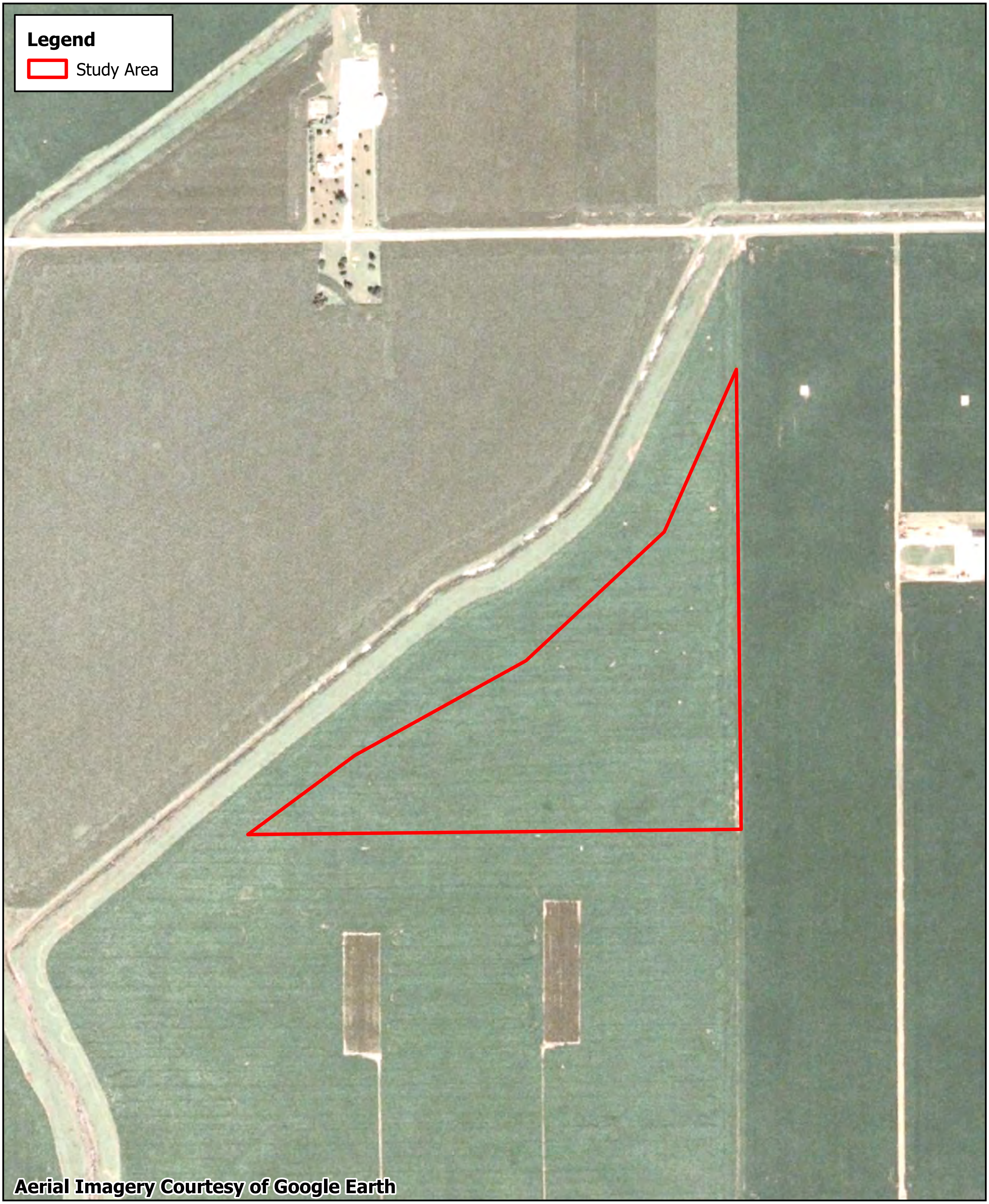


Kimley»Horn

0 250 500
Feet

N

Historic Aerials Map (June 2006)
Champaign Township, Champaign County
Dimension RE LLC



Kimley»Horn

0 250 500 Feet

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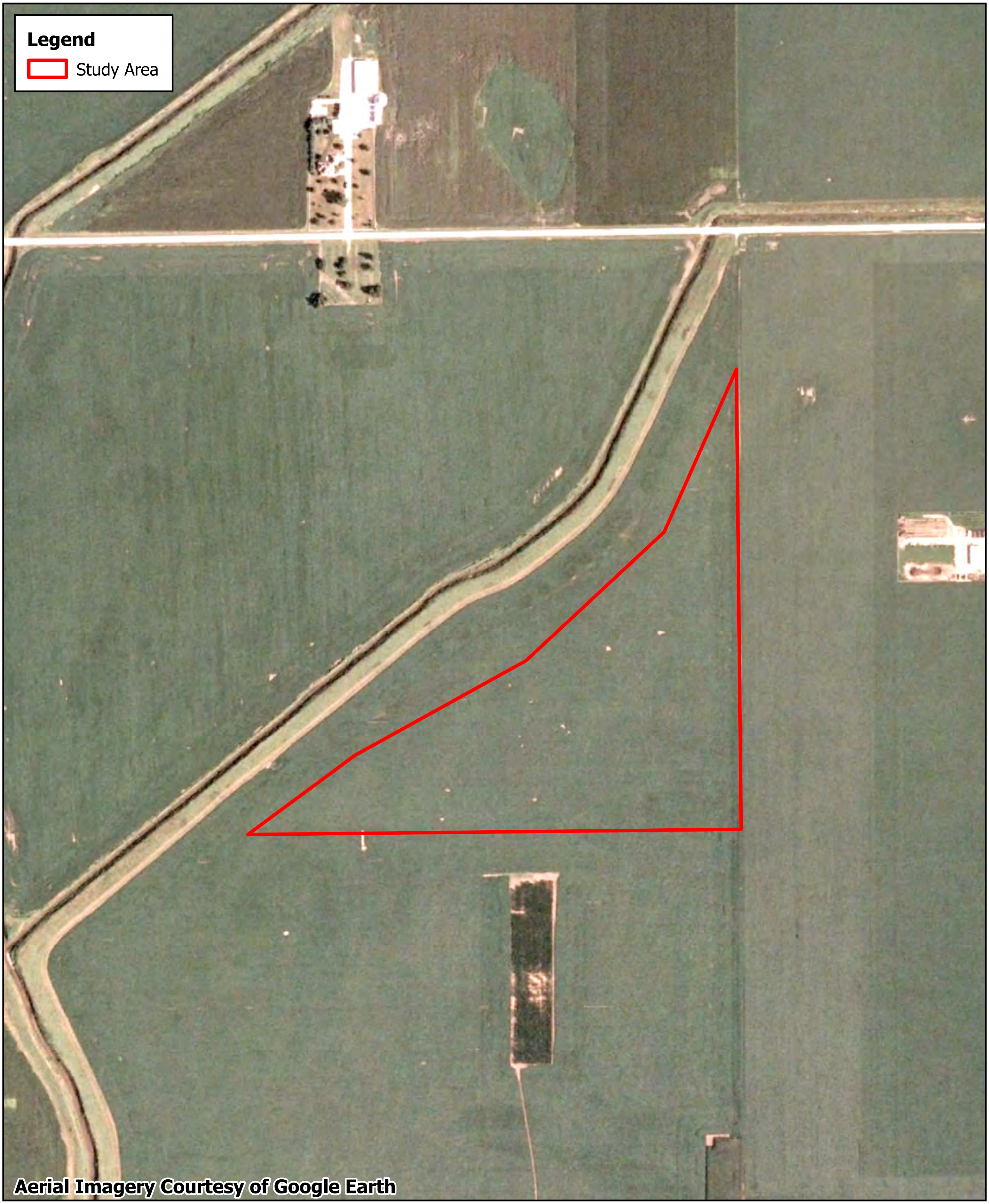
Historic Aerials Map (June 2007)
Champaign Township, Champaign County
Dimension RE LLC



Kimley»Horn

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Feet

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Historic Aerials Map (June 2009)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

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Feet

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Historic Aerials Map (June 2010)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

0 250 500
Feet

N

Historic Aerials Map (September 2011)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

0 250 500
Feet

N

Historic Aerials Map (May 2012)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

Historic Aerials Map (April 2014)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

Historic Aerials Map (October 2016)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

0 250 500
Feet

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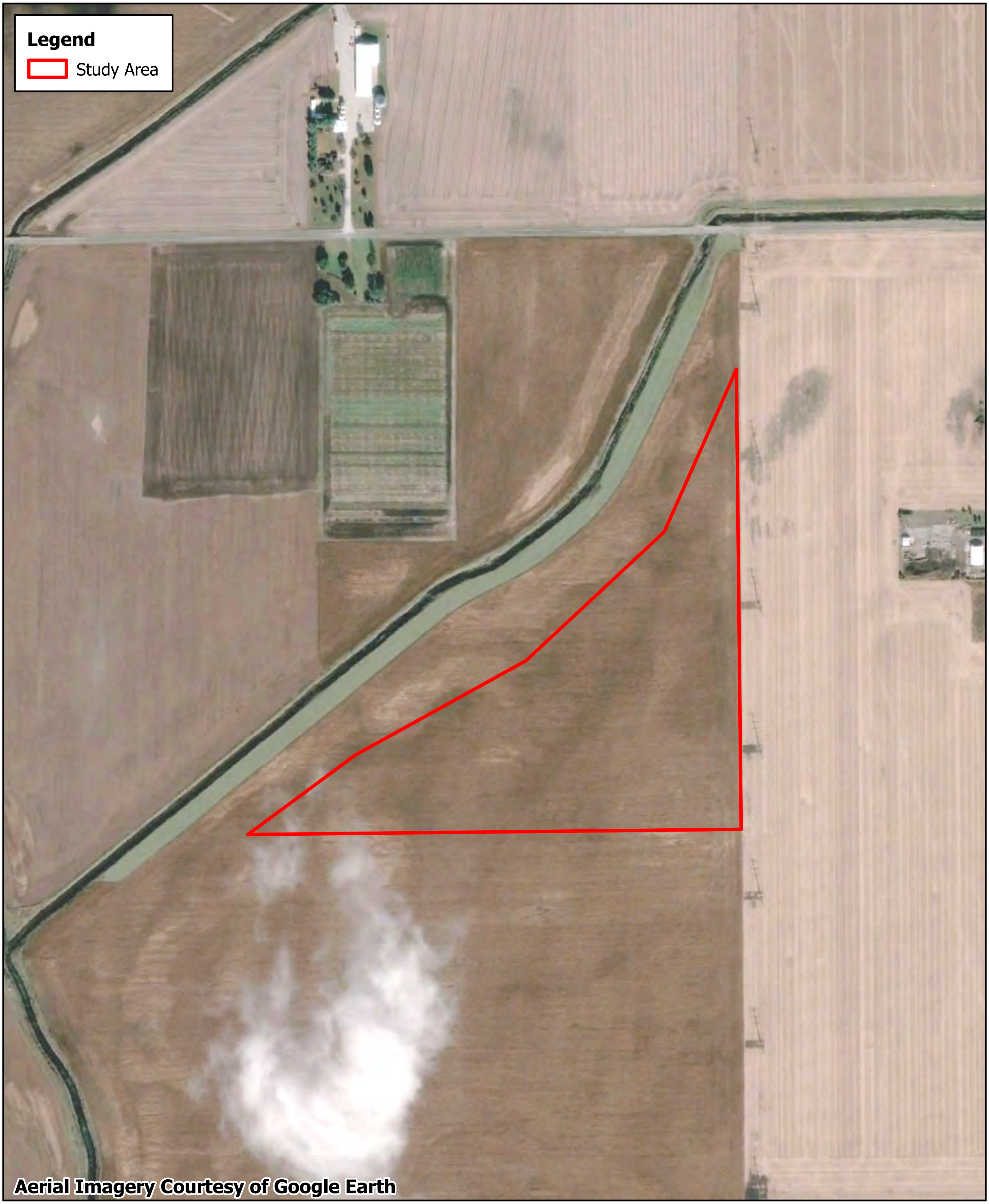
Historic Aerials Map (April 2019)
Champaign Township, Champaign County
Dimension RE LLC



Kimley»Horn

Historic Aerials Map (October 2020)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

0 250 500
Feet

N

Historic Aerials Map (June 2022)
Champaign Township, Champaign County
Dimension RE LLC

Kimley»Horn

0 250 500 Feet

N

Historic Aerials Map (February 2025)
Champaign Township, Champaign County
Dimension RE LLC

EXHIBIT T: MANUFACTURER'S SPECIFICATIONS

ARRAY
TECHNOLOGIES

Installation Guide

DuraTrack® HZ v3
90052-000
Rev C-9, November 2021

DuraTrack® HZ Solar Trackers

Products may utilize technology covered by the following United States patents (and their foreign counterparts):
#8,459,249 • #10,042,030 • #9,631,840
#9,281,778 • #10,069,455 • #9,581,678

Array Technologies, Inc.

3901 Midway Place NE
Albuquerque, NM 87109 - USA

ARRAY TECHNOLOGIES

Table of Contents

1 DuraTrack® HZ v3 Tracking System Overview

A solar tracker is a mechanical system which orients solar modules toward the sun, minimizing the incident angle of incoming light to the modules, increasing energy generation. The Array Technologies, Inc. DuraTrack® HZ v3 Tracking System is a utility-scale, high density, low maintenance photovoltaic (PV) tracking system. The tracker is a system of structural and electrical components which drive rail systems that orient the solar modules mounted on them. These trackers are installed in rows running North/South and are connected by rotating driveline, sharing a single AC motor, in groups called blocks or motor blocks. Motor blocks are arranged around power inverters which form inverter blocks.

The tracker rotates the PV modules about its' horizontal axis, up to ±52° in an East/West motion, to achieve the optimal angle for harvesting incoming solar energy throughout the day. The trackers' movement is managed by networked electronic control systems and sensors. These control systems provide functionality designed to maximize efficiency such as shade avoidance in the early morning/evening hours, geolocation services, and networked system management.

Figure 1-1: Site Configured With The DuraTrack® HZ v3 Tracking System

1.1 Tracker Components

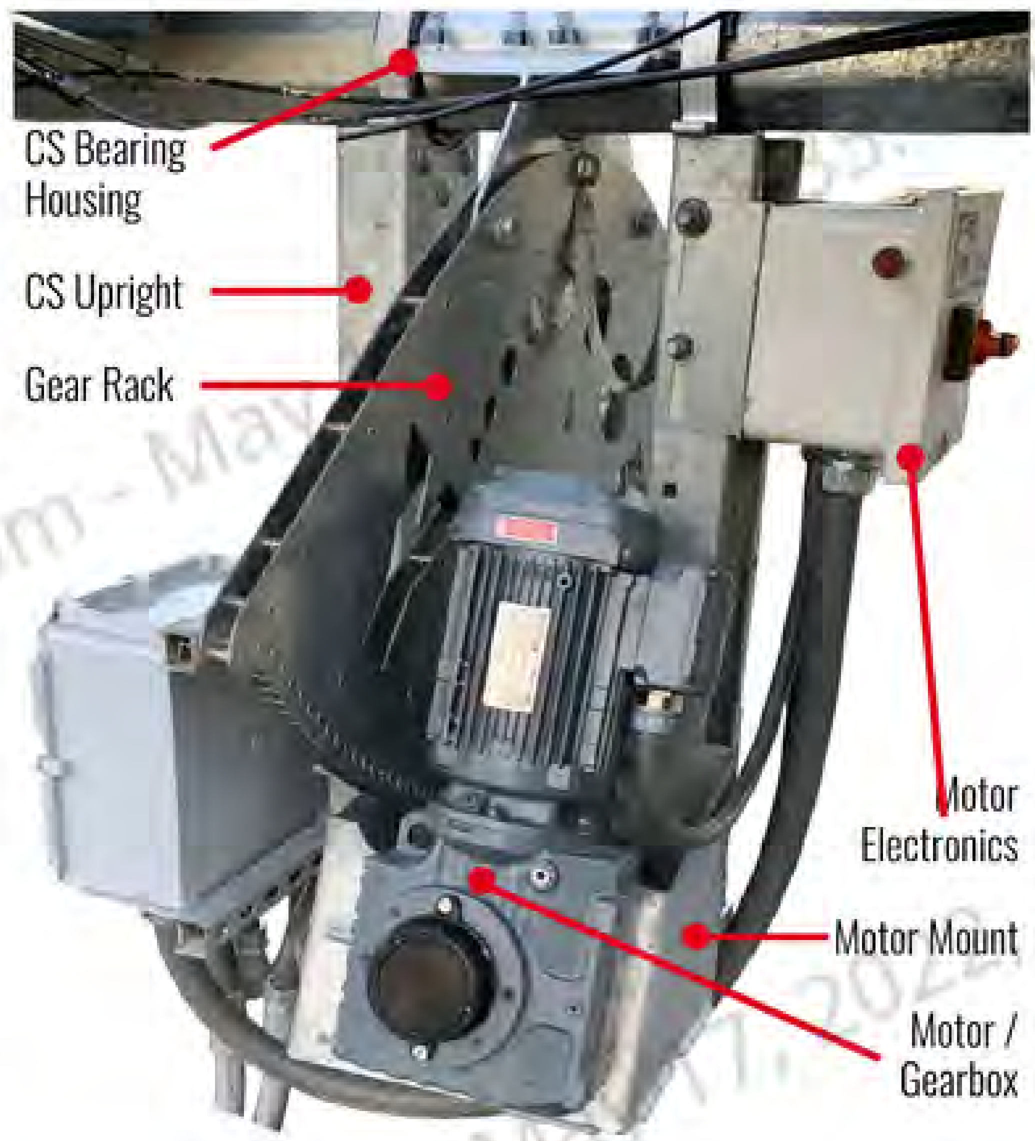
The DuraTrack® HZ v3 Tracking System is comprised of many component parts. These parts vary in form, function, and range from structural members to electronic assemblies. Each tracker design, and subsequently the types of parts used, are configured per site to optimally support each site's design requirements and constraints. This sub-section will describe and illustrate the significant components in order to enhance comprehension of the installation instruction provided in this guide.

1.1.1 Support Columns

Support columns form the tracker foundation to provide anchoring and support to the other functional tracker components. Many tracker parts have others fastened to them and the support columns provide the basis for an interconnected system. Typically the tracker is installed onto driven steel support columns or a similar anchoring system. The type, placement, dimension, and other design factors of the foundation are determined by a Foundation Designer during the pre-construction phase. The support columns are installed first and the tracker is assembled atop of them.

1.1.1.1 Center Structure Column Components

The Center Structure (CS) is an integral part of the tracker. It is the assembly which houses and supports other major functional components such as the CS Bearing Housing, Gear Rack, Gearbox, Motor, and Motor Electronics assembly. The Center Structure is mounted on the support columns, referred to as Gear Rack Columns, which are 32" shorter than the surrounding majority of support columns referred to as Bearing Columns. The CS is always configured with a Gear Rack and Gearbox but only one CS in a block is outfitted with a Motor. The row with the motorized CS is referred to as a driving row as it is providing energy, transferred by Drivelines, to the non-motorized rows in the block called linked rows. The Motor turns a drive sprocket and its teeth engage with the Gear Rack thereby rotating a steel Torque Tube coupled in a bearing which then angles the solar Modules.



1.1.1.2 Bearing Column Components

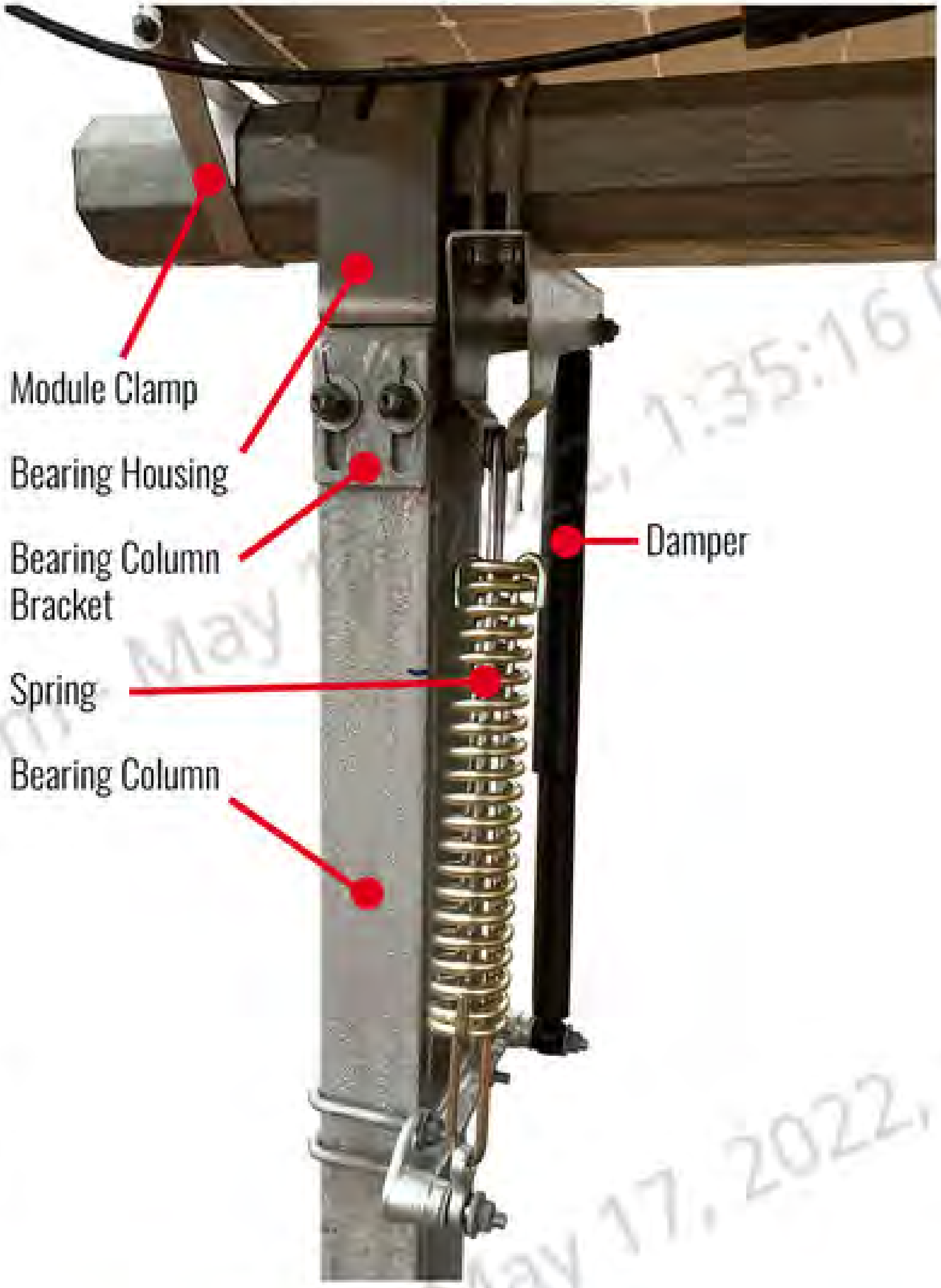
The Bearing Columns have Bearing Housings attached to them using Bearing Column Brackets. The Bearing Housing contains bearings which support the movement of the Torque Tubes.The Torque Tube, which is an octagonal length of steel that the Modules and other parts are clamped or fastened to, passes through these bearings to form a row.

1.1.1.3 Drivelines

Drivelines are lengths of aluminum or steel which transfer energy from the Motor to drive the block. They are connected through universal joints from the motorized CS to the shaft and sprockets of the non-motorized CS, actuating those Gear Racks, and operating the block as a system. The Drivelines are designed for flexibility to account for site conditions such as grading and there are different versions which can be used depending on tracker design requirements.

1.1.1.4 Torque Tube Components

The Torque Tube spans an entire row and acts as the mounting platform for other components such as Module Clamps and Dampers. The Module Clamps fit around the Torque Tube and typically feature ears which secure the Modules. There are many types and sizes of Module Clamps and are selected based on the type of Module to be installed as well as other site parameters. The Dampers counteract the force of the wind on the row and are mounted to both the Torque Tube and a Bearing Column near the ends of each row.



1.1.1.5 Electronic Components

The mechanical systems are controlled by a suite of electronic components at varying levels. Motor Electronics assemblies, local to each Motor, act as a gate and directional switch for the power to the Motor. Motor Controllers control how and when a group of Motors operates by interfacing with each Motor Electronics assembly. Motor Controllers are located in a central proximity to the group of Motors they operate. The number of Motors a Motor Controller can support is limited and multiple Motor Controllers are present in a site. Site Data Controllers coordinate the Motor Controllers, managing data streams such as time, GPS, location, and other essential parameters. There is generally one Site Data Controller per 100 Motor Controllers, placed in a command location on the site.

4X/6X Motor Controller GPS Site Data Controller

1.2 System Features

The DuraTrack HZ v3 Tracking System maintains tracking accuracy of ±2° relative to algorithmic ideal tilt for a row. Proper installation procedures must be followed to ensure cumulative electrical and mechanical tracking accuracy combined of ±5°.

Feature	Specification
Tracking Type	Single-Axis
Tilt Angle	0°
Max Rows per Drive Motor (Assuming Ideal Site Conditions)	Standard 32
Drive Type	Gear Rack
Motor Type*	2 HP, 3-phase, 208, 230, 400 or 480V AC
Controller Voltage	120 / 240V
Motors per 1MWDC	1 Motor
Control Wire	152m (500') Run per Motor Typical
East/West • North/South Dimensions	Site / Module Specific
Tracker Height	1.37m (54") standard, variable
Recommended Ground Cover Ratio (GCR)	33% or higher, variable
Modules Supported	Most Commercially Available Modules
Tracking Range of Motion	±52°
Module Configurations	Single Module in Portait or 4 Modules in Landscape
Module Attachment	DuraTrack HZ v3 Mounting Clamps or FS Clips
Materials	Galvanized High-Strength Steel and Aluminum
Allowable Wind Load	Standard 90 module row design resists up to 209 KPH (130 MPH) Exposure C, 3 second gust, according to IBC 2015. Customizable for higher wind loads and up to 100 modules per row

* Some versions may require longer lead times.

2 IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - This manual contains important instructions for Models v3 that shall be followed during installation and maintenance of the tracker. Read and understand this manual and safety instructions before installing or maintaining the Array DuraTrack® HZ v3 Tracking System. The installer or operator is responsible for observing these safety instructions at all times during installation and maintenance procedures.

Array must commission the DuraTrack® HZ v3 Tracking System prior to initial startup and energizing. Starting the system without commissioning from Array may result in damage to equipment and/or the system and may void the system warranty. Thoroughly inspect all equipment and verify that all tools and equipment are stowed safely and not a hazard prior to energizing.

Array recommends allowing only certified electricians to perform the necessary welding and electrical connections, respectively, for all installations.

2.1 Safety Stops and Disconnects

The Array DuraTrack® HZ v3 Tracking System has built-in features to prevent undesired movement and/or over-travel of the arrays in the event of a malfunction or emergency. The travel of the arrays is limited to ±52 degrees by mechanical stops at the Gear Rack and at all of the Bearing Housings. Do not open the Motor Electronics assembly door unless the breaker is in the OFF position.

The Emergency Stop is the disconnect switch located on the front of the Motor Electronics assembly. Turning this switch to the OFF position will stop powered movement of the array in the event of imminent physical danger or harm to personnel and property. The tracker CAN still be influenced by environmental conditions (wind gust, snow load, etc.).

Figure 2-1: Emergency Stop Disconnect Switch

The tracker is equipped with a power indicator light on the side of the Motor Electronics assembly Box. If this indicator light is on, power is actively flowing to the system. Regular inspection of the indicator lights should be performed to ensure they are in working order.

Figure 2-2: Power Indicator Light

2.2 Wind Safety Precautions

While actively working on flat rows, install a cross-rod through the Center Structure slots and the corresponding slot in the Gear Rack to secure the tracker from movement. Array does not supply cross-rods but recommends a 3/4" (19mm) x 30"+ (762mm+) steel rod. Use protective caps on exposed sharp ends as necessary.

Figure 2-3: Installed Cross-Rod

When not actively working on the rows, and the rows are exposed to open areas more than 30 feet across, remove the cross-rods. Winds over 30 mph can potentially activate the automatic wind stow function. Leaving the cross-rods installed can cause damage to the structural components of the tracker.

2.3 Lockout/Tagout (LOTO)

The LOTO procedure is designed to safeguard workers from the accidental / unexpected energization or startup of equipment or the release of hazardous energy during installation, service, or maintenance activities. The Array DuraTrack® HZ v3 Tracking System contains and transmits electrical energy during operation. A certified technician or engineer must first disconnect and lock out the energy source to the equipment then place a lockout tag at the point where the energy source has been disconnected.

Devices used to perform LOTO can include padlocks, tags, chains, self-locking cable ties, hasps, or other hardware. Array recommends using Master lockout hasps or similar hasps. In addition to the lockout hasp, affix a tag indicating the date of lockout and name of the person who performed the lockout.

Figure 2-4: Lockout Hasp

Two lockout locations are required on the Motor Electronics assembly: at the disconnect switch and also the door latch.

Figure 2-5: Motor Electronics Assembly Lockout Locations

⚠ Use proper LOTO procedures and appropriate PPE (reference "Personal Protective Equipment (PPE)" on page 9) before working on or around the tracker motors or module wiring. Contact with high voltage (208-480VAC) at the tracker motors or at the module wiring (600-1500VDC) could result in serious injury or death.

2.4 Hazards

Hazards may be present during equipment installation, maintenance, and operation. Familiarize yourself with the equipment, potential hazards, and always follow proper safety procedures.

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (www.P65Warnings.ca.gov)

2.4.1 High Voltage

Appropriate PPE should be worn at all times when working with high voltage equipment (reference "Personal Protective Equipment (PPE)" on page 9). A typical string of modules can produce 600-1,500VDC. Improper handling and/or contact can result in serious injury or death.

Figure 2-6: High Voltage Indicator

Locations marked with the ground symbol below require a field-wired ground termination.

Figure 2-7: Ground Symbol

2.5 Lifting and Moving

Array recommends the following guidelines for lifting and moving tracker components to avoid potential injury to personnel or damage to equipment:

- Up to 40 lbs. (18 kg) : one person
- 40 lbs. - 100 lbs. (45kg - 221kg) : minimum two people

• 100+ lbs. (221+kg) : use a forklift with a lifting hook or comparable mechanical lifting assistance

Light-duty nylon slings rated 300 lbs. (136 kg) vertical capacity (minimum) for lifting motorized and non-motorized slewing gear drives. Array recommends 10' long (3 m), 1" (25 mm) wide, eye-to-eye style straps compatible with on-site material handling equipment.

Using a forklift to move and install torque tubes can make the installation process easier and more efficient. Always use non-marring fork covers to protect finishes when moving or lifting.

2.6 Personal Protective Equipment (PPE)

Appropriate PPE, as determined by the local authority having jurisdiction (AHJ) should be worn at all times. Array recommends the following Personal Protective Equipment (PPE) be worn during installation, servicing, and maintenance of the solar array:

- Safety Hard Hat
- Safety Glasses
- Steel-Toed Safety Boots
- Safety Vest
- Cut-Resistant Gloves
- Arc Flash Protection

When opening the Motor Electronics assembly or working with any open high voltage components, wear Arc-rated Personal Protective Equipment (PPE) in accordance to Arc-Flash Category 2:

- Arc-Rated Clothing, Minimum Arc Rating of 8 cal/cm2
- Arc-rated long-sleeve shirt and pants or arc-rated coverall
- Arc-rated flash suit hood or arc-rated face shield and arc-rated balaclava
- Arc-rated jacket, parka, rainwear, or hard hat liner (as needed)

Protective equipment in addition to Arc Rated PPE:

- Hard hat
- Safety glasses or safety goggles
- Hearing protection (with inserts)
- Class 0 gloves
- Leather footwear

Figure 2-8: Arc-Rated PPE

3 Site Evaluation and Preparation

3.1 Site Evaluation

Topography, soil conditions, elemental requirements, and system size are determining factors in the tracker design for a site. A certified Professional Engineer is required to evaluate and map the site topography, determine the soil conditions, and provide an opinion on any other environmental/elemental considerations.

3.1.1 Topography

The system height, number of columns per tracker row, and column size is affected by the site topography. Evaluation of the topography may also determine the need for grading or other site preparation.

3.1.2 Soil Conditions

Soil conditions determine the size and installation requirements for the tracker support columns. Depending upon the soil type, vibratory driven piles, helical anchors, concrete pier foundation, or ballast may be required to install tracker support columns.

3.1.3 Elemental Requirements

Elemental requirements are based on historical data of weather activity. The tracker design accounts for reasonable estimates of snow load and wind speed requirements and other climate or weather conditions.

3.1.4 System Size

System size may be determined by any combination of the following factors: total electrical production, site solar resource, module characteristics, time of day/seasonal production requirements, and field density.

3.1.5 Electrical and Mechanical Requirements

Electrical requirements include system size, efficiency, string size, module, inverter choice, motor voltage, and controller voltage. Mechanical requirements include module attachment or orientation and limitations of the motor.

3.1.6 Field Layout

The field layout is determined by the array density requirements, site boundary characteristics, and electrical design.

3.2 Site Preparation

During site preparation, information obtained through site evaluation is used to prepare the site for installation. Preparation may include site grading, fencing, security, and installation of environmental barriers, as well as the acquisition of permits.

3.2.1 Permits and Studies

A site may require permits or studies before any changes may be made to the landscape. If zoning restrictions apply, permits or waivers may be required. Refer to local zoning codes for all required permits and studies. A study may include consideration for archaeological significance, endangered species, and visual or environmental impact. Array is not responsible for the permitting process but can provide support as required.

3.2.2 Grading

Grading requirements are determined during the site evaluation and topography assessment. Third-party contractors establish a customized grading plan and layout guidance for each site. General grading specifications are as follows:

- Bolted Pile Connection: Center Structure Top Strap - 7% (4°)
- Bolted Pile Connection: Lateral Brace - 15% (8.5°) max

If the North/South grade of a row exceeds 7%, Array requires lateral supports for the foundations. Lateral supports are available as part of the tracker design and must be specified at time of purchase. Contact the Foundation Engineer for lateral load and bracing requirements. (Refer to Array DuraTrack® HZ v3 Grading Document (90054-000).

3.2.3 Security

Array recommends establishing security controls for each site. These controls may include fences, barriers, security personnel, or cameras to monitor the site on a continual basis.

3.2.4 Motor Labeling Convention

All motors should be identified and labeled in a logical manner with a consistent numbering convention. One 6X Controller can regulate up to six motors (one 4X Controller can regulate up to four motors). Consider the proximity of motor blocks and inverter locations when developing a motor numbering convention.

Figure 3-1: Example of Motor Identification and Labeling

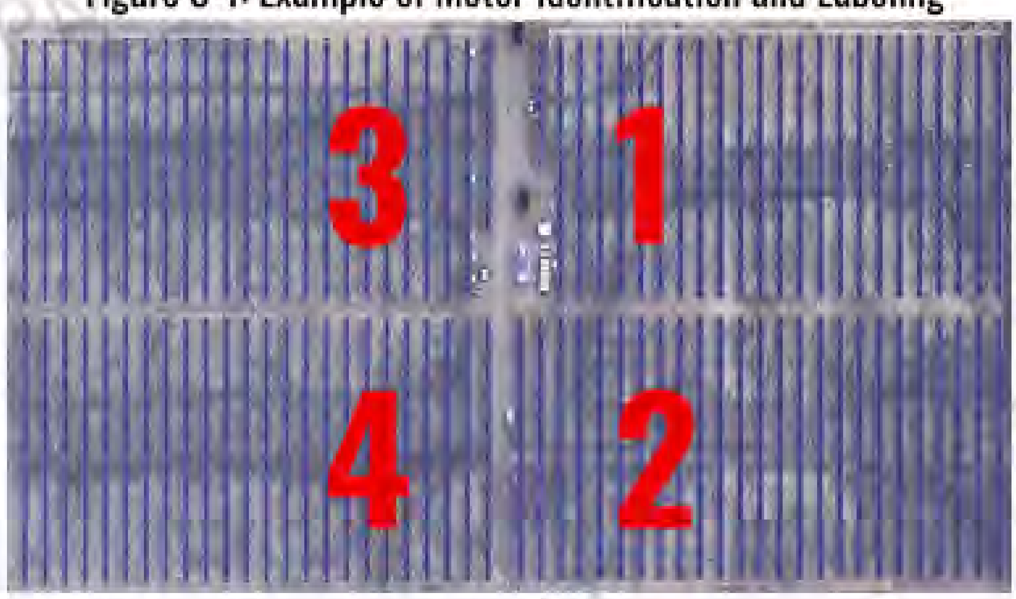


Figure 3-2: Example of Motor Numbering

3.3 Material Handling

Effective material handling considerations and procedures are critical to prevent damage to equipment, injury to personnel, and to configure the site for optimal construction practices. Array recommends the following material handling procedures and considerations.

3.3.1 Shipping Bill of Materials

A master Bill of Materials (BOM) is included with the site Assembly Drawing Package (ADP). The shipping schedule is determined by the site contract documents. Use this schedule to plan for deliveries and to resolve any shipping discrepancies.

3.3.2 Transportation

Materials ship from multiple locations. Each finished megawatt will require an average of two (2) full truckloads of material. If Array is also supplying columns, approximately three (3) full truckloads will be required per megawatt. Contact Array to obtain accurate, site-specific shipping information.

3.3.3 Receiving Materials

Ensure the lay-down area for equipment delivery is adequate enough to accommodate the solar tracker components to be received. All shipments must be inspected for damage prior to unloading. If there appears to be any damage, obtain photographs of the damaged material and provide them to Array Project Management within two days for timely claim processing. In the event of missing pallets or Torque Tubes, please contact your Array Project Manager immediately. **Failure to report and document any damaged and/or missing components within two weeks of delivery** will be interpreted by Array as the recipient's affirmation that all material has been received in good condition and as stated on the shipment manifests.

To ensure safe and efficient unloading at the site, most products are bundled on standard pallets and can be removed using standard safe forklift procedures. The maximum weight of any single bundle is 5,000 lbs (2,268 kg). Ensure on-site material handling equipment is certified for this maximum weight and is appropriate for the site conditions. Array recommends the use of a heavy-duty, all-terrain forklift for the unloading and movement of materials. Always employ proper material handling procedures to ensure material is not damaged. Array recommends staging all material on level ground at an appropriate distance from frequently used passageways.

Array recommends the following guidelines for unloading and staging of pallets and bundled Torque Tubes:

- Adjust the forklift forks to the widest capable width prior to lifting a Torque Tube bundle.
- Balance and lift the Torque Tube bundle from its center.
- Use care to avoid damaging material with the forks during unloading and staging.
- Re-use the protective shipping dunnage and the same spacing arrangement as it was loaded on the truck.
- Do not stack Torque Tube bundles higher than they were stacked during shipment.

The following items are recommended to unpack the received materials:

- Tin snips or wire cutters
- Box cutter or utility knife
- Crowbar or claw hammer

> ⚠ Tracker components may have sharp edges. Wear cut-resistant gloves and follow safe-handling procedures during unloading, staging, and installation.

3.3.4 Material Storage

Warehousing is recommended for spare parts or equipment such as electronics and motorized assemblies. In general, standard tracker components are rated for storage at -34°C to 60°C (-29.2°F to 140°F), but extreme temperatures should be avoided where possible. Structural and mechanical components may be stored outdoors on pallets. Never place components on unprotected ground or submerge them in water. Components shipped in cardboard boxes should be kept dry. If cardboard boxes become damp, open the packages and/or cut large holes in the boxes immediately to allow ventilation and drying.

Although the tracker is designed to withstand outdoor environments, the installation process includes finishing and sealing of components subject to environmental degradation. Prior to installation, protect the system components from weathering, close quarters packing, and/or other location specific conditions by following proper storage procedures and practices:

- Ensure all staging areas are located above the normal construction flood plain level.
- Some equipment is packaged in plastic-wrapped cardboard boxes which may be stacked and stored in similar orientations as loaded on the delivery truck.
- Hardware can remain packaged as received until required for installation.
- Drivelines must be protected from moisture until installation and should be stored flat. If the cardboard sleeve is exposed to moisture, remove the outer plastic wrap and allow it to dry thoroughly.
- Do not remove Torque Tube bundle tags identifying the manufacturing batch. Store tubing at a 3° slope to promote water runoff during and after rain events. Verify the slope is uniform to ensure the entire Torque Tube length is in the same plane to prevent bowing.
- Many tracker components are fabricated from pre-galvanized material and some corrosion is normal. It can be expected to see white rust on any zinc surface and/or red rust on edges. If excessive amounts of corrosion are noted, please contact Array.
- Ensure material is protected from exposure to moisture from dust-control measures on site. Regular, intentional exposure will accelerate corrosion.
- Store all identical numbered parts together when possible.

Table 3-1: Material Storage Over Time

Duration	Recommendation
≥ 2 Months	Store material outdoors as described above. Shelter from weather if possible. If continuously exposed to moisture, store the steel tubing in a dry area/building, or unbundle the steel tubing to allow it to dry thoroughly after exposure to moisture (rain events and/or condensation). Trapped moisture can cause surface rust.
3-6 Months	Use same arrangement as above.
≥ 6 Months	Store material in a dry, indoor storage facility.

