Habitat Conservation Plan

November 5, 2019

TRC Project No. 339888-0000-0000

Morgan Solar 1 & Morgan Solar 1B

Morgan County, Illinois

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1.0 INTRODUCTION

This Habitat Conservation Plan has been prepared in accordance with Title 17, Chapter I(c), Section 1080 of the Illinois Administrative Code (Incidental Taking of Endangered or Threatened Species). In accordance with Section 1080, the Illinois Department of Natural Resources (IDNR) can authorize the incidental take of species listed as endangered or threatened by the State of Illinois with an approved Habitat Conservation Plan. On behalf of Pivot Energy and Summit Ridge Energy, TRC Environmental Corporation (TRC) has prepared this Conservation Plan for the Illinois chorus frog (*Pseudacris illinoensis*) and the regal fritillary butterfly (*Speyeria idalia*) in support of Pivot Energy's and Summit Ridge Energy's efforts to develop photovoltaic solar farms at the Morgan Solar 1 LLC (Morgan Solar 1) and Morgan Solar 1B LLC (Morgan Solar 1B) project sites (Figures 1A and 1B in Appendix A).

2.0 CONSERVATION PLAN

2.1 Purpose and Need

This habitat conservation plan addresses two adjacent photovoltaic solar energy projects. These two projects are part of the effort to develop clean renewable energy sources within the state of Illinois. The Morgan Solar 1 and Morgan Solar 1B projects were selected in the Illinois Adjustable Block Program to generate renewable energy credits. The credits will be used to sell renewable energy credits to utility companies that are required achieve 25% renewable energy procurement by the year 2025, as set forth by the state's Future Energy Jobs Act. As such, the projects are necessary to meet the requirements of the Act and Illinois' statewide goal. Pivot Energy and Summit Ridge Energy have worked to prepared preliminary plans and perform environmental screening as part of their efforts to enroll the two Morgan projects into the lottery.

2.2 Project Location and Description

The Morgan Solar 1 and Morgan Solar 1B projects are located on the east side of Cemetery Road, north of Beauchamp Lane in Section 22, Township 16 North, Range 13 West in Morgan County, Illinois (Figures 1A and 1B in Appendix A). Together these two sites total to 72 acres. The planned solar farms include approximately 14.1 acres within the site security fence at Morgan Solar 1 and approximately 14.6 acres within the site fence at Morgan 1B (Drawing X-2 in Appendix A). There is a shared access road between the two sites and specific access roads to each site off the shared access road. for Morgan Solar 1. Within each project area there will be a pad mounted step up transformer and an equipment pad.

The combined area of the two solar farms is 28.7 acres. Including the access roadways the area is 29.5 acres, or 42 percent of the area will be converted from agricultural land use to solar farm. Of those 29.5 acres there will be permanent impacts to the land of 0.95 acres, including roadways, equipment pads and solar array foundations. The permanent impacts account for approximately 3 percent of the combined solar farms and 1 percent of the two parcels.

Soils mapped at both Morgan Solar 1 and Morgan Solar 1B were generally sandy (Figures 2A and 2B in Appendix A). At Morgan Solar 1 the Plainfield sand and the Sparta loamy sand comprise 100 percent of the mapped soil series. At Morgan Solar 1B the Plainfield sand and the Sparta loamy sand comprise 88.7 percent of the mapped soil series.

Wetlands were not identified at either the Morgan Solar 1 (TRC, 2019a) or the Morgan Solar 1B (TRC, 2019b) study areas. A desktop wetland and waterway analysis of the Morgan Solar 1 Study Area determined there were no wetlands within the Morgan Solar 1 Study Area. A Wetland and Waterway Delineation investigation determined there were no wetlands within the Morgan Solar 1B Study Area.

Habitat surveys for the Illinois chorus frog and the regal fritillary butterfly within the Morgan Solar 1 and 1B project sites in April 2019 (Appendix B). No wetlands or areas with temporary ponding were present within the Study Area. However, sandy soils were present and there are wetlands within 700 feet of the project sites. Violets were scattered throughout the study area. Therefore, suitable habitat for the regal fritillary and Illinois chorus frog is present within both Morgan Solar 1 and 1B.

The Morgan Solar 1 and Morgan Solar 1B Study Area are located on a property owned by a private land owner, who lives in Illinois. Pivot Energy has a lease on the property for the development and operation period of the solar project and the lease will be transferred to Summit Ridge Energy upon sale of the projects. The property has not been farmed recently and will be returned to its original state upon decommissioning of the project.

2.3 Protected Species

Consultation with IDNR was requested through the EcoCAT program on June 26, 2018 (Appendix C) for the Morgan 1 project area. Given the nearly identical conditions at the adjoining Morgan Solar 1B site, a consultation for the 1B site was performed subsequent to the initial review on September 18, 2019. Potential habitat for two species listed pursuant to the ESA of 1973 (as amended) and the Illinois Endangered Species Act (520 ILCS 10/7) was identified as potentially occurring in the project area. The IDNR identified the presence of nearby Illinois chorus frog (ICF) records, low-lying areas suitable for ephemeral spring flooding, and sandy soil all within, and in the vicinity of, the proposed project footprint. IDNR identified records of the state-threatened regal fritillary butterfly (RFB) within the vicinity of the proposed project footprint.