3.3.5 Spare and Replacement Parts

Array recommends keeping excess material from installation on site as spare parts. In conjunction with those parts, Array typically provides an initial spare parts list as part of the early phases of the project. The arrangement, components, and requirements of each site are determined by Array during the design phase. Due to each site's unique configuration, it is critical that the correct parts for the site are spared. If additional spares or replacement parts are required, contact Array directly to ensure the correct parts are procured. Pricing is available upon request.

3.3.6 Disassembly

The Array DuraTrack® HZ v3 Solar Tracker is designed for a long service life. In the event tracker components or a system requires disassembly or removal, all Array recommendations for material handling still apply. Consult local, regional, or national governance for disposal restrictions and requirements.

3.4 Decommissioning or Component Disposal

In the event of decommissioning or need to dispose of components:

- Tracker components should be disposed of in accordance with all local or applicable waste disposal requirements, environmental regulations, and recycled if possible.
- Specific disassembly or disposal instructions for certain components may be available depending on configuration; contact Array before performing any decommissioning.

4 Assembly Drawing Package (ADP)

The ADP is a document provided separately from this installation guide and is critical for proper installation. It contains the unique site design created from the site evaluation and other criteria established by the client. It documents the detail design of the tracker layout and composition.

This Installation Guide contains typical specifications which meet the compliance with the UL Listing requirements for the v3 tracker. The ADP can have different specifications that, while still meeting the UL criteria, are required to support site-specific design. Verify all torque specifications and installation sequences referred to in this guide correlate with the site-specific ADP before installation.

This installation guide provides general guidance and assumes typical configurations and conditions. The ADP is an official Professional Engineer (PE) stamped engineering document and is a document of record for the project. **The ADP supersedes any general guidance provided in this document at all times.**

If clarification of installation details are needed, contact Array. Array is not liable for incorrect installation.

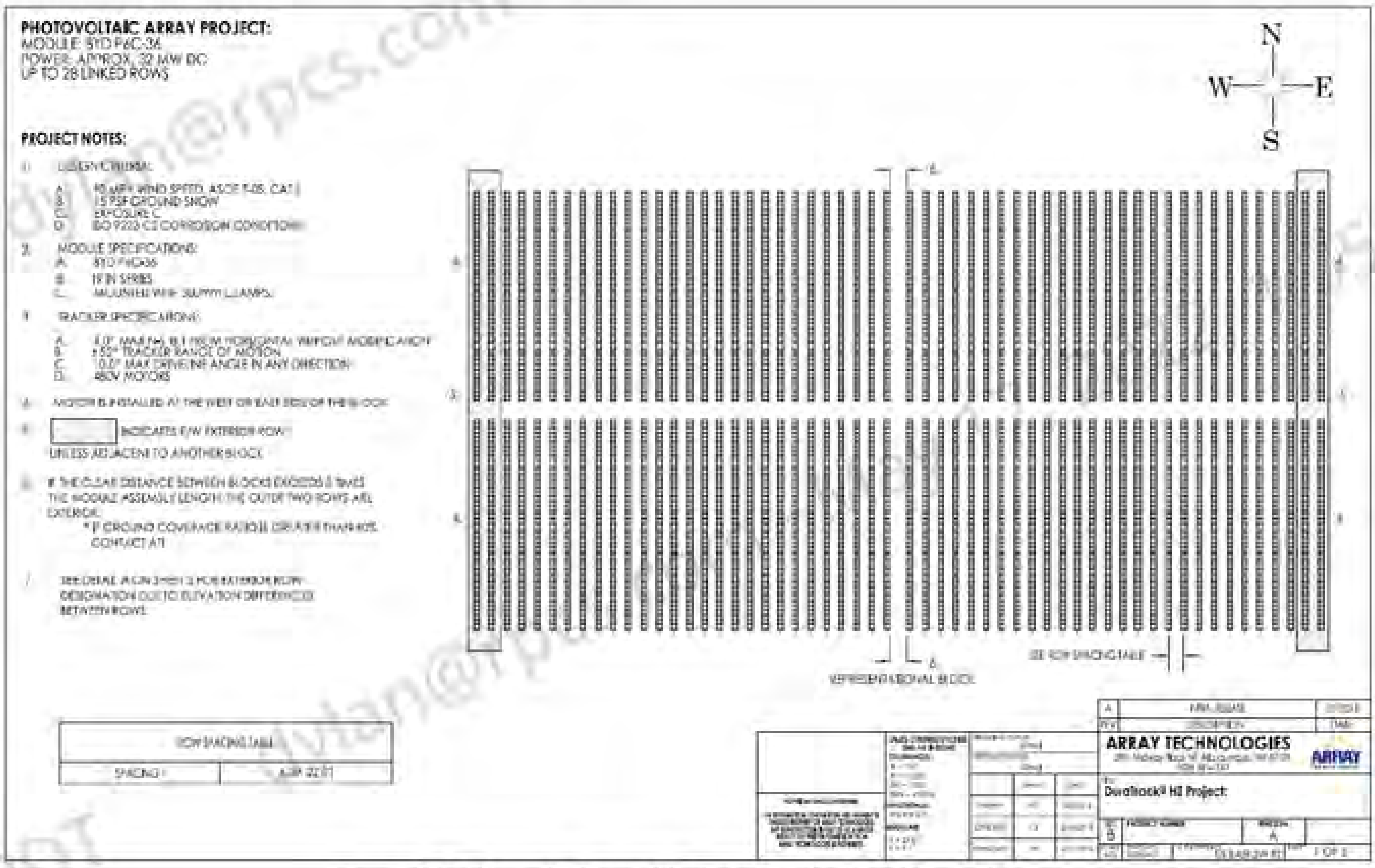


Figure 4-1: Example Assembly Drawing Package Coversheet

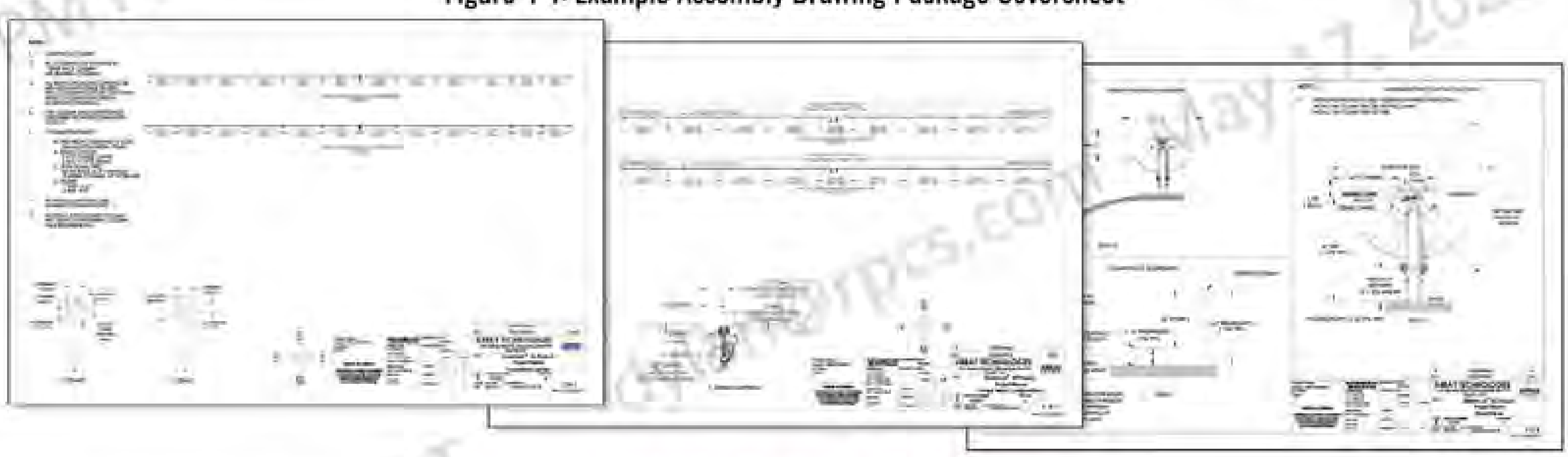


Figure 4-2: Site Specific Design Data Contained in ADP

5 Tracker Installation

5.1 Exterior Row Definition

Exterior rows are rows that require special design consideration because they can be exposed to different types and magnitudes of forces than the interior rows. For example, in the case of a high wind event, the exterior row diverts the impact, protecting the rows behind it from unsafe wind levels and from the need to tilt themselves. Exterior rows in a site are identified in the ADP and Site Layout Plan.

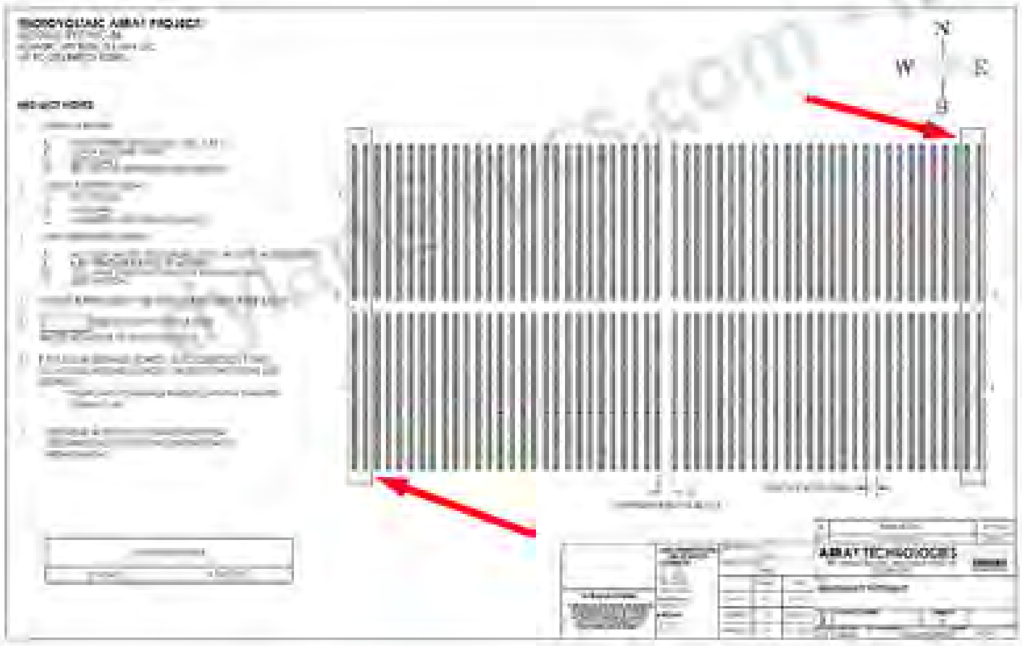
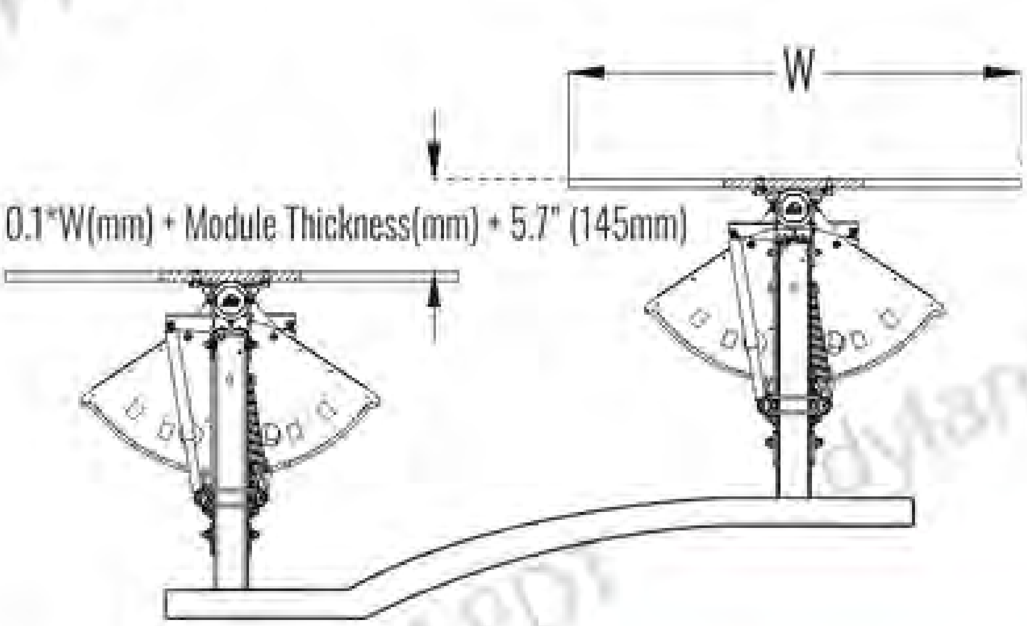


Figure 5-1: Exterior Rows Identified in ADP

Array defines exterior rows using the following criteria:

- The first two rows located on the Eastern and Western edge of a site.
- Any row in the site that exceeds:
  0.1W + 5.7" (145mm) + Module thickness
  above the plane of adjacent rows where "W" is the width of the tracker row.



- Any row that has an open space to the East or West that is wider than two (2) times the row spacing.

5.2 Torquing Procedure

This manual provides torque specifications for many of the mechanical connections within the tracker, however, these specifications are superseded by the site-specific ADP at all times. The installer is responsible for ensuring all ADP specifications are followed, even if they conflict with Installation Guide recommendations. Contact Array before beginning any work if there are any questions or concerns. No additional structure(s) (cable trays, combiner boxes, etc.) should be attached to the Array tracker without prior written approval from Array engineering.

The general recommended procedure for torquing is as follows:

1. Loosely install all bolts required for the connection.
2. Use a hand tool to "snug" all hardware.
3. Ensure proper alignment of all parts.
4. Follow the alternating bolt tightening sequence (if applicable); tighten each bolt to full torque in turn, repeating tightening in sequence until the nominal torque is reached on all the bolts in the joint. Array requires fasteners to be installed at nominal tested values. Tolerance ranges are included as recommendations for inspections only and may be superseded by the EOR on a project.
5. Verify that all bolts are secure and that none has loosened. Mark each bolt head or nut with a permanent mark to indicate that it has been tightened to specified torque. Ensure the marking touches all layers of the connection, including the structure, for future reference.

Figure 5-2: Proper Marking of Torqued Hardware

5.3 Safety and Weather Events During Construction

5.3.1 Use of Cross Rods During Construction

While under construction, the Gear Rack can be secured by inserting a cross rod through the Center Structure slots and corresponding slot in Gear Rack. Array does not supply cross rods. Array recommends 3/4" (19mm) steel rod, minimum 30" (762mm) long. Use protective caps on exposed sharp ends.

Use of cross rods prevents the tracker from unexpectedly moving for personnel safety. Dampers should be installed and a cross rod added before installing modules on a row. The cross rod should be removed once all modules are fully installed and personnel are no longer be performing work on that row or any row immediately East/West. Cross rods can be reinstalled later if installation activities are required on a row and any row immediately East/West of that row. Cross rods should NOT remain installed on a row with Dampers and modules fully installed unless it is, or a row immediately East/West is, actively having work performed.

Figure 5-3: Example of a Cross Rod Installed in the Gear Rack

5.3.2 Preparation for Severe Weather Events

If necessary, it is possible to manually prepare a tracker under construction to endure a severe weather event. This is intended to apply to rows which have had modules installed but cannot move or respond under power or control systems as a fully commissioned tracker would.

There are differing preparation methods and parameters based on the configuration of the tracker under construction. Determine which configuration matches the tracker under construction as described in the following sub-sections before preparation.

5.3.2.1 Standard DTHZ v3 Tracker

- Wind Event: As described in Section 5.3.1, Dampers should be installed and cross rods removed.
- Snow Event: No specific measures are required.
- Hail Event: Manually* turn rows to full tilt away from the prevailing wind direction of storm. If rows have Drivelines installed, a block can be manually rotated by the Motor row.
- Flood Event: Manually* turn rows a low tilt angle from flat (0°). Move any palletized materials out of low-lying areas.

5.3.2.2 DTHZ v3 with Snow Mode

- Wind Event: As described in Section 5.3.1, Dampers should be installed and cross rods removed.
- Snow Event: For this tracker, a snow event is defined as an event at or in excess of 60% of the design snow load. Manually* turn rows to full tilt in either direction.
- Hail Event: Manually* turn rows to full tilt away from the prevailing wind direction of storm. If rows have Drivelines installed, a block can be manually rotated by the Motor row.
- Flood Event: No low-tilt functionality is possible with this tracker; leave rows in their construction position. Move any palletized materials out of low-lying areas.

5.3.2.3 DTHZ v3 with Snow Sensor

- Wind Event: As described in Section 5.3.1, Dampers should be installed and cross rods removed.
- Snow Event: For this tracker, a snow event is defined as an event at or in excess of 25% of the design snow load. Manually turn rows to full tilt in either direction.
- Hail Event: Manually* turn rows to full tilt away from the prevailing wind direction of storm. If rows have Drivelines installed, a block can be manually rotated by the Motor row.
- Flood Event: Manually* turn rows to a low-tilt angle from flat (0°) IF snow is not possible. Move any palletized materials out of low-lying areas.

* Row and Motor turning tools, to manually turn rows/blocks, are available: contact Array for more information.

5.4 Support Column Installation

Columns are used to support all other parts of the tracker system. The quantity and location of columns are determined in the site engineering phase. The columns must be installed plumb and in straight rows spaced according to the tracker design drawings in the ADP. The DuraTrack® HZ v3 system utilizes universal joints to connect the Drivelines between rows, allowing for greater flexibility for column installation in both the East/West and North/South directions.

Typically, a surveyor will mark enough points in each block to enable the installation team to accurately locate the individual column install points.

The column heights from ground level are determined by a Foundation Designer. After all column locations are identified and marked, the columns should be installed within the specified height range listed in the placement plan from the Foundation Designer.

5.4.1 Foundation Installation

Tracker foundation design and type is site-specific. It is the responsibility of the Foundation Designer to determine the specific type of foundation required which can be a driven column, cast in place column, helical column, screw column, or ballasted foundation.

The UL2703 standard requires posts that are driven into the ground must have coating designation of G210 minimum, according to ASTM A653 / A653M, or the equivalent in the standard specification for Zinc Coating (Hot-Dip Galvanized), coatings on iron and steel products, ASTM A123 shall be utilized.

Columns may be installed using a vibratory column driver, a concrete foundation, helical columns, or ballast. Refer to the Site Evaluation Report for allowable foundation types and minimum requirements provided by the Foundation Designer.

5.4.2 Vibratory or Hammer Driven Columns

If soil conditions allow, and the project size justifies mobilization of the necessary equipment, the use of driven columns is typically the most cost-effective foundation option. Increased geotechnical sampling, foundation engineering, and/or verification testing may be required. Vibratory column machines may have more capability than a hammer driver, including the capability to remove columns if necessary. Use a column driver to drive each column to the required height and depth.

5.4.3 Concrete Foundation

Caisson or spread concrete foundations may be specified if required by soil conditions or other design criteria. Tracker support columns may be either set to the specified height or cut after installation. Ensure the columns are supported in position while the concrete cures.

5.5 Column Installation Tolerances

The DTHZ Tracker system is designed with installation tolerances to facilitate ease of installation. The column tolerances defined below are the maximum allowed to enable proper tracker operation. These tolerances are superseded by any tighter, more precise tolerances placed on the foundations by the Foundation Designer.

Gear Rack Column

A.	Column height tolerance:	± 0.625" (16 mm) from install plane
B.	Plan location (NSEW):	± 0.625" (16 mm) E/W ± 1.375" (35 mm) N/S
C.	Rotational twist:	± 1.5⁰ from axis
D.	Plumb	± 1.0⁰ E/W ± 3.0⁰ N/S

Bearing Column

A.	Column height tolerance:	± 0.625" (16 mm) from install plane
B.	Plan location (NSEW):	± 0.625" (16 mm) E/W ± 1.375" (35 mm) N/S
C.	Rotational twist:	± 5⁰ from axis
D.	Plumb:	± 1.0° E/W ± 3.0° N/S

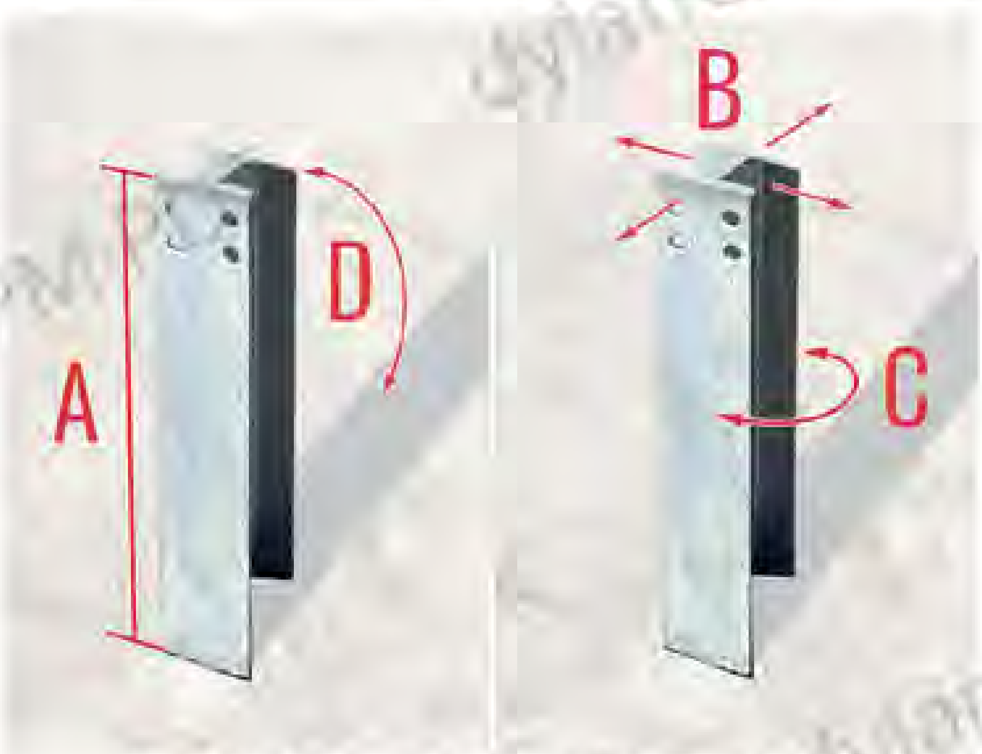
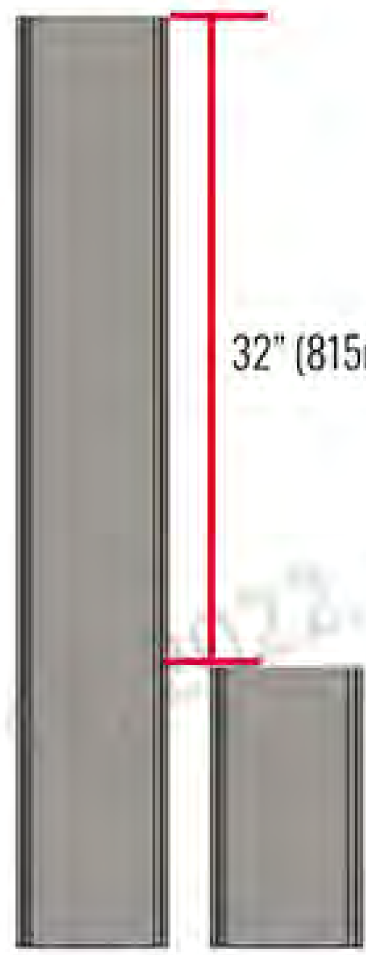


Figure 5-4: Column Tolerance Reference Image

NOTICE These tolerances are NOT cumulative and are defined at the top of the column relative to the column plane and plan location.

In the event some installed columns exceed these tolerances, the tracker can still be installed with minor adjustment in most cases. If the tolerances are exceeded to the point where the tracker will not assemble due to improper column installation, contact Array.

The top of Gear Rack Column and the top of the Bearing Column have a typical 32" (815mm) difference. The Bearing Column Bracket and Gear Rack Column Bracket will have the same height difference.



When defining columns heights, Array recommends a minimum of 18" (457mm) of clearance from the ground to the bottom edge of the module when the tracker is at max range of motion. In high snow load areas, Array recommends providing additional clearance to account for snow accumulation.

Table 5-1: Ground to Module Clearance Tolerance

Condition	Recommended Tolerance
A - Low Snow Load Conditions (≤20psf)	18" minimum (457 mm)
B - Hi Snow Load Conditions (>20psf)	18" (457 mm) +6" (152 mm) per each additional 10psf (479 N/m2) over 20psf (958 N/m2). EXAMPLE: 30psf (1436 N/m2) = 24" (610mm)
Can be Superseded by Customer Engineering Site-Specific Analysis	

5.6 Column Bracket Installation

The column brackets are installed after the columns are installed. There are two types of column brackets, the Gear Rack Column Bracket and the Bearing Column Bracket. The Gear Rack Column Bracket straddles the Gear Rack Column and the Center Structure is installed on top of it. The Center Structure Bracket elevation determines the elevation for the other components of the row. The Bearing Column Bracket straddles the Bearing Column and the Bearing Housing is installed on top of it. Each block of trackers uses a single Gearbox and Motor in one tracker row known as the "driving row". There is one linked gearbox for each remaining tracker row known as "linked rows".

5.6.1 Center Structure Mounting Bracket Installation

1. Identify the columns North-to-South designated in the ADP as "Gear Rack Columns". There is one Gear Rack Column per row. Gear Rack Columns are easily identified as they are 32" (815mm) shorter than the numerous Bearing Columns.
2. Place a Center Structure Mounting Bracket on top of the Gear Rack Column. On both sides, loosely install the bolts, washers, and nuts as shown below.

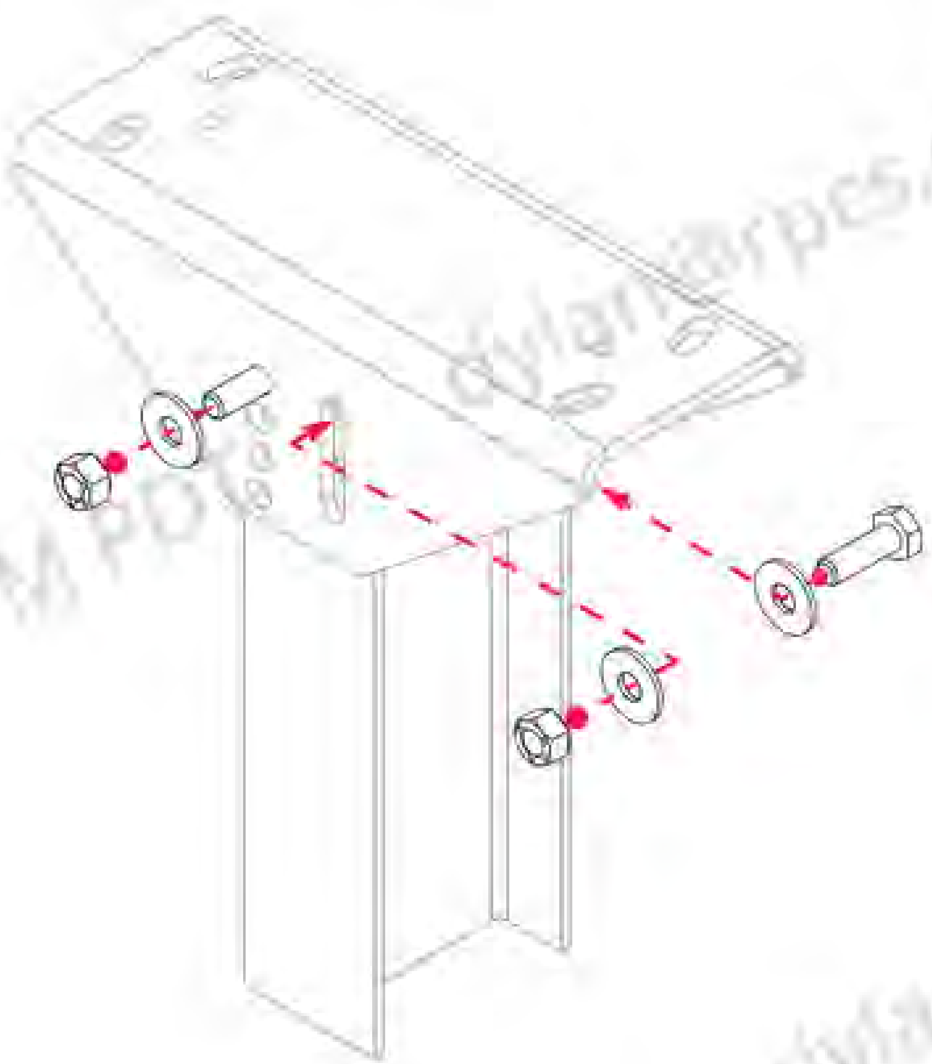


Figure 5-5: Center Structure Mounting Bracket Installation

3. Align the bracket at the angle and height required for the row found in the ADP. The bracket is designed for 8 different height settings and has a slot for angle adjustment.
   a) Maintain as close to flat (0°) relative to the install plane as possible.
   b) Use a crossing pattern when tightening the bolts to achieve the most level condition.
   c) ±2.0° is considered acceptable in the East/West direction due to stack-up of tolerances in the bracket and foundation.
   d) ±1.0° is considered acceptable in the North/South direction.
4. Refer to the ADP for the proper torque value for the bolts. Torque bolts following proper torquing procedure.

5.6.2 Bearing Column Bracket Installation

There are two types of Bearing Column Brackets, a standard version and a High-Wind variant. These brackets have different design features, require different mounting hardware, and use different torque specifications. Refer to the ADP for information on which bracket type is to be installed and ensure the Bearing Column has appropriately-sized holes for the mounting hardware required. For purposes of this procedure, the installation of a standard Bearing Column Bracket will be described. The procedure is the same for the High-Wind variant, with the exception of having differently dimensioned mounting hardware and higher torque specification.

1. Bearing Columns are the taller columns in a row which are not Gear Rack Columns and are also identified in the ADP. These are easily identified as they are 32" (815mm) taller than the Gear Rack Columns.
2. Place a Bearing Housing bracket on top of each Bearing Column and loosely install the bolts, washers, and nuts.
   a) The High-Wind bracket variant uses clipped inner washers. Ensure the clipped face is on the inside, facing the web of the I-beam.

> ⚠ If installing TriLock nuts, rotational speed of any tooling used should be set between 1600-1800 rpm.

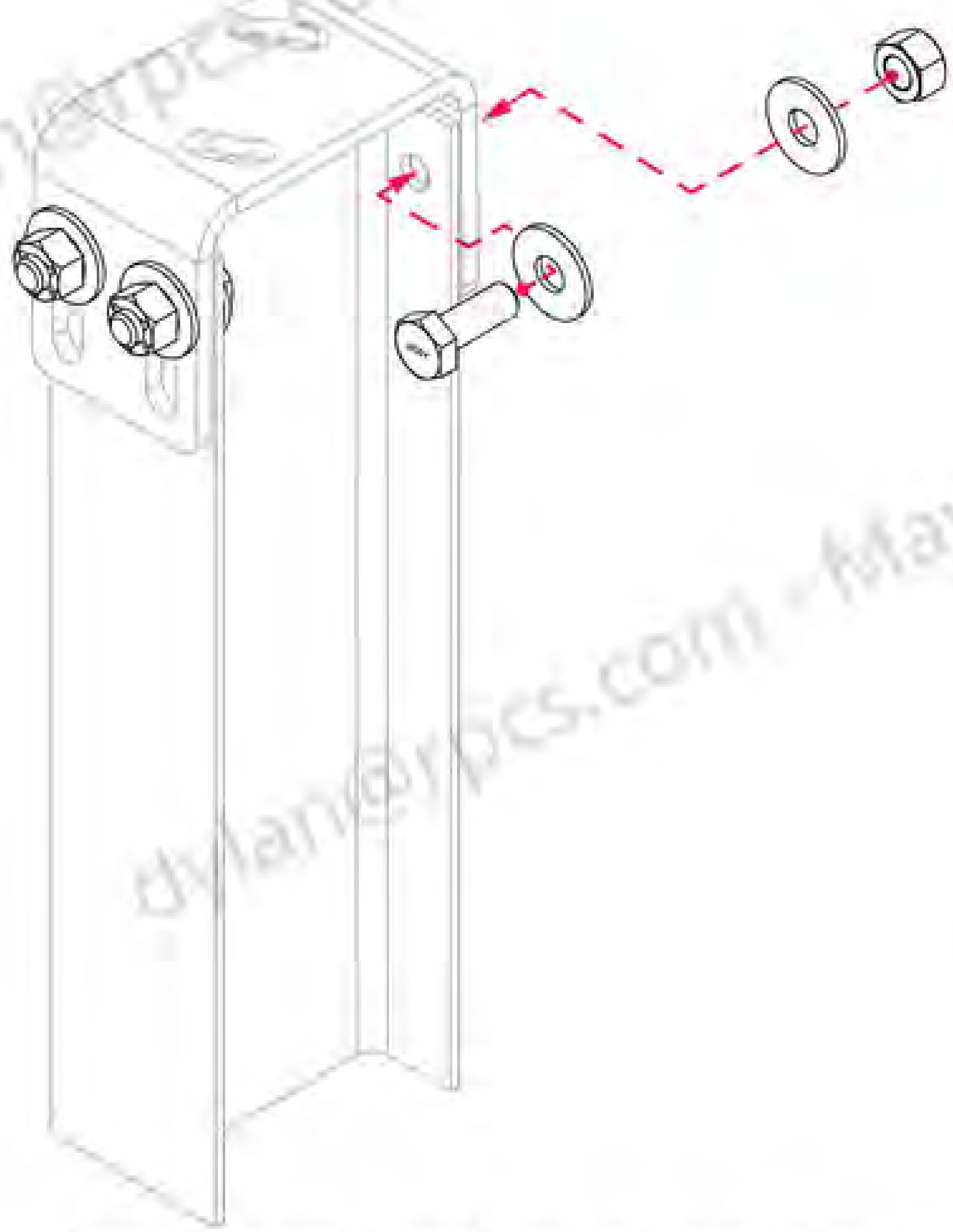


Figure 5-6: Bearing Housing Bracket on Bearing Column

3. Align all of the Bearing Column Brackets in each row so that all are in plane.
   a) Maintain as close to flat (0°) relative to the install plane as possible.
   b) Use a crossing pattern when tightening the bolts to achieve the most level condition.
   c) ±2.5° is considered acceptable in the East/West direction due to stack-up of tolerances in the bracket and foundation.
   d) ±1.0° is considered acceptable in the North/South direction.
   e) The vertical bracket tolerance is ±1/4" (±6 mm) column to column (including the Gear Rack Column), not to exceed 2.5" (63.5 mm) from install plane.
4. Verify the tops of the Bearing Column Brackets sit 32" (815 mm) higher than the top of Center Structure Brackets.
5. Refer to the ADP for the proper torque value for the bolts on a standard Bearing Column Bracket. Torque bolts following proper torquing procedure. The High-Wind variant will have a different torque requirement, also defined in the ADP.

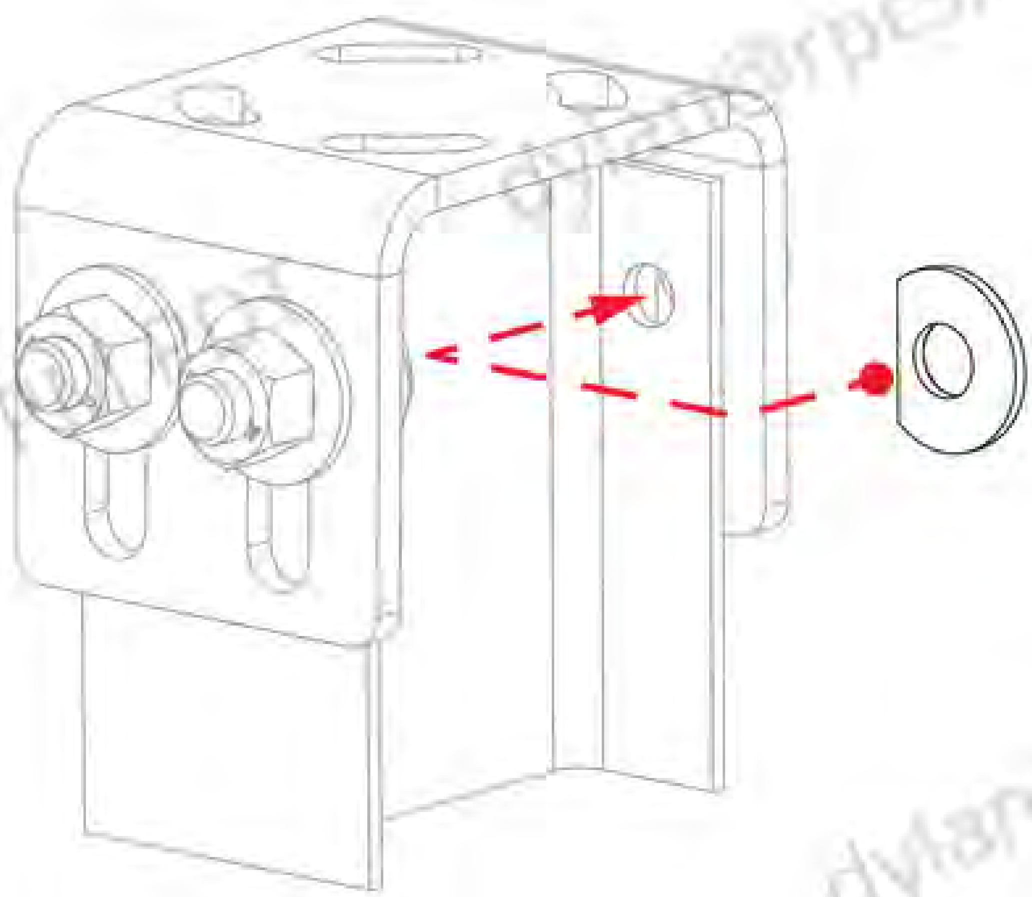


Figure 5-7: High Wind Bracket with Clipped Washer

5.7 Center Structure Installation

1. Refer to the Site Layout Plan for correct orientation of the Gearbox North or South. Install all linked Center Structures in a block with the Gearbox in the same orientation. The motor directional arrow on all Center Structure Uprights must point towards the Motor for each block.
2. Verify that a Center Structure Mounting bracket has been properly installed on each of the Gear Rack Columns in the block.
3. Adjust bracket position if necessary. If adjustment is required, re-torque all bracket bolts using proper torquing procedure and according to ADP Specifications.
4. Using safe lifting procedures and/or equipment, lift the Center Structure and place it squarely on top of the Center Structure Mounting Bracket.
5. Verify the sprocket slides freely on the splined shaft in the lower interior of the Center Structure. If sprocket is locked in to the tapered spline, gently work it free using a small hand tool. Use care to not damage either the sprocket or the spline.
6. From underneath the bracket, insert four bolts through the slots in the Center Structure Mounting Bracket and the corresponding slots in the Center Structure.
7. Snug the bolts with washers and nuts. Verify Center Structure is plumb to the bracket; adjust if necessary.
8. Refer to the ADP for the proper torque value for the bolts and torque the bolts following proper torquing procedure.

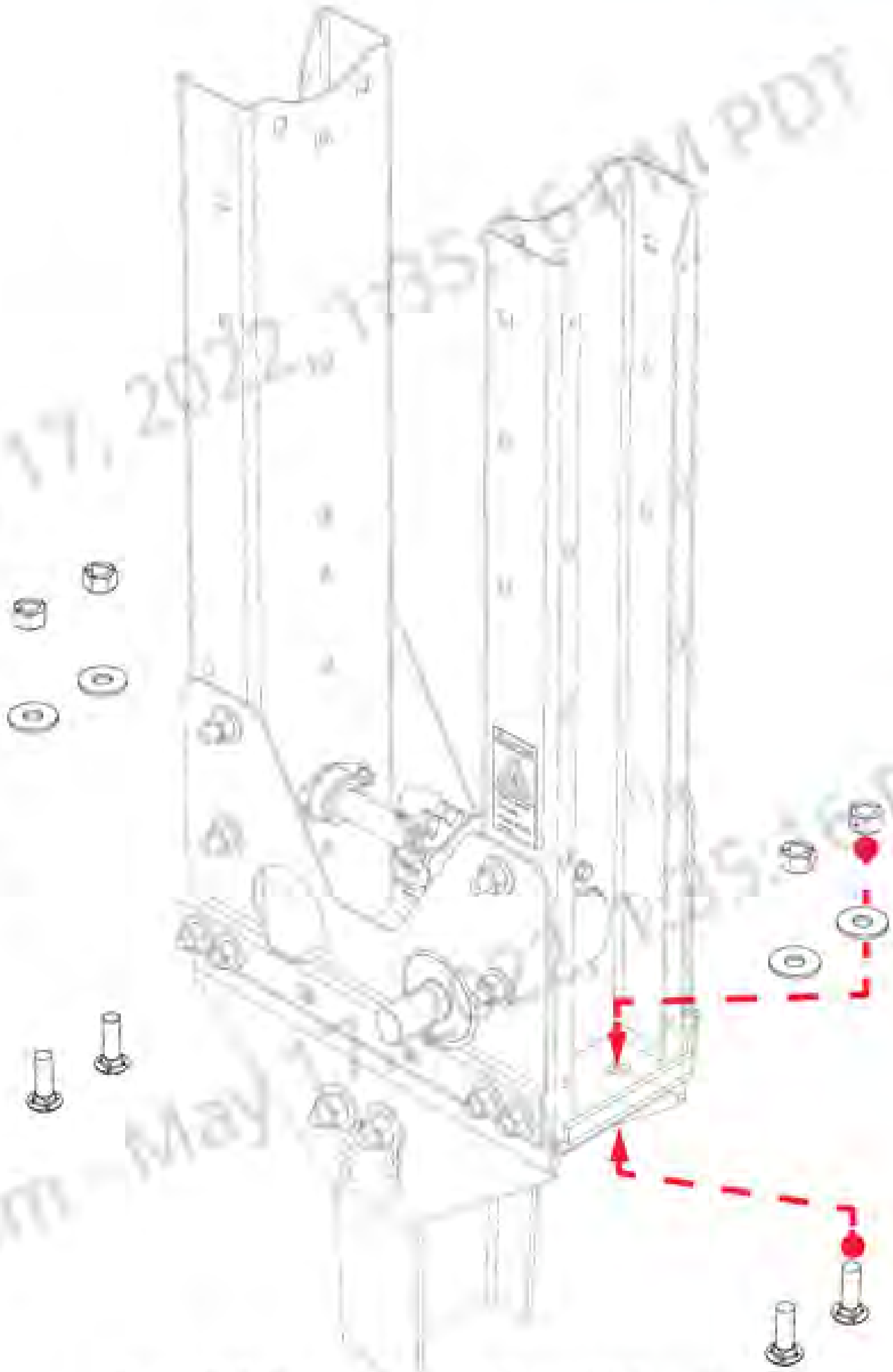


Figure 5-8: Center Structure Assembly Installation

5.8 Gear Rack Installation

The Gear Rack is an assembly which contains pins that align with the teeth on the sprocket of each Center Structure. This interface transmits the driving force of the Motor to the Gear Rack, which in turn rotates the Torque Tube. During installation, this alignment may be approximate, however, the tracker will self-align upon system start-up.

1. Locate the Grounding Strap assembly and have it readily accessible. The Grounding Strap will be installed in the center hole of the Gear Rack during this step. Attach the Gear Rack Coupler Weldment to the Gear Rack with the provided bolts, washers, and nuts.

Figure 5-9: Attach Gear Rack to Coupler Weldment

2. Lift the Gear Rack assembly and position it between the Center Structure Uprights, aligning center Gear Rack pins with the Center Structure sprocket teeth.

Figure 5-10: Gear Rack Placement on Sprocket

5.9 Torque Tube Section Assembly & Installation

Tracker rows are formed by joining sections of Torque Tube. The Torque Tubes will have Bearing Housings and Module Clamps installed to support the Torque Tube and solar Modules respectively. The various lengths of Torque Tube are joined using bolted Couplers after the sections are installed individually. Refer to the ADP for proper Torque Tube placement. Misplaced tubes may lead to interference with tracker components. Array recommends trenching be completed prior to Torque Tube assembly.

5.9.1 Pre-Outfit Torque Tube Sections

1. Identify the correct Torque Tube lengths and configuration required for each row which is detailed in the ADP.
2. Verify the number and position of Bearing Housings and Module Clamps required for each Torque Tube. Ensure the Bearing Housing type (Standard, High-wind, etc.) and location matches the configuration for each row.
3. Stage all of the required components near the assembly area to ease pre-outfitting.
4. Slide components onto Torque Tube in the order given in the ADP ensuring that:
   a) Center Structure Bearing Housings are positioned so they will be aligned with the Center Structure.
   b) The Bearing Columns to the immediate North and South of the Center Structure require Bearing Housings with Set Screws. Position the Bearing Housings with Set Screws so they will be aligned with the Bearing Column Brackets to the immediate North and South of Center Structure. Additional Bearing Housings with Set Screws may be required for sites with high seismic rating.
   c) The Standard Bearing Housings are positioned so they will align with remainder of the Bearing Column Brackets.

Figure 5-11: Bearing Housings With Set Screws Location

d) Orient all Module Clamps in the same East/West configuration. The Module Clamp bolts are pre-tensioned at Array. Excessive loosening is not recommended.

e) Orient the Center Stops of the Bearing Housings so they are aligned in plane with the Module Clamps.

Figure 5-12: Bearing Housing Stops In-plane With Clamps

5. Continue positioning components onto Torque Tube sections until the row configuration is complete.

Figure 5-13: Torque Tube Pre-Assembly

> **NOTICE** For a safer and more efficient installation, use a forklift to move and install Torque Tubes. Always employ proper material handling procedures and use appropriate equipment (i.e. non-marring fork covers) to protect components from damage. The interior surfaces of tubes may be rough or sharp. Use correct PPE such as cut-resistant gloves when handling Torque Tubes.

6. Lift each pre-outfitted Torque Tube section onto the Bearing Columns in the order described in the ADP.

Figure 5-14: Torque Tube Placement on Support Column

7. Loosely install the bolts, washers, and locknuts on all Bearing Housings see Fig. 5-16 - "Bearing Housing Installation". Snug the locknut but do not torque at this time.
8. Slide the Couplers in to place so they straddle each tube section, but do not torque at this time.
9. Continue placing Torque Tubes sections according to the ADP until the entire row is assembled.

> **NOTICE** DO NOT leave Torque Tubes hanging from Bearing Housings where the length of unsupported tube hanging from the Bearing Housing:
>
> - Is greater than 8.0 meters extending beyond a 6" Bearing Housing for any length of time.
> - Is greater than 7.0 meters extending beyond a 4" Bearing Housing for any length of time.
> - Tubes extending beyond any Bearing Housing by 5.0 meters or less may be left unsupported for as long as needed to complete the project.
> - Tubes extending past a Bearing Housing by greater than 5.0 meters may not be left unsupported for more than 5 days.

Figure 5-15: Unsupported Tube Hanging from Bearing Housing

5.10 Bearing Housing Installation

1. Ensure the carriage bolts, washers, and locknuts are installed in the correct orientation and order on the Bearing Housing.
2. Bearing Housings should be installed perpendicular ±1° to the Torque Tube.

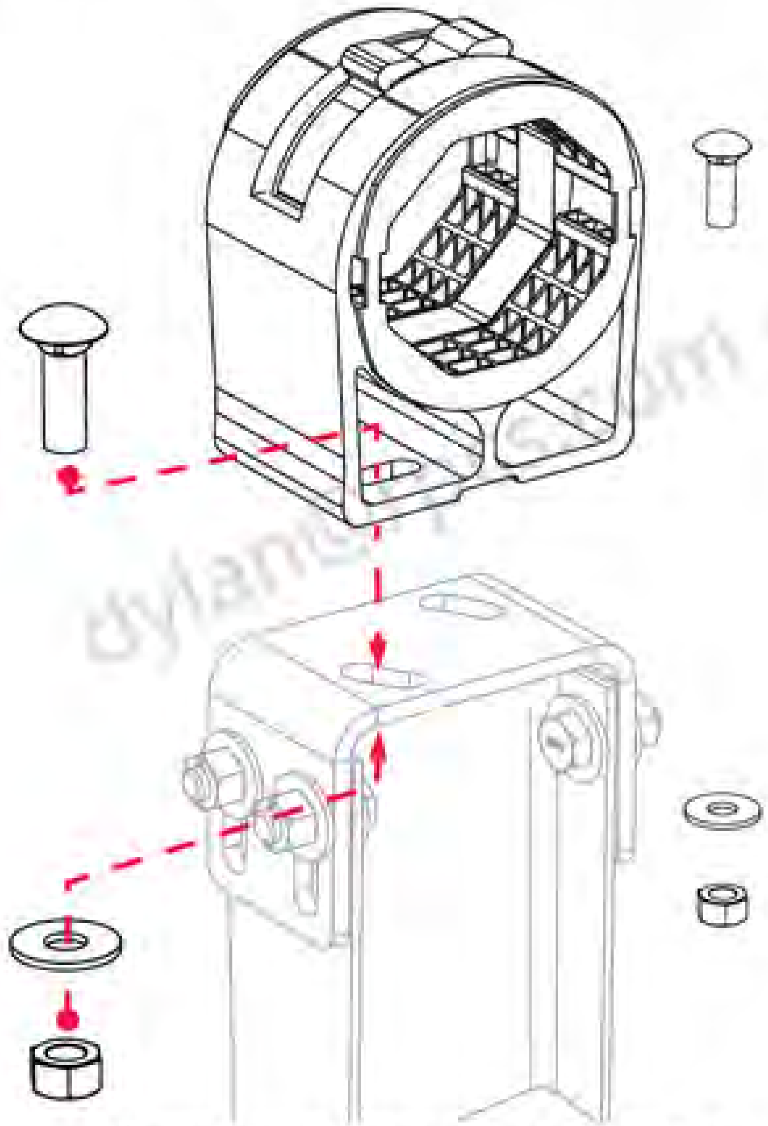


Figure 5-16: Bearing Housing Installation

3. Torque the carriage bolts in accordance with the values listed in the ADP. If installing High Wind Bearings, ensure the washers do NOT overlap while tightening hardware.

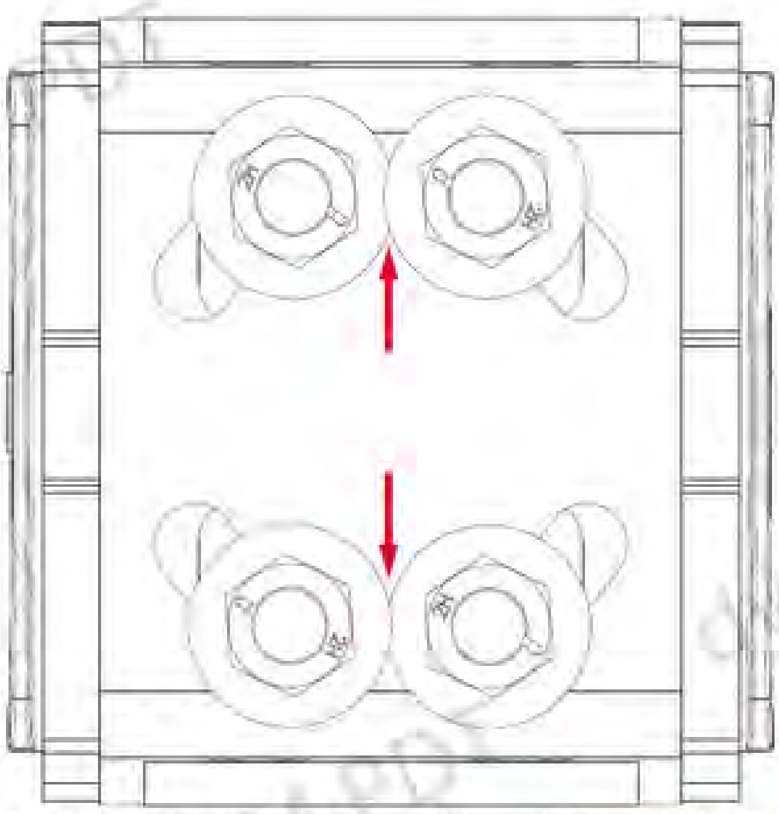


Figure 5-17: Overlapping Washers (Viewed From Under Bearing)

4. Verify the Bearing Housing remains in proper position after torquing.
5. Apply torque marks in accordance with proper torquing procedure.

5.10.1 Bearing Housing with Set Screws Installation

1. Ensure the bolts, washer, and locknuts are installed in the correct orientation and order on the Bearing Housing with Set Screws.
2. Bearing Housings should be installed perpendicular ±1° to the Torque Tube.
3. Torque the bolts in accordance with the ADP.
4. Verify the Bearing Housing remains in proper position after torquing.
5. Apply torque marks in accordance with proper torquing procedure.
6. Loosen both jam nuts pre-installed in the Center Stop of the Bearing Housing.
7. Torque the Set Screws two (2) times each, using an alternating pattern, in accordance with the ADP specification.

Figure 5-18: Alternating Torquing Pattern; Jam Nut and Set Screw

8. Torque the Jam Nuts two (2) times each, using an alternating pattern, in accordance with the ADP specification.
9. Torque-mark the hardware in accordance with proper torquing procedure.

> ⚠ Failure to torque Set Screws and Jam Nuts properly may result in Torque Tube North/South migration and damage to the tracker.

Figure 5-19: Hardware Not Torqued (Top) and Torqued (Bottom)

5.11 Center Structure Bearing Housing Installation

1. Align the Center Structure Bearing Housings with the support channel on each of the Center Structure Uprights.

Figure 5-20: Center Structure Bearing Housing Aligned to Upright

2. Slide the Center Structure Bearing Housings into the support channels in the Uprights before lowering the Torque Tube onto the Gear Rack. Do not drop Torque Tubes onto the Center Structure, as this may damage the Center Structure components.
3. Install the carriage bolts, washers, and nuts so the bolt heads are on the interior of the Center Structure, opposite of the support channels. Attach the unsecured end of the Grounding Strap to the center hole in the adjacent Center Structure as shown below (Gear Rack removed for clarity).

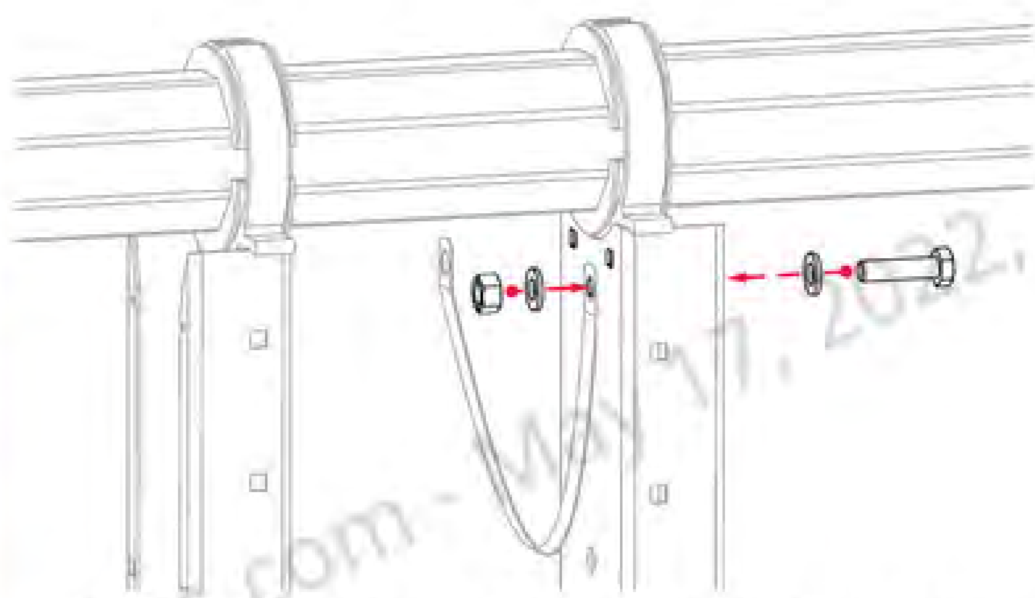


Figure 5-21: Center Structure Bearing Housing Installation

4. Tighten the mounting hardware, but do not torque at this time.
5. Verify the Torque Tube is in correct North/South position as specified in the ADP; adjust if necessary at this time.

> ⚠ Verify center Torque Tube is in the correct North/South position as defined in the ADP prior to installing upper Gear Rack Coupler half. North/South adjustment after installation can result in damage to the Center Structure.

6. Install the upper Gear Rack Coupler half and mounting hardware. The bolt heads may be oriented up or down, Array recommends a head-down orientation for ease of installation. Maintain a consistent orientation throughout the site.

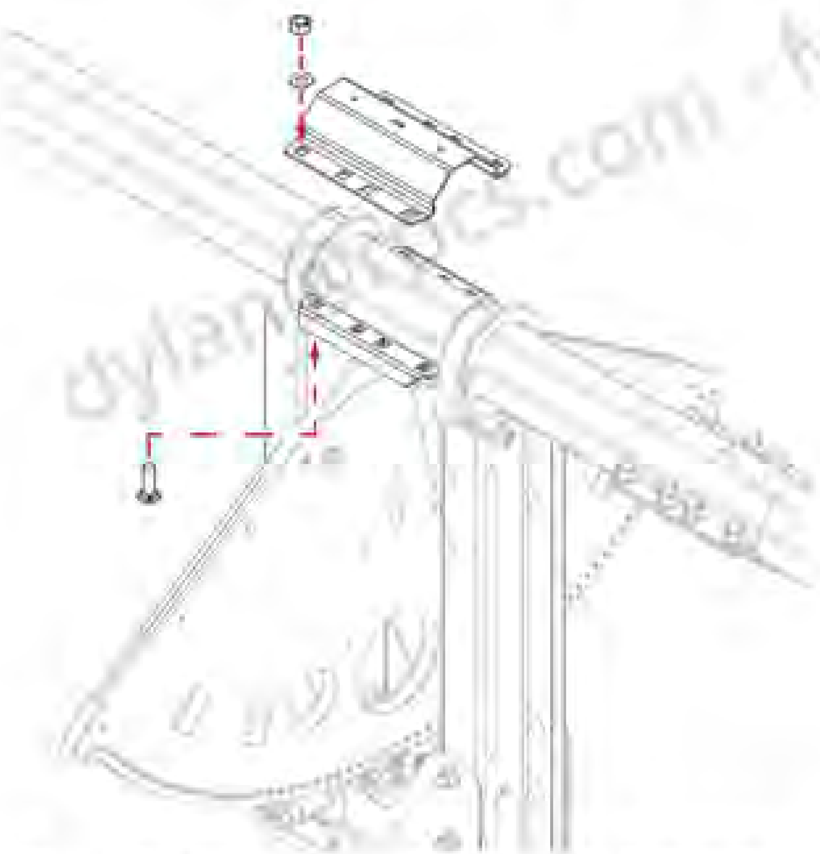


Figure 5-22: Upper Gear Rack Coupler Installation

7. Torque all bolts on the upper Gear Rack Coupler half according to the ADP specifications.
8. Install the Center Structure Bearing Housing Strap with the provided screws and torque in according with ADP specification.

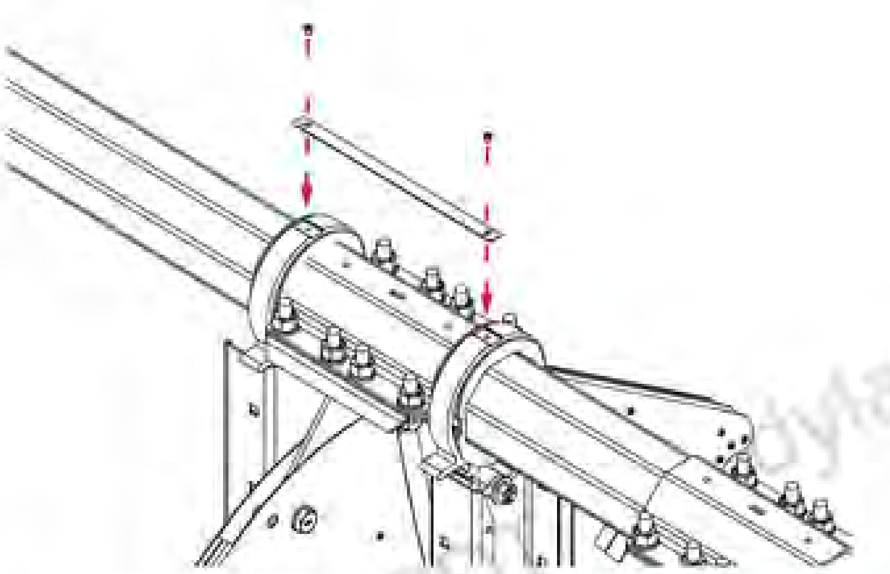


Figure 5-23: Center Structure Bearing Housing Strap Installation

5.12 Torque Tube Coupler Alignment

Ensure the Torque Tubes are straight from end to end in each row using visual inspection, laser level, or string line. Adjust as necessary to compensate for any dips or curves in the Columns' height and layout. Bearings may be tilted slightly or raised on the columns to correct misalignment but must remain within tolerance.

1. Align two Torque Tube sections' ends so that they meet. Adjust the Coupler so it completely straddles both Torque Tube sections.

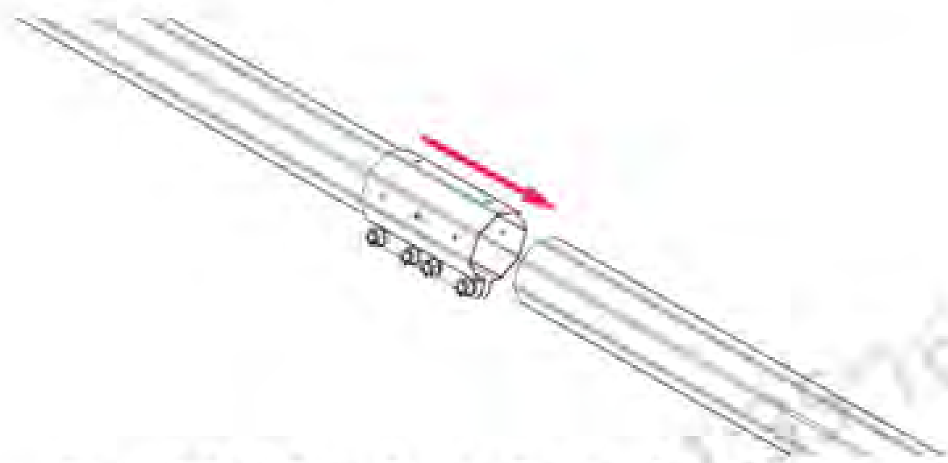


Figure 5-24: 1-Piece Coupler Between Torque Tube Ends

2. For 2-piece Couplers, ensure all bolt heads are oriented in the same direction. For 1-piece Couplers, the preferred orientation for ease of construction is with the bolts pointing East/West at the underside of the Torque Tube. The bolt orientation should be consistent throughout the site.

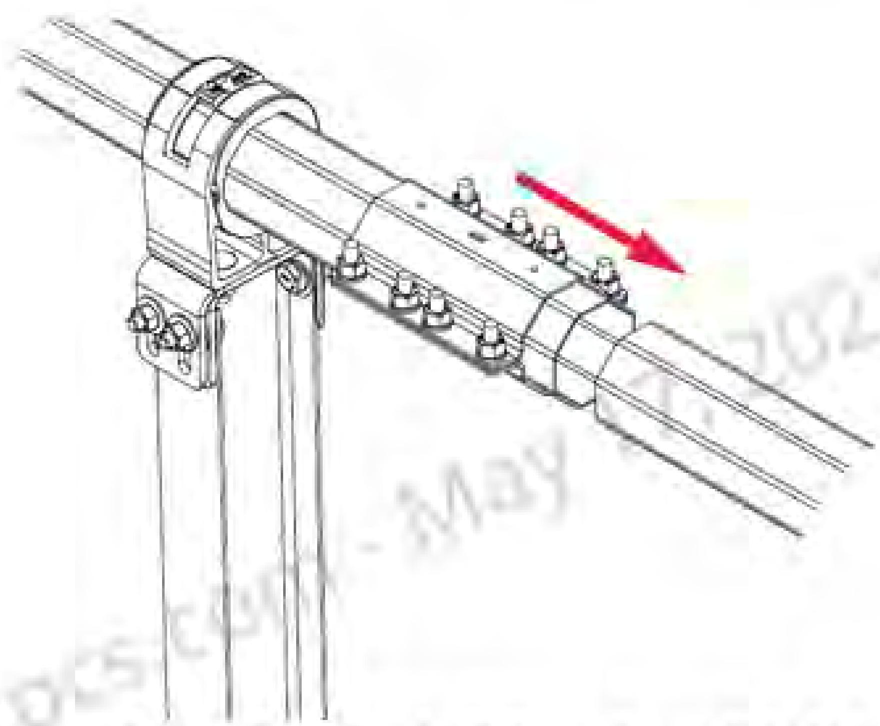


Figure 5-25: 2-Piece Coupler Between Torque Tube Ends

> **NOTICE** For a more efficient installation, loosen coupler hardware prior to installation. Ensure all hardware is properly seated prior to torquing.

3. Position the Coupler so that its' center is over the point where the Torque Tube sections meet. Properly installed Couplers must have both Torque Tube ends visible in the sight window. The ends are not required to touch.

Figure 5-26: Coupler With Alignment Window

4. Verify the square shanks of all bolts have seated properly into the square holes in the flanges of the Coupler.
5. Torque the bolts in the sequence shown to the value provided in the ADP. Tightening the Coupler bolts in the correct sequence ensures the coupler and tubes will be properly aligned.

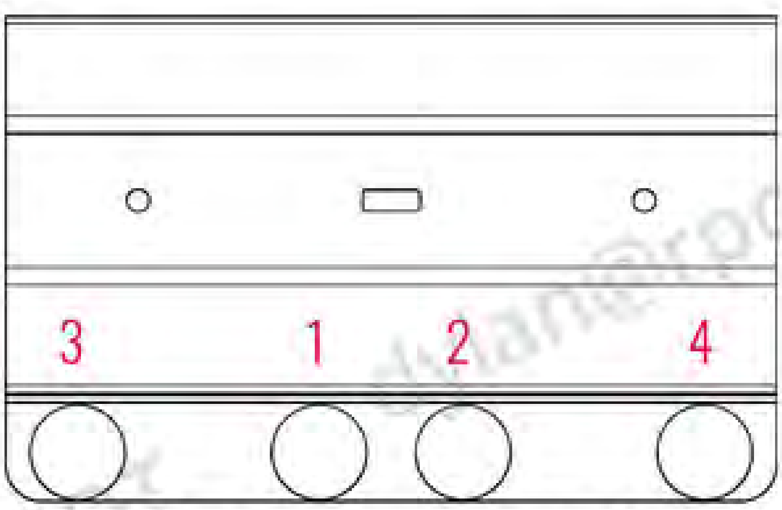


Figure 5-27: 1-Piece Coupler Torquing Sequence

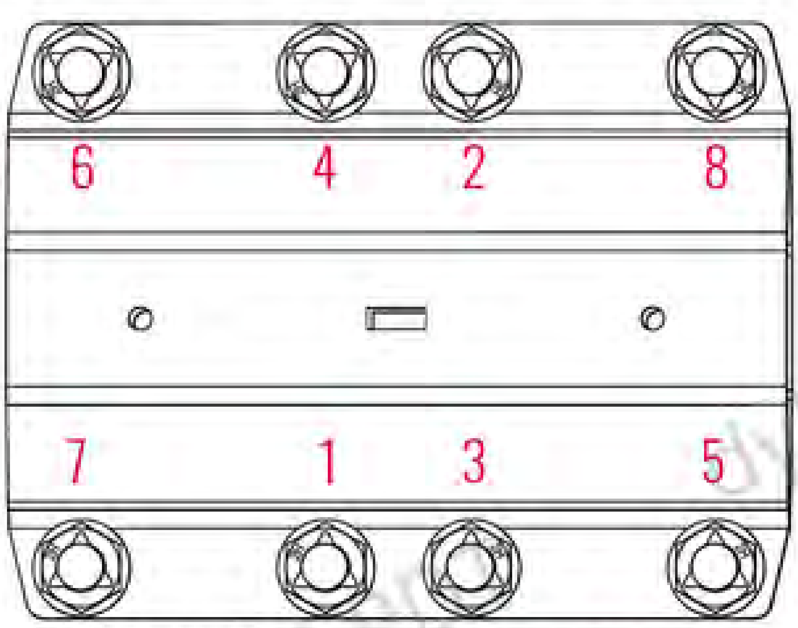


Figure 5-28: 2-Piece Coupler Torquing Sequence

6. A gap may exist between the Coupler flanges. This is acceptable if the bolts are properly seated in the flange square holes and the bolts are properly torqued. Torque-mark Coupler bolts in accordance with proper torquing procedure.

Figure 5-29: A Gap in the Flanges May Exist; Bolts Must be Seated

5.12.1 Complete Torque Tube Installation

1. Verify the Bearing Stop of every Bearing Housing is oriented correctly, pointing directly upward from the tracker axis.

Figure 5-30: Bearing Stop Orientation Check

2. Torque the Center Structure Bearing Housing bolts according to the ADP specifications.
3. Working from the Center Structure outward, check the torque of all Bearing Housings utilizing the alternating torquing pattern - see Fig. 5-18 - "Alternating Torquing Pattern; Jam Nut and Set Screw". Ensure torquing is in accordance with the ADP specification.
4. Check the alignment by making sure the upper half of the plastic bearing is not bound between the Torque Tube and the Bearing Housing.

5. Insert a plastic Torque Tube End Cap in every open end of Torque Tube at either end of each installed row.

Figure 5-31: Torque Tube Endcap

5.13 Damper Installation

Dampers mitigate the effect the force that the wind exerts on the tracker and are installed on the outermost columns of a tracker row. The dampers require specific orientation which can be found in the ADP. The Dampers should be installed prior to the Modules to prevent wind damage during Module installation.

5.13.1 Spring Damper Installation

1. Adjust each tracker row to flat (0°) to ease installation.
2. Mark the Torque Tube at the location the Damper Bracket is to be installed according to the ADP. Extended brackets may be necessary for High-Wind Bearing Housings; consult the ADP for Damper arrangement.

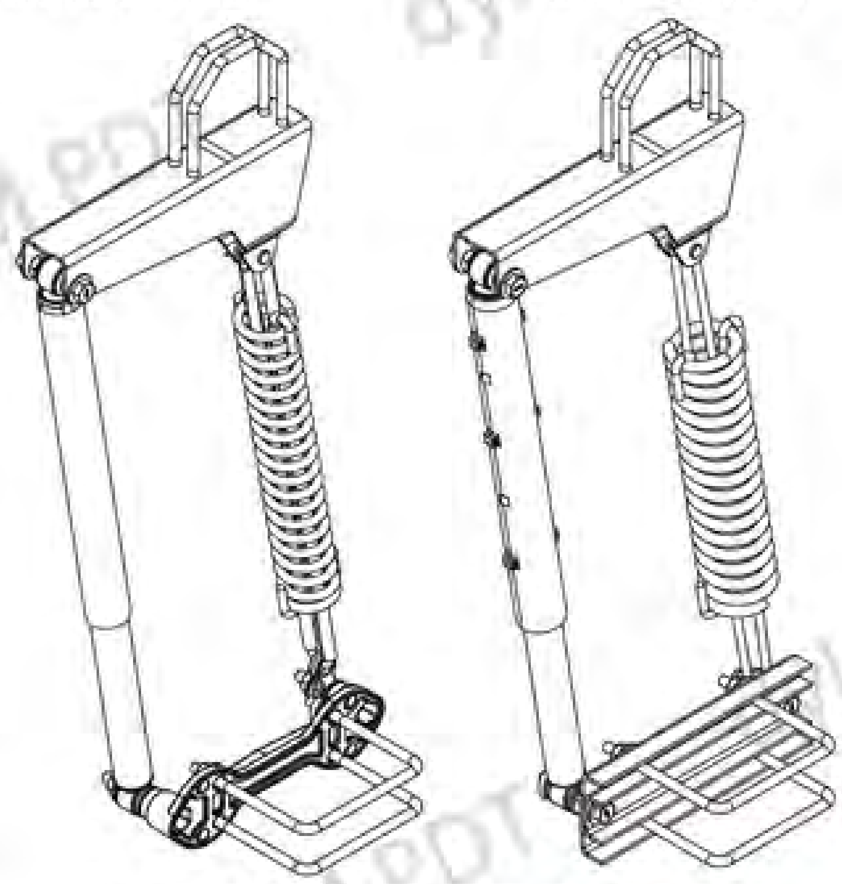


Figure 5-32: Damper Bracket Configurations

3. Install the upper Damper Bracket with an octagonal U-Bolt to the Torque Tube, and the lower Damper Bracket with a square U-Bolt to the Bearing Column.
4. Install the mounting washers, lock washers, and spacers. The hardware configuration may vary, consult the ADP.
5. The Lower Damper Bracket should be level with no slack in the spring. The final bracket height dimension is provided in the ADP.
6. Verify the Damper is spaced properly, according to the ADP, to prevent interference due to temperature expansion/contraction.
7. Torque the square U-Bolt on the lower Damper Bracket to the torque setting specified in the ADP.
8. Torque the octagonal U-Bolt on the upper Damper Bracket to the torque setting specified in the ADP.

> ⚠ Correct installation of the Dampers is critical to the proper operation of the tracker.
>
> The Damper Bracket must be installed in plane with the Bearing Housing Stops and Module Clamps.

Figure 5-33: Damper in Plane with Bearing Stop

6 Motor Installation

Motors arrive on-site pre-wired. Flex conduit connects the fiberglass motor control box to the motor. Use care in handling the Gearbox assembly, as the connection between the fiberglass Motor Controller box and the Motor Mounting Bracket can be damaged as a result of improper handling.

1. Prepare Center Structure for Motor installation by removing the existing lower mounting bolts (1.5" long) as shown below. Only remove the hardware shown, do not remove hardware from the other side of the assembly. All other bolts remain installed. Discard original lock nut, washer, and bolt.

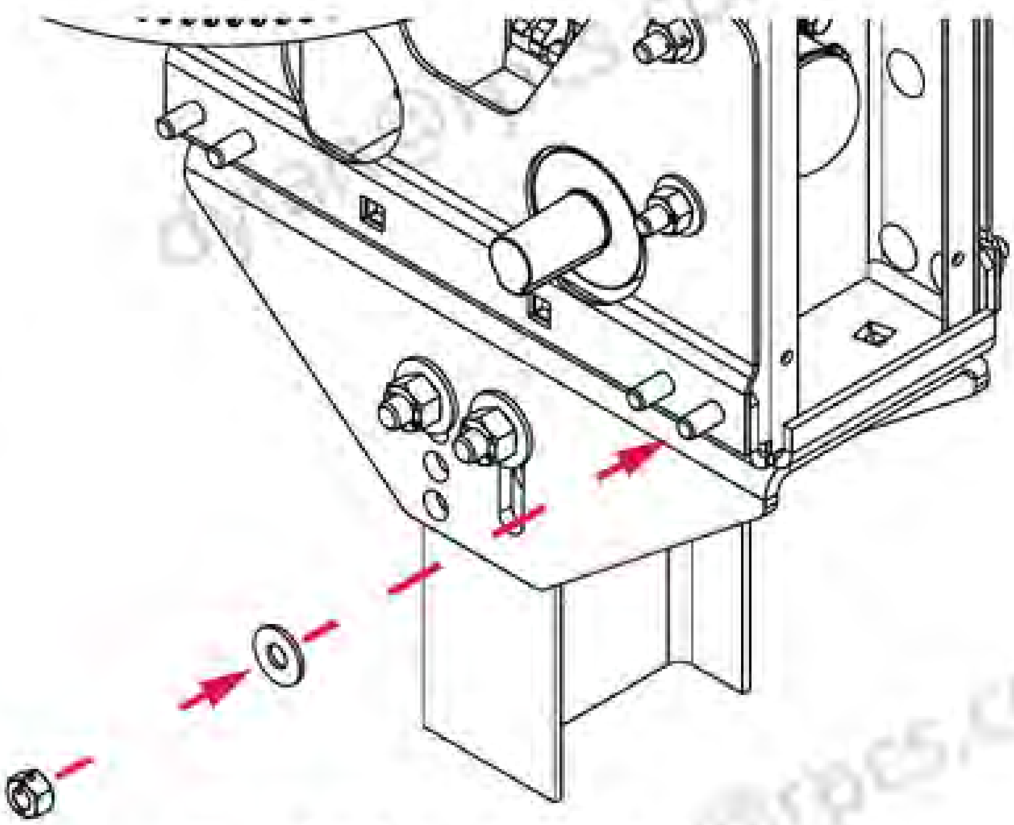


Figure 6-1: Center Structure Preparation

2. Discard bolts and replace with new bolts from Kit, Vertical Mount Standard:

- 60445-200 Carriage Bolt HDG .500-13 x 2.00", 4ea
- 60007-000 Flat Washer HDG .500, 4ea
- 60674-000 Tri-Lock Nut HDG 0.5"-13, 4ea

3. Insert the new bolts through the Center Structure.

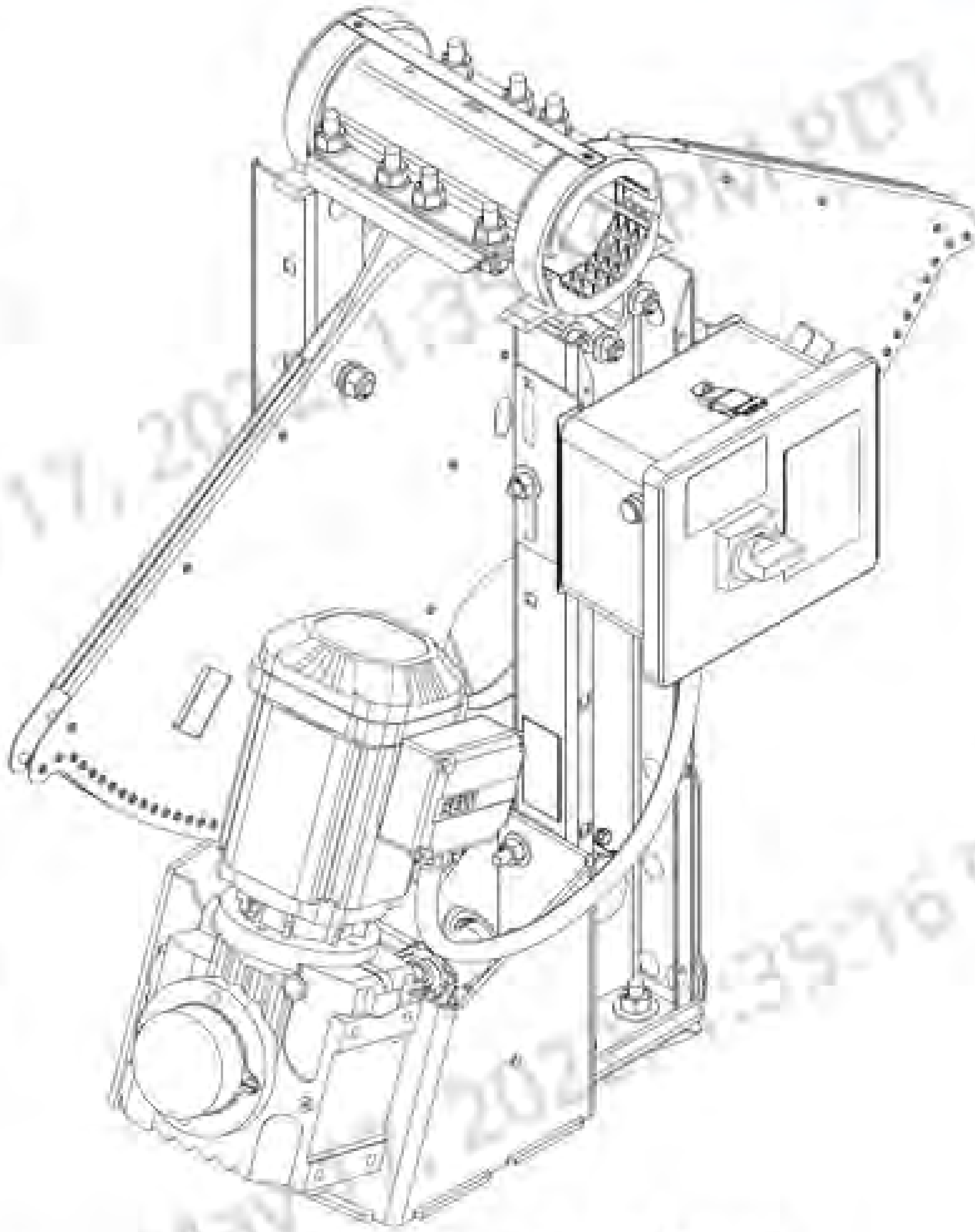


Figure 6-2: Motor Mounting and Orientation

1. Insert keys in appropriate key-ways, if necessary.
2. Remove the Motor Controller box from the Motor mount by removing bolt, as shown below. Do NOT discard this hardware, it will be used to mount Motor Controller box to the Center Structure.
3. Rotate the Motor shaft so that key is in 12-o'clock position, as shown below.