2.3.1 Illinois Chorus Frog and Habitat

The Illinois chorus frog (ICF) occurs in isolated habitats in Illinois, Missouri and Arkansas, where it is found along the banks of the Illinois and Mississippi Rivers. It is generally described as growing from 1.0 to 1.5 inches, tan to tannish gray, white belly and many dark brown or gray irregularly shaped markings. There is a V-shaped marking between the eyes, a dark stripe from snout to shoulder, and a dark spot below each eye. The ICF has large and muscular forearms used to dig the burrows, where it resides for most of the year outside of the breeding season. The ICF was described as residing in burrows for 85 percent of the year. Very few ICF burrows have been observed and investigated. The depths of these documented burrows varied between 4 and 8 inches (Tucker, J.K. and others, 1995 in Henning, B.M. and Hinz Jr., L.C. 2016 and Axtell, R.W. and Haskell, N., 1977 in Henning, B.M. and Hinz Jr., L.C. 2016). The inclination of the burrows varied from approximately level into a hill side to nearly straight down. The breeding call of the ICF can be heard at a distance of one mile (Henning and Hinz, 2016).

The ICF is a habitat specialist requiring open areas in sandy soils for aestivation. Habitats include sand prairies and sandy agricultural fields. The frogs emerge after heavy rains in early spring to breed in nearby flooded fields, ditches, and ephemeral (seasonally flooded) wetlands or fishless ponds. Females typically lay over 400 eggs in multiple isolated clutches attached to emergent wetland vegetation or woody debris. Tadpoles develop into frogs after about 60 days.

Adults have been known to travel on the order of 0.9 km from burrows to breeding locations. There is some evidence that yearling frogs seek out new ponds to breed rather than returning to the same pond where they hatched. After metamorphosis ICF leave the water to burrow in sandy soils typically by the end of June.

2.3.2 Regal Fritillary Butterfly and Habitat

East of the Mississippi River the regal fritillary butterfly (RFB) is found only in scattered sites in Illinois and Wisconsin. East of Illinois, they remain in just three isolated sites, one each in Indiana, Maine and Virginia. The RFB is a large butterfly having wingspans up to four inches. The upper forewings are mainly orange with a few black markings and black borders with a row of white spots in the females. In the male, the outer row of spots is yellowish. The back wing above is very dark with two rows of light spots. The underside of the wing is chocolate brown and white (WDNR, 2019).

Historically, the RFB was found in tallgrass prairies. The current RFB habitat is characterized as large grassland areas with prairie remnants, lightly grazed pasture lands, hay fields and wet meadows. Treed habitats were reported to be barriers to adults.

Males begin emerging in early June, and females start to emerge a few days later. Males perch on plants and wait for females to fly near. Often, they fly slowly across prairies in search of emerging females. Females deposit eggs singly on various plants. Regal fritillary larvae hatch in the fall and overwinter in litter near violet species, and then feed on violet species in the spring. The caterpillars grow relatively slowly and enter the chrysalis stage in late spring. The adult males emerge in early summer, then the females, and the cycle begins again.

Laval food plants are violet species, including prairie violet (*Viola pedatifida*), birdsfoot violet (*V. pedata*) and arrowleaf violet (*V. sagittata*). Adults were reported to utilize most flowers used by other butterflies. Significant nectar plants included milkweeds (*Asclepias*), thistles (*Cirsium*), Liatris species, cone flowers (*Echinacea*), ironweeds (*Vernonia*), asters (*Symphyotrichum*), and goldenrods (*Solidago*). The regal fritillary depends on violet species as its obligate egg deposit site.

The timing of egg-laying, hatching, and metamorphosis fits the cycle of prairie violets, which in tallgrass prairies are abundant only in springtime. The life cycle limits the species to one opportunity for reproduction per year.

2.4 Incidental Take Authorization (ITA) Request

In consideration of the project location and design as well as anticipated impacts based on discussion with IDNR for the Morgan Solar 1 and Morgan Solar 1B Projects, it was determined that there is the potential for take of the two species described above, the regal fritillary butterfly and Illinois chorus frog which are covered by this Conservation Plan. An ITA is requested to cover

the duration of construction (approximately 6 to 7 months) and the anticipated 30-year life of the project.

2.5 Project Effects

2.5.1 Construction Sequence and Schedule

Construction methods and constructed structures have the potential to alter the ICF and RFB habitat. Changes in the habitat can result from either what is done or when it is done. The general sequence of construction will be as follows:

1. Site mobilization
2. Surveying and staking
3. Minor civil works
4. Grading and road work
5. Site fence installation
6. Pile installation
7. Racking installation
8. Solar panel module installation
9. Wire installation
10. Equipment pad construction
11. Seed mix planting
12. Laydown area restoration
13. Site inspection
14. Performance testing
15. Site operation

Construction activities will largely take place within the array footprint, with the bulk of the work taking place in months 1 to 4. A generalized month-to-month schedule for construction and installation is as follows:

Month 1 – Site mobilization, surveying and staking, minor civil, grading and road work, site fence installation

Month 2 – Pile installation and begin racking installation

Month 3 – Racking installation and solar panel module installation

Month 4 – Solar panel module installation and wire installation

Month 5 – Equipment pad construction, seed mix planting, site inspection, performance testing, site operation

2.5.2 Decommissioning

Solar panels are expected to have a functional life of thirty years, with an opportunity for a lifetime of fifty years or more with equipment replacement and repowering. It has however, been assumed, that the decommissioning process will initiate upon the termination of the lease with the landowner.