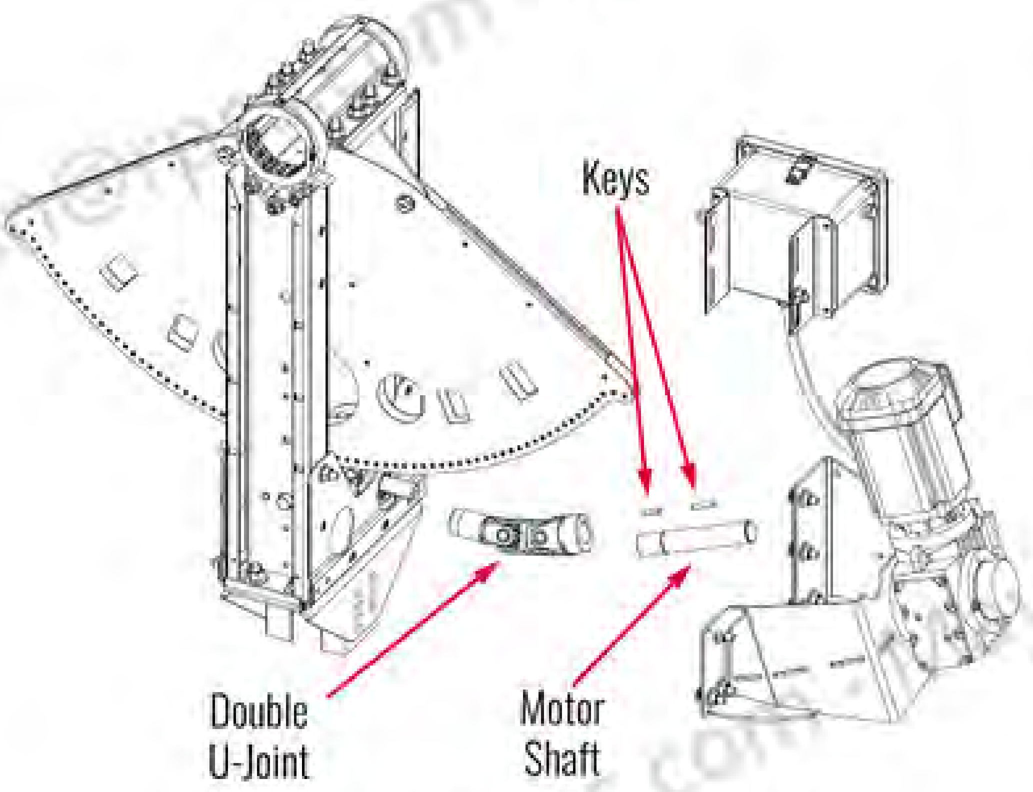


Figure 6-3: Exploded Motor Assembly

> **NOTICE** Ensure all keys are properly secured, particularly if the tracker is to be rotated prior to final assembly.
>
> This is to prevent keys from becoming dislodged or misplaced.

4. Slide Double U-joint on to the 40 mm Motor shaft; do not tighten the set screw at this time.
5. Carefully lift the Motor assembly up using proper lifting techniques or equipment.
6. Rotate the input shaft on the Gearbox until the key is aligned with the U-joint keyway.
7. Slide the Motor towards the Center Structure until the Double U-joint is fully seated to the Gearbox and on the Motor shaft.
8. Align the holes of the Motor attachment bracket with the mounting holes in the Center Structure.
9. Carefully slide the Motor to the Center Structure, securing the Double U-Joint and shaft within the assembly.

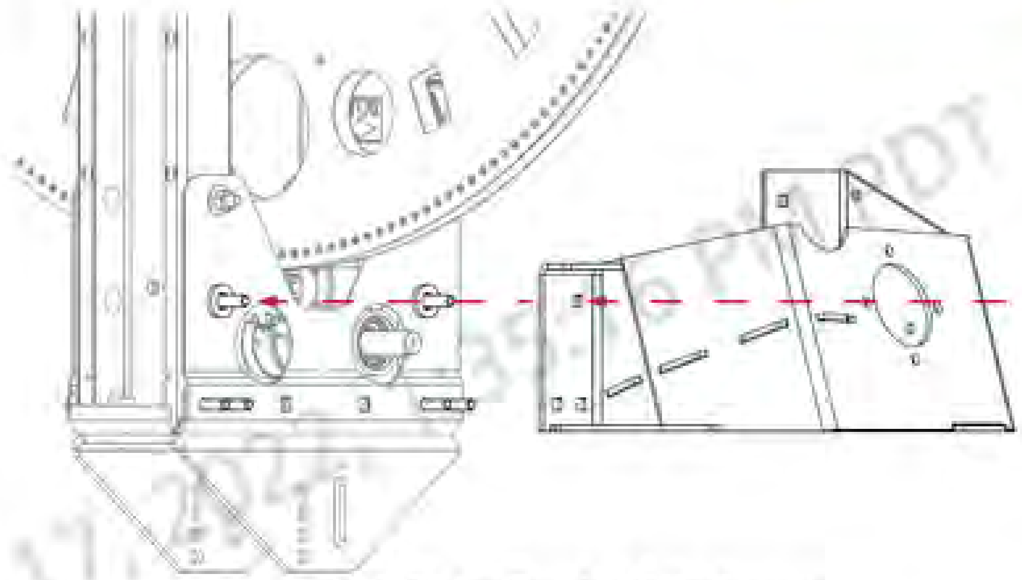


Figure 6-4: Motor Bracket Attachment

10. Install the upper mounting hardware and torque according to ADP specifications.
11. Install the lower mounting hardware and torque according to ADP specifications.
12. Install the Motor Controller bracket to the Center Structure and torque according to ADP specifications. Ensure the bracket is mounted with one bolt in the lower slot and the opposing bolt in the upper slot as shown.

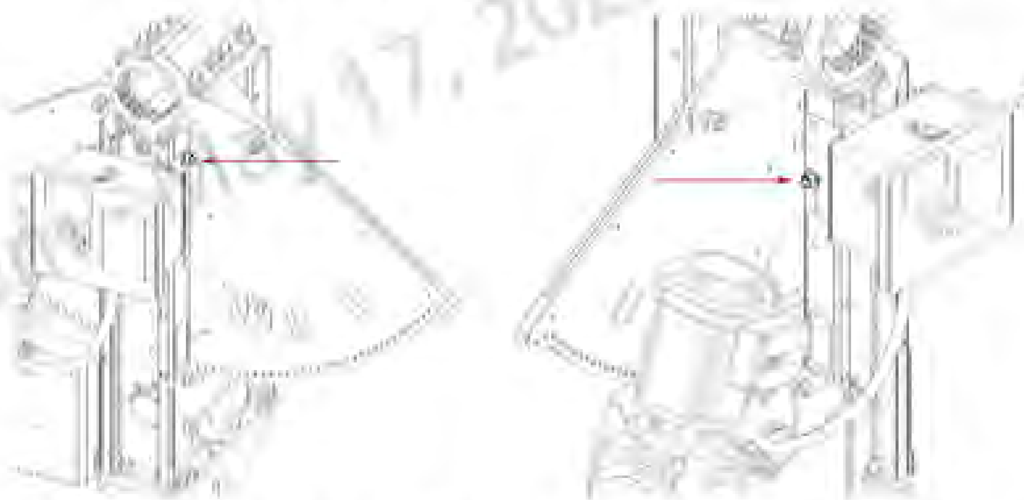


Figure 6-5: Motor Controller Box Mounted in Upper / Lower Slots

13. Install and torque the Double U-joint set screws according to ADP Specifications. Existing set screw may install deep into bore. Set screw must be seated in flat.

Figure 6-6: Set Screw On Double U-Joint

7 Module Attachment

The solar modules are photovoltaic (PV) panels that absorb sunlight as a source of energy to create electricity. For reference, a list of UL approved PV modules for the DuraTrack HZ v3 is provided as "UL Approved PV Module List" on page 53. The panels are secured by the tracker's Module Clamps which move them about the tracker's rotational axis. This section will focus on requirements and recommendations to properly install the modules to the tracker. Installing the modules correctly is critical and taking care to not damage modules is the responsibility of the installer. The modules should always be handled in accordance with the manufacturer's instructions as well as always grounded and installed as instructed in this guide.

Take care to avoid damage to the modules: do not impact the module frame, front, or back surface. Do not rest tools on top of the module. Do not slide modules over protruding tracker parts such as Bearing Housings or allow the modules faces to come in contact with tracker components. Failure to follow correct installation procedure or to handle modules according to manufacturer's specifications may result in module damage both internal or external and may void module and/or tracker warranty. While actively working on flat rows, restrain the tracker to prevent unintentional movement.

NOTICE Array provides and recommends using clamp jigs during Module installation. Contact Array for information.

PV module manufacturers may offer a variety of standard and custom module cable lengths. It is the responsibility of the party specifying the module type to ensure that these cable lengths are sufficiently long enough for installation.

⚠ Modules should not be electrically connected in series during mechanical installation nor should any of the electrical system be powered up. Before Modules can be electrically connected in series and the system able to power up, the grounding electrode conductor, feedback to combiner / inverter, needs to be attached to the I-beams / upright drive column of Center Structure and all grounding connections must be complete.

7.1 End Clamp Spacer Installation

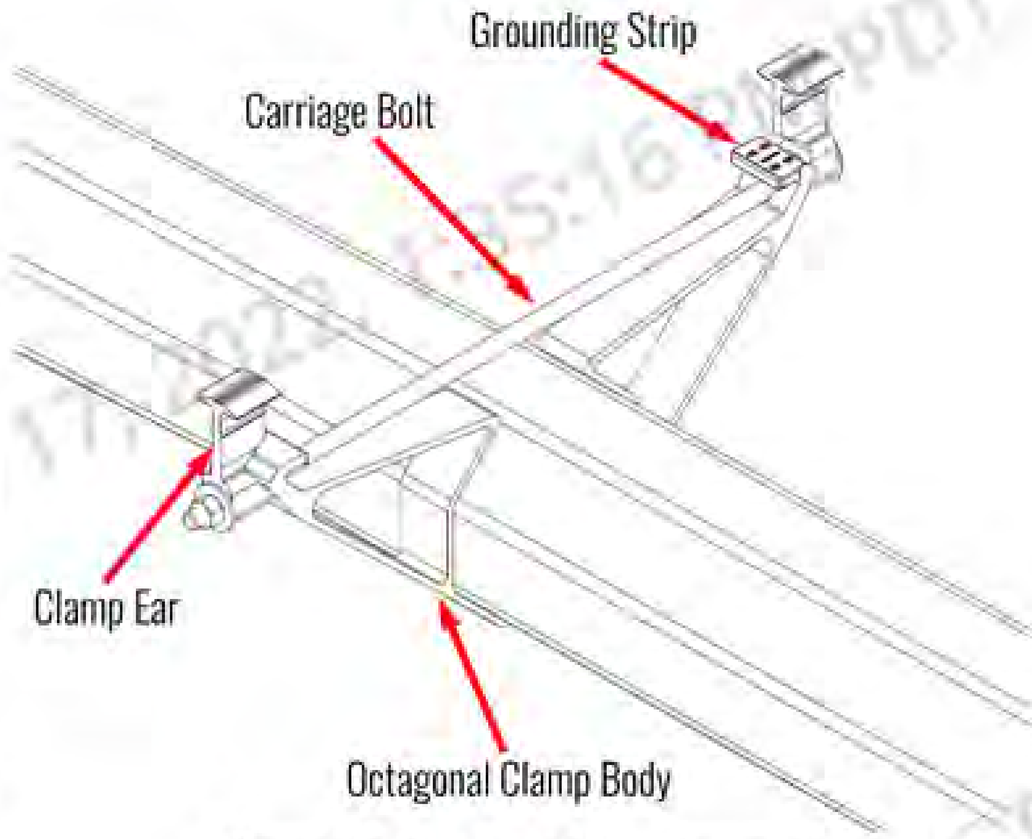


Figure 7-1: Octagonal Clamp Assembly

1. Place a level on top of the Torque Tube to verify the tracker row is set at zero degrees (0°). Rotate the Torque Tube to adjust as necessary.
2. Start module installation at the location on the row specified in the ADP. The ADP often specifies starting at the CS to ensure proper distancing from the CS and for overhang at the end of the row.
3. Install an End Clamp Spacer in the outer opening of the Clamp Ear of the outer clamp; the opening not scheduled to receive a module. The End Clamp Spacer will be fabricated from either aluminum or steel interchangeably; the application and function is identical.

Figure 7-2: End Clamp Spacer Installed

4. Insert a module into the clamp assembly. The module must be centered East/West on the Torque Tube.
5. Slide the clamp assembly on the opposite side of the Module into place. Avoid applying pressure to the Modules' East/West edges in a single direction during clamp installation. Creating imbalance in the Module may result in misalignment between the Module Clamp and Torque Tube.
6. Ensure the Module Clamp Ears are vertical, perpendicular to the Torque Tube, and that the Modules are flush in the Clamp Ears.
7. Check the clearance of the Module to the clamps on each side.
   a) DESIRED engagement at the top of the Module frame is 3/8" (9.5mm)
   MINIMUM required engagement is 5/16" (7.8mm)
   b) DESIRED engagement at the bottom of the Module frame is 1/2" (12.7mm)
   MINIMUM required engagement is 3/8" (9.5mm)

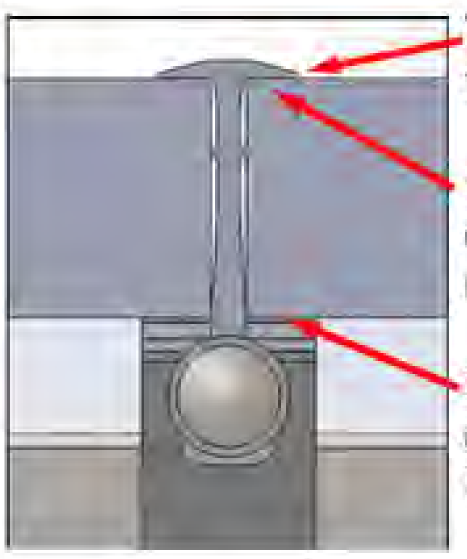


Figure 7-3: Module Installation Minimum Engagement of Clamp

8. Use a calibrated driver set to the proper torque setting for clamp installation. Torque the bolt of the first Module Clamp according to ADP Specifications. Ensure the End Clamp Spacer is vertical and both the Spacer and Module edge are flush to the Clamp Ears.

7.2 Module Installation

1. Insert the next Module into the next Clamp, opposite of the End Clamp Spacer, aligning and centering the next Module. The Module must be centered East/West on the Torque Tube.
2. Slide the Clamp on the opposite side of the Module into place on the Module frame.

Each Module should have a gap between itself and the next Module. The gap should be as even as possible throughout the length of the Module frames and fall within the allowable gap amounts provided in the ADP. Ensure the row is flat (0°), not rotated, when validating the amount of gap between modules. The minimum amount of gap required between Modules is 5mm for standard single-bolt clamps; refer to the ADP.

Figure 7-4: Maintain 5mm Minimum Gap Between the Modules

3. Verify correct Module engagement and spacing, then torque the shared Module Clamp to the value provided in the ADP.
4. Verify the Module is secure and that the 5mm minimum gap between the Modules has been maintained; there must be no vertical play where the Module meets the Clamp Ear.
5. Verify the bottom (horizontal) arm of the Module Clamp body is parallel to the bottom face of the Torque Tube. Verify the lower angled arms are flush to the corresponding faces of the Torque Tube. Verify the upper angled arms make contact with the corresponding faces of the Torque Tube.

Figure 7-5: Module Clamp - Torque Tube Alignment

6. In some circumstances, a slight gap may exist between the bottom, middle, or upper arms of the clamp and the Torque Tube. In all circumstances, the bottom arm of the clamp should be parallel to the bottom face of the Torque Tube.

Figure 7-6: Slight Gaps Between Certain Clamp Arms Are Possible

Figure 7-7: Slight Gaps Between Certain Clamp Arms Are Possible

7. Repeat this process until all Modules have been installed.
8. Repeat the End clamp Installation process for the last Module in the row.
9. Ensure the End Clamp Spacers are installed flush to the Clamp Ears. Excessive tilt or gaps between the Clamp Ears and Modules may result in loose Modules and/or Modules exceeding length of tube. Excessive gapping is the result of incorrect installation. Remediation may require realignment of the entire row.

After module installation, minor deflection in long Torque Tube spans is not unusual and causes no impact to the functionality or integrity of the tracker structure. ICC AC428 allows up to 1" (25mm) structural deflection for every 60" of span; Array trackers have shown minimal deflection 1" (25mm) only over spans in excess of 25' (7.6m). Any vertical deflection in excess of 2" (50mm) per 25' (7.6m) must be reported to Array.

7.3 Module Clamp Grounding Clips

Stainless steel Grounding Clips are attached to each Module Clamp and interface with the Module frame. The edges of the Grounding Clips on the Module Clamps are sharp and may cause injuries. Array recommends wearing cut-resistant gloves during when working around these components.

There is redundancy in the grounding design of the tracker to ensure long-term ground continuity between it and the Modules. Each installed Module needs to have ground continuity to the tracker at all times throughout the life of the system in order to conform to the guidelines of UL2703 and UL3703.

Array recommends that all Module Clamps have Grounding Clips properly installed to ensure grounding of every Module over the life of the tracker. It is acceptable for the Grounding Clip to deform or translate after installation.

It is acceptable that one or two Module Clamps in a given row can be missing a Grounding Clip provided that the missing Grounding Clips are:

- Not consecutive along the Torque Tube
- That any Module or Modules can be removed while maintaining ground continuity for all installed Modules

If Grounding Clips are missing due to quality shortfalls in the installation process, it is recommended that Modules be tested to verify ground continuity where Grounding Clips are missing. This continuity test should involve using a digital multi-meter to ensure electrical resistance between the anodized Aluminum PV module frame and the clamp body is less than 0.1Ω.

Figure 7-8: Module Clamp Grounding Clip

7.4 Module Inspection

Avoid applying pressure to the Modules' East/West edges during Module Clamp installation. Creating imbalance in the Module may result in misalignment between the Clamp and Torque Tube.

> ⚠ Ensure the Module Clamps are fully seated after torquing. Work the Modules up and down at the East/West edge to ensure there is no binding between the Clamp and Torque Tube. Check for vertical play at the Clamp Ear to Module interface after completing the installation to confirm all Modules are securely attached. Modules can be damaged if Module Clamps are not properly installed and torqued.

7.4.1 Criteria for Clamp Ears being seated properly:

1. The Clamp Ears must be flush to the Module Clamp body.
2. The Clamp Ears must be flush to the top of the Module or End Clamp Spacer.
3. The Module Clamp bottom (horizontal) arm must be parallel to the bottom face of the Torque Tube.
4. The Module Clamp bolt must be tightened according to its torque specification when measured immediately after bolt tightening.

Figure 7-9: Verify Ears Are Flush With Clamp Body

7.4.2 Examples of Inspection Criteria

Figure 7-10: Clamp Ear Not Vertical; Tilt Suspected

Figure 7-11: Clamp Ear Not Flush To Frame

Figure 7-12: Clamp Body Not Parallel to Bottom of Torque Tube

Figure 7-13: Grounding Clip Present on Module Clamp

8 Driveline and Universal Joint Installation

The Drivelines link the rows together to produce simultaneous movement of all rows in a tracker block. The Drivelines are connected to Gearboxes using Universal Joints, which allow for uniform movement on uneven terrain and at sites with irregular field boundaries.

Figure 8-1: Universal Joints in Drivelines

It is important to install the Drivelines properly as improper installation of Universal Joints and/or Drivelines could result in failure of components, damage to the tracking system, and/or injury to personnel. The Drivelines arrive pre-assembled and should not be installed using a metal hammer. If necessary, use a rubber mallet to install Drivelines.

The actual row-to-row angle will vary depending on elevation and row spacing. Please contact Array to determine max row-to-row angular offset.

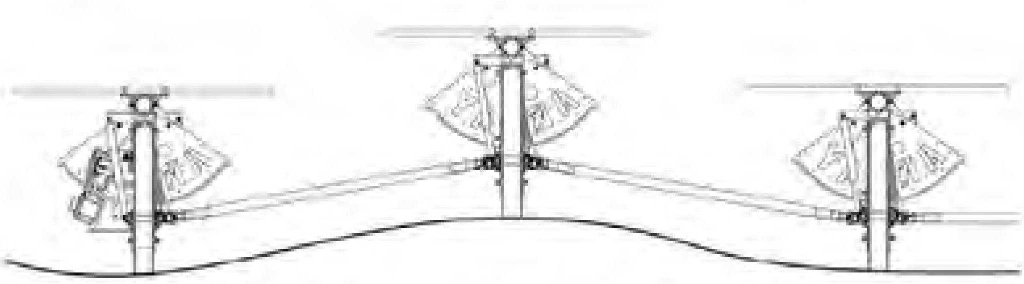


Figure 8-2: Articulating Drivelines Allow For Elevation Changes

8.1 Install U-Joint and Driveline Assembly

Ensure all keys in shafts are properly secured, particularly if the tracker row is to be rotated prior to final assembly. This is to prevent the keys from becoming dislodged and/or lost.

1. Begin the Driveline installation for a block at the row containing the Center Structure housing the Motor.

Figure 8-3: Begin Driveline Install At The Motor

2. Pull off the protective shipping cap from the Driveline shaft and dispose of it properly.

Figure 8-4: Remove Protective Shipping Cap

3. Verify the key is installed in the Gearbox shaft.

Figure 8-5: Key Located On Shaft

4. Slide the Driveline U-Joint onto the keyed shaft, aligning the groove in the U-Joint with the key. Ensure the slot with the set screw is on the same side as the key.

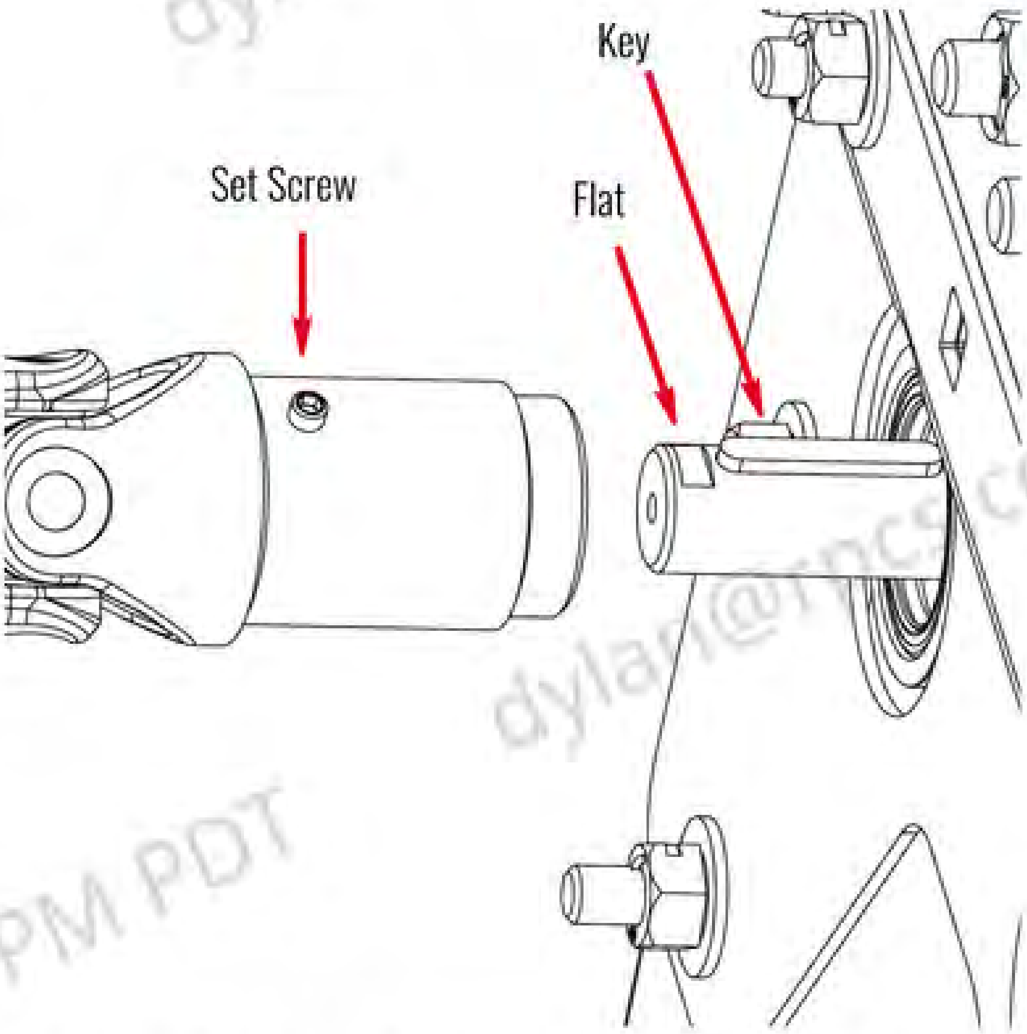


Figure 8-6: Driveline Setscrew on Same Side as Shaft Key

5. Lock the U-Joint in place with the set screw. The U-Joint should be slightly spaced away from the Center Structure to ensure the set screw is not directly on the key. The set screw must be seated in the flat.

Figure 8-7: Set Screw on U-Joint

6. Expand the Driveline until the opposite U-Joint reaches the next row's Gearbox shaft.
7. Rotate the Gearbox shaft until the key aligns with the key-way and slide the U-Joint onto the shaft. Do NOT use an impact drill to rotate the shafts; this can damage the Driveline components.
8. Repeat this process for the opposite U-Joint.

ARRAY TECHNOLOGIES

9 Installation Quality Inspection

Array neither dictates nor monitors the inspection of the installation but expects the finished product to meet Array requirements upon commissioning. Prior to commissioning, Array recommends the following inspection procedure:

For the inspection process, consider each set of linked rows as one lot. The total number of lots will equal the total number of installed Motors for a site. Ensure that at least one sample of each connection is taken along both the Eastern and Western edge of each lot and that 100 percent (100%) of all connections are inspected on the rows on the Eastern and Western edges of the entire site. Refer to the table below for the recommended sampling rates and proper steps to take in the event of a failure. The inspector should pay attention to the general quality of hard connections while walking the field and should mark any suspect connections, regardless of sampling rates.

Table 9-1: Sampling Rate for Site Inspection

Inspected Item	Inspection Criteria	Expanded Inspection	Failed Inspection
Structural Bolts	Inspect all structural bolts at a sample rate of 15%. All end row bolts shall be inspected.	If any of the bolts are out of tolerance, expand the inspection by an additional 15% per lot.	If any of the additional 15% are out of tolerance, expand the inspection to 100% for the lot. Notify installer prior to further inspection.
Module Clamp Bolts	Inspect the clamp bolts at a sample rate of 0.5%.	If any of the bolts are out of tolerance, expand the inspection by an additional 0.5 % per lot.	If any of the additional 0.5% is out of tolerance, notify installer and allow for rework prior to re-inspection. 100% of end row clamps shall be inspected on re-worked lots in addition to normal quantities.
Damper Attachment Bolts	Inspect the damper bolts at a sample rate of 5%. When inspecting the bolts, inspect all bolts that attach the damper to the foundation and Torque Tube.	If any of the bolts are out of tolerance, expand the inspection by an additional 5% per lot.	If any of the additional 5% are out of tolerance, expand the inspection to 100% for the lot. Notify installer prior to further inspection.

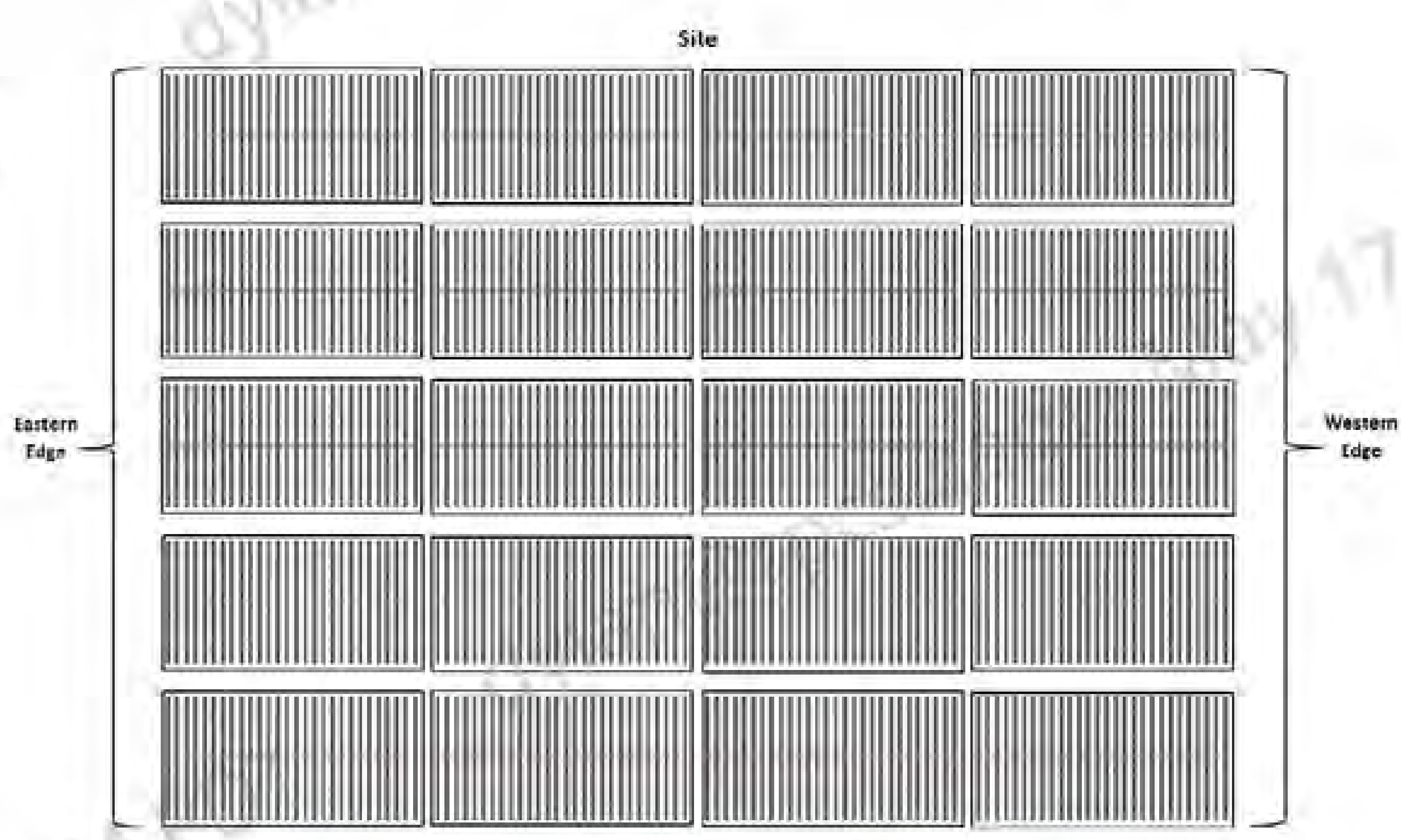


Figure 9-1: Site Layout

Array requires that all hardware shall be installed to the nominal tested torque values listed. Tolerance ranges are included as recommendations for inspections only and may be superseded by the EOR on a project.

Inspection percentage rates include mandatory quantities for edge row inspections. Edge row inspections shall be considered minimum quantities for inspection in any lot size unless otherwise noted.

Array assumes no liability for any failures due to any field non-conformances that do not meet Array requirements defined in the Assembly Drawing Package (ADP) or in this manual.

9.1 Row Twist Due to Bearing Housing Stops

When the Center Stop inside the Bearing Housing is not seated parallel to the panels, a twist in the rows can be seen. This mistake is identified by visible inspection or by rotating the rows to their East and West limits. Depending on where the Bearing Housing Stop is placed, the twist is encountered on either (but not both) the East or West limit of the row for a given mis-aligned Center Stop.

Figure 9-2: Bearing Housing Center Stop Seated Incorrectly

Figure 9-3: Bearing Housing Center Stop Seated Correctly

9.2 Damper Spring Inspection

Both Damper Spring Drawbar hooks must be seated outside the spring. When the hooks are not seated correctly, the spring compresses as shown in Figure 9-4: Drawbar Hook Incorrectly Inside Spring. To correct this condition, adjust the row back to 0 degrees and remove the pin connecting the Damper spring to the upper Damper Bracket. Adjust the hooks and put the pin back in.

Figure 9-4: Drawbar Hook Incorrectly Inside Spring

Figure 9-5: Drawbar Hooks Correctly Outside Spring

9.3 Driveline Set Screw Inspection

The fully threaded 8mm Driveline set screw locks the key inside the shaft in place. The set screw should be flush with the U-Joint, with no threads showing if the screw is set correctly. If threads are showing, this can cause the shaft to spin in place during calibration and/or operation. In Figure 9-6: Driveline Set Screw Seated Correctly, the set screw is flush the U-Joint. The screw is holding the key inside the shaft in place, allowing the row to turn in motion with the rest of the motor.

Figure 9-6: Driveline Set Screw Seated Correctly

9.4 Module Clamp Inspection

The Module Clamps that wrap around the Torque Tube must be parallel to the Torque Tube itself. Figure 9-7: Module Clamp Positioned Incorrectly is an example of a loose Module Clamp. All inner faces of the Module Clamp should have little to no gap if seated and torqued correctly as shown in Figure 9-8: Module Clamp Positioned Correctly.

Figure 9-7: Module Clamp Positioned Incorrectly

Figure 9-8: Module Clamp Positioned Correctly

9.4.1 Loose or Misaligned Module Clamp

1. Loosen the nut on the carriage bolt with 9/16" deep socket.
2. Use 15/16" Crescent or box end wrench to grasp the square bottom of each Clamp Ear and adjust the assembly to the correct placement around the torque tube. Ensure that it is not stuck or pinched by any other components.
3. Once the clamp is seated correctly, use a 9/16" deep socket and torque wrench capable of 16 ft-lbs. ± 2 ft-lbs (22 N-m ± 3N-m) to tighten the nut to 16 ft-lbs (22 N-m). While completing this procedure, ensure the Clamp Ears engage fully against the Module. Torque mark the nut/bolt.

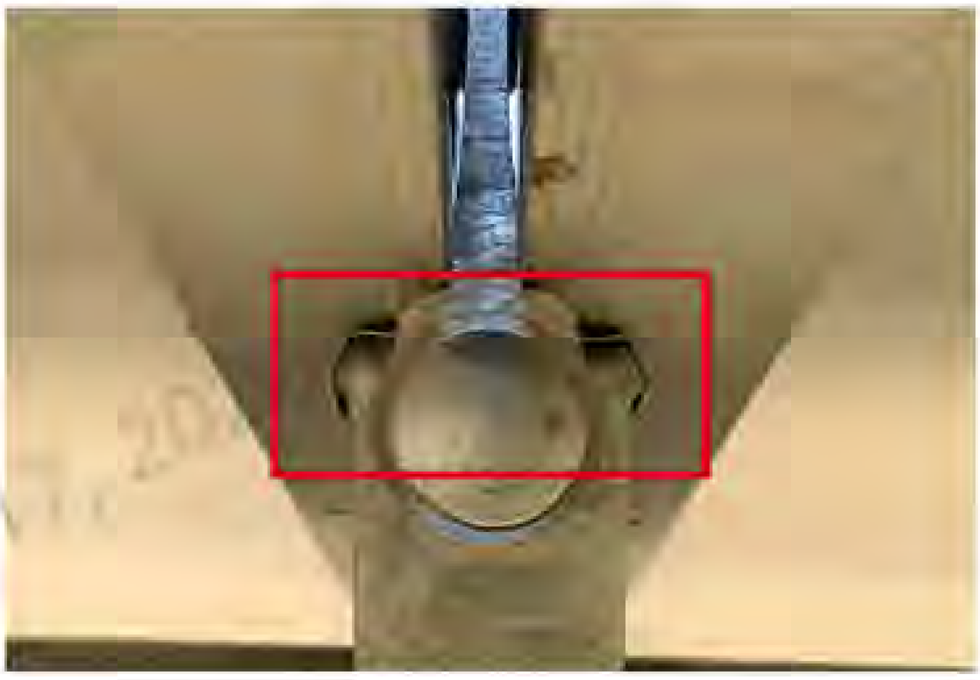


Figure 9-9: Grounding Clip Present on Module Clamp

9.4.2 Missing Module Clamp Grounding Strips

There is redundancy in the grounding design of the tracker to ensure long-term ground continuity between it and the Modules. Each installed Module needs to have ground continuity to the tracker at all times throughout the life of the system in order to conform to the guidelines of UL2703 and UL3703.

Array recommends that all Module Clamps have Grounding Clips properly installed to ensure grounding of every Module over the life of the tracker.

It is acceptable that one or two Module Clamps in a given row can be missing a Grounding Clip provided that the missing Grounding Clips are:

- Not consecutive along the Torque Tube
- That any Module or Modules can be removed while maintaining ground continuity for all installed Modules

If Grounding Clips are missing due to quality shortfalls in the installation process, it is recommended that Modules be tested to verify ground continuity where Grounding Clips are missing. This continuity test should involve using a digital multi-meter to ensure electrical resistance between the anodized Aluminum PV module frame and the clamp body is less than 0.1Ω.

10 Electronic Component Wiring & Installation

The electronic components of the Array tracker consists of three main types; the Site Data Controller (with wired GPS unit), Motor Controller, and Motor Electronics assemblies. Each Motor Electronics assembly is controlled by a Motor Controller through a wire referred to as a control wire. Each Motor Controller is coordinated by a Site Data Controller through a network (ethernet) connection. The tracker requires power at the Motor Electronics and Motor Controller locations. All trackers contain similar electronic components, however, the discreet configuration can vary based on site requirements and/or location. Reference the electrical schematics provided with the site documentation when wiring the tracker.

Wire management systems may not be fastened to the tracker without prior approval from Array. Unapproved systems may result in damage to tracker. Failure to obtain prior approval may result in voided warranty.

> ⚠ Electronic enclosures must be sealed to prevent infestation. Validate the conduits entering the electronic enclosures are intact during annual inspection.
>
> **Any penetrations to the enclosures must maintain the NEMA rating.**
>
> Failure to properly seal all openings may result in system failure and/or damage to the tracker and Modules.

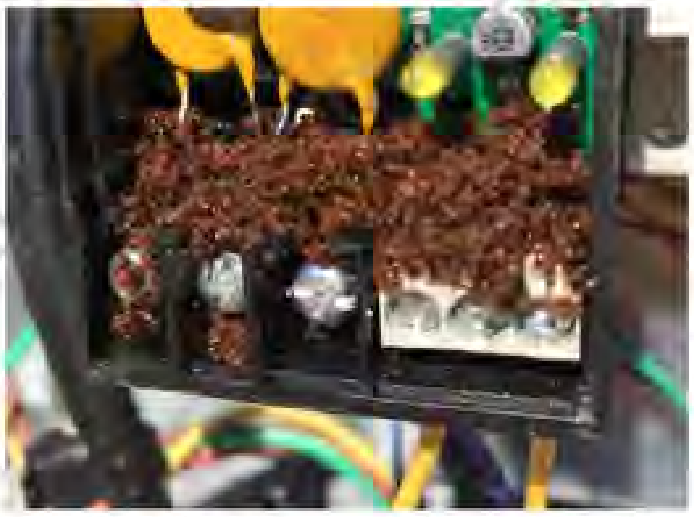


Figure 10-1: Seal Enclosures Against Infestation

> ⚠ Do not use compressed air to feed a pull string (mouse) into the enclosures, this can blow dirt and mud onto sensitive electronics. Take all necessary precautions to keep dust and dirt out of the enclosures.

10.1 Wire Management

Due to the extensive use of exposed wiring, wire management is one of the most important considerations of the safety and longevity of nearly every PV system. There are general guidelines for wiring that are recommended in this guide. The approval of wire management will ultimately be up to the local authority having jurisdiction (AHJ) and will supersede any guidance provided in this document.

Array recommends that electrical equipment be installed in a neat, workmanlike manner as well as in a manner protected from physical damage. In application for the DuraTrack® HZ v3 system, special consideration should be paid to provide a wide berth around moving components of the tracker when planning wire routing.

> ⚠ Damage can occur during operation if the wiring is routed within the motion envelope of moving parts such as the Gear Rack and Drivelines.
>
> Array recommends securing wiring with reasonable clearance around moving components to avoid entanglement.
>
> Verify wiring is free from any entanglement hazard by moving the tracker through its full range of motion and ensuring there is no risk of wiring encountering moving parts.

Figure 10-2: Wire Routed Hazardously Under Drivelines

When routing wire, ensure the wiring does not cross the moving tracker components and that wires in close proximity to moving components are secured properly. The following figures demonstrate situations in which the wiring is routed in a more optimal manner.

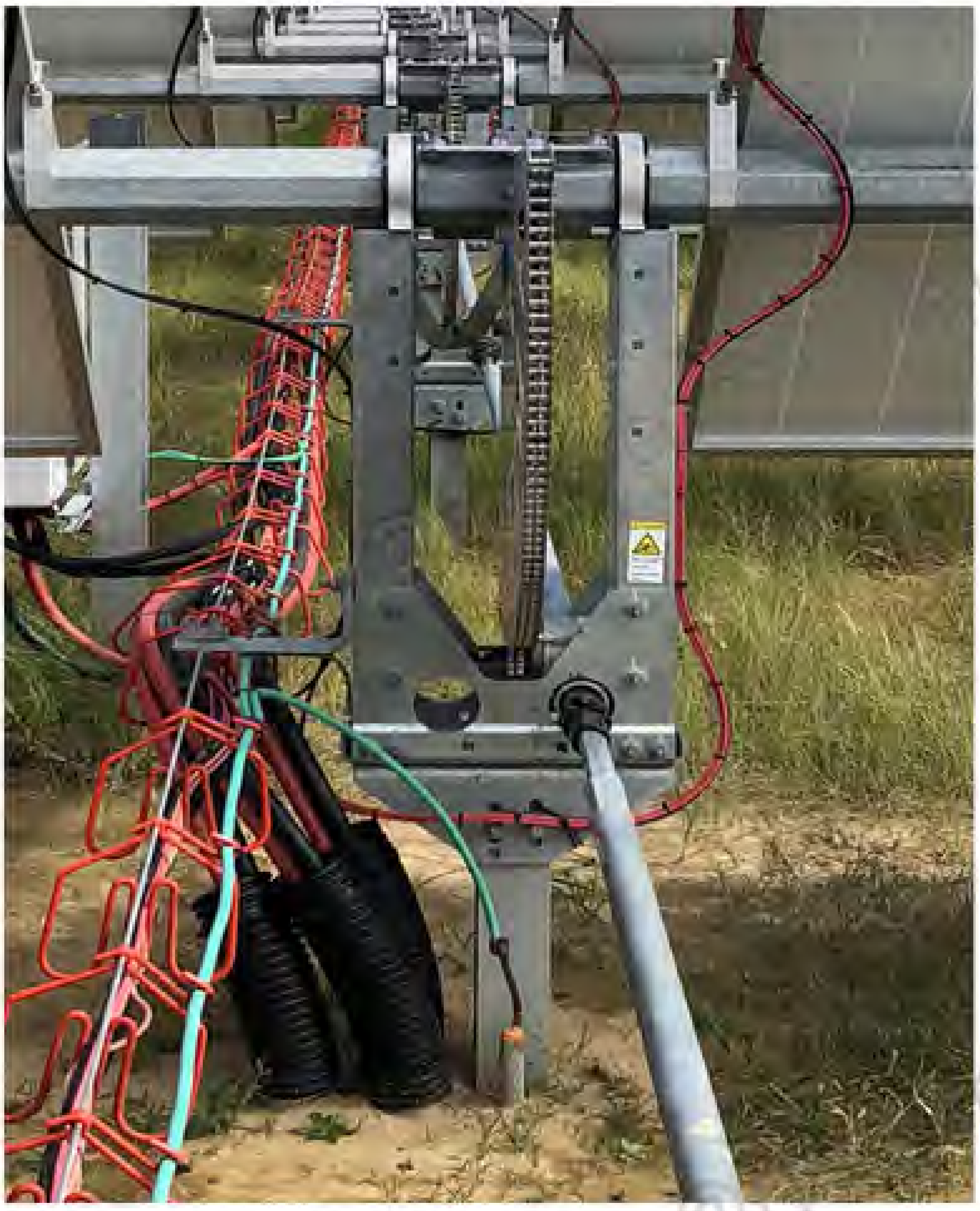


Figure 10-3: Wiring Secured Reasonably Away From Moving Parts

Stub-outs should be planned to be on the same side of the Driveline as the cable management system. This prevents potentially having to run cable across the Driveline to reach the stub-outs.

> **NOTICE** When routing wire in systems utilizing bifacial solar modules, it is most optimal to plan routes from module junction boxes in a manner that minimizes shading. Minimize the amount of wire traversing surface area of the module that is not otherwise occluded. Follow all of the module manufacturer's specifications for wire securing (typically UV-resistant cable ties), and minimum bend radius.

Figure 10-4: Hazardous Stub-out Placement Near Drivelines

Use appropriate industry standards to protect the provided control wire from vermin (i.e. gophers, rats, etc). Wiring should be protected from abrasion by the use of bell caps or other protection on all piping.

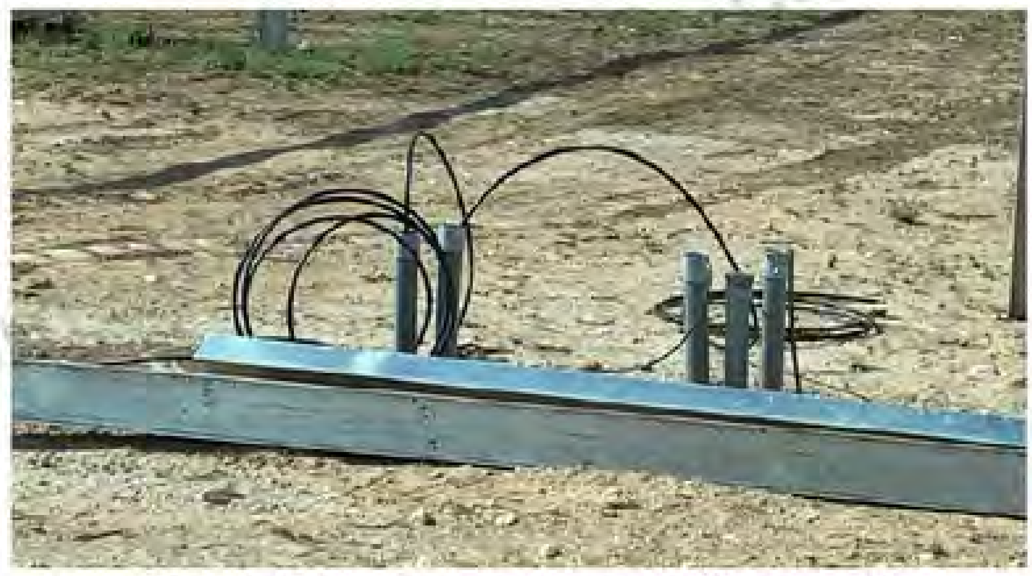


Figure 10-5: Bell Caps Protecting Control Wire From Abrasion

10.2 Control Wire

Each Motor requires a dedicated control wire run from the Motor Controller to the Motor Electronics boxes. 500 ft (152 m) of control wire is provided for each Motor. Control wire from each Motor must be a dedicated, continuous home run connection. Wire routing should be carefully planned in advance, ensuring each wire is long enough to be run continuously to the Motor Electronics on each Motor.

A continuous run of control wire with no modification up to 1000' (304.8m) is allowable. If runs of control wire greater than 1000' (304.8m) are required, contact Array. **Do not splice, daisy-chain, or otherwise modify the control wire.** If the control wire is too short, replace it with a control wire that meets the required length.

The control wire is rated for 600V and suitable for direct burial, wet location service, and is sunlight resistant. The cable may be installed in conduit, directly buried, or in cable trays. Longer control wire runs should be avoided as they may result in electrical noise and affect tracker operation. Reduction of the noise coupling on the control wire can be accomplished by separating the control wires from high voltage wires using separate conduits or tray dividers. Parallel and overlapping runs of mixed category wiring should be minimized and wires should be crossed at right angles. It is acceptable to run control or signal wire with 400/480V motor power wire. Wire gauge range and torque specifications are provided with the electronic component drawings in the ADP.

10.3 Motor Electronics Wiring

A Motor Electronics enclosure is located at each Motor and requires AC power, low voltage communications, and grounding. The enclosure contains the local switching used to control and protect the tracker. It is essential that it is operational and properly installed to ensure the tracker operates as intended.

10.3.1 Motor Electronics Power Requirements

The Motors provided by Array require 400/480VAC, 50/60Hz, (1.5kW) 3-phase power. A home run is the preferred run configuration, no more than 2 motors maximum can be connected to one home run circuit, and the connection to the Motor Electronics enclosure must not exceed the maximum 5.26 mm^2 (10 AWG) cable size. Acceptable wire voltage drop must be observed during both Motor startup and operation. When installing the power cables, make sure to route the power wires to the left side of the enclosure, away from the low voltage wires on the right.

10.3.2 Motor Electronics Connection

The wiring diagrams to connect the control wire are provided in the electronic components drawings in the ADP. Depending on site location (US, EU, AU) the wire jacket color and connection can vary. Consult the ADP for site-specific configuration.

Figure 10-6: Example Wiring Diagram From ADP (US)

Figure 10-7: Example Motor Electronics Enclosure Interior (US)

10.3.3 Control Wire Shielding

Do not ground the Array control wire shield at the Motor Electronic assemblies. Ground the shield drain only at the Motor Controller to minimize signal interference. Consult the local AHJ for all other applicable grounding requirements.

10.4 Motor Controller Wiring

The Motor Controllers are the logic processors of the tracker and provide control signals to Motors they control. There are two main variants of the Motor Controller, 4X and 6X. The 4X can control 4 Motors and 6X can control 6.

The Motor Controller requires AC power and low voltage communications. A network (Ethernet) connection is required for communication with a Site Data Controller. Array recommends that the Motor Controllers be installed under a shaded structure to reduce additional heating from direct sunlight.

10.4.1 Motor Controller Power Requirements

100V-240VAC, 60W power is required for the Motor Controller. The Motor Controller typically accepts power cable wire sizes from 1.02 mm (18 gauge) to 2.06 mm (12 gauge).

10.4.2 Motor Controller Connection

The control cable requires hub-and-spoke home runs and cannot be daisy chained. Connect the control wires from the Motors starting from left to right, bottom to top. Generally the wires can be connected by matching the jacket colors to the terminal block colors. Consult the ADP before connecting to verify the proper configuration for the site's equipment.

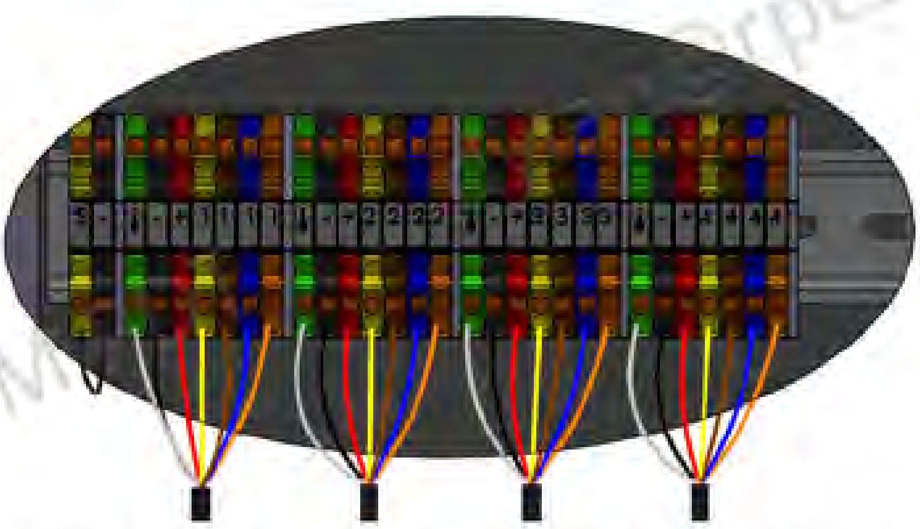


Figure 10-8: Example (4X) Wiring Diagram From ADP (US)

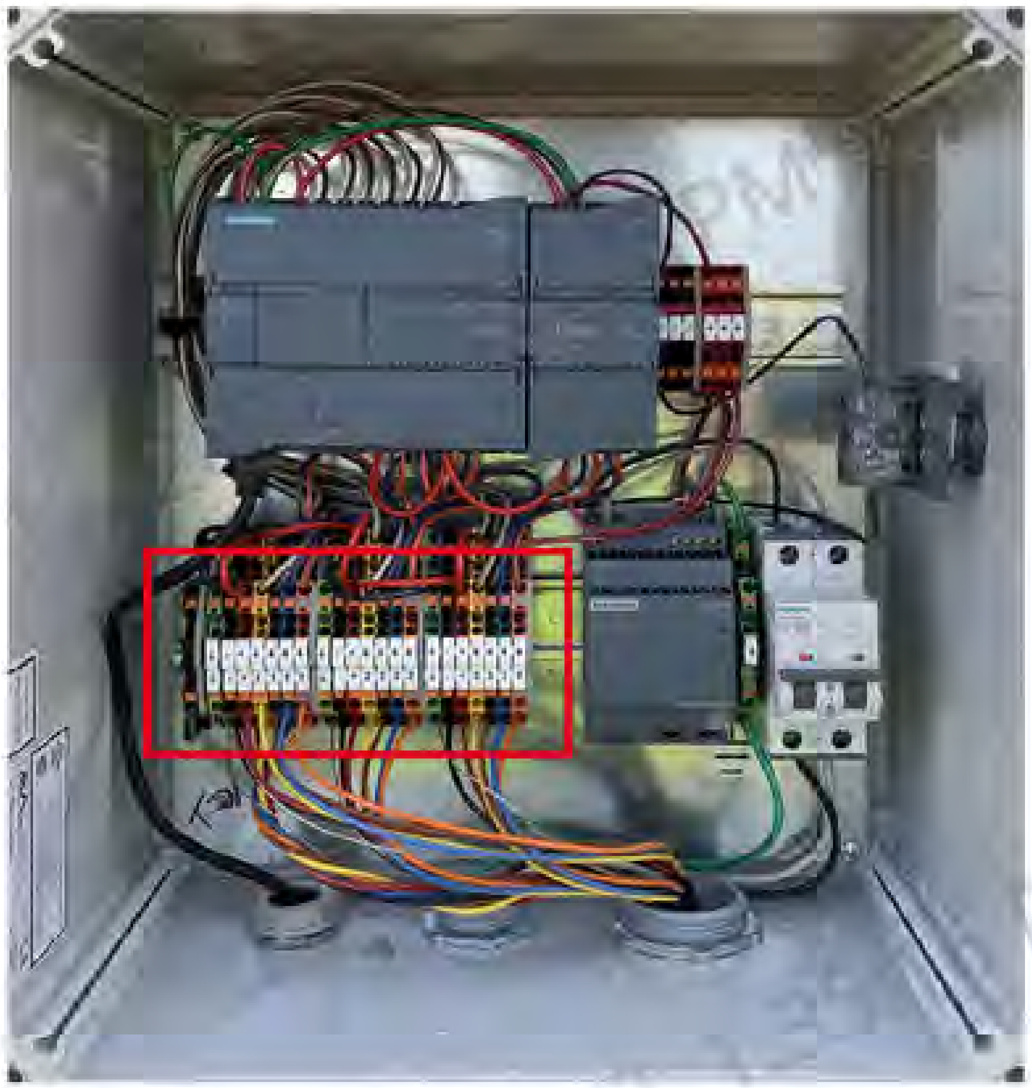


Figure 10-9: Example (6X) Motor Controller Enclosure Interior (US)

10.4.3 Motor Controller Grounding

The Motor Controller requires one Protective Earth (PE) ground, which is typically run with the power wires.

10.5 Site Data Controller Wiring

The Site Data Controller is an assembly which coordinates Motor Controllers and communicates time data and site stow commands. Up to 100 Motor Controllers can communicate with each Site Data Controller. The Site Data Controller controls the optional wind stow functionality and communicates the stow commands to the Motor Controllers. The Site Data Controller requires power and an network (Ethernet) connection to function properly.

10.5.1 Site Data Controller Power Requirements

The Site Data Controller requires 100-240VAC power to operate. Maximum power consumption is 60W.

10.5.2 Site Data Controller Connection

The Site Data Controller requires a network connection to the same network and subnet as the Motor Controllers it is to coordinate. A serial connection links the Site Data Controller to the GPS assembly. The GPS assembly includes a 15ft (5m) pre-terminated lead.

Figure 10-10: Example Site Data Controller Enclosure Interior (US)

> ⚠ Do not plug the network (Ethernet) cable into the GPS terminal block. The cable will fit, however, it will cause damage.

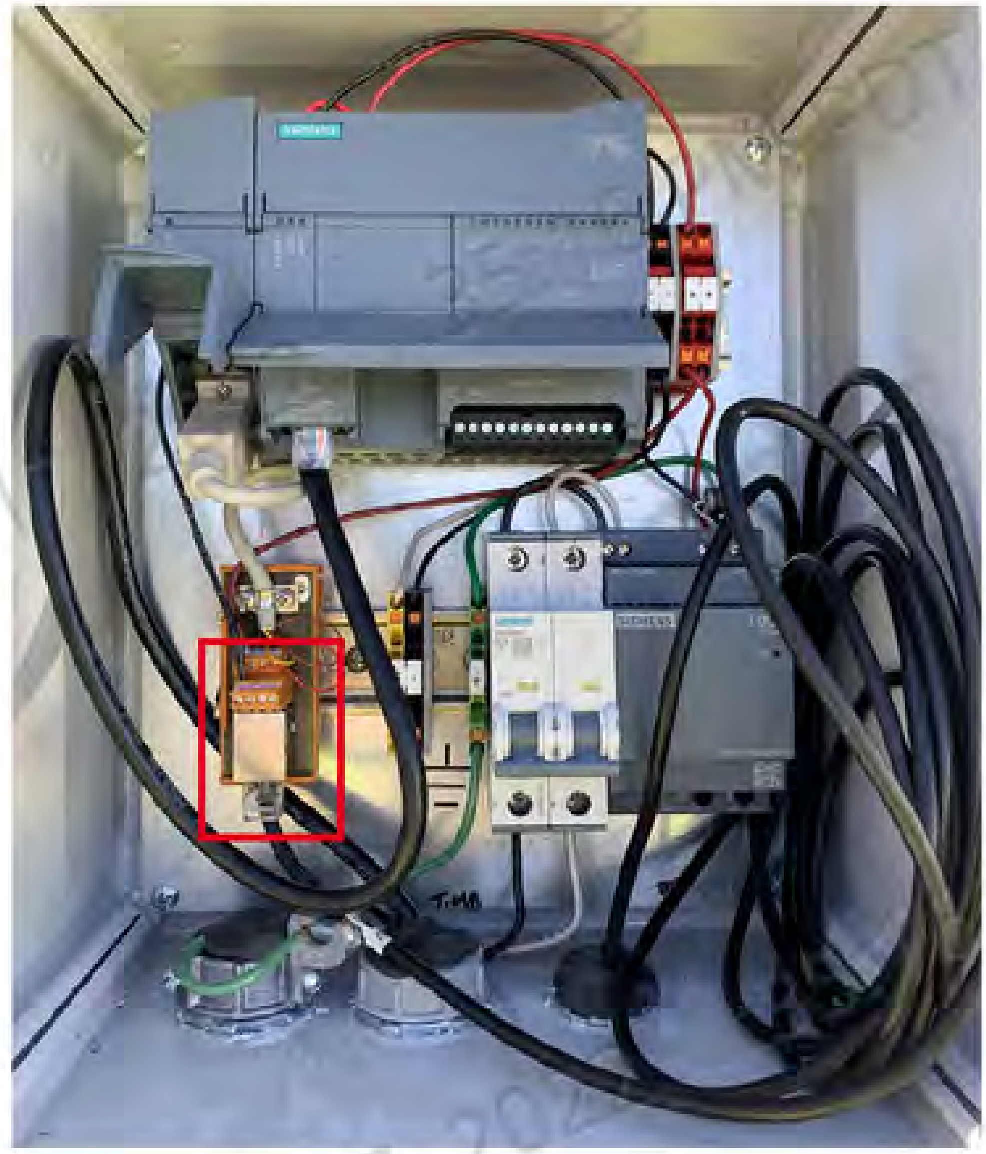


Figure 10-11: GPS Connection To Site Data Controller

10.5.3 Site Data Controller Grounding

The Site Data Controller requires one ground which is typically run with the power wire.

Figure 10-12: Ground (GRN) & Power Wires (B/W)

11 Module Wiring and Grounding Requirements

Array strongly recommends allowing only certified electricians to install electrical components. All wiring must be in accordance with specifications provided in the ADP and in accordance with the National Electric Code (US), ANSI/NFPA 70, and all local codes and regulations.

> ⚠ While actively working on flat rows, restrain the tracker with a cross-bar through the Gear Rack to prevent unintentional movement.
>
> Avoid contact between wiring and Bearing Housings. Wires can bind and short circuit, potentially causing damage to the system.
>
> Secure all wiring in a reasonable clearance around Dampers, Drivelines, and other moving parts using a UL-approved wire-positioning device. Wiring must be permanently constrained to prevent any interference with moving components.
>
> Modules should not be electrically connected in series during mechanical installation nor should any of the electrical system be powered up. Before Modules can be electrically connected in series and the system able to power up, the grounding electrode conductor, feedback to combiner / inverter, needs to be attached to the I-beams / upright drive column of Center Structure and all grounding connections must be complete.

Route and secure all module wiring in accordance with the module's specifications. Array does not provide wire restraint clamps but recommends contacting a vendor for wire-management devices to determine the most appropriate offering for this application.

11.1 Grounding Methodology

Proper module grounding procedures must be followed according to UL 1703 and NEC requirements. The columns acquired by the installer or contractor shall be coated with a galvanized zinc coating rated G210, minimum, according to ASTM A653/A653M, or the equivalent coating thickness from ASTM A123 for hot dip galvanized coatings on iron and steel.

From the Torque Tube, the Modules are grounded by means of the integrated Grounding Clips on the Module Clamps. The mechanical coupling of the Gear Rack to the Torque Tube creates a proper grounding connection for the entire system. The Grounding Strap from the Gear Rack to the Center Structure Uprights provides the grounding path for the system.

If additional grounding methods are needed, reference Sections 11.2 and 11.3 for proper optional grounding methods that have been approved by Array. Alternative module grounding methods must be approved by Array and the Module manufacturer as well as installed in compliance with applicable local codes.

Figure 11-1: Ground Path

11.2 Optional Module Grounding Method

> ⚠ Improper installation of electrical or grounding systems could result in serious injury or damage to equipment.
>
> **DO NOT USE ANY ARRAY STRUCTURAL CONNECTIONS AS GROUNDING POINTS WITHOUT PRIOR APPROVAL.**

The following grounding clip examples are structurally compatible with the Array Module Clamps but are not specifically covered under the UL Listing of the product. Alternate grounding methods, which are not covered by Array's UL Listing must be approved by the local authority having jurisdiction (AHJ) and the Module manufacturer prior to starting construction.

Standard Module grounding lugs may be:

1. Placed at standard grounding holes, or
2. Placed at Module mounting holes, if allowed by the Module manufacturer.

Figure 11-2: Standard Grounding Lug Example

> ⚠ Array does not provide grounding clips or lugs for optional grounding methods. Grounding approval for optional methods and materials must be provided by the Module manufacturer and AHJ prior to installation. Ground clip or lug installation may require disassembly of Module Clamps.

11.3 Ground Cables and Lugs Installation

11.3.1 Ground Cables Installation

Array recommends grounding the Torque Tube at the Gear Rack with the Grounding Strap supplied with the system. If the local AHJ requires additional grounding, that hardware must be purchased separately.

> ⚠ The site engineer is responsible for assessing ground potential of columns and specifying the number and location of ground connections required. Array does not provide additional ground cables.

11.4 Alternate Ground Cable Installation

Ground cables must be installed prior to Module installation. The cables are routed from the Torque Tube to the nearest bearing column or grounding location.

1. Move the array to the horizontal position.
2. Mark a location on the bottom face of the Torque Tube 127 ±13 mm (5 ±0.5") from the face of the nearest Bearing Housing surface located along the Torque Tube centerline.

> ⚠ If the marked location is within 5" (127 mm) of a Torque Tube joint or falls upon a Module Clamp, move to the opposite side of the Bearing Housing.

3. Using a #10-32 self-tapping drill bit, drill a hole in the Torque Tube at the marked location for ground cable attachment.

Figure 11-3: Torque Tube Ground Positioning

4. Position the eyelet of cable around the drilled hole and install a #10-32 zinc-coated machine screw.
5. Orient the pressure terminal lug perpendicular to the length of the Torque Tube, and tighten with 3-4 FT-LBS of torque. See Figure 11-4.

Table 1: UL Approved Alternate Ground Braid and Pressure Terminals

Manufacturer	Item	Material	Dimensions	Gauge	Part Number
3M	Braid	Tin Plated Copper	1/2" x 24"*	#6AWG or Equivalent	--
Harger	Braid	Tin Plated Copper	1/2" x 24"*	#6AWG or Equivalent	--
Thomas and Betts	Pressure Terminal	Tin Plated Copper	--	--	54908BE
ILSCO	Pressure Terminal	Tin Plated Copper	--	--	CSWS-4-10
*The Ground Braid assembly (Braid with Pressure Terminals attached) should be no shorter than 25"					

Figure 11-4: Torque Tube Ground Installaion

Figure 11-5: Bearing Column Position

6. Mark a location at the center of the column web, located 7±1.0" (178±25 mm) from the bottom of the Torque Tube

Figure 11-6: Ground Cable Installation

7. Using a #10-32 self-tapping drill bit drill a hole at the marked location for ground cable attachment.
8. Position eyelet of cable around the drilled hole with cable pointing downwards.
9. Install a #10-32 machine screw in the tapped hole; attaching ground cable to column.
10. Tighten screw with 3-4 ft-lbs of torque, maintaining downward orientation of eyelet cable exit.

> ⚠ Ensure grounding cables do not interfere with any electrical or mechanical components throughout the entire range of motion.
>
> Secure all wiring within one foot of Dampers using a UL-approved wire-positioning device. Wiring must be permanently constrained to prevent any interference with Dampers. Wires can bind and short circuit, potentially causing damage to the system, personal injury, and/or death.
>
> Ground strap attachment method must be approved by the local AHJ.

Figure 11-7: Installed Alternate Ground Cable

11.4.1 Grounding Lugs

The DuraTrack® HZ v3 has been certified by UL using the UL Listed Grounding lug by Burndy, type CL501TN for attachment of the System Grounding Electrode Conductor. The use of a different type of lug for attachment of a System Grounding Electrode Conductor will require evaluation to determine its suitability for use.

Grounding lugs for the grounding electrode conductor, (GEC), and the equipment grounding conductor attachment, (EGC) are not supplied by Array. Array recommends the following installation procedure.

11.4.2 Grounding Lug Installation

Grounding lugs must be installed before Module installation. These instructions detail a method for installing a grounding lug on an column. If installing on an Center Structure Upright, assembly follows the same steps, substituting the Upright for the column.

1. Mark the desired location on the column for installation of the grounding lug.

Figure 11-8: Grounding Lug Mounting Position (L) and Drilling (R)

2. Using a self-tapping drill bit (#10-32), drill a hole at the marked location for ground cable attachment.
3. Position stud hole of the grounding lug around the drilled hole.
4. Install a #10-32 machine screw in the tapped hole; attaching lug to column.
5. Tighten screw maintaining desired orientation of the lug.

Figure 11-9: Installed Grounding Lug

12 Global Positioning System (GPS) Installation

Every DuraTrack® HZ v3 Solar Tracker System includes a GPS (Global Positioning System). The GPS positions the system upon commissioning and monitors the time for clock drift and power outages. The GPS comes attached to an electrical box which can be mounted on a rigid 3/4" conduit. This may be installed anywhere with a clear view of the sky to obtain a strong satellite signal.

The GPS assembly includes a 15ft (5m) pre-terminated RJ-45 lead. This cable needs to be run back to the Site Data Controller and properly terminated at the connector shown below. Any penetrations to the enclosure performed in the field must maintain the NEMA 4X rating of the box.

The PLC's DQ a .0 LED indicator will light up when the GPS is correctly connected and a satellite connection has been acquired.

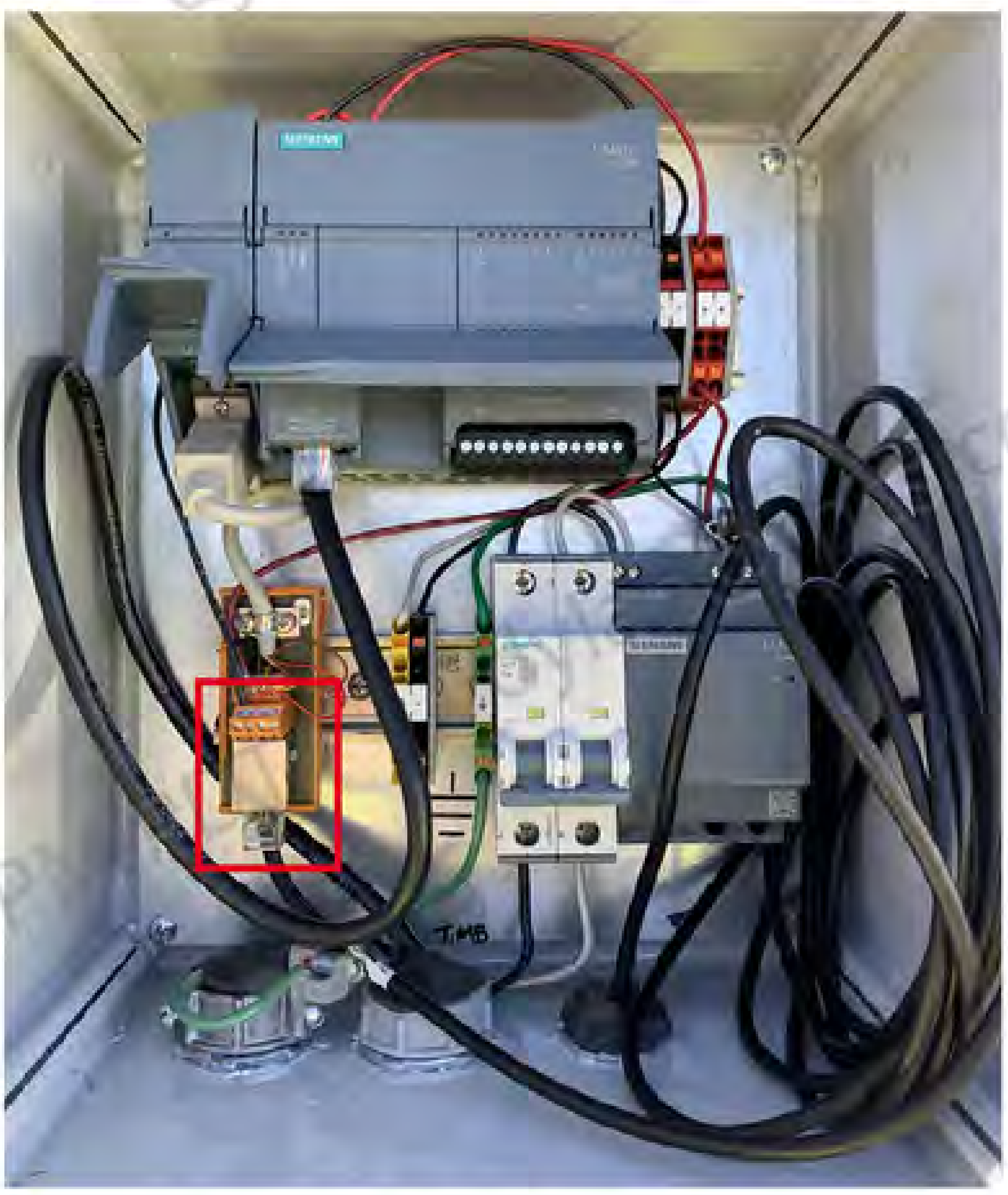


Figure 12-1: GPS Connection

Figure 12-2: Site Data Controller & GPS Unit

Figure 12-3: GPS Connection Indicator Light on PLC

13 Tracker Network Overview

The tracker's electronic components communicate over a network using a Modbus TCP communication protocol. This communication takes place over the site's local Ethernet network. A properly configured local Ethernet network is required to support the tracker's electronic components.

Larger sites typically have a Supervisory Controls and Data Acquisition (SCADA) software system which monitors and controls power generation of the tracker. The Array Motor Controllers and Site Data Controllers can be included in the SCADA system using the Ethernet interface.

13.1 Network Connections

The Motor Electronics on each Motor are connected to the Motor Controllers through a 6-conductor control wire. A 6X Motor Controller can be connected to up to 6 Motors; the 4X can be connected to up to 4 Motors. The Motor Controllers are coordinated by the Site Data Controller through the site's network. The Motor Controllers are connected to the site network using a standard Ethernet connection.

The Site Data Controller must be on the same subnet/VLAN as the Motor Controllers it is to control. The GPS unit is physically connected to the Site Data Controller over a serial cable with a pre-terminated RJ-45 type lead.

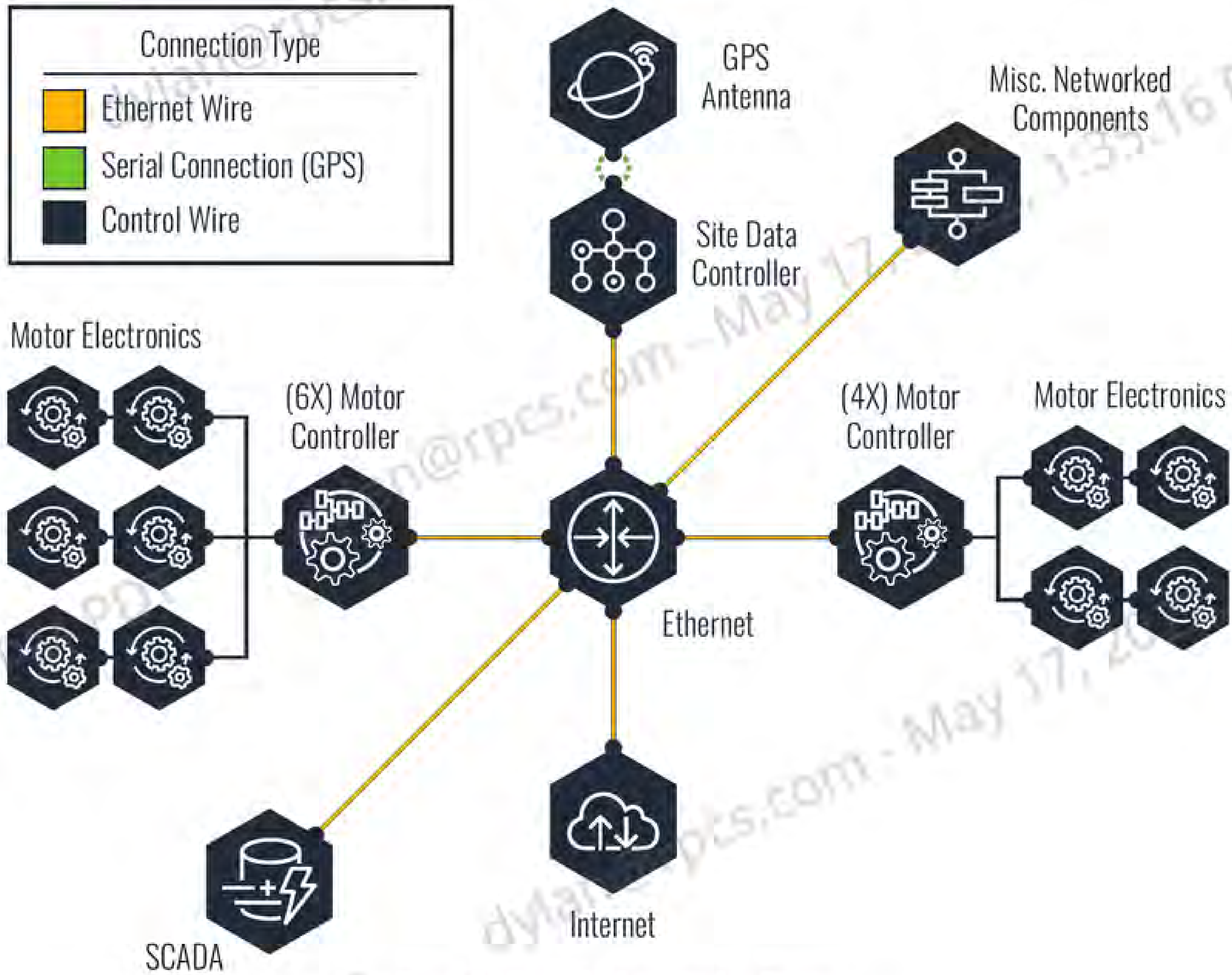


Figure 13-1: Typical Tracker Networking Diagram

14 Commissioning by Array

Once the DuraTrack® HZ v3 (DTHZ) Solar Tracker System has been fully assembled, contact Array Technologies, Inc. at 1-505-881-7567 to assist with the initial startup and commission. Starting up the system without commissioning from Array may result in damage to equipment or the system.

After Array is notified of completion of the array, the letter on the following page will be provided. Verify all items listed are complete; return the verification form to Array. Array requires a minimum of two weeks upon receipt of completed form to schedule a site visit for system commissioning.

NOTICE Use of generator power is not allowed for commissioning under any circumstance. Main power must be available before the arrival of Array personnel on site for commissioning.

Array must assist with commissioning any DuraTrack® HZ v3 Tracking System prior to initial startup and energizing. Starting up the system without commissioning from Array may result in possible damage to equipment, system, or personnel.

When powered on, the system is designed to start or stop automatically under certain conditions. Comply with safety precautions to avoid injury to personnel and damage to equipment.

NOTICE The commissioning process includes a small sampling of torque settings and visual inspections. The results of this sampling are used only to determine recommendations for rework or repair. Array's commissioning process does not provide an adequate quality control inspection of the installation as a whole. Array Technologies, Inc. is indemnified and held harmless from all liabilities concerning the installation of its products.

Call

Array Technologies, Inc.

for Assistance Prior to Initial Start up

at

1-505-881-7567

or

1-855-TRACKPV (872-2578)

Service 1-505-944-7694

FOLLOW THE SUN.
FOLLOW THE LEADER.

Pre- Commissioning Checklist (v3)

The items listed below need to be completed prior to scheduling a commissioning visit from the Array team. If the items below are not complete prior to Array's arrival on site, additional commissioning days may be required to complete the commissioning of your project. Additional days will be billed at the rate of $3500/day and will be completed as our schedule will allow. Array personnel will not mobilize for commissioning until the following signed checklist has been received.

Please check-off these items to acknowledge their completion:

- ☐ Power landed to each tracker motor, 480VAC/24VDC verified at each motor before Array arrives.
- ☐ Control wire run to motors from PLC Controller with no splices and a single run per motor.
- ☐ 6X Controller installed, powered up, & tied into the network.
- ☐ Site Data Controller installed, powered up, & tied into the network.
- ☐ All drivelines properly installed.
- ☐ GPS Garmin installed & operating.
- ☐ Networking circuitry is 100% complete and operational.

Please attach photos for the items listed above. Thank you for your cooperation and efforts to complete this project in an efficient manner and for striving to achieve the highest level of quality and success.

Please print your name, sign, date this document, and return to Array.

Customer Name: ______________________________

Array Job Number: __________ Requested Commissioning Date: ________________________

Print Name: ______________________________

Signature: ______________________________ Date: ____________

Array Acknowledgement

We will be on site ___/___/___ and estimate the commissioning process will take_____ days, including travel.

Array Project Manager Signature: ______________________________

Figure 14-1: Array Pre-Commissioning Checklist

Standard Configuration Power Requirements

Motor Electronics Box Overview & Power Requirements

Array Technologies, Inc. (Array) DuraTrack® HZ v3 systems can use one Motor per linked tracker block. Each Motor requires power and a connection to a Motor Controller provided by Array. A home run is the preferred run configuration for Motors with no more than 2 Motors maximum connected to any one home run circuit.

Power can be supplied in one of the configurations listed below or customized configurations are available by contacting Array. Voltage must be specified at the time of order. The allowable voltage range for the Motor is typically 460-480VAC and the Motor Electronics accepts power cable wire sizes from 14 to 10 AWG.

Array's Motor Controllers are configured to stagger Motor startup during normal operation. A Motor's startup interval is determined by the number it is assigned in the Motor Controller. Using 6X Motor Controllers, up to 24 motors can be run in a group without more than one starting simultaneously. The adjacent table contains a sample Motor starting sequence.

1.5 HP Motor Configuration

480 VAC, 3-phase power, 60 Hz
Continuous (Running) = 3.11 Amps
Maximum Inrush (Starting) Current = 3.11 x 6 = 18.66 Amps

NOTICE A factor of 6 is assumed as a general approximation of inrush current to be 6 times the normal operating current.

400 VAC, 3-phase power, 50 Hz
Continuous (Running) = 3.38 Amps
Maximum Inrush (Starting) Current = 3.38 x 6 = 20.28 Amps

Example Calculations

For a field with 480 VAC, 3-phase, 60 Hz power at the Motors, twelve Motors are supplied power by one transformer. Because the number of Motors is less than 24, there is only one group of Motors. The maximum current required is as follows:

$$I = (1)(18.66\ A) + (11)(3.11\ A) = 52.87\ A$$

For a field with 400 VAC, 3-phase, 50 Hz power at the Motors, eighteen Motors are supplied power by one transformer. Because the number of Motors is less than 24, there is only one group of Motors. The maximum current required is as follows:

$$I = (1)(20.28\ A) + (18)(3.38\ A) = 81.12\ A$$

6X Motor Controller Overview & Power Requirements

The 6X Motor Controller contains the "brain" of the tracker, and can be connected to up to six Motor Electronics assemblies through control wires. The 6X Motor Controller requires a source of power and a site Ethernet network or crossover cable is required for the Site Data Controller to communicate with all 6X controllers. The maximum distance an Ethernet cable should be run is 300 feet. Any instances where the distance between a 6X Controller and the Site Data Controller exceeds 300' will require a fiber optic run with media converters installed. Media converters are not supplied by Array and media converters may NOT be mounted inside of Array electronic enclosures (ex. 6X Controller enclosure).

The 6X Controller has an operational ambient temperature range of -25° to 130°F. Array recommends that 6X Motor Controllers be installed under a shaded structure, in accordance with best practice, to prevent additional heating from direct sunlight. 100V-240VAC, 60W power is required for the 6X Motor Controllers and the 6X Motor Controller accepts power cable wire sizes from 14 to 4 gauge.

Site Data Controller Overview & Power Requirements

The Site Data Controller is a supervisory unit which coordinates Motor start-ups between the 6X Motor Controllers and communicates exact current location and time data to all of the controllers. Up to 100 6X Motor Controllers can communicate with each Site Data Controller. The Site Data Controller requires an Ethernet connection (or crossover cable for one 6X Controller) to function properly. The Site Data Controller requires 100-240VAC power to operate with a maximum power consumption of 60W.

Tools and Materials Required

The following list includes tools and materials that may be required for proper installation and maintenance. Array does not provide these materials or tools but recommends acquiring them as needed.