The decommissioning involves the following:

1. Removal of the perimeter fences,
2. Removal of concrete foundations,
3. Removal of all metal structures (mounting racks and trackers),
4. Removal of all PV modules,
5. Removal of steel piles,
6. Removal of above- ground and underground cables, transformers, inverters, fans, switch boxes, fixtures,
7. Restoring the premises to its original condition.
8. Restoring access roads if requested by landowner.

2.5.3 Project Elements

The main project elements of the Morgan Solar 1 and Morgan Solar 1B are the same. The elements include the site access road, the solar arrays, the transformer pad and associated equipment, the equipment pad and associated equipment, the interconnecting cabling, cabling connecting the step-up transformer to the power grid and project site fence. Construction of the projects will require temporary laydown areas for storage of construction materials and equipment.

A temporary laydown area will be established east of Cemetery Road to ease offloading of supplies transported to the sites, store construction materials, reduce construction traffic by large transport vehicles and stage project tasks. The laydown area will be connected to the site access road. The laydown area will be constructed from a layer of gravel placed on top of existing site soils. The laydown area will be approximately 0.5 acres to accommodate storage of construction materials and a job trailer. Once construction of the projects is completed, the gravel will be removed to restore preconstruction soil conditions. The impacts to habitat from the laydown area are temporary.

The access roads for the projects will be constructed of crushed stone gravel or crushed recycled concrete placed approximately 6 to 10 inches thick. Paving materials to be placed upon rough graded site soils following establishment of grades. Access roads are to be 16 feet wide to allow for passage of two-way construction traffic. Approximately 1,837 linear feet of access roadway will be shared by the two projects. A total of 80 linear feet of access road will extend from the common roadway to and into the Morgan Solar 1 project site and a total of 100 linear feet of access road will extend from the common roadway to and into the Morgan Solar 1B project site, both with a 20 foot wide hammerhead covering less than 0.1 acres The access roads are required

to afford access to the sites for ongoing monitoring and maintenance and are intended to remain for the duration of the solar farm life cycle. As such, the access roads are considered permanent impacts to the habitat.

Approximately 12 acres of photovoltaic solar panels mounted in single-axis tracking systems will be installed at the Morgan Solar 1 project site and approximately 13 acres of photovoltaic solar panels similarly mounted will be installed at the Morgan Solar 1B project site. Panels are designed to adjust module angles, based weather and site conditions. As a result, the height of the panels above grade can vary from 5 to 7 feet. The seed mix selected to be planted beneath the panels will be selected to include native short grass prairie species and violet species requiring minimal disturbance from maintenance. The spacing between module rows is anticipated to be approximately 11 feet on average. The same seed mix will be planted between the rows to reduce the impact from shading of the panels from vegetation. A seed mix is included in Appendix D.

The panels, which will be elevated above ground and pointed on piles, are considered to have neither permanent nor temporary impacts on the habitat. In comparison to active row crop agriculture, solar farming will allow for establishment of more favorable plant community for both the ICF and RFB.

The typical support piles for solar farm are galvanized steel “W” section beams, installed 8 to 10 feet below ground level. “W” section beams only have approximately 4.2 square inches of aerial surface per pile (a typical W 6x9 beam dimensions are 4 inches by 6 inches, with material wall thickness between 0.17 and 0.2 inches). The number of installed piles varies based on the soil conditions and the W beam size selected; for a reference 2MW solar farm on a 20-acre parcel using 4,000 total W6x9 piles, the total surface area of impact is 16,800 square inches (116.6 square feet, or 0.002 acres). For the 29-acre Morgan Solar 1 and Morgan Solar 1B the estimated area is 0.002 acres.

The piles are installed by a hydraulic driver (mechanical device operated through hydraulics/oil) that are very efficient (2 to 4 weeks typical to install all piles for a 2MW solar farm). Some reference pictures (manufacturers: Vermeer and Pauselli) are in Appendix E.

Step-up transformers will convert the voltage of produced electrical current to the line voltage of the utility grid. There will be a step-up transformer at each project site. Concrete pads will be constructed to mount the transformers. Pads will be constructed of concrete over a layer of and be approximately 8 feet by 8 feet in extent. The concrete transformer pads are permanent structures for the duration of the projects and as such would result in permanent impacts.

Electrical equipment that converts the generated DC to AC compatible with current in the utility grid, production meters, billing meters, switches and other components will be mounted on an equipment pad. There will be an equipment pad at each project. Concrete pads will be constructed for the equipment. Pads will be constructed of concrete over a layer of sand or gravel and be approximately 10 feet by 15 feet in extent. The equipment pads are permanent structures for the duration of the projects and as such would result in permanent impacts.