Equipment

- Auger (optional and dependent on tracker support column installation)
- Field Grader (optional and dependent on site requirements)
- Forklift and Non-Marring Fork Covers
- Surveyor's Transit
- Vibratory Pile Driver (optional and dependent on foundation design)
- Levels (laser and standard)
- ½" Extensions: 3 inch, 6 inch, and 8 inch

Materials

- Concrete / Rebar (optional and dependent on tracker column foundation)
- Gravel (optional and dependent on tracker column foundation)
- Paint or Cold Galvanizing Compound (high-solids / zinc-rich)
- Clear Coat

Table 16-1: Tools

ADP Drawing	Subassembly	Hardware Kit/ Fastener Data	Tool Size / Type
Field Assembly, Gear Rack Center Structure	Center I-Beam Mounting Bracket	25050-000 .625"-11 x 2.00"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Center Stop Bearing	Bushing Bracket	25050-000 .625"-11 x 2.00"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Center Stop Bearing, High Wind	Bushing Bracket	25123-000 .750"-10 x 2.25"	1-1/4" (32mm) Deep Well Socket
Field Assembly, Center Stop Bearing	Bearing Center Stop	25056-000 .625"-11 x 2.00"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Center Stop Bearing, Set Screw	Bearing Center Stop with Set Screw	25104-000 .375"-16 x 1.00"	9/16" (15mm) Deep Well Socket 3/16" (5mm) Allen Key
Field Assembly, Torque Tube and Kit, Coupler	Coupler, Octagon Tube	N/A .625"-11 x 2.00"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Gear Rack Center Structure	Drive Column Center Structure	25056-000 .625"-11 x 2.00"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Gear Rack Center Structure	Gear Rack/Coupler Weldment/Ground Strap	25075-000 .625"-11 x 2.5"	1-1/16" (27mm) Deep Well Socket
Field Assembly, Gear Rack Center Structure	Center Structure Bearing Housing	25074-000 .500"-13 x 2.50"	M22 or 7/8" (22mm) Deep Well Socket
Field Assembly, Gear Rack Center Structure	Center Structure Bearing Kit	N/A .500"-13 x 1.25" Hex	3/4" (19mm) Socket

Table 16-1: Tools

ADP Drawing	Subassembly	Hardware Kit/ Fastener Data	Tool Size / Type
Field Assembly, Motor Assembly, Gear Rack Center Structure	Motor Assembly	N/A .500"-13 x 1.50"	7/8" (23mm) Deep Well Socket
Field Assembly, Single Damper, 55 Degree	Damper Assembly	N/A .500"-13 x X.XX"	7/8" (23mm) & 3/4" (19mm) Deep Well Socket
Assembly, Octagonal Clamp	Module Clamps	N/A .375"-16 x 13.5"	9/16" (15mm) Deep Well Socket
Field Assembly, Motor Assembly, Gear Rack Center Structure	Motor Assembly	N/A M8 Set Screw	5/32" (4mm) Allen Head Wrench
Field Assembly, Motor Assembly, Gear Rack Center Structure	Motor Assembly	N/A M10 Set Screw	3/16" (5mm) Allen Head Wrench
Field Assembly, Driveline, 1000 Series	Driveline Assembly	N/A M8 Socket Set Screw	5/32" (4mm) Allen Head Wrench

Table 16-2: Optional Recommended Tools

Item	Manufacturer / Model	Item	Manufacturer / Model
Digital Level	Craftsman Model # 48295, or similar	Combination/Adjustable Wrench(s)	Craftsman, Crescent, Klein
Torque Sticks	Harbor Freight # 69870, Grainger, Fastenal	Cordless Drill (capable of 20 ft-lbs on a torque limiter setting)	Milwaukee 2757-20
T-Square		Angle Driver	Makita BFL400FZ Milwaukee 2709-20
Paint Pens for Torque Marking		½ inch Cordless Impact Driver 300 ft-lbs +	Milwaukee M182762-20, or similar
String Line or Laser Levels		Jack Stands / Safety Stands	Harbor Freight # 60759
Tin Snips for Banding Material		Allen Head Wrench Set	
Torque Wrenches	(rated for appropriate torque specifications)	Gearbox Torque Limiter Tool	1/2" drive 4 lug internal 76mm x 80mm lock nut socket
½ inch Drive Ratchet for Sockets		Drill to half inch adaptor for 9/16" socket	
4 ft. Step Ladder			

Torque Specification List

NOTICE Any torque specification in the site ADP supersedes the specification shown in the following table. Tolerances shown are Array recommendations only and may be superseded by the EOR for a project. Inspection for "flush" condition may be completed using a feeler gauge with maximum thickness of .015".

Table 17-1: Torque Specification List

Assembly Unit	Install Torque	Hardware
Center Structure Mounting Bracket	125 ±10 ft/lb (169 ±14 Nm)	5/8" hex bolts, flat washers, lock nuts
Motor Drive Assembly	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, washers, lock nuts
Gear Rack Center Structure	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, flat washers, lock nuts
Octagon Two-Piece Tube Coupler	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, flat washers, lock nuts
Octagon Single-Piece Tube Coupler	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, flat washers, lock nuts
Gear Rack Tube Assembly	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, flat washers, lock nuts
Gear Rack Assembly	80 ±10 ft/lb (108 ±14 Nm)	5/8" hex bolts, flat washers, lock nuts
Bearing Housing I-Beam Bracket	125 ±10 ft/lb (169 ±14 Nm)	5/8" hex bolts, flat washers, lock nuts
Bearing Housing I-Beam Bracket, High Wind	210 ±10 ft/lb (285 ±14 Nm)	3/4" hex bolts, flat washers, lock nuts
Center Stop Bearing Housing	80 ±10 ft/lb (108 ±14 Nm)	5/8" carriage bolts, flat washers, lock nuts
Center Stop Bearing Housing Set Screw	108 ±12 in/lb (12 ±1.5 Nm)	1" hex set screws
Center Stop Bearing Housing Jam Nut	144 ±12 in/lb (16 ±1.5 Nm)	hex jam nuts
Harmonic Damper Upper Bracket	30 ±5 ft/lb (41 ±7 Nm)	1/2" octagonal U-Bolt, lock & flat washers, nuts
Harmonic Damper Lower Bracket	45 ±5 ft/lb (61 ±7 Nm)	1/2" U-Bolts, flat washers, lock nuts
U-Joint & Driveline Set Screw	144 ±12 in/lb (16 ±1 Nm)	M8-1.25 x 16mm set screw
Module Clamp	Varies; refer to ADP	3/8" carriage bolt, flat washers, nut
Steel Strap, Bearing Housing, 2 Piece	60 ±5 ft/lb (81 ±7 Nm)	1/2" hex Bolt

List of Figures

Harvest the Sunshine

605W

JA SOLAR

JAM72D40 MB-US n-type Double Glass Bifacial Modules

Premium Cells

n-Bycium+

16BB

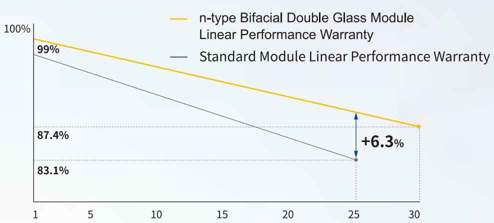
MBB Half-Cell Technology

Up To 26%

Cell Conversion Efficiency

Premium Modules

- Higher power generation better LCOE
- n-type with very Lower LID
- Better Temperature Coefficient
- Better low irradiance response



1% 1st-year Degradation

0.4% Annual Degradation Over 30 years

12-year product warranty

30-year linear power output warranty

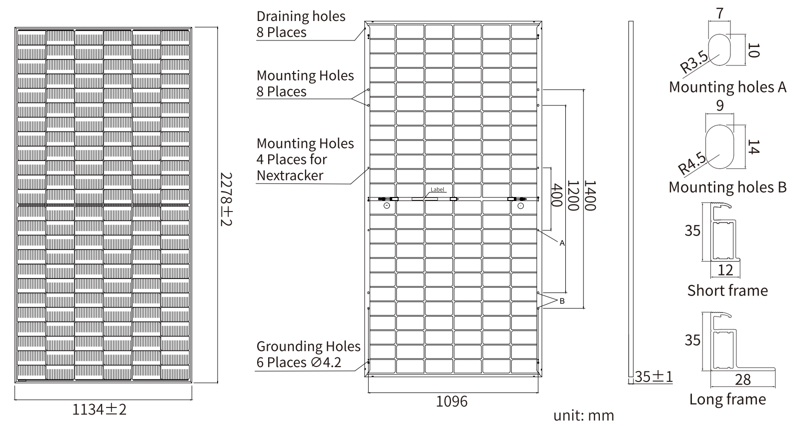
Comprehensive Certificates

- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941: 2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing

DEEP BLUE 4.0 Pro

JAM72D40 MB-US n-type Double Glass Bifacial Modules

DEEP BLUE 4.0 Pro



MECHANICAL PARAMETERS

Cell	Mono
Weight	31.8kg
Dimensions	2278±2mm×1134±2mm×35±1mm
Cable Cross Section Size	$4mm^2$(IEC), 12 AWG(UL)
No. of cells	144(6×24)
Junction Box	IP68, 3diodes
Connector	QC 4.10-351/ MC4-EVO2
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-) Landscape: 1300mm(+)/1300mm(-)
Front Glass/Back Glass	2.0mm/2.0mm
Packaging Configuration	31pcs/Pallet, 589pcs/40HQ Container

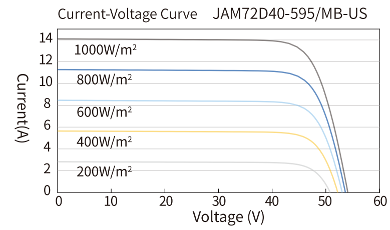
Remark: customized frame color and cable length available upon request

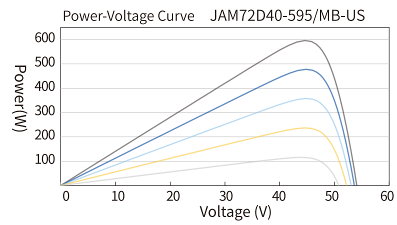
ELECTRICAL PARAMETERS AT STC

TYPE	JAM72D40 -580/MB-US	JAM72D40 -585/MB-US	JAM72D40 -590/MB-US	JAM72D40 -595/MB-US	JAM72D40 -600/MB-US	JAM72D40 -605/MB-US
Rated Maximum Power(Pmax) [W]	580	585	590	595	600	605
Open Circuit Voltage (Voc) [V]	53.50	53.70	53.90	54.10	54.30	54.50
Maximum Power Voltage(Vmp) [V]	44.70	44.90	45.10	45.30	45.50	45.70
Short Circuit Current(Isc) [A]	13.95	14.00	14.05	14.10	14.15	14.20
Maximum Power Current(Imp) [A]	12.98	13.03	13.09	13.14	13.19	13.24
Module Efficiency [%]	22.5	22.6	22.8	23.0	23.2	23.4
Power Tolerance	0~+3%					
Temperature Coefficient of Isc(α_Isc)	+0.045%/°C					
Temperature Coefficient of Voc (β_Voc)	-0.250%/°C					
Temperature Coefficient of Pmax(γ_Pmp)	-0.290%/°C					
STC	Irradiance $1000W/m^2$, cell temperature 25°C, AM1.5G					

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

CHARACTERISTICS





ELECTRICAL CHARACTERISTICS WITH 10% SOLAR IRRADIATION RATIO

TYPE	JAM72D40 -580/MB-US	JAM72D40 -585/MB-US	JAM72D40 -590/MB-US	JAM72D40 -595/MB-US	JAM72D40 -600/MB-US	JAM72D40 -605/MB-US
Rated Max Power(Pmax) [W]	626	632	637	643	648	653
Open Circuit Voltage(Voc) [V]	53.50	53.70	53.90	54.10	54.30	54.50
Max Power Voltage(Vmp) [V]	44.70	44.90	45.10	45.30	45.50	45.70
Short Circuit Current(Isc) [A]	15.07	15.12	15.17	15.23	15.28	15.34
Max Power Current(Imp) [A]	14.02	14.07	14.14	14.19	14.25	14.30
Irradiation Ratio (rear/front)	10%					

* For Nextracker installations, maximum static load please take compatibility approve letter between JA Solar and Nextracker for reference.

OPERATING CONDITIONS

Maximum System Voltage	1500V DC
Operating Temperature	-40°C~+85°C
Maximum Series Fuse Rating	30A
Maximum Static Load, Front*	5400Pa(112 lb/ft^2)
Maximum Static Load, Back*	2400Pa(50 lb/ft^2)
NOCT	45±2°C
Bifaciality	80%±5%
Safety Class	Class Ⅱ
Fire Performance	UL Type 29/Class C

JA SOLAR

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Tel: +86 10 6361 1888 Fax: +86 10 6361 1999
E-mail: sales@jasolar.com marketing@jasolar.com www.jasolar.com

Specifications subject to technical changes and tests.
JA Solar reserves the right of final interpretation.

Version No. : Global-EN-20250113A

/ SHP 125-US-21 / SHP 150-US-21 / SHP 165-US-21 / SHP 172-US-21

Sunny Highpower PEAK3-US

125 / 150 / 165 / 172

A superior distributed generation solution for large-scale power plants

25 YEAR DESIGN LIFE   SMA Smart Connected   c UL us

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

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

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

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

The Sunny Highpower PEAK3 1,500 VDC inverter offers high power density in a modular architecture that achieves a cost-optimized solution for large-scale PV integrators.

With fast, simple installation and commissioning, the PEAK3 is accelerating the path to energization. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 power plant solution is powered by the ennexOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

Technical Data	Sunny Highpower PEAK3 125-US	Sunny Highpower PEAK3 150-US	Sunny Highpower PEAK3 165-US	Sunny Highpower PEAK3 172-US
Input (DC)				
Maximum array power [1]	250 kWp	300 kWp	330 kWp	344 kWp
Maximum system voltage	1500 Vdc			
Rated MPP voltage range	705 V ... 1450 V	880 V ... 1450 V	924 V ... 1450 V	968 V ... 1450 V
MPPT operating voltage range	684 V ... 1500 V	855 V ... 1500 V	898 V ... 1500 V	941 V ... 1500 V
MPP trackers	1			
Maximum operating input current	180 A			
Maximum input short-circuit current	325 A			
Output (AC)				
Nominal AC power	125 kW	150 kW	165 kW	172 kW
Maximum apparent power	125 kVA	150 kVA	165 kVA	172 kVA
Output phases / line connections	3 / 3-PE			
Nominal AC voltage	480 V	600 V	630 V	660 V
Compatible transformer winding configuration	Wye-grounded			
Maximum output current	151 A			
Rated grid frequency	60 Hz			
Grid frequency / range	50 Hz, 60 Hz / -6 Hz ... +6 Hz			
Power factor at rated power / adjustable displacement	1 / 0.8 leading ... 0.8 lagging			
Harmonics (THD)	<3%			
Efficiency				
CEC efficiency	98.5 %	99.0 %	99.0 %	99.0 %
Protection and safety features				
Ground fault monitoring: Riso / Differential current	● / ●			
DC reverse polarity protection	●			
AC short circuit protection	●			
Monitored surge protection (Type 2): DC / AC	● / ●			
Protection class / overvoltage category (as per UL 840)	I / IV			
General data				
Device dimensions (W / H / D)	770 / 830 / 462 mm (30.3 / 32.7 / 18.2 in)			
Device weight	99 kg (218 lbs)			
Operating temperature range	-25°C ... +60°C (-13°F ... +140°F)			
Storage temperature range	-40°C ... +70°C (-40°F ... +158°F)			
Audible noise emission (full power @ 1m and 25°C)	< 69 dB(A)			
Internal consumption at night	< 5 W			
Topology	Transformerless			
Cooling concept	OptiCool (forced convection, variable speed fans)			
Enclosure protection rating	Type 4X			
Maximum permissible relative humidity (non-condensing)	100%			
Additional information				
Mounting	Rack mount			
DC connection	Terminal lug (up to 600 kcmil CU/AL)			
AC connection	Screw terminal (up to 300 kcmil CU/AL)			
LED indicators (Status/Fault/Communication)	●			
SMA Speedwire (Ethernet network interface)	● (2 x RJ45 ports)			
Data protocols: SMA Modbus / SunSpec Modbus	● / ●			
Integrated Plant Control / Q on Demand 24/7	● / ●			
Off-grid capable / SMA Hybrid Controller compatible	– / ●			
Monitoring				
SMA Sunny Portal (monitoring portal)	No cost for the lifetime of the system			
SMA Smart Connected (monitoring and remote O&M service)	No cost on inverters under warranty			
Supported protocols for outbound data	SMA external API, Modbus, FTP			
Certifications				
Certifications and approvals (pending)	UL 62109, UL 1998, CAN/CSA-C22.2 No.62109			
Manufacturer's Declaration of Design Life	25 years			
FCC compliance	FCC Part 15, Class A			
Grid interconnection standards	IEEE 1547:2018, UL 1741-SA - CA Rule 21, HECO Rule 14H, UL1741SB			
Advanced grid support capabilities	L/HFRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor			
Warranty				
Standard	5 years			
Optional extensions (total warranty coverage cannot exceed 25 years)	+5 / +10 / +15 / +20 years			
1) Higher DC array power permitted via site inverter load modeling in SMA Sunny Design				
Type designation	SHP 125-US-21	SHP 150-US-21	SHP 165-US-21	SHP 172-US-21
● Standard features ○ Optional features – Not available				

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

SMA America, LLC

EXHIBIT U: LEVEL 2 WETLAND DELINEATION

Wetland Delineation Report

Foersterling

Township of Champaign

Champaign County, Illinois

Prepared for:

Dimension RE LLC
1400 Broadway Suite 28010
New York, New York 10018

Prepared by:

Kimley-Horn and Associates, Inc.
IL: 111 West Jackson Boulevard, Suite 1320,
Chicago, IL 60604

August 2024

Kimley»Horn

Table of Contents

List of Tables

List of Figures

Appendices

1 Introduction

Wetland scientists Briana Hazel and Jake Ackerman with Kimley-Horn and Associates, Inc. conducted a wetland investigation and field delineation for Dimension RE LLC and the Foersterling Project in the township of Champaign, Champaign County, Illinois. The wetland investigation and delineation included Parcel ID 032030100002 (the “study area”). The study area is shown on **Figure 1.** The study area consists of undeveloped agricultural land. Cover types within the study area include cultivated crops.

A routine level 2 (onsite) wetland delineation, as outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (January 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (August 2010)* occurred on July 11, 2024. The purpose of this delineation was to identify the extent of wetlands within the study area. The information will be used to facilitate project design and determine if aquatic resource impacts are avoidable and/or if minimization of impacts can result from design modifications.

2 Project Description

Dimension RE LLC is proposing a community scale solar development. The project will primarily consist of ground mounted solar panels, racking, associated electrical components, with security fencing and interior access roads.

3 Statement of Qualifications

Kimley-Horn has extensive experience completing wetland investigations and delineations across the United States. Kimley-Horn’s personnel has been trained to use the *1987 Corps of Engineers Wetlands Delineation Manual (USACE, 1987)* along with the applicable regional supplements. Kimley-Horn has experience completing off-site hydrology analysis, historic aerial reviews, and difficult or atypical situation delineations.

Ashley Payne earned a Bachelor of Arts Degree in Environmental Biology from Saint Mary’s University of Minnesota. She is an environmental scientist with over 14 years of experience specializing in wetland services environmental documentation and assessments, and geographic information systems mapping and data collection. During the last 14 years, she has successfully completed hundreds of delineations for various types of projects. In the last seven years, Ashley’s primary focus has been the delineation of agricultural fields for future development. She is familiar with completing historic aerial reviews and off-site hydrology determinations which are required for delineation of farmed wetlands. Ashley has also obtained environmental permits for clients through efficient and thorough preparation of permit applications, and by coordinating with agency personnel. Ashley is a certified delineator in the state of Minnesota and her primary focus is environmental work in the Midwest. She has extensive experience working in Minnesota, Illinois, Wisconsin, Michigan, Iowa, and South Dakota.

Keller Leet-Otley earned a Bachelor of Arts Degree in Environmental Science from Colby College. He is an environmental scientist who specializes in wetland delineation and permitting, geographic information systems mapping, and threatened and endangered species due diligence. He has led the delineation of agricultural fields, roadway corridors, and undeveloped areas for future development and transit projects. He is proficient using ArcGIS to produce client specific exhibits for various project types. Keller has prepared environmental permit applications and documentation for public and private sector clients. He is a certified delineator in the state of Minnesota and his focus is environmental work in the upper Midwest.

Briana Hazel holds a Bachelor of Arts in Geology from the University of Florida and has worked in environmental consulting for nearly 5 years. Briana is proficient in multi-agency permitting, wetland delineations, species identification and surveying, and GIS mapping. She has completed delineations across the entirety of Florida, as well as delineations across the Atlantic, Southeast, and Midwest. She has delineated in environments such as developed areas, disturbed areas, dense forests, scrubland, grasslands, oceanfront, bays, marshes, roadway corridors, pipeline corridors, agricultural fields, and pastureland. Briana has experience in a variety of natural resource survey methodologies, including Phase I ESAs, habitat conservation, habitat assessments, habitat monitoring, species and wetland permitting, and has completed wetland delineations for both public and private sector clients.

Jake Ackerman holds a Bachelor of Science in Environmental Science from Rhodes College. Jake is proficient in geographic information systems, delineating aquatic resources, as well as mapping environmental and cultural resources. He has experience with delineations in Minnesota and Illinois for solar, roadway, and land development projects. Jake has conducted this work in both developed and undeveloped land as well as agricultural fields for private and public sector clients.

4 Regulatory Requirements

A summary of the permit requirements that may pertain to the project is provided below. Any activity planned within areas identified as wetland must be coordinated with and approved by the appropriate agencies prior to commencement of such activities.

4.1 State and Federal Regulations

The regulatory authority of the U.S. Army Corps of Engineers (USACE) covers Waters of the United States (WOTUS) in accordance with Section 404 of the Clean Water Act. Generally, the USACE reviews delineations to determine whether wetlands are jurisdictional (i.e., WOTUS). On December 30, 2022, the U.S. Environmental Protection Agency (EPA) and Department of the Army (“the agencies”) announced the final “Revised Definition of ‘Waters of the United States’” rule. The rule took effect on March 20, 2023. Based on a preliminary federal injunction on April 12, 2023, the Revised Definition was revoked and the pre-2015 regulatory regime is in effect for 27 states. In Illinois, the 2023 Revised Definition of the Waters of the United States is in effect as of the date of this report.

Based on the May 25, 2023 ruling of Sackett v. EPA (2023), the Clean Waters Act’s use of “waters” encompasses only relatively permanent, standing, or continuously flowing bodies, ordinarily called streams, oceans, rivers, and lakes. Wetlands qualify as WOTUS only if “indistinguishable from waters of the United States,” having a continuous surface connection to bodies that are waters of the United States in their own right, with no clear division between waters and wetlands. As of September 8, 2023, the EPA and the Department of the Army amended the WOTUS rule to conform to the 2023 Supreme Court decision in Sackett v. EPA.

Section 10 of the Rivers and Harbors Act requires that regulated activities conducted below the ordinary high-water mark elevation of navigable Waters of the U.S. or mean high water mark for tidal waters be approved/permitted by the USACE. Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Navigable Waters of the U.S. are those waters that are subject to the ebb and flow of the tide shoreward to the mean high-water mark and/or are presently used or have been used in the past or may be susceptible to use to transport interstate or foreign commerce.

At this time, Illinois does not regulate wetlands under Section 404, or require setback buffers for wetlands on private land.

4.2 Local Regulations

At this time, based on publicly available information, the township of Champaign and Champaign County do not regulate wetlands or require setback buffers for wetlands.

5 Mapping and Background Information

Prior to field reconnaissance, potential wetland areas within the project study areas were identified through a desktop review of United States Geological Survey (USGS) topographic maps, National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), Illinois Department of Natural Resources (IDNR) Public Waters, LiDAR, the soil survey for Champaign County, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), aerial photography, and antecedent precipitation for a location near the study area. The selected resources are described below:

5.1 Topography

The Bondville, IL 7.5-minute USGS topographic map and 2-foot contours derived from a digital elevation model (DEM) from USGS were reviewed for the study area. According to the USGS topographic map (see **Figure 2**), the study area is undeveloped land with a nearby stream. The 2-foot contour data depicts the study area gradually sloping southeast towards the south boundary, and northeast towards the stream. The study area ranges from 698 feet (above mean sea level) to 704 feet, see **Figure 3**.

5.2 National Wetlands Inventory

NWI mapping, available from the U.S. Fish and Wildlife Service (USFWS) Wetland Mapper (updated in 2024), depicts potential wetland areas and waterbodies based on stereoscopic analysis of high altitude and aerial photographs and was reviewed for the study area. According to the NWI map, there are no wetlands in the study area. There is a perennial stream approximately 300 ft to the northwest of the study area, **see Figure 3**.

5.3 National Hydrography Dataset

The NHD, available from USGS, depicts drainage networks and related features, including rivers, streams, canals, lakes, and ponds. The NHD dataset is not field verified. According to NHD mapping, there are no identified drainage features or waterbodies within the study area. There is a linear drainage feature approximately 300 ft to the northwest of the study area, **see Figure 3**.

5.4 IDNR Public Waters

The IDNR Public Waters viewer depicts IDNR Public Waters. According to the Public Waters viewer, there are no Public Waters within the study area or the vicinity of the study area.

5.5 Soil Survey

The Natural Resources Conservation Service's (NRCS) *Web Soil Survey* for Champaign County was reviewed for the study area. According to the survey, there are six soil mapping units within the study area which are generally silt loams with some silty clay loams. Approximately half of the study area was mapped with soils with a hydric to predominantly hydric soil rating from 95% to 100%. The remainder of the study area was mapped with soils with a non-hydric to predominantly non-hydric soil rating from 0% to 7%. Maps and information obtained from the NRCS online web soil survey are included in **Figure 4** and **Appendix A**.

5.6 Federal Emergency Management Agency Floodplain

The FEMA FIRM was reviewed for the study area. According to FEMA, the study area is located in Zone X of panels 17019C0425D and 17019C0404D (effective October 2, 2013), which is outside the designated 100-year floodplain zones. However,approximately 50 ft to the northwest of the study area is within Zone A which is inside the designated 100-year floodplain zone, see **Figure 5**.

5.7 Aerial Photography Review

Aerial photography, acquired from Google Earth, was reviewed to identify the potential for wetlands across the study area. 13 photos were reviewed between 1993 and 2022, available in **Appendix B**. These photos were used to determine the presence of wetland hydrology using industry accepted offsite hydrology analysis for areas showing crop stress or other potential wetland signatures. Each image was interpreted for the presence or lack of hydrologic indicators.

2 Areas of Investigation (AOIs) were identified in the study area. AOI 1 did not have wetland signatures in at least 30% of the historic aerials with normal precipitation conditions but had hydrology indicators or hydric soils in the field; thus, this area was delineated as Wetland 1. AOI 2 had wetland signatures in at least 30% of the historic aerials with normal precipitation conditions but did not meet primary hydrology indicators during the field delineation, and thus was not delineated as a wetland. The AOIs are shown in **Appendix B**.

5.8 Precipitation

Precipitation data for the study area were obtained from the U.S. Army Corps of Engineers Antecedent Precipitation Tool. WETS (Wetlands) tables were reviewed for climate stations within the vicinity of the study area to determine the current hydrologic conditions for the study area and if those conditions are typical for this time of year. Ninety-day rolling precipitation levels leading up to the field review were compared to historical data. From 90 to 60 days before the field delineation, precipitation conditions were normal. From 60 to 30 days before the field delineation, precipitation conditions were wetter than normal. From 30 days to 0 days before the field delineation, precipitation conditions were wetter than normal. Overall, the data show that in the 90 days leading up to the field delineation, precipitation conditions were wetter than normal. This information is included in **Appendix C**.

6 Field Investigation

A routine level 2 (onsite) wetland delineation, as outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (January 1987) along with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (August 2010)* occurred on July 11, 2024.

During the onsite delineation, vegetation, soils, and current hydrologic characteristics were evaluated at each wetland area and area of investigation identified within the study area. Wetland boundaries were digitally recorded with a Geode GPS with sub-meter accuracy until one or more of the three criteria were no longer present. The sample point locations, wetland boundaries, and aquatic resources are shown in **Figure 6**.

In addition to wetlands that were investigated and delineated, non-wetland aquatic features were sought but none were delineated. Non-wetland aquatic features are defined based on the observation of the following characteristics:

- Flow
  - Perennial: contains water at all times of the year except during extreme drought
  - Intermittent: contains water occasionally or seasonally
  - Ephemeral: contains water only during and immediately after periods of rainfall or snowmelt
- Ordinary High-Water Mark (OHWM): The limit line on the shore established by the fluctuation of the water surface. It is shown by such things as a clear line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other features influenced by the surrounding area
- Bank Shape
  - Undercut: banks that overhang the stream channel

- Steep: bank slope of approximately greater than 30 degrees
- Gradual: bank slope of approximately 30 degrees or less

Sample points were completed for all observed wetlands. Historic aerials were reviewed for sample points taken in agricultural fields (See **Appendix B**). The field data sheets are included in **Appendix D**. Study area photos found in **Appendix E,** photo locations in **Figure 6**.

7 Summary of Results

Table 1: Wetland Delineation Summary

Resource ID	Wetland Plant Community	Cowardin Classification[1]	Size (acres)[2]	NWI?	Hydric Soils?[3]	Photo ID	Associated Sample Points	NOTES	Regulatory Status[4]
Wetlands									
Wetland 1	Seasonally Flooded Basin	PEM1Af	0.24	N/A	Yes	2	SP-2 (Wet) SP-3 (Up)	Wetland located in slight depression along the southern portion of the study area. The wetland collects runoff from the surrounding landscape and drains south offsite. The wetland boundary was based on the change in topography and hydrophytic vegetation dominance. The resource appears surficially isolated from other aquatic resources.	Non-Jurisdictional: does not have a continuous surficial connection to a Traditionally Navigable Water (TNW) or Relatively Permanent Water (RPW).

[1] The Cowardin Classification System codes are found here: https://doee.dc.gov/sites/default/files/dc/sites/ddoe/release_content/attachments/Appendix%20H_Cowardin%20Classification%20Diagram.pdf
[2] Size of wetland features and additional areas investigated provided in acres within the study area.
[3] Areas identified as hydric contain partially hydric soils (equal to or greater than 33% of soil component) mapped within the resource area.
[4] Regulatory Status is based on best professional judgment and has not been verified with agency staff.

8 Report Preparation

The procedures followed for this wetland delineation are in accordance with the *Corps of Engineers Wetlands Delineation Manual* and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (August 2010).

This report describes study area conditions for a specific date in time and is generally valid for a period of five years from the date of the final field investigation and delineation, which was July 11, 2024.

9 Conclusion

The field delineation identified 1 wetland within the study area. The delineated resource is described in Table 1. The wetland is not anticipated to be USACE-jurisdictional.

10 Disclaimer

Kimley-Horn has prepared this document based on limited field observations and our interpretation, as scientists, of applicable regulations and agency guidance. While Kimley-Horn believes our interpretation to be accurate, final authority to interpret the regulations lies with the appropriate regulatory agencies. Regulatory agencies occasionally issue guidance that changes the interpretation of published regulations. Guidance issued after the date of this report has the potential to invalidate our conclusions and/or recommendations and may cause a need to reevaluate our conclusions and/or recommendations.

Because Kimley-Horn has no regulatory authority, the Client understands that proceeding based solely upon this document does not protect the Client from potential sanction or fines from the applicable regulatory agencies. The Client acknowledges that they have the opportunity to submit documentation to the regulatory agencies for concurrence prior to proceeding with any work. If the Client elects not to do so, then the Client proceeds at their sole risk.

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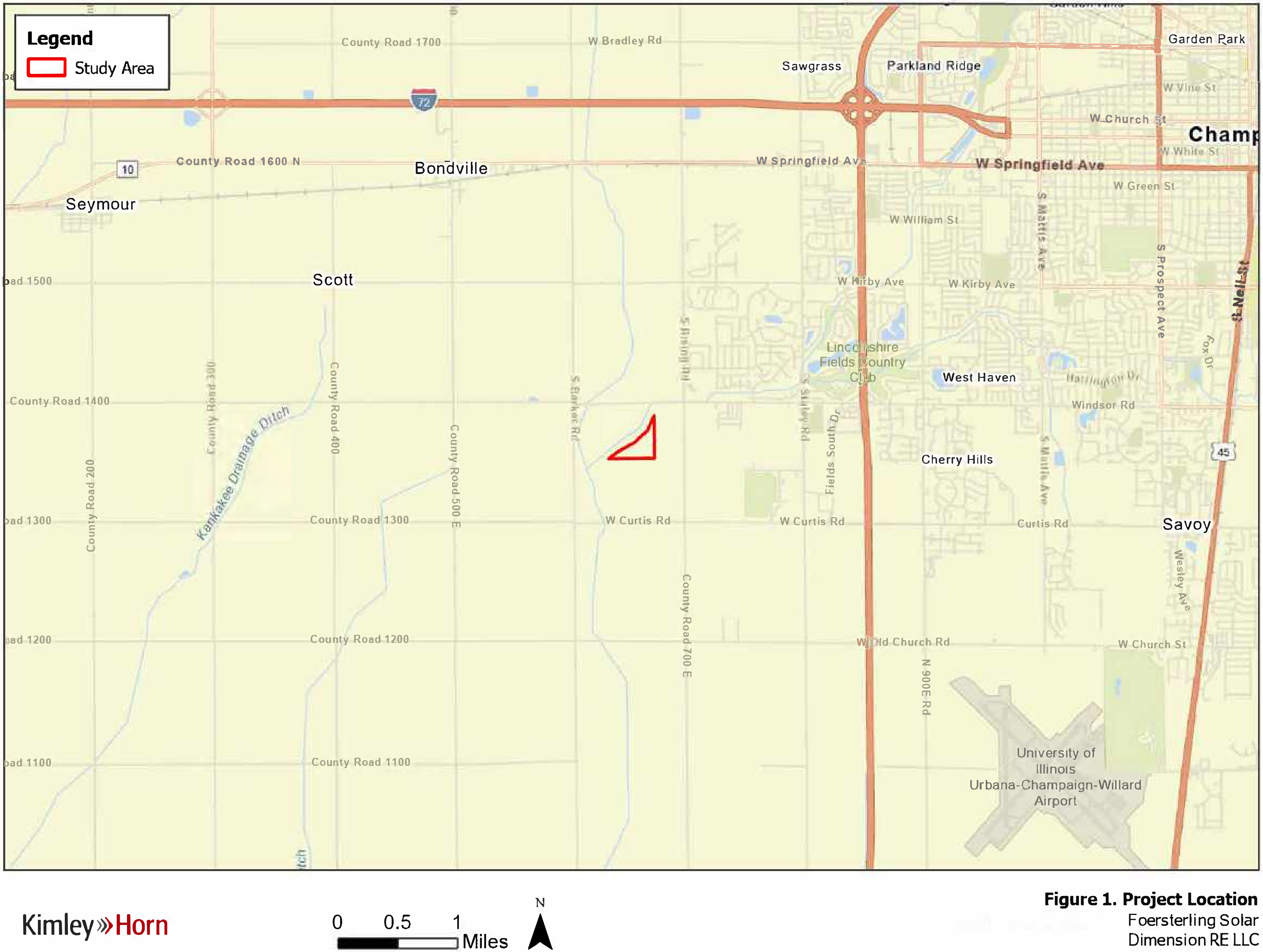
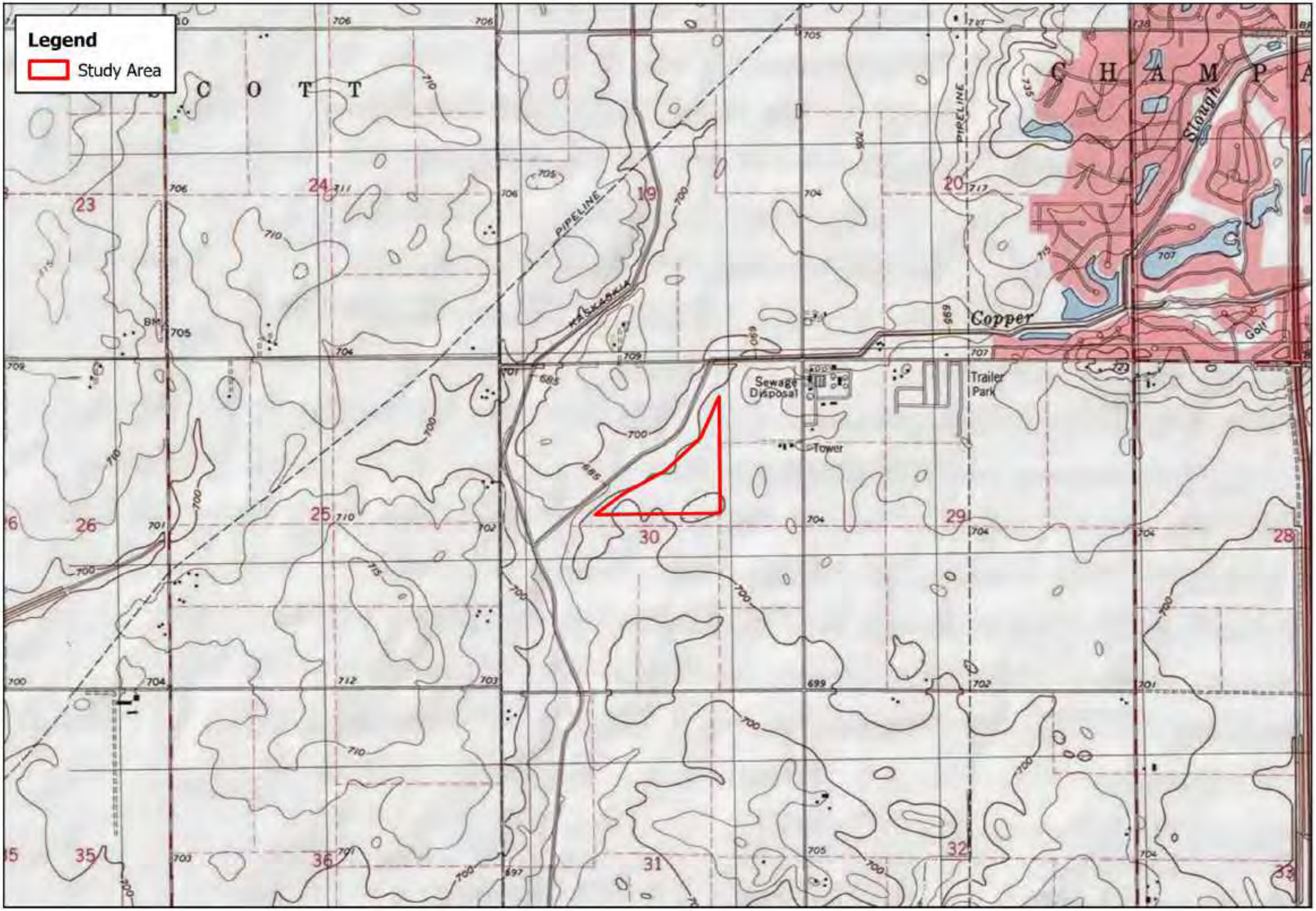
U.S. Geological Survey. *Topographical Map*. Accessed via ESRI at http://www.arcgis.com/home/item.html?id=30e5fe3149c34df1ba922e6f5bbf808f and via Topo View at https://ngmdb.usgs.gov/topoview/viewer/#4/40.01/-100.06, accessed August 2024.