Electrical cabling in sealed conduits will connect the panel modules to the electrical panels on the equipment pad. The electrical wiring is buried approximately 2 feet below ground and installed in a PVC Sch 40 conduit under open field areas and Sch 80 PVC conduit under the access roads. The PVC conduits are sized based on the fill capacity (size and number of the electrical wires)

and is a maximum diameter of 4 inches for the solar farm projects. The electrical wire is designed specially so it does not heat up; therefore, any heat generated by the wiring is dissipated inside the PVC conduit. To note that the PVC material thermal conductivity (heat transfer capacity) is very low (by comparison, hundreds of times lower that metals like steel and copper). Therefore, we do not expect heat transfer to the ground.

The electrical conduits interconnecting the panel modules will be buried approximately 2 feet below grade. It is anticipated that a trench in the sandy soils will be 2 feet deep and 1 foot wide. A total of approximately 1,433 linear feet of conduit installation is anticipated across both the Morgan Solar 1 project and Morgan Solar 1B project. Soil layers excavated for conduit installation will be segregated to sort the excavated soils into A Horizon and B Horizon materials. Soils shall be backfilled so as to re-establish pre-excavation layering. Soil disturbance from conduit installation trenches are temporary impacts to habitat.

The underground cabling extending from the step-up transformer to the transmission network access point will be installed below grade. The installation will be accomplished in an approximately 2 feet deep trench. It is anticipated that a trench in the sandy soils will be 2 feet deep and 1 foot wide. A total of approximately 2,031 linear feet of cable installation is anticipated across both the Morgan Solar 1 project and Morgan Solar 1B project. Soil layers excavated for conduit installation will be segregated to sort the excavated soils into A Horizon and B Horizon materials. Soils shall be backfilled so as to re-establish pre-excavation layering. Soil disturbance from conduit installation trenches are temporary impacts to habitat.

Security fences will be constructed around the perimeter of the solar farm (Appendix E). The fence will be a National Electric Code required height of 7’ high. The posts will be a treated 6” diameter post and the fencing will be composed of metal agriculture fence that has 4” x 4” openings. Support posts are anticipated to be spaced every 12 feet. The perimeter security fence at the Morgan Solar 1 project is estimated at 3,650 feet. Assuming support posts have a cross sectional area of 36 in^2 (0.25 ft^2) the total impact would be approximately 76 ft^2. The perimeter security fence at the Morgan Solar 1B project is estimated at 3,650 feet. Assuming support posts have a cross sectional area of 36 in^2 (0.25 ft^2) the total impact would be approximately 76 ft^2. The fence wire will not have an impact on habitat. The fence posts are permanent structures for the duration of the projects and as such would result in permanent impacts.

After construction of the solar projects is complete, the ongoing effects of the projects on ICF and RFB are anticipated to be less than typical row crop agricultural activities.

Decommissioning is the approximate mirror image of the construction process. Details of the process are outlined in the decommissioning plan in Appendix F. In contrast, all of the impacts are considered to be temporary. Assuming a temporary laydown area would be required for staging of decommissioned equipment and the access roadways remain in place, there would be 0.7 acres of temporary impacts. If the access roadways are removed, there would be 1.65 acres of temporary impacts resulting from decommissioning.

2.6 Potential Adverse Impacts

The potential adverse impacts of the project on the two listed species can be divided into two temporal categories, and these are (1) impacts during construction and (2) impacts during operation and maintenance. During construction there will be temporary and permanent

disturbances to the project area. Timing of the construction will be considered to minimize impacts to both species. During construction there could be inadvertent impacts from construction vehicles to the ICF and RFB. Outside of the breeding time frame in early spring, ICF are generally considered to rarely leave their burrows and as such are unlikely to have encounters with construction vehicles or personnel outside of earl spring. Construction during the ICF breeding season could result in impacts form construction vehicles, disturbance of effective calling due to construction noise, sedimentation of wetlands due to erosion and disturbance to local wetland hydrology. The RFB adult flight typically occurs from June through September. Construction vehicles typically move slow enough for RFB to avoid deleterious contacts with the vehicles. Site disturbance during the adult flight could change the abundance of nectar species and adversely impact the adult population. There is also risk for possible disturbances to the dormant larva from construction traffic from early fall through early summer. Minimizing construction traffic in areas of high concentrations of violet species could minimize impacts to RFB larva.

Temporary land disturbances from construction will reduce the available habitat for both species during construction. Permanent impacts to the land, including the access roadways, equipment pads and solar panel foundations. These impacts reduce the available habitat within the parcels as enumerated in Section 2.2.

Once constructed, the solar farm should be a less disruptive land use than intensive active agricultural practices. Potential adverse impacts could result from inadvertent impact to ICF or RFB from vehicles driving on the access road.