Figures



Kimley»Horn

Figure 1. Project Location
Foersterling Solar
Dimension RE LLC

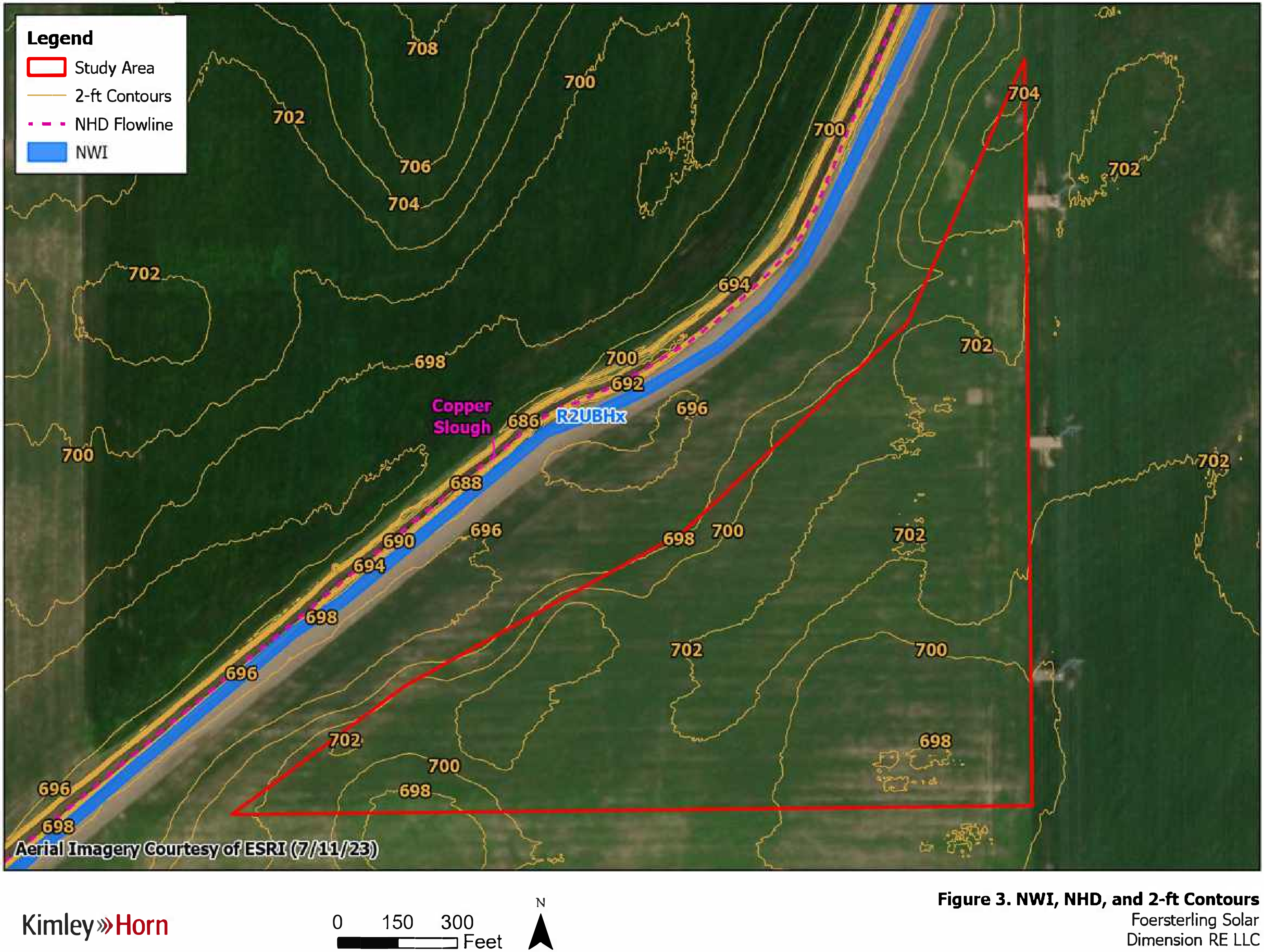


Kimley»Horn

0 1,000 2,000 Feet

N

Figure 2. USGS Topographic Map
Foersterling Solar
Dimension RE LLC



Kimley»Horn

Figure 3. NWI, NHD, and 2-ft Contours
Foersterling Solar
Dimension RE LLC

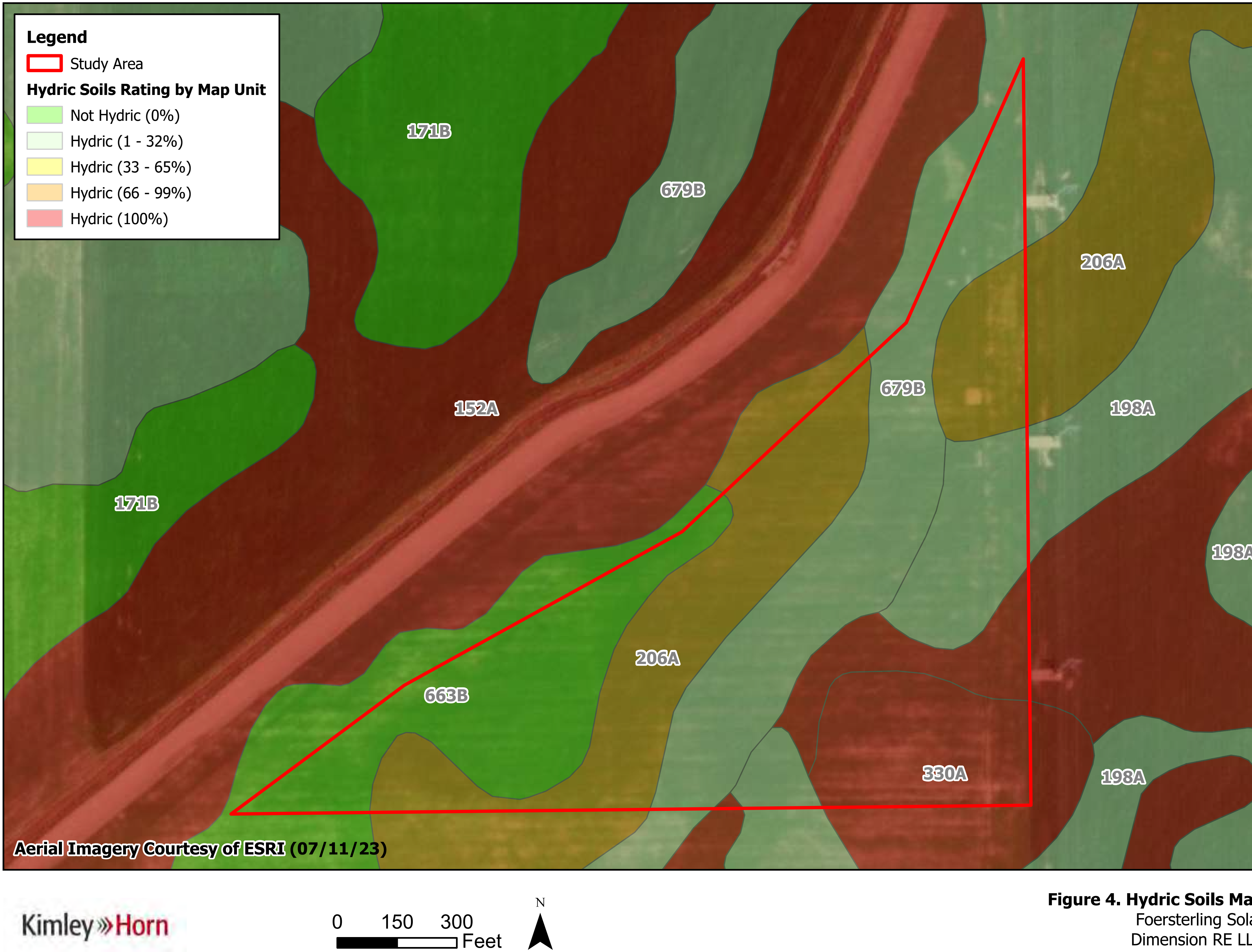


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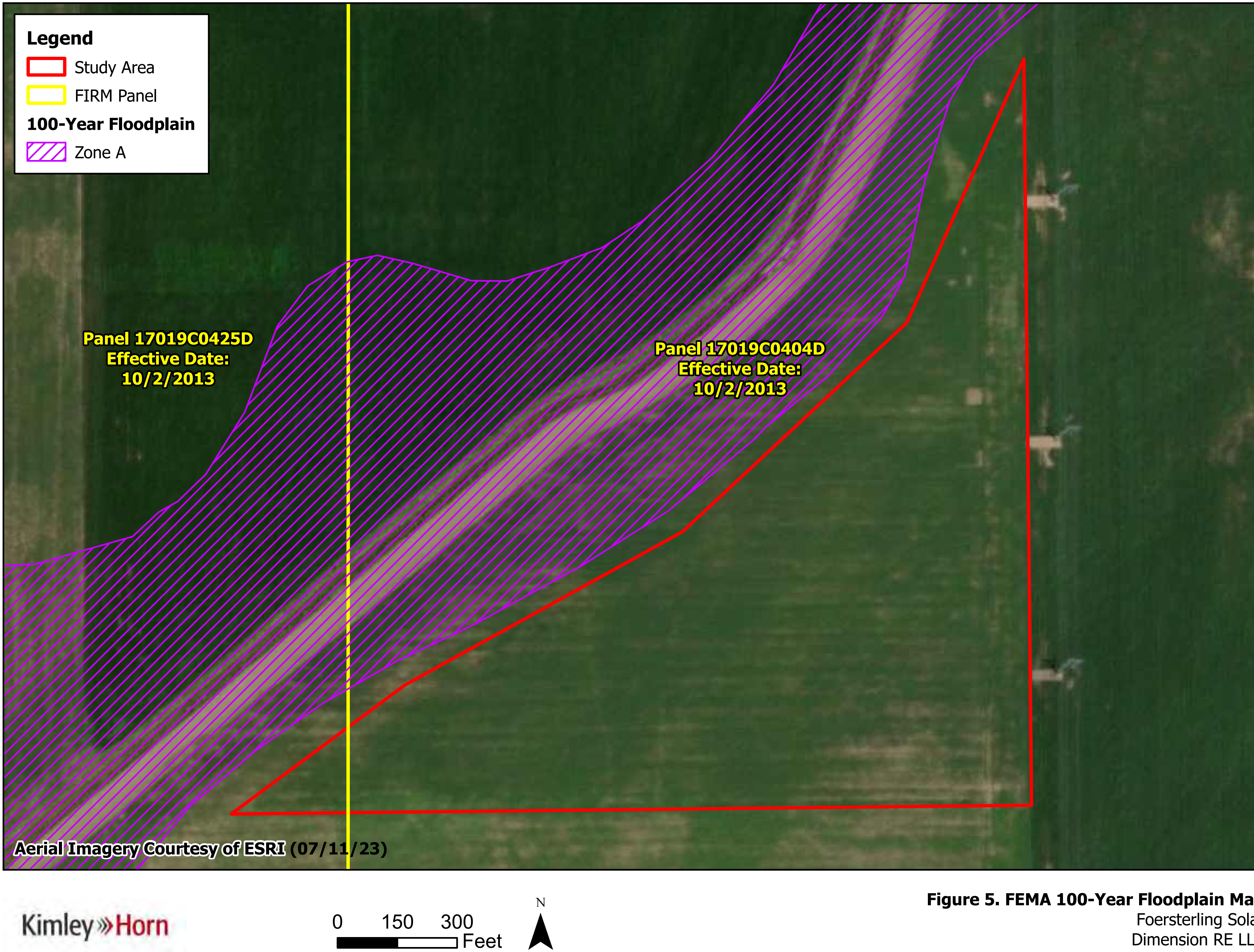
Figure 4. Hydric Soils Map
Foersterling Solar
Dimension RE LLC



Kimley»Horn

Figure 5. FEMA 100-Year Floodplain Map
Foersterling Solar
Dimension RE LLC

Kimley»Horn

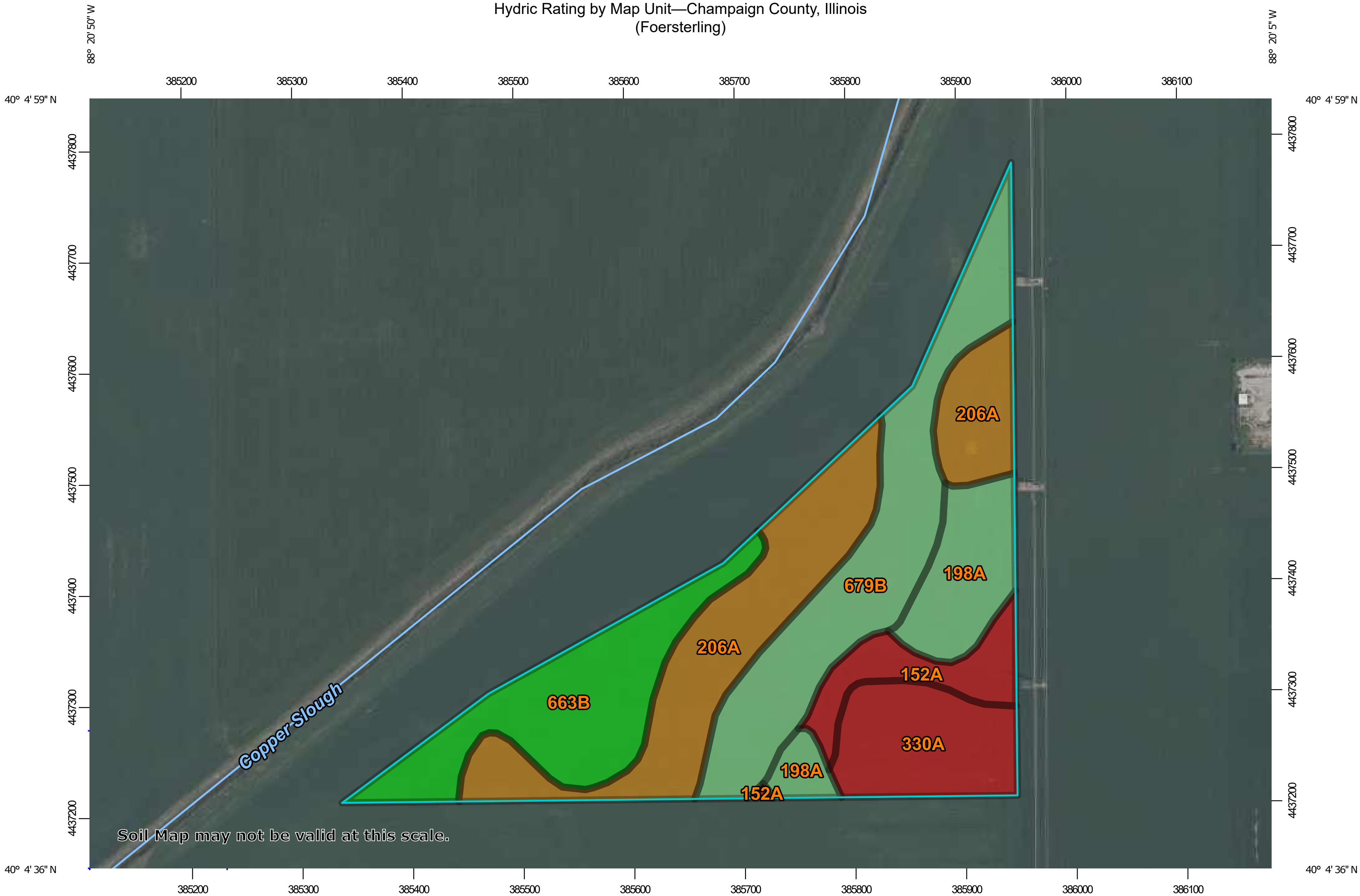
0 150 300 Feet

N

Figure 6. Delineation Summary Map
Foersterling Solar
Dimension RE LLC

Appendix A: Hydric Soils Information

Hydric Rating by Map Unit—Champaign County, Illinois
(Foersterling)



Map Scale: 1:4,890 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Champaign County, Illinois
Survey Area Data: Version 18, Aug 28, 2023

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

Date(s) aerial images were photographed: Jul 7, 2023—Aug 31, 2023

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.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
152A	Drummer silty clay loam, 0 to 2 percent slopes	100	2.2	6.7%
198A	Elburn silt loam, 0 to 2 percent slopes	7	3.6	11.0%
206A	Thorp silt loam, 0 to 2 percent slopes	95	9.0	27.4%
330A	Peotone silty clay loam, 0 to 2 percent slopes	100	3.8	11.7%
663B	Clare silt loam, 2 to 5 percent slopes	0	6.1	18.7%
679B	Blackberry silt loam, 2 to 5 percent slopes	2	8.0	24.5%
Totals for Area of Interest			**32.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Appendix B: Historic Aerial Review

Appendix B. Historic Aerial Review*

Date Image Taken	Climate Condition***	Image Interpretation** (Area of Investigation) 1	2
4/9/1993	Normal	SS	SS
4/4/1998	Wetter than normal	NV	NV
5/12/2003	Normal	SS	SS
3/27/2005	Normal	NV	SS
6/30/2005	Drier than normal	NV	NV
6/2/2006	Normal	NV	NV
6/6/2007	Drier than normal	NV	NV
4/4/2008	Wetter than normal	SS	SS
6/23/2010	Normal	NV	NV
10/4/2010	Drier than normal	NV	NV
10/7/2016	Normal	NV	NV
4/20/2019	Wetter than normal	SS	SS
6/17/2022	Normal	NV	SS
Number of normal years		7	7
Number of normal years with wet signatures		2	4
Percent of normal years with wet signatures		29%	57%
Hydric Soils present		Yes	Yes
Identified on NWI		No	No
Hydrology indicators observed during field review?		Yes	No
Has wetland signature in 30% or more in normal years?		No	Yes
Wetland Present?		Yes	No
Wetland Number		1	-

**Methodology for determining the presence of wetland explained in Guidance for Offsite Hydrology/ Wetland Determ of Water and Soil Resources (BWSR) and St Paul District Corps of Engineers (July 1, 2016)*

***CS = Crop Stress, NC = Not Cropped, SS = Soil Wetness Signature, SW = Standing Water, AP = Altered Pattern, NV =*

****Climate condition based on USACE APT 90-day rolling precipitation total for wetland hydrology determination for date. Methodology is described in report.*

Kimley»Horn

0 150 300 Feet

N

Historic Aerial (April 1993)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (April 1998)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

Historic Aerial (May 2003)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (March 2005)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (June 2005)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (June 2006)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300 Feet

N

Historic Aerial (June 2007)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (April 2008)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (June 2010)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

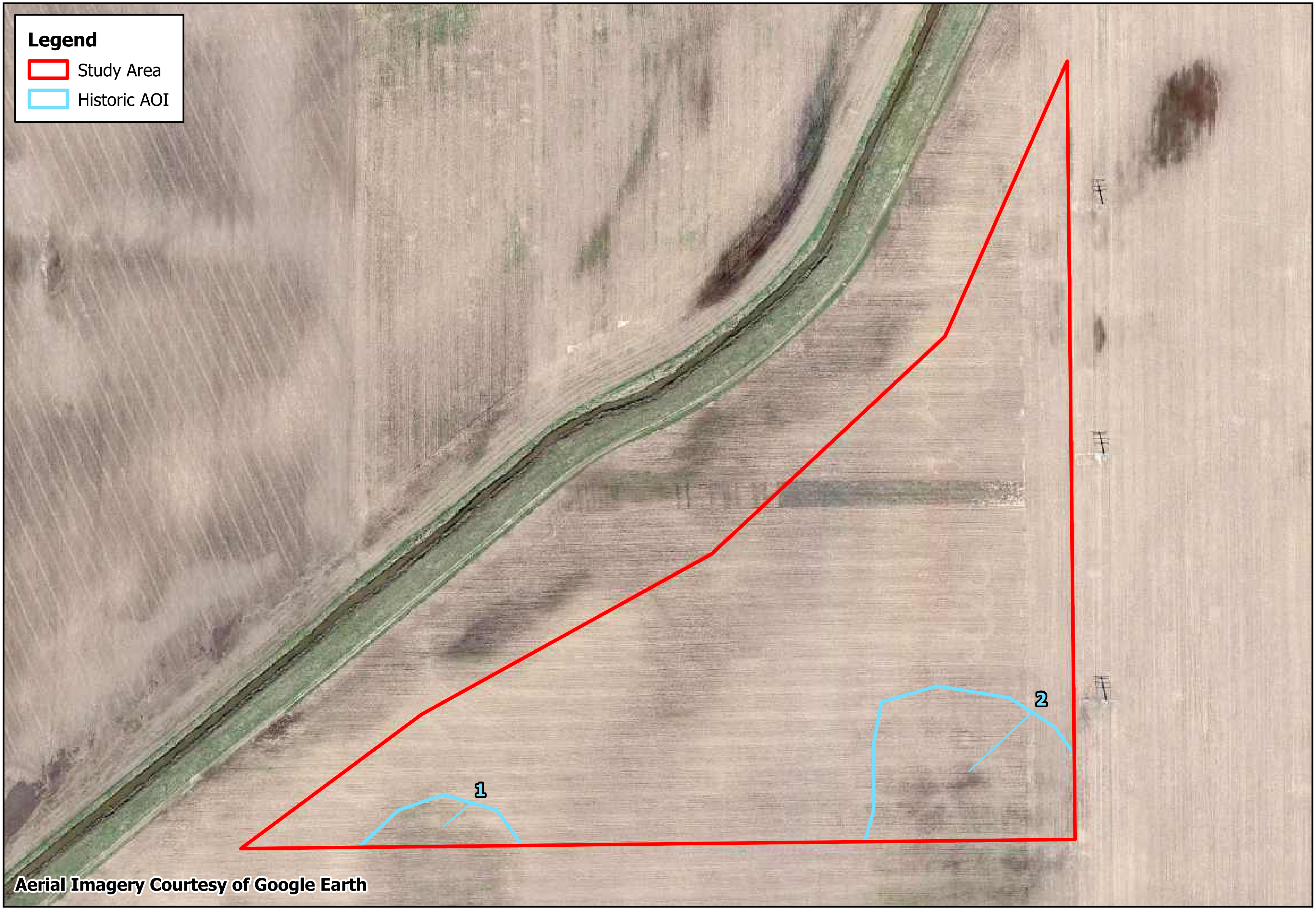
Historic Aerial (October 2010)
Foersterling Solar
Dimension RE LLC

Kimley»Horn

0 150 300
Feet

N

Historic Aerial (October 2016)
Foersterling Solar
Dimension RE LLC



Kimley»Horn

0 150 300
Feet

N

Historic Aerial (April 2019)
Foersterling Solar
Dimension RE LLC

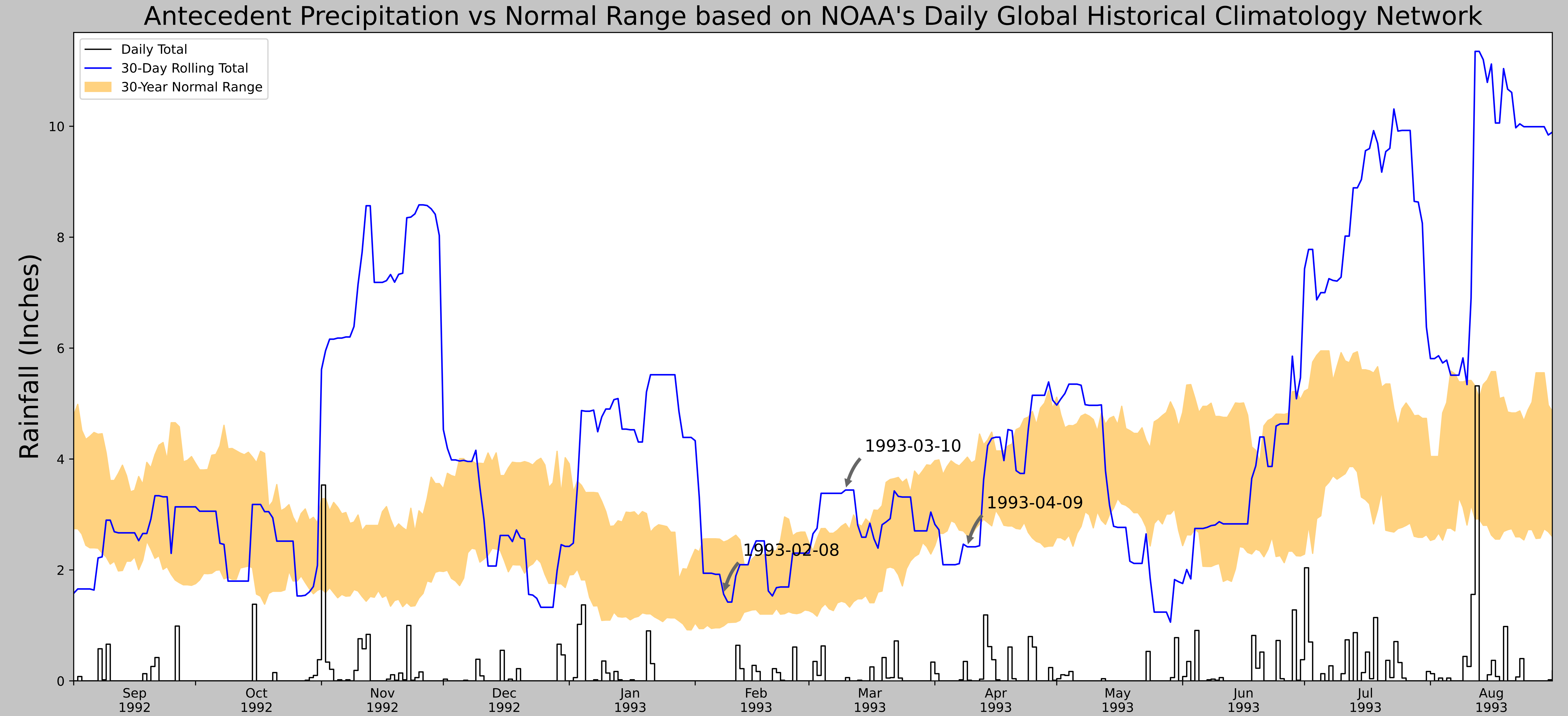
Kimley»Horn

0 150 300
Feet

N

Historic Aerial (June 2022)
Foersterling Solar
Dimension RE LLC

Appendix C: Precipitation Data



Coordinates	40.077571, -88.343080
Observation Date	1993-04-09
Elevation (ft)	698.204
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
1993-04-09	2.623622	4.033858	2.417323	Dry	1	3	3
1993-03-10	1.412992	2.836614	3.440945	Wet	3	2	6
1993-02-08	0.992913	2.502756	1.562992	Normal	2	1	2
Result							Normal Conditions - 11

US Army Corps of Engineers

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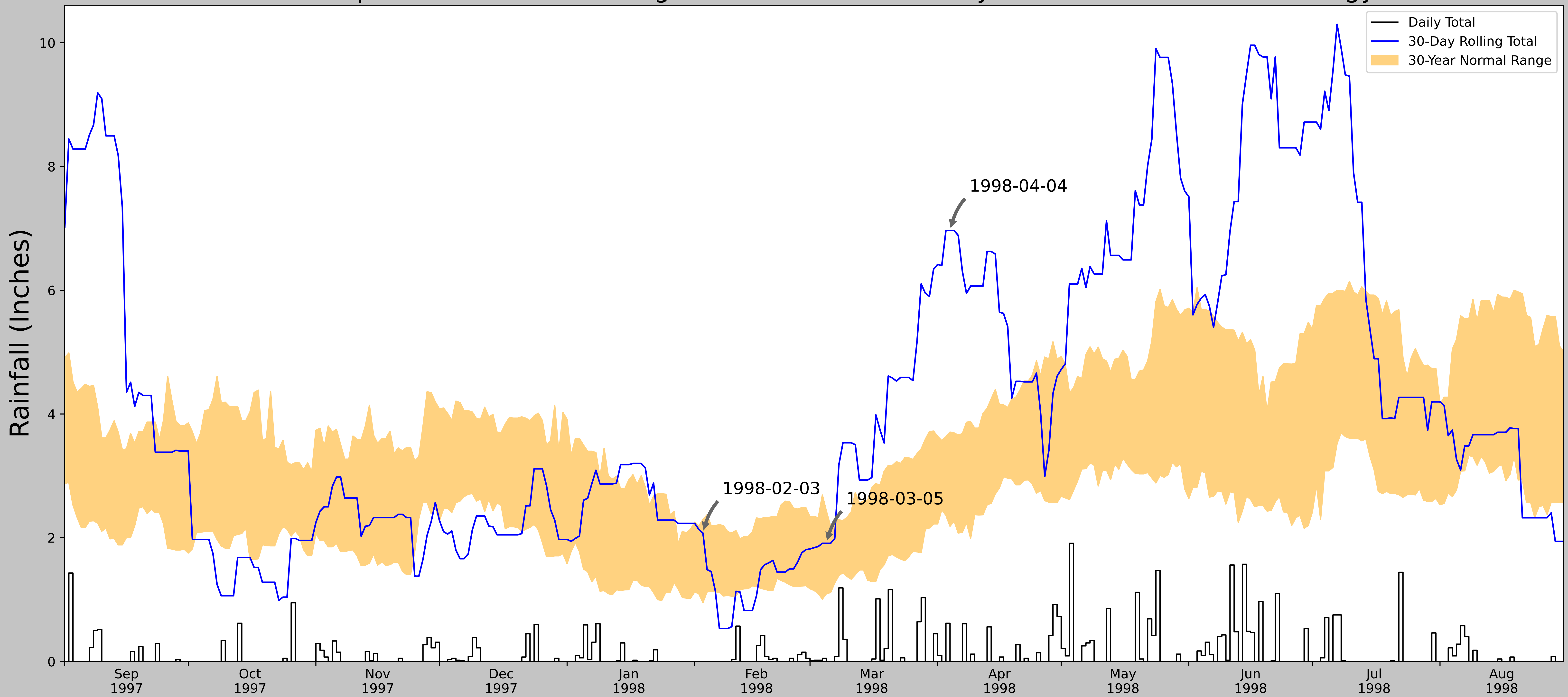
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11342	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	10	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077571, -88.343080
Observation Date	1998-04-04
Elevation (ft)	698.204
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
1998-04-04	2.185433	3.70748	6.964567	Wet	3	3	9
1998-03-05	1.097244	2.425197	1.909449	Normal	2	2	4
1998-02-03	0.951575	2.293701	2.074803	Normal	2	1	2
Result							Wetter than Normal - 15

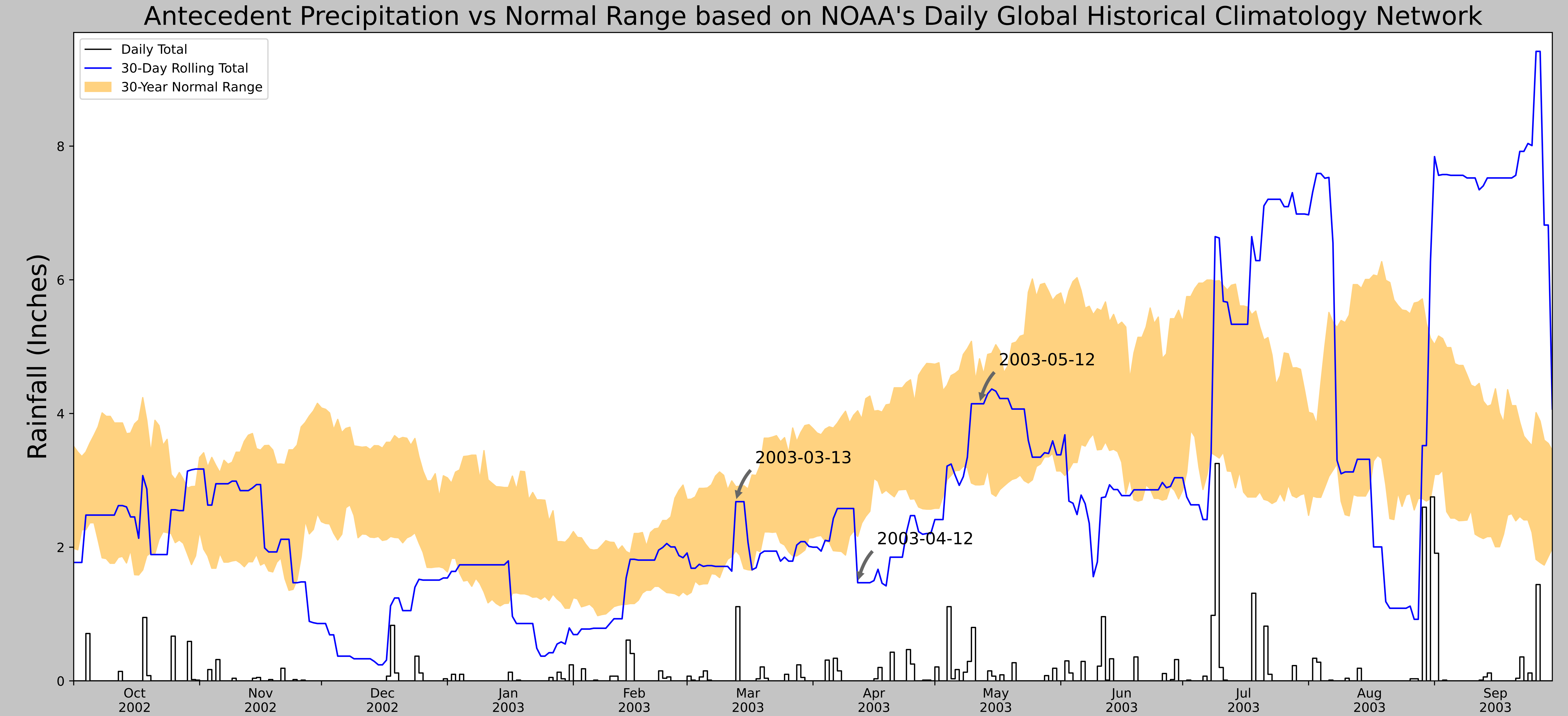
US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0



Coordinates	40.077571, -88.343080
Observation Date	2003-05-12
Elevation (ft)	698.204
Drought Index (PDSI)	Incipient wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2003-05-12	2.931496	4.818898	4.145669	Normal	2	3	6
2003-04-12	2.161024	4.040158	1.468504	Dry	1	2	2
2003-03-13	1.948032	2.905512	2.681102	Normal	2	1	2
Result							Normal Conditions - 10

US Army Corps of Engineers

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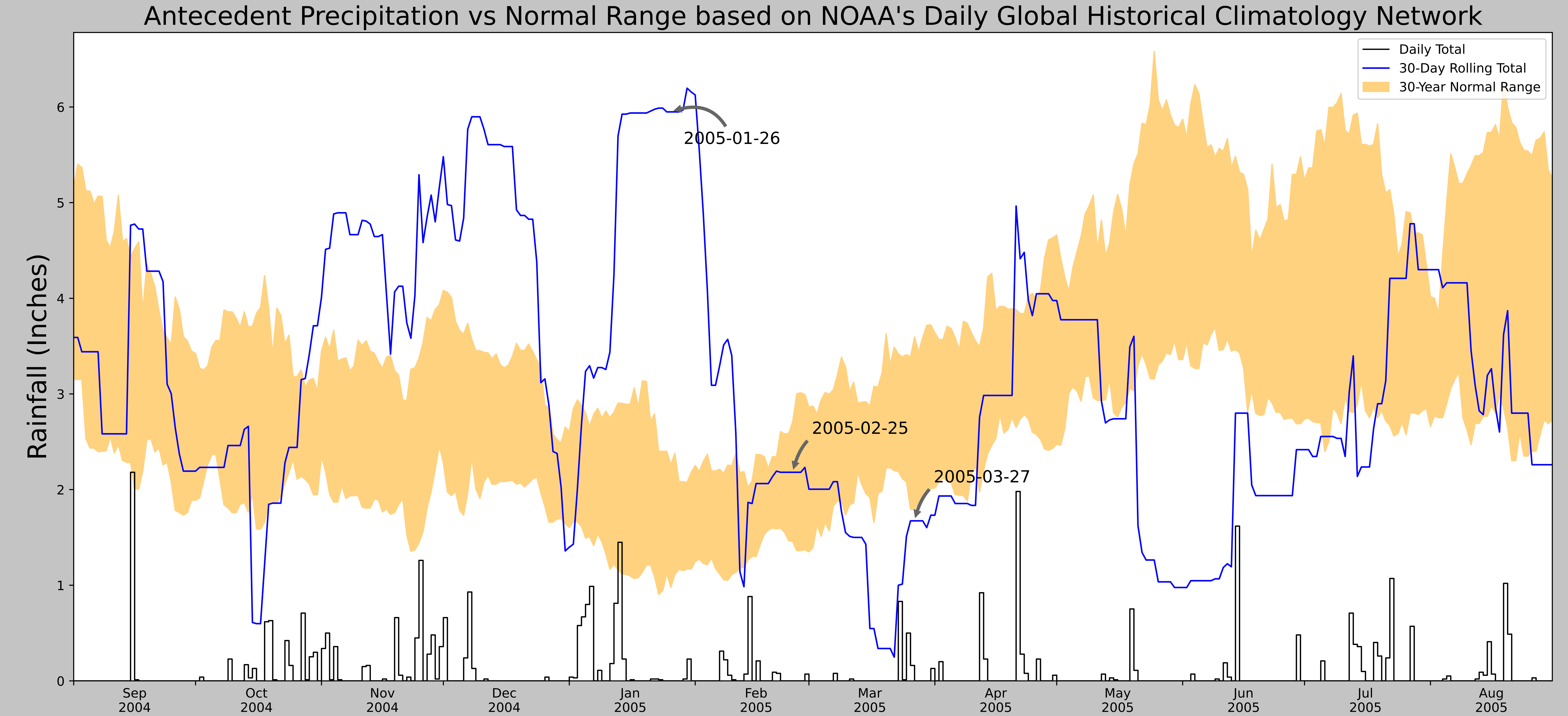
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0



Coordinates	40.077571, -88.343080
Observation Date	2005-03-27
Elevation (ft)	698.204
Drought Index (PDSI)	Incipient drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2005-03-27	1.794095	3.596063	1.673228	Dry	1	3	3
2005-02-25	1.457087	2.711811	2.181102	Normal	2	2	4
2005-01-26	0.977165	2.264173	5.948819	Wet	3	1	3
Result							Normal Conditions - 10

US Army Corps of Engineers

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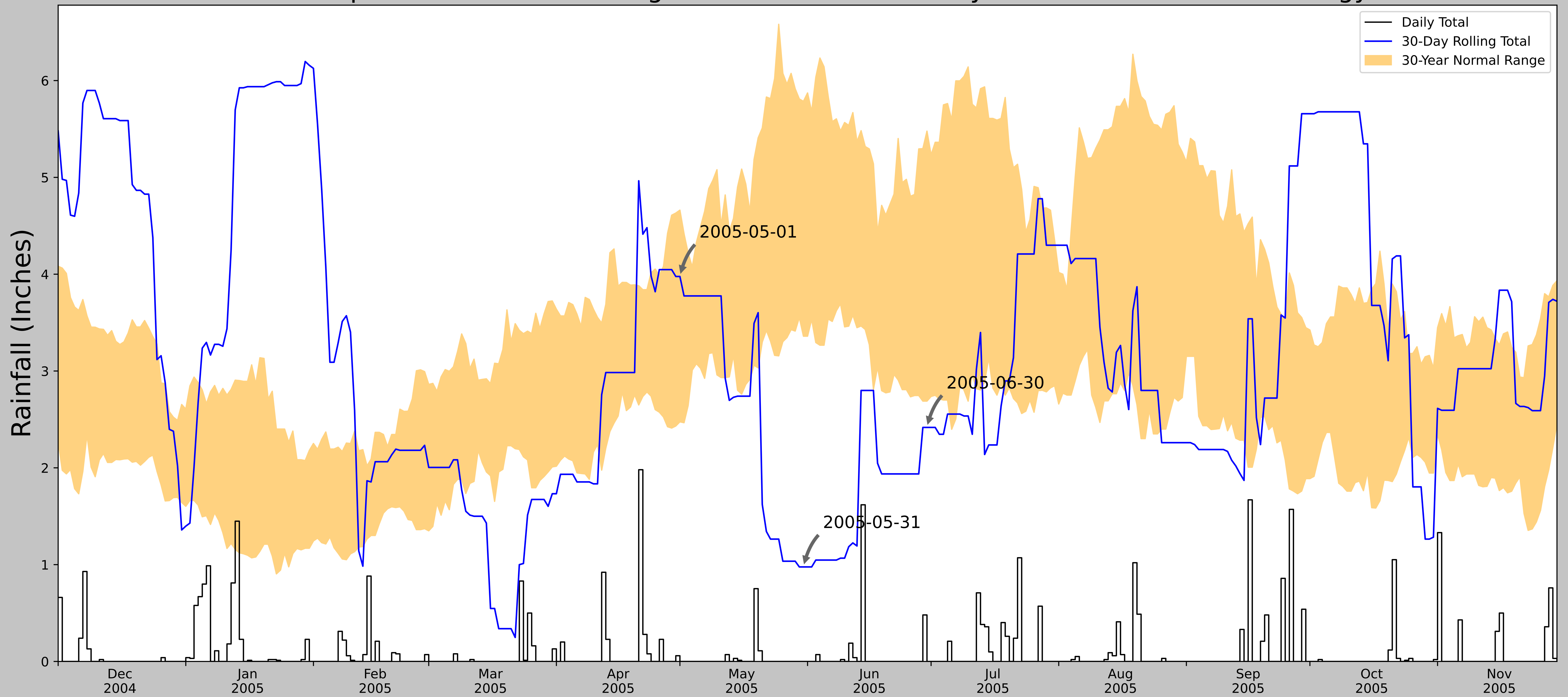
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077571, -88.343080
Observation Date	2005-06-30
Elevation (ft)	698.204
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2005-06-30	2.688976	5.477953	2.417323	Dry	1	3	3
2005-05-31	3.359449	5.785433	0.976378	Dry	1	2	2
2005-05-01	2.475197	4.661811	3.976378	Normal	2	1	2
Result							Drier than Normal - 7