2.7 Efforts to Minimize and Mitigate Impacts to Listed Species

Based on the habitat requirements for the ICF and RFB and the proposed scope of the solar projects, the following efforts to minimize impacts to the ICF and the RFB were developed:

- Installation of proper erosion control measures to minimize land disturbance and impacts to offsite wetland habitats. Unintentional impacts to ICF burrows will also be reduced by installation and maintenance of proper erosion control measures.
- Zones of soft soil rutting (soft soils) in areas of construction traffic will be protected with construction matting to minimize soil compaction and erosion.
- Low ground pressure tires and/or low ground pressure tracked equipment will be used on construction vehicles to minimize soil compaction. Example types of pile driver equipment that could be used for driving the piles into the ground are a Vermeer PD10 or a Pauselli-Pile-Driver 9001 shown in Appendix E.
- Native seed mixes will be utilized to reestablish vegetation in disturbed areas.
- The soil profile in excavated areas, such as utility trenches, will be segregated based on soil horizon, and the soil profile reestablished upon filling of excavations.
- Prior to the ICF breeding season (February through June), amphibian exclusion fencing will be installed to minimize access to construction travel ways. Exclusion fencing will be inspected weekly until construction is complete.
- The security fences around both projects will be designed to allow for unrestricted passage of the ICF.

- Construction will be limited to normal working hours to minimize unintentional nighttime impacts to foraging or traversing ICF.
- During construction, monitoring for congregations of ICF and RFB will be implemented. If congregations are observed, impacts to the congregations will be avoided.
- Signage will be posted describing the ICF and RFB to educate construction site personnel on avoidance of the species.

During construction there will be an impact on the entire project area, laydown area, and roads. Other than grading for the access roads and equipment pads, site grading is not anticipated. Site preparation for the preferred vegetation is anticipated to include mowing the site with a flail mower (set to a height to avoid impacts to violets) followed by no-till drill seeding. Trenching of electrical conduits are considered to be temporary impacts and the trenched areas will be backfilled and planted with the project seed mix. Post construction the laydown area will be removed, the site will be seeded with the project seed mix. The site access roads, equipment pads and solar array foundations will remain for the duration of the farm.

In the event of maintenance, vehicles will only travel on site access roads and foot traffic will be the only travel throughout the project area.

Efforts to mitigate impacts to the ICF and the RFB habitat will include the following;

- Areas beneath solar array panels will be planted with a low growing seed mix compatible with both the ICF and RFB. The seed mix to be planted below the solar panels will include violet species preferred by RFB and suitable to the local conditions. The seed mix will require a minimum of management to avoid disturbance of habitat.
- Areas outside of the panels will be planted with a seed mix compatible with both the ICF and RFB and containing a mix of nectar species capable of providing RFB food sources throughout the growing season.
- Areas adjacent to access roads will have a 5’ foot wide vegetative buffer planted with a seed mix compatible with both the ICF and RFB and containing a mix of nectar species capable of providing food sources throughout the growing season.
- If volunteer woody vegetation within the boundary of the projects is to be removed to maintain light levels at the panels, removal will be accomplished by cutting the woody vegetation stems followed by spot herbicide treatment of the stumps, rather than foliar herbicide applications.

The permanent impact footprint to RFB and ICF habitat resulting from the Morgan Solar projects is 0.91 acres. Mitigation of permanent impacts to potential listed species habitat is calculated at a ratio of 5.5 to 1.0 acres of mitigation to every acre of permanent impacts. The resulting mitigation total is 5.2 acres. Based on an equivalent land value of $2,000 per acre, Pivot Energy is contributing $10,400 to the Illinois Wildlife Preservation Fund to benefit the recovery of the Illinois Chorus Frog and the Regal Fritillary Butterfly.

2.8 Adaptive Management

The objective of this Habitat Conservation Plan is to minimize impacts to the ICF and RFB habitat and minimize incidental takes of the species. Adaptive management is a flexible approach to managing resources through observing of results from management choices.

2.8.1 Management Practices during Construction

- The preconstruction conditions of ICF and RFB habitat within the area of the projects will be documented with on-site photographs prior to construction.
- Daily tailgate meeting will include information on ICF and RFB identification, avoidance and maintaining Best Management Practices (BMPs).
- The active project work areas will be assessed daily for sightings of ICF or RFB.
- Project travel routes will be inspected daily for rutting or other signs of soft soils. If areas of soft soils are noted the areas will be protected with matting.
- Observation of congregations of either ICF or RFB will be documented with GPS and photographs, and immediately reported to IDNR. Possible work arounds, project sequencing and modification of minimization BMPs will be considered.
- Weekly monitoring of and reporting on exclusion fencing will document the conditions and effectiveness.
- Weekly calls to IDNR to discuss the effectiveness of avoidance and minimization efforts.
- A project biologist will be contracted for the duration of the construction to evaluate ICF and RFB habitat and populations.
- In the growing season when the pollinator seed mix is planted, the project area will be mowed two times with a flail type mower to reduce the production of invasive and weed seeds, and to reduce growth of woody vegetation. The first mowing to be in mid-summer and the second to be in early fall.

2.8.2 Post Construction Practices

- In the first full growing season following construction, the project area will be mowed with a flail type mower to reduce the production of invasive and weed seeds and to reduce growth of woody vegetation. The first mowing to be in mid-summer and the second to be in early fall.
- There will be no prescribed burns within the project footprint or on the parcel. Mowing within the fence line will be performed on an as needed basis, based upon plant and grass height. It is anticipated that the pollinator friendly seed mix will need little maintenance, it does not grow as high as the panels, and provides undisturbed habitat for wildlife. The site will be monitored for invasive/noxious weeds and any trees or shrubs that would potentially shade the solar array.
- The post-construction conditions of ICF and RFB habitat within the area of the projects will be documented at the same locations as the preconstruction photographs to allow for comparison of habitat conditions.

- ICF call surveys will be performed during early spring of the third and sixth year after construction. The results of the ICF surveys will be submitted to the IDNR Incidental Take Authorization Coordinator within one month of the field surveys.
- RFB visual identification surveys of adult butterflies will be performed in late summer of the third and sixth year after construction. The results of the RFB surveys will be submitted to the IDNR Incidental Take Authorization Coordinator within one month of the field surveys.
- The condition of the areas of planted vegetation will be documented after anticipated germination to verify establishment of the desired plant communities.
- The conditions of the planted areas will be documented every five years following project construction. The survey will have four objectives, and these are (1) determine if prairie species are present for the ICF, (2) determine if of violet species are present for the RFB larva, (3) determine if nectar species are present as required for the lifecycle for the RFB and (4) evaluate if invasive species are present. The results of the vegetation monitoring will be submitted to the IDNR Incidental Take Authorization Coordinator within one month of the field surveys.
- Vegetation surveys are to include timed meander surveys in both Morgan Solar 1 and Morgan Solar 1B. Visual sampling inventories of violet densities are to be based 200 paired one-meter square quadrats. At each location one quadrat to be located beneath the solar panels and one quadrat to be located between the rows of panels.

2.9 Conservation Plan Funding

Summit Ridge Energy has adequate financial backing to support and implement all mitigation activities described in this Conservation Plan. The costs of mitigation activities will be incorporated into the overall project budget. Therefore, no specific financial instruments such as bonds, certificates of insurance, or escrow accounts will be required to implement all aspects of the Conservation Plan.

3.0 PROJECT ALTERNATIVES

3.1 No-Action Alternative

The no-action alternative for the project would be to not construct the photovoltaic solar energy projects at the Morgan Solar 1 and Morgan Solar 1B sites, and as such, have no impacts on listed species. The purpose and need for the projects are to provide a source of renewable energy and to comply with the state's Future Energy Jobs Act that require utility companies to purchase power from renewable energy sources. Not building the projects reduces the availability of clean, renewable power in the state to reach the statewide renewable portfolio standard.

3.2 Relocate Within the Project Parcel

An alternative to the proposed configuration of the two solar arrays would be to relocate the arrays elsewhere within the larger Morgan Solar parcel. The potential impact to the listed species would be approximately the same as the habitat for the two species extends across the entire parcel.

4.0 ASSESSMENT OF TAKE

Historically, the Morgan Solar 1 and Morgan Solar 1B parcels were in active agricultural use. Spring soil plowing and row crop planting activities had the potential to significantly disrupt ICF burrows, especially those on the order of four inches deep. Agricultural soil tilling typically extends to approximately 8-10 inches deep, below the soil surface. Therefore, it can be assumed that any ICF that was burrowed within the upper 8-10 inches during soil tilling activities would have been impacted. Herbiciding typically involves the use of glyphosate based herbicides and generally occurs annually. Additionally, scientific research has found that glyphosate based herbicides have the ability to kill tadpoles and frogs. Herbiciding would have eliminated or significantly reduced violet species and nectaring plant species on the parcels providing little, if any, violets or nectaring plants for the RFB Spring soil tilling, herbicide applications, and fall harvests would have involved driving agricultural vehicles through the parcels. The annual or semi-annual soil tilling, annual or semi-annual herbiciding, and persistent agricultural vehicle traffic would have had a significant, adverse impact on ICF and RFB habitat and individuals.

In comparison, the site activities during construction and post-construction normal operation of the solar farms will be significantly less disruptive. Additionally, the proposed planting of a native short grass prairie mix will be a conditional habitat improvement from agriculture. There will be no annual soil tilling, there will be no herbicide application, and post construction, there will be infrequent vehicle access. Vegetation maintenance will be performed manually and or mechanically. Mowing of the solar farm vegetation, if appropriately timed, should have minimal impact on the RFB and minimal to no impact on the ICF. With the elimination spring plowing and herbiciding, there should be a decrease in adverse impacts to both species. Most maintenance activities will be conducted on foot. Vehicles will be parked on the gravel access drive. Occasional site inspections should have no impact on the ICF or RFB. The conversion of the land from agriculture to a solar farm with a short grass prairie should have a net benefit on the survival of the ICF and the RFB.

The effects of solar farm construction on the ICF and RFB habitat were discussed in Section 2.5.2 above and are summarized into the area of permanent habitat loss and temporary habitat loss in Table 1. The impacts to habitat from the laydown area are temporary as the materials will be removed. The access roads are permanent structures for the duration of the projects and are considered permanent impacts to the habitat. The solar panel modules are considered to have neither permanent nor temporary impacts on the habitat. The foundation piles are permanent structures for the duration of the projects and; as such, would result in permanent impacts. The concrete transformer and equipment pads are permanent structures for the duration of the projects and; as such, would result in permanent impacts. Soil disturbance from conduit installation trenches are temporary impacts to habitat. The fence posts are permanent structures for the duration of the projects and; as such, would result in permanent impacts. At the Morgan Solar 1 and Morgan Solar 1B sites the habitat for the two species overlap and as a result, the areas are the same.