US Army Corps of Engineers

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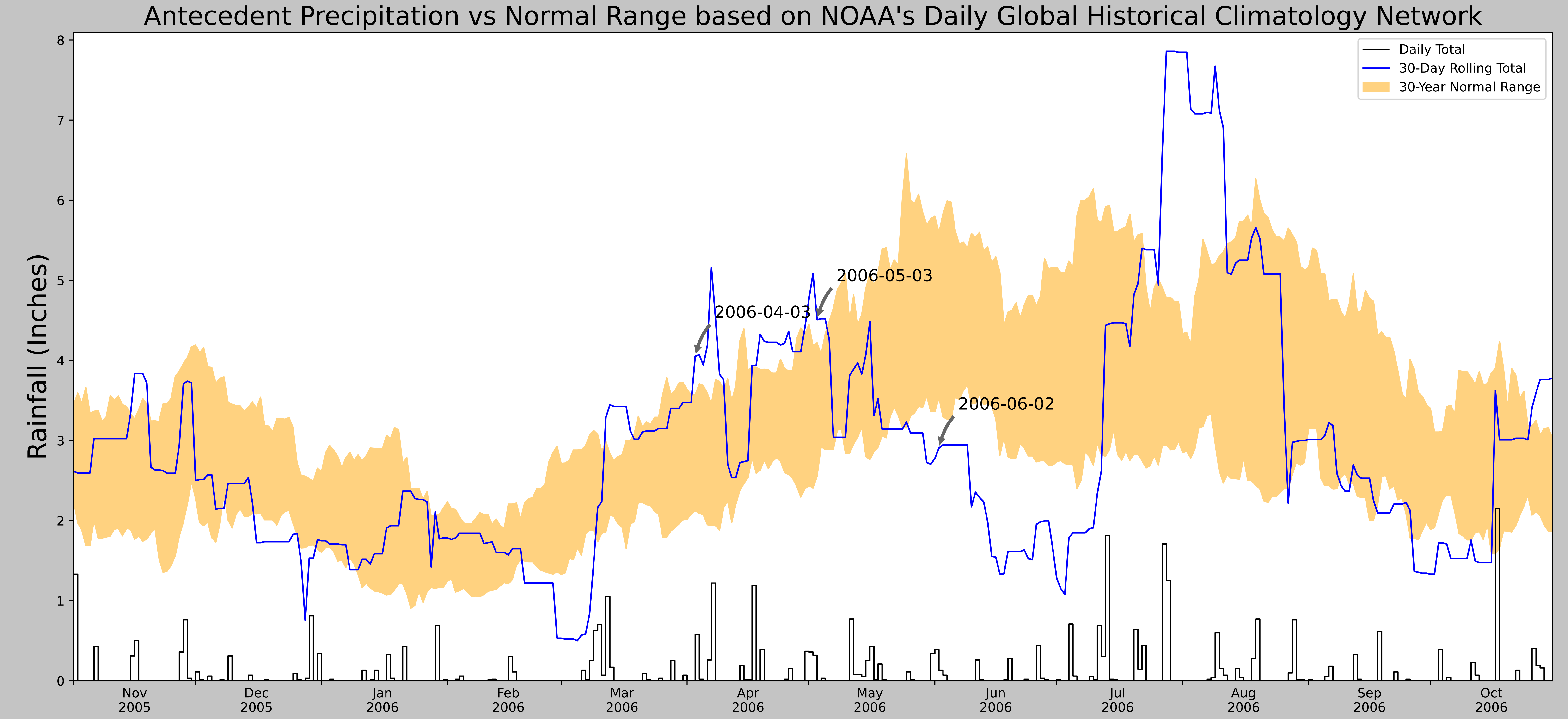
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0



Coordinates	40.077571, -88.343080
Observation Date	2006-06-02
Elevation (ft)	698.204
Drought Index (PDSI)	Incipient drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2006-06-02	3.533465	5.594095	2.905512	Dry	1	3	3
2006-05-03	2.551181	4.218504	4.507874	Wet	3	2	6
2006-04-03	2.122047	3.568898	4.051181	Wet	3	1	3
Result							Normal Conditions - 12

US Army Corps of Engineers

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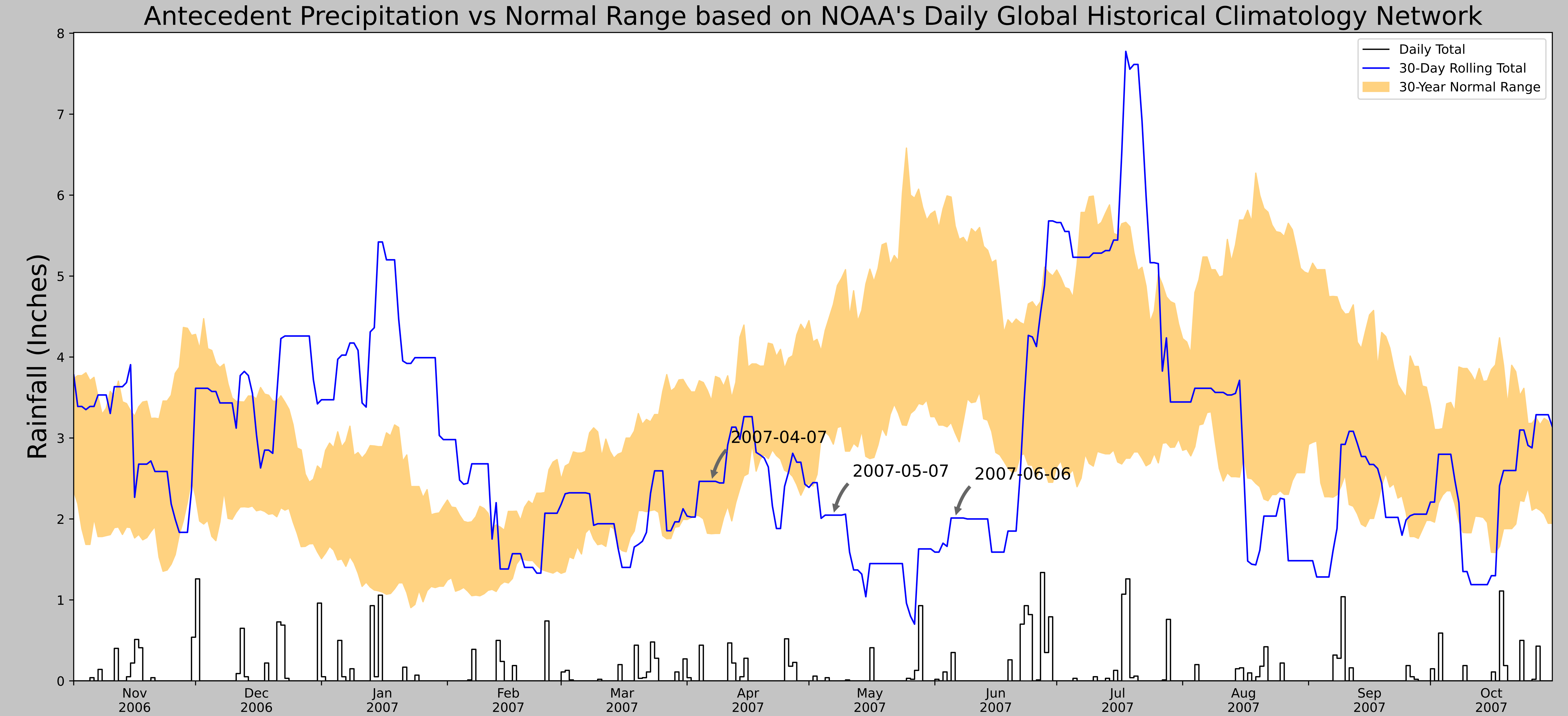
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0



Coordinates	40.077571, -88.343080
Observation Date	2007-06-06
Elevation (ft)	698.204
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2007-06-06	3.064173	5.618898	2.011811	Dry	1	3	3
2007-05-07	2.924016	4.649213	2.047244	Dry	1	2	2
2007-04-07	1.817717	3.46063	2.464567	Normal	2	1	2
Result							Drier than Normal - 7

US Army Corps of Engineers

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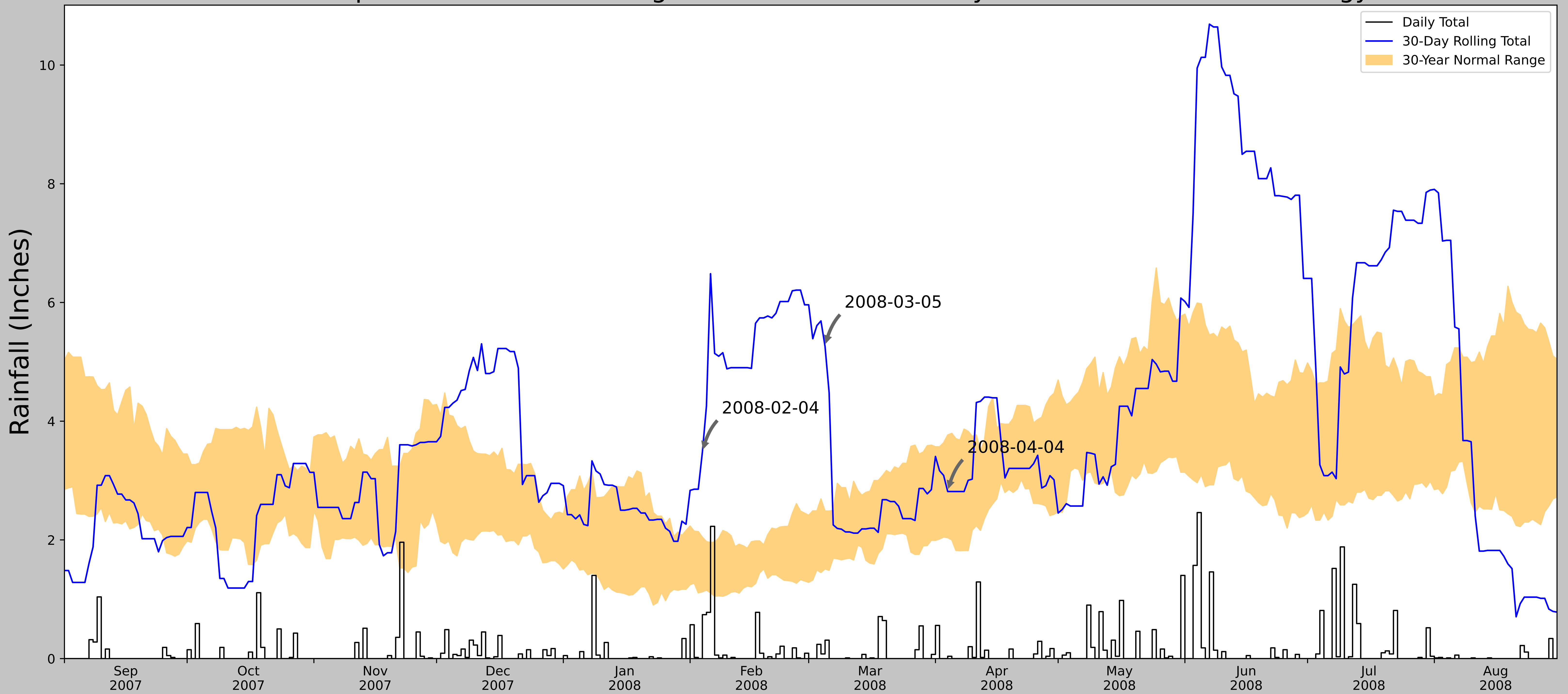
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077571, -88.343080
Observation Date	2008-04-04
Elevation (ft)	698.204
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2008-04-04	2.037795	3.766536	2.814961	Normal	2	3	6
2008-03-05	1.51063	2.485827	5.259843	Wet	3	2	6
2008-02-04	1.125591	2.046063	3.476378	Wet	3	1	3
Result							Wetter than Normal - 15

US Army Corps of Engineers

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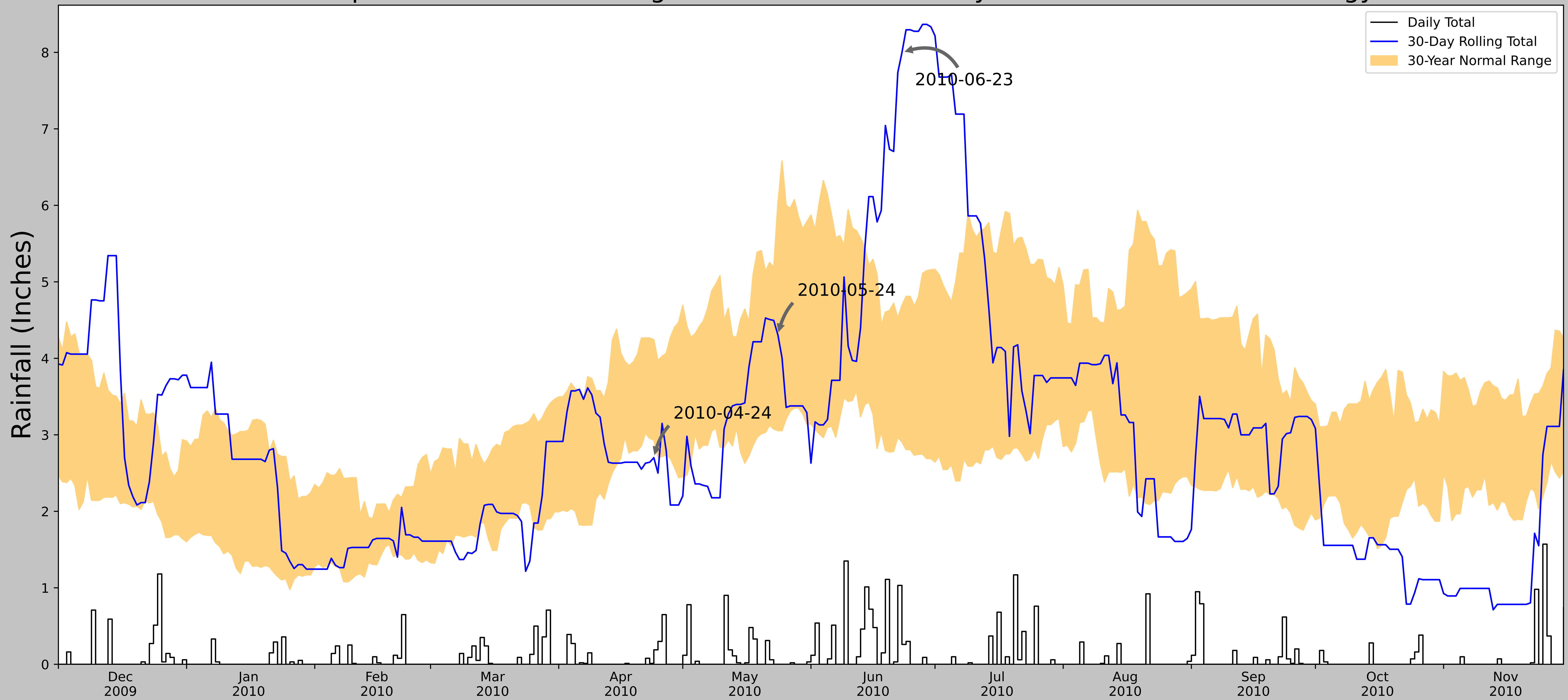
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11326	90
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	25	0
TUSCOLA #2	39.8, -88.2794	660.105	19.745	62.008	10.11	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077571, -88.343080
Observation Date	2010-06-23
Elevation (ft)	698.204
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2010-06-23	2.907874	4.692126	7.996063	Wet	3	3	9
2010-05-24	3.054331	6.021654	4.307087	Normal	2	2	4
2010-04-24	2.932284	4.243701	2.700787	Dry	1	1	1
Result							Normal Conditions - 14

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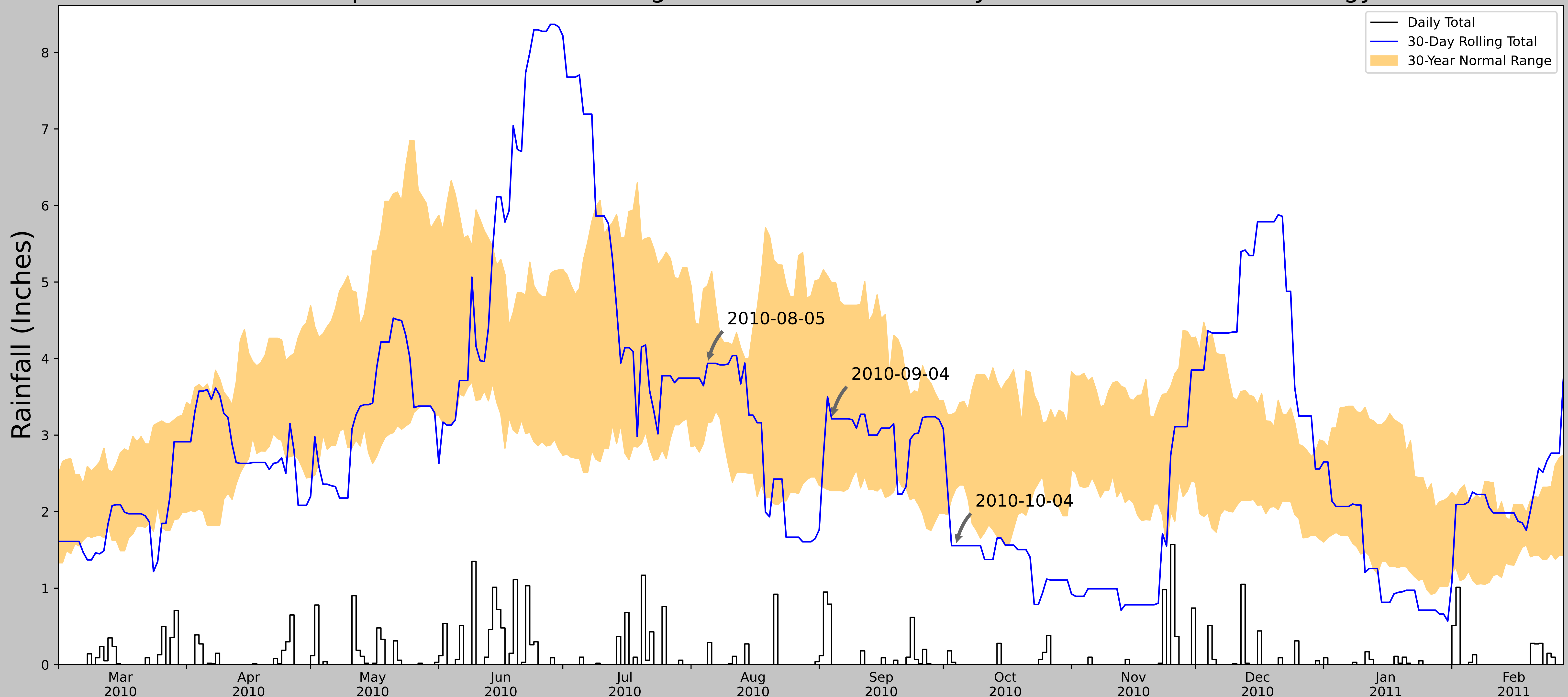
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	24	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077571, -88.343080
Observation Date	2010-10-04
Elevation (ft)	698.204
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2010-10-04	2.295669	3.294095	1.555118	Dry	1	3	3
2010-09-04	2.27441	4.987402	3.212599	Normal	2	2	4
2010-08-05	3.16063	4.954331	3.937008	Normal	2	1	2
Result							Drier than Normal - 9

US Army Corps of Engineers

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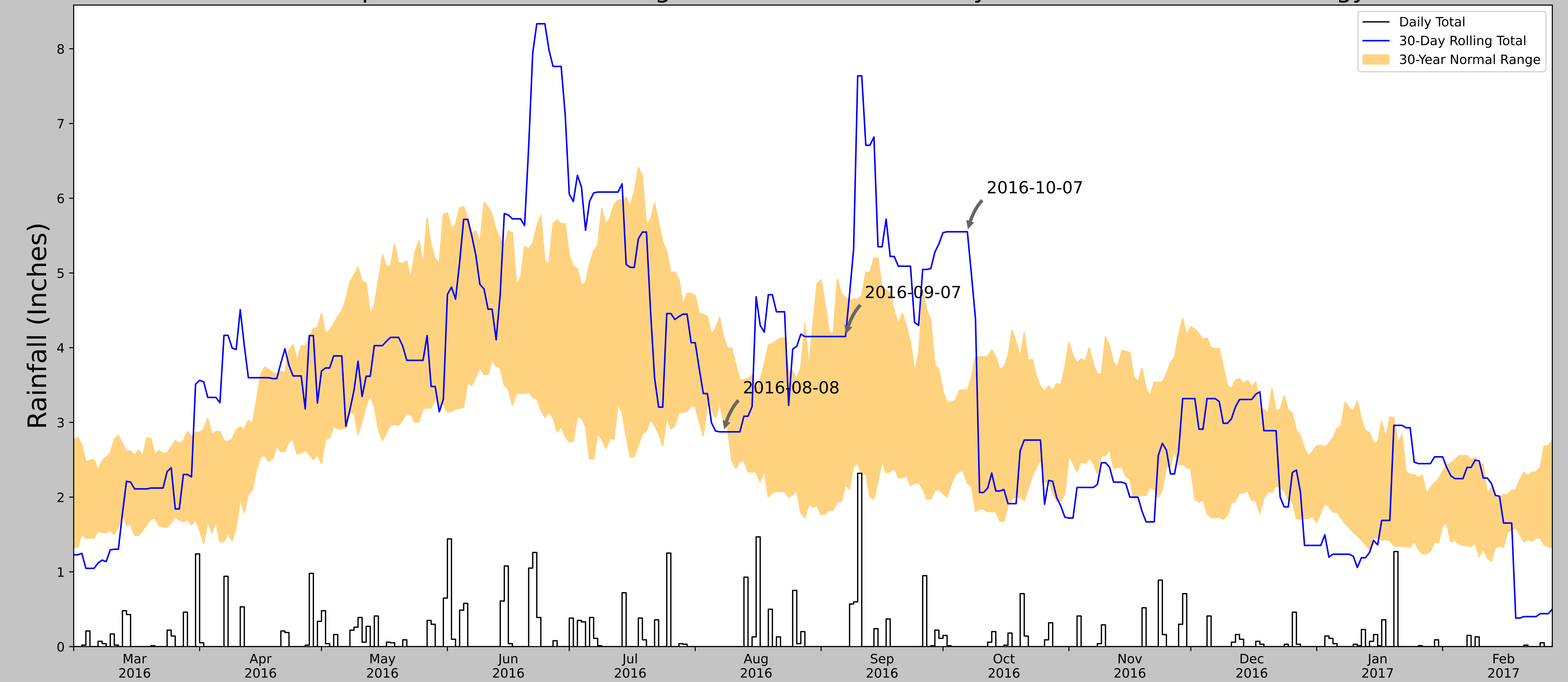
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.453	23.909	2.584	11327	90
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	24	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077418, -88.342909
Observation Date	2016-10-07
Elevation (ft)	697.796
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2016-10-07	2.183858	3.431102	5.551181	Wet	3	3	9
2016-09-07	2.165354	4.667717	4.149606	Normal	2	2	4
2016-08-08	3.022441	4.13937	2.874016	Dry	1	1	1
Result							Normal Conditions - 14

US Army Corps of Engineers

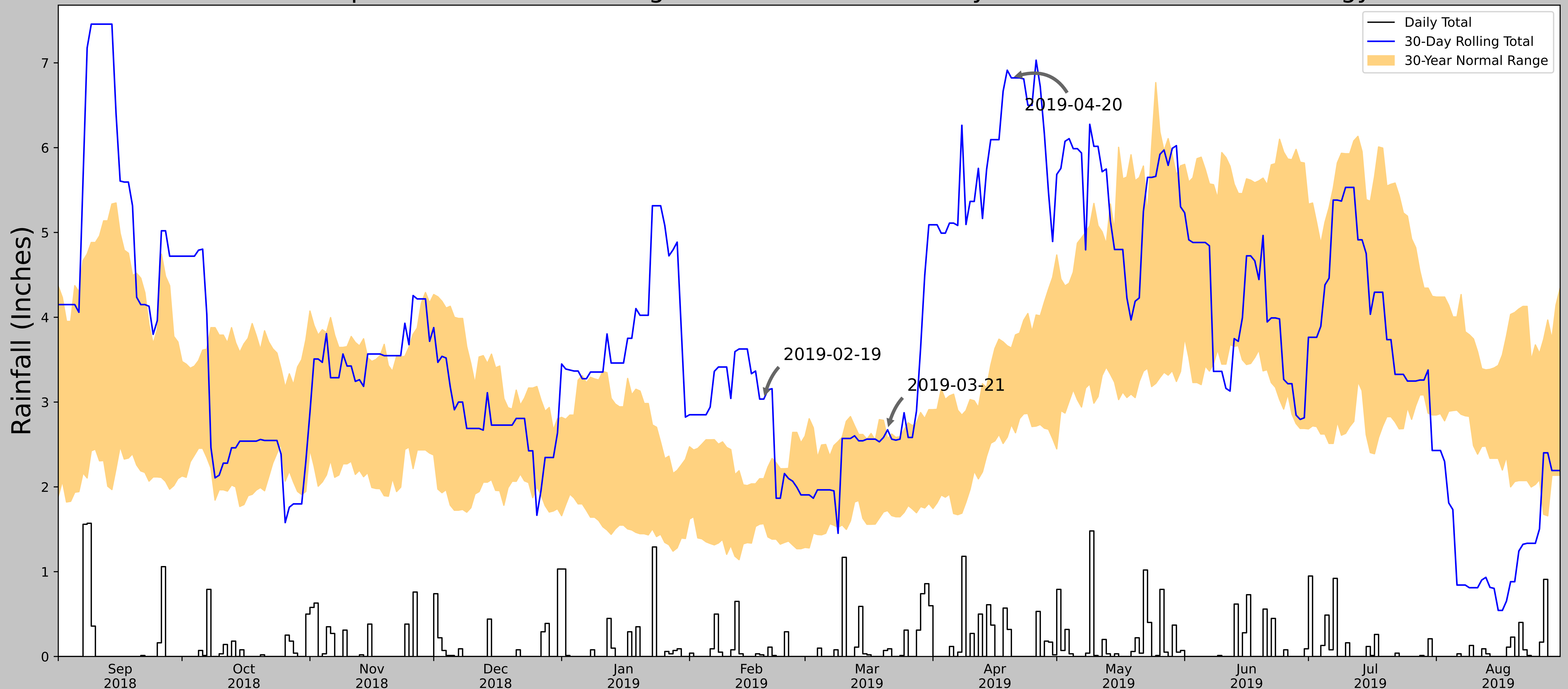
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.445	24.317	2.583	11333	90
SAVOY 0.9 N	40.0781, -88.2537	735.892	0.824	13.779	0.382	3	0
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	15	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077418, -88.342909
Observation Date	2019-04-20
Elevation (ft)	697.796
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2019-04-20	2.735433	3.637402	6.822835	Wet	3	3	9
2019-03-21	1.720866	2.568504	2.673228	Wet	3	2	6
2019-02-19	1.566142	2.096063	3.035433	Wet	3	1	3
Result							Wetter than Normal - 18

US Army Corps of Engineers

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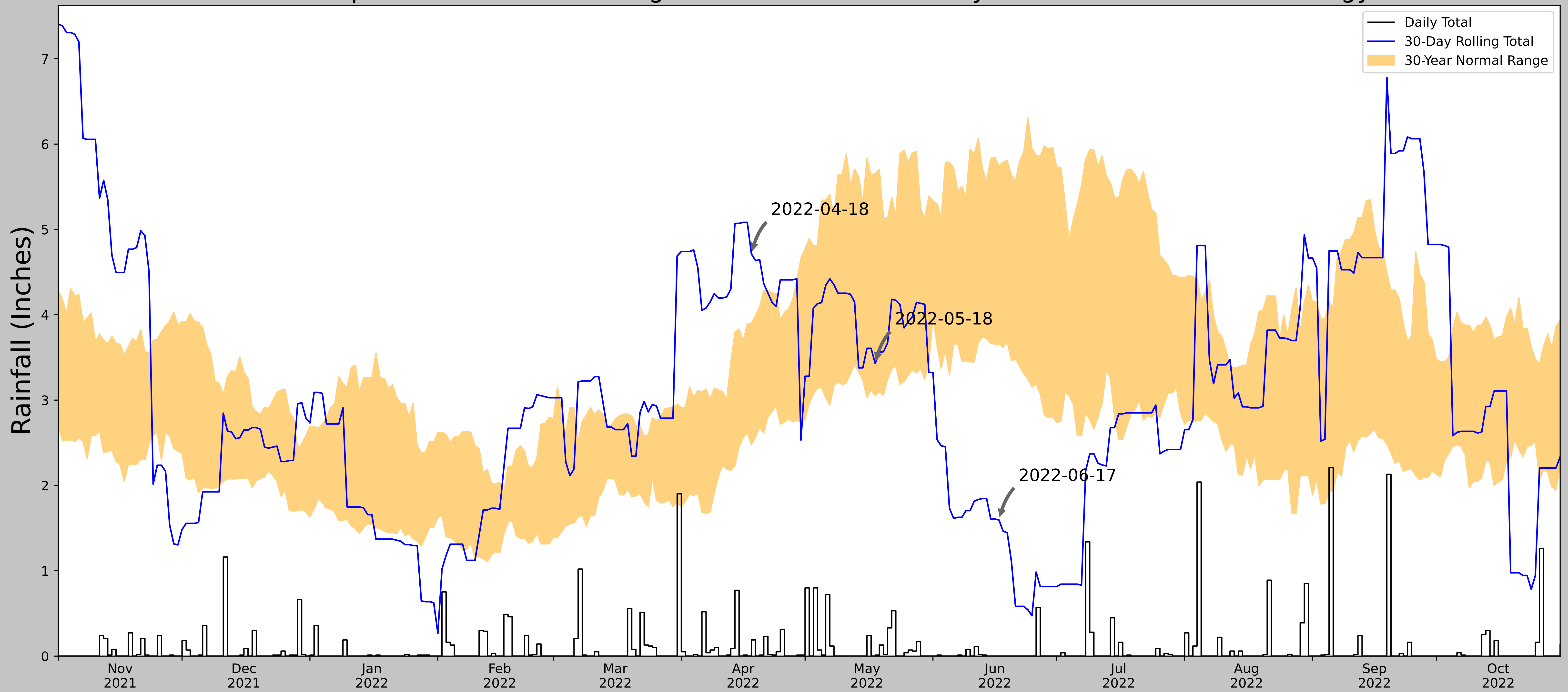
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.445	24.317	2.583	11333	90
SAVOY 0.9 N	40.0781, -88.2537	735.892	0.824	13.779	0.382	3	0
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	15	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077418, -88.342909
Observation Date	2022-06-17
Elevation (ft)	697.796
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-06-17	3.655118	5.742126	1.594488	Dry	1	3	3
2022-05-18	3.054331	5.654331	3.429134	Normal	2	2	4
2022-04-18	2.475197	3.901181	4.712599	Wet	3	1	3
Result							Normal Conditions - 10

US Army Corps of Engineers

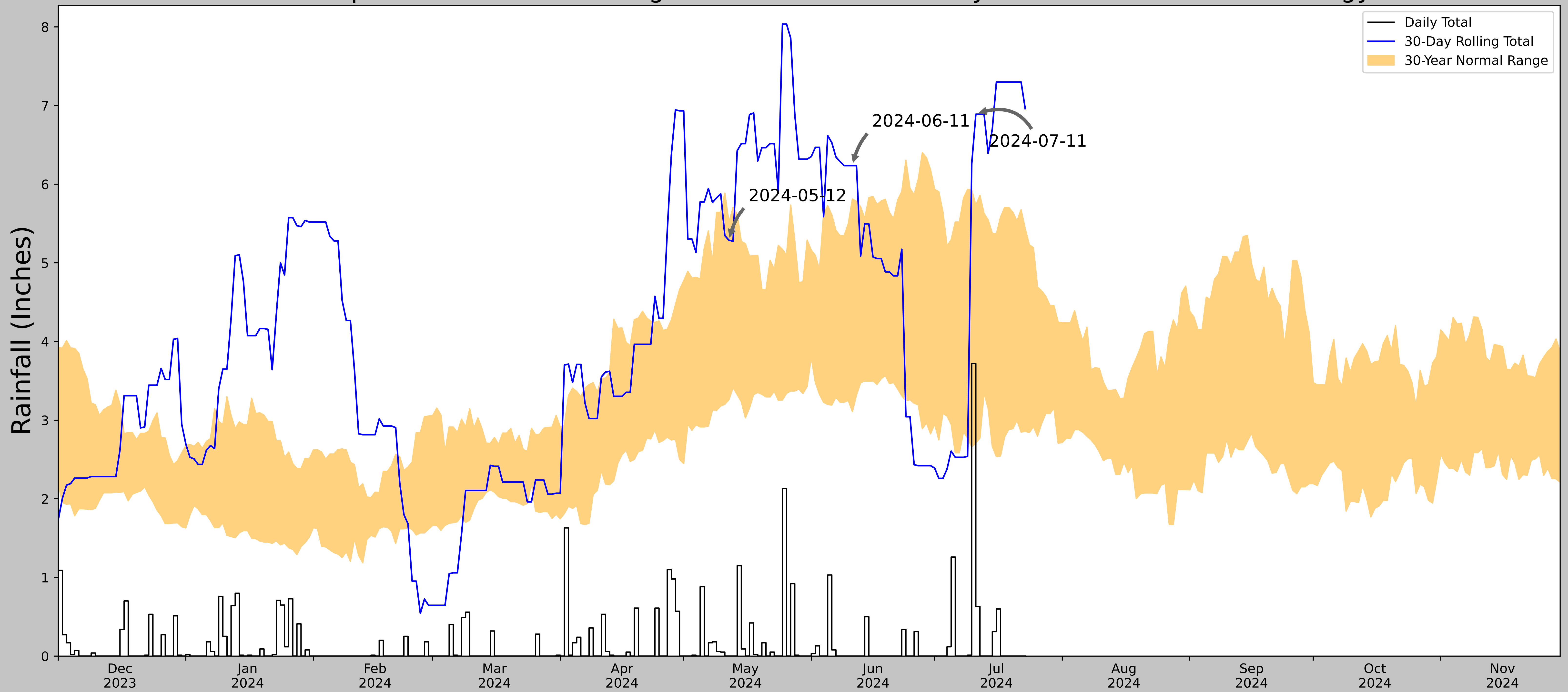
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.445	24.317	2.583	11332	90
SAVOY 0.9 N	40.0781, -88.2537	735.892	0.824	13.779	0.382	4	0
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	15	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.077572, -88.342978
Observation Date	2024-07-11
Elevation (ft)	698.498
Drought Index (PDSI)	Normal (2024-06)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-07-11	2.71063	5.732677	6.889764	Wet	3	3	9
2024-06-11	3.109449	5.811811	6.236221	Wet	3	2	6
2024-05-12	3.259449	5.516142	5.287402	Normal	2	1	2
Result							Wetter than Normal - 17

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAMPAIGN 3S	40.0842, -88.2403	722.113	5.447	23.615	2.58	11331	90
SAVOY 0.9 N	40.0781, -88.2537	735.892	0.824	13.779	0.382	4	0
CHAMPAIGN 2.7 S	40.0742, -88.2591	737.861	1.21	15.748	0.564	2	0
RANTOUL	40.3131, -88.1594	740.158	16.382	18.045	7.668	15	0

Appendix D: Field Data Sheets

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Foersterling Solar City/County: Champaign Sampling Date: 2024-07-11

Applicant/Owner: Dimension State: Illinois Sampling Point: SP-1

Investigator(s): Briana Hazel, Jake Ackerman Section, Township, Range: 30, 19N, 8E

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0 Lat: 40.077463 Long: -88.338342 Datum: WGS 84

Soil Map Unit Name: Peotone silty clay loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✔	Is the Sampled Area within a Wetland?	Yes ____ No ✔
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ____ No ✓		

Remarks:
Sample point was located in a flat agricultural field. In the 90 days leading up to the field visit, precipitation levels were wetter than normal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5 ft r)			
1. Zea mays	50	✔	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	50		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
= Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	50	x 5 =	250
Column Totals:	50 (A)		250 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	10YR 2/1						Clay Loam	
12 - 24	10YR 3/1	96	10YR 6/8	4	C	PL	Clay Loam	
24 - 28	10YR 4/1	92	10YR 6/8	8	C	PL	Clay	
28 - 36	2.5YR 4/1	92	10YR 6/8	10	C	PL	Clay	
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______________________

Depth (inches): ______________________

Hydric Soil Present? Yes ✓ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ____________

Water Table Present? Yes ______ No ✔ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Foersterling Solar City/County: Champaign Sampling Date: 2024-07-11

Applicant/Owner: Dimension State: Illinois Sampling Point: SP-2

Investigator(s): Briana Hazel, Jake Ackerman Section, Township, Range: 30, 19N, 8E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 40.077433 Long: -88.343144 Datum: WGS 84

Soil Map Unit Name: Thorp silt loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ____	Is the Sampled Area within a Wetland? Yes ✔ No ____
Hydric Soil Present?	Yes ✔ No ____	
Wetland Hydrology Present?	Yes ✔ No ____	

Remarks:
Sample point was located in a slight depression within an agricultural field where corn was significantly stressed. In the 90 days leading up to the field visit, precipitation conditions were wetter than normal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5 ft r)			
1. Zea mays	50	✔	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	50		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
= Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
✔ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation was assumed due to presence of hydric soil and hydrology indicators.

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 24	10YR 2/1	100					Silt Loam	
24 - 36	10YR 3/1	98	10YR 3/4	2	C	PL		
36 - 48	10YR 3/1	92	10YR 3/4	8	C	PL	Silty Clay	
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ___

Remarks:

It was assumed there was a depleted matrix below the surface layer and that soils would meet the Thick Dark Surface (A12) indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ______

Water Table Present? Yes ___ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Foersterling Solar City/County: Champaign Sampling Date: 2024-07-11
Applicant/Owner: Dimension State: Illinois Sampling Point: SP-3
Investigator(s): Briana Hazel, Jake Ackerman Section, Township, Range: 30, 19N, 8E
Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None
Slope (%): 0 Lat: 40.077592 Long: -88.343164 Datum: WGS 84
Soil Map Unit Name: Thorp silt loam, 0 to 2 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)
Are Vegetation ✔, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:
Sample site located on shoulder of slight depression within agricultural field. In the 90 days leading up to the field visit, precipitation conditions were wetter than normal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5 ft r)			
1. Zea mays	50	✔	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	50		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
= Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	50	x 5 =	250
Column Totals:	50 (A)		250 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 24	10YR 2/1	100					Silt Loam	
24 - 36	10YR 4/1	100					Loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ 5 cm Mucky Peat or Peat (S3)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ Coast Prairie Redox (A16)
- __ Dark Surface (S7)
- __ Iron-Manganese Masses (F12)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ____ No ✓

Remarks:

It was assumed soils were non-hydric due to the lack of hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ True Aquatic Plants (B14)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Gauge or Well Data (D9)
- __ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ______

Water Table Present? Yes ____ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix E: Photos

Photo 1: Facing north near SP-1.

Photo 2: Facing south over SP-2.

Photo 3: Facing north near SP-3.

EXHIBIT V: AMEREN CORRESPONDENCE

Select a form to view:

Interconnection Application

Printer-friendly view

Project Number: DER-38793

Interconnection Application

3 Service Information

4 Generator Information

⚠ ATTENTION: PLEASE TAKE NOTE ⚠

NOTICE: Per the Administrative Code, Ameren Illinois has ***30 BUSINESS DAYS*** to receive, approve and complete our review before the project status changes. Please allow a minimum of ***15 BUSINESS DAYS*** from the date the application has been submitted to view your project's current status and the applicable due date for each status.

Application Fee
$ 6,550.00

Payment is required before your application can move forward for review. We are now offering online payments. You have 15 business days from the date your invoice is created to submit your payment.

Please wait to receive an invoice, in the mail, before sending in your payment. IF YOU DO NOT RECEIVE AN INVOICE WITHIN 7 BUSINESS DAYS, please send an email to RenewablesIllinois@ameren.com with your Project Number to obtain your account number and payment options.

Back

Outlook

Supplemental Review Fee Required for downsizing DER-38793

From PowerClerk Notifications <DoNotReply@PowerClerk.com>
Date Wed 4/16/2025 10:08 AM
To Interconnection <interconnection@dimension-energy.com>; Brian Dolan <BDolan@dimension-energy.com>

4/16/2025

NON-SERVICE ACCOUNT NUMBER

Please pay $1,500 if you choose to proceed with a Supplemental Review for DER-38793. If you would like to pay online or over the phone using Speedpay, please use the **Non-Service Account Number** shown below to access your application fee.

Non-Service Account #: 03230-19078

Please be aware that the physical bill will be mailed to the customer's address listed above. If this account is to be paid over the phone or online prior to receipt of the hard copy bill, and is not a self install, Dimension IL 1 LLC please communicate with the customer directly.

To pay your bill online, please follow the link below. You will be prompted to enter your non-service account number and zip code before continuing.

To mail in a check payment, please mail it in to the address listed below and include the non-service account number on the memo section of the check.

Ameren Illinois

PO Box 88034

Chicago, IL 60680-1034

If you wish to overnight your check payment, via USPS/FedEx/UPS, please use the following mailing address:

Ameren Illinois

c/o Fifth Third Bank

4900 W 95th St

Oak Lawn, IL 60453

Attn: Lockbox #88034

For Foreign Checks (payments made via Check outside of the United States), please mail your check to the following address.

Ameren Services

ATTN: Treasury Technology Svcs, MC 1020

1901 Chouteau Ave

Saint Louis, MO 63103

https://www.ameren.com/account/guest-pay/guest-pay-verify

To pay your bill over the phone, please call 1-888-777-3108.

If you have any questions about this project, please contact our DER Integration Team by using our email address RenewablesIllinois@ameren.com.

Thank you,

Sincerely,

Ameren Illinois DER Integration

This message was sent from Ameren Illinois via the PowerClerk DER Application Portal

Our website is https://amerenillinoisinterconnect.powerclerk.com/

Thank you for using the portal.

Ameren Illinois will never contact you by email asking you to validate your password. If you receive such a request, please notify us.

Letter ID: EXT: Downsize Fee Required