The total population of RFB was estimated based on information from a Pennsylvania site (PDMVA, 2019). The Pennsylvania Department of Military and Veterans Affairs (2019) reported a stable population of 1,000 RFB on a 219-acre study area. The resulting density of 4.6 butterflies per acre was used to estimate the number that could be within the Morgan 1 and Morgan 1B project areas of 29 acres. Based on 4.6 RFB per acre, there could be on the order of 130

butterflies at the two solar farms. Although that level is unlikely due to the density of host plants observed in spring 2019. The observed density of violets in spring 2019 was approximately 800 per acre. The Pennsylvania Department of Military and Veterans Affairs reported a density of over 5,000 per acre. If it is assumed that there could be 5 percent loss of RFB during construction, there could be on the order of 2 to 10 RFB lost. Over the thirty-year lifespan of the solar farms an estimated loss of another 1 to 10 from monitoring and maintenance activities.

A local population of ICF in Madison County Illinois was estimated for eight choruses based on a field survey in 1997. The total population of the eight choruses was 450 ICF, or an average of 56 per chorus. If we assume one chorus in the vicinity of the Morgan 1 and Morgan 1B solar farms and a 0.9 km buffer as specified by the IDNR, then the average density of ICF in appropriate habitat would be 0.09 ICF per acre. If half of the habitat within the 0.9 km buffer is considered unsuitable for the ICF, then the expected ICF density would be 0.2 ICF per acre of habitat. Given the total acreage of the two solar farms, a total population within the farms would be anticipated to be approximately 6 ICF. If a 20 to 30 percent loss is assumed during construction, the losses during construction are estimated at one to two ICF. If 100 percent of the chorus was located within the project area (29.5 acres) and the risk to the ICF is based on the total area of temporary and permanent impacts to habitat (1.6 acres) as a percentage of the total project area, the loss of ICF during construction is estimated at three. Over the thirty-year lifespan of the solar farms an estimated loss from monitoring and maintenance activities, in particular mowing, are estimated at one ICF per year. The total loss of ICF over the over thirty years are estimated at 33.

Table 1 Summary of Losses

Species Name	Estimated Permanent Loss (acres)	Estimated Temporary Loss (acres)	Estimate Take (number of individuals)
Illinois Chorus Frog (*Pseudacris illinoensis*)	0.9	0.7	33[1]
Regal Fritillary Butterfly (*Speyeria idalia*)	0.9	0.7	3 to 20[1]

[1]The number of ICF and RFB lost was estimated form possible impacts with construction and monitoring equipment and traffic.

5.0 IMPLEMENTING AGREEMENT

Summit Ridge Energy agrees to implement this Conservation Plan upon approval by IDNR and issuance of the requested ITA. Summit Ridge Energy would be solely responsible for meeting the terms and conditions of the ITA and would allocate sufficient personnel and resources for effective implementation of the Conservation Plan. Summit Ridge Energy would be responsible for planning, contract execution, and construction supervision for the entire Morgan Solar 1 and Morgan Solar 1B Projects.

5.1 Responsibilities and Schedules

Pivot Energy is the developer of the project and Summit Ridge Energy will be the long-term owner/operator of the project. Pivot Energy has the responsibility to acquire all necessary permits

for construction and operation of the project, including the ITA. Summit Ridge Energy will have the responsibility of complying with the terms of the ITA during both construction and operation of the solar facility.

Kerri Neary of Summit Ridge Energy will serve as the Conservation Plan Coordinator and will be responsible for the implementation of the best management practices, mitigation measures and restoration activities as described in this Conservation Plan. Kerri Neary will be the IDNR liaison and inform IDNR of adaptive management measures necessary to comply with the Conservation Plan Contact information for the Conservation Plan Coordinator is as follows:

Kerri Neary
Summit Ridge Energy
1401 Wilson Blvd., Suite 800
Arlington, VA 22209
kneary@srenergy.com
484-554-3453

A post-construction monitoring report will be provided to the IDNR upon completion of construction activities. The report would include a description of when the project activities were completed, BMPs that were implemented, pre- and post-construction photographs of habitat areas, an inventory of any of the protected species observed during construction activities, and any additional measures taken to further reduce potential impacts to these species.

In field project construction activities are anticipated to begin at this site in December 2019 and be completed by March 2020.

5.2 Certification

I hereby certify that all the participants listed in Section 5.1 have the legal authority to carry out their respective obligations and responsibilities under the Conservation Plan.

Garrett Peterson
Signatory of Pivot Energy

November 14th, 2019
Date

5.3 Compliance with Federal, State and Local Regulations

Summit Ridge Energy will comply with all pertinent Federal, State, and local regulations that govern the proposed Morgan Solar 1 and Morgan Solar 1B Projects and will provide copies of authorizations that could affect the terms and conditions of any incidental take permit authorized by the IDNR for these Projects.

6.0 References

Brown, L.E. and Rose, G.B. 1988. Distribution, Habitat, and Calling Season of the Illinois Chorus Frog (Pseudacris streckeri illinoensis) Along the lower Illinois River. Illinois Natural History Survey Biological Notes, 132. Champaign, Illinois.

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Henning, B.M. and Hinz Jr., L.C. 2016. Conservation guidance for Illinois Chorus Frog (Pseudacris illinoensis), INHS Technical Report 2016 (56).

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Pennsylvania Department of Military and Veterans Affairs (PDMVA). 2019. Regal Fritillary Butterfly Fact Sheet.

TRC, 2019a. No Wetland Determination Letter. Letter to Pivot Energy

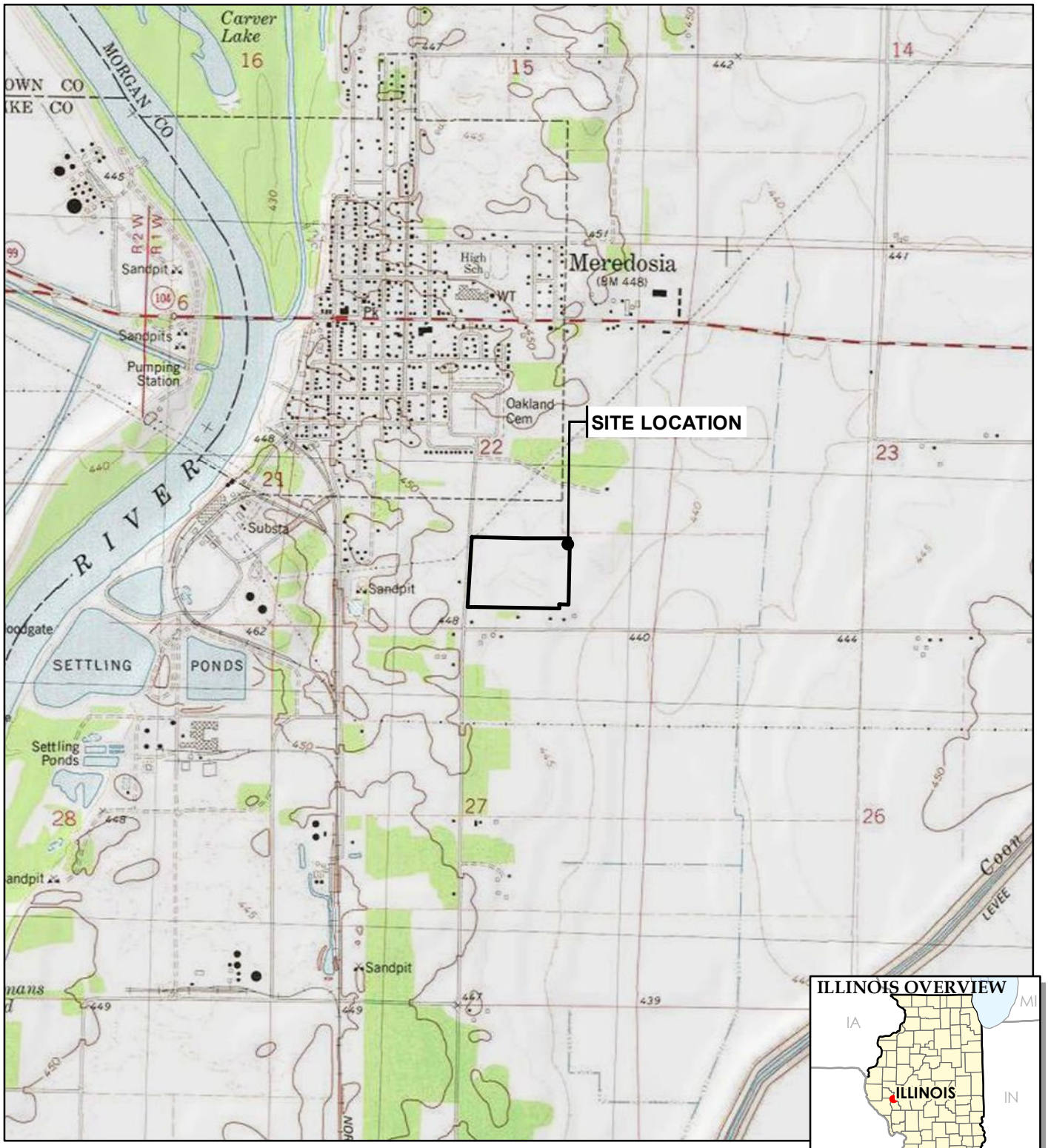
TRC. 2019b. Wetland and Waterway Delineation Report

Tucker, J.K. and Philipp, D.P., 1997. Population status of the Illinois chorus frog (Pseudacris streckeri illinoensis) in Madison County, Illinois: Results of 1997 surveys. IDOT.

USDA Natural Resources Conservation Service Web Soil Survey (Web Address: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)

WDNR. 2019. Regal Fritillary Butterfly Species Profile. https://dnr.wi.gov/topic/EndangeredResources/Animals.asp?mode=detail&SpecCode=IILEPJ6040

Appendix A
Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212
TRC - GIS

PROJECT:

PIVOT ENERGY
MORGAN SOLAR 1
MORGAN COUNTY, ILLINOIS

TITLE:

SITE LOCATION MAP

DRAWN BY:	S. MAJOR
CHECKED BY:	L.GIESE
APPROVED BY:	A.LARSEN
DATE:	MAY 2019
PROJ. NO.:	338330
FILE:	338380-001slm_UTM15.mxd

FIGURE 1A

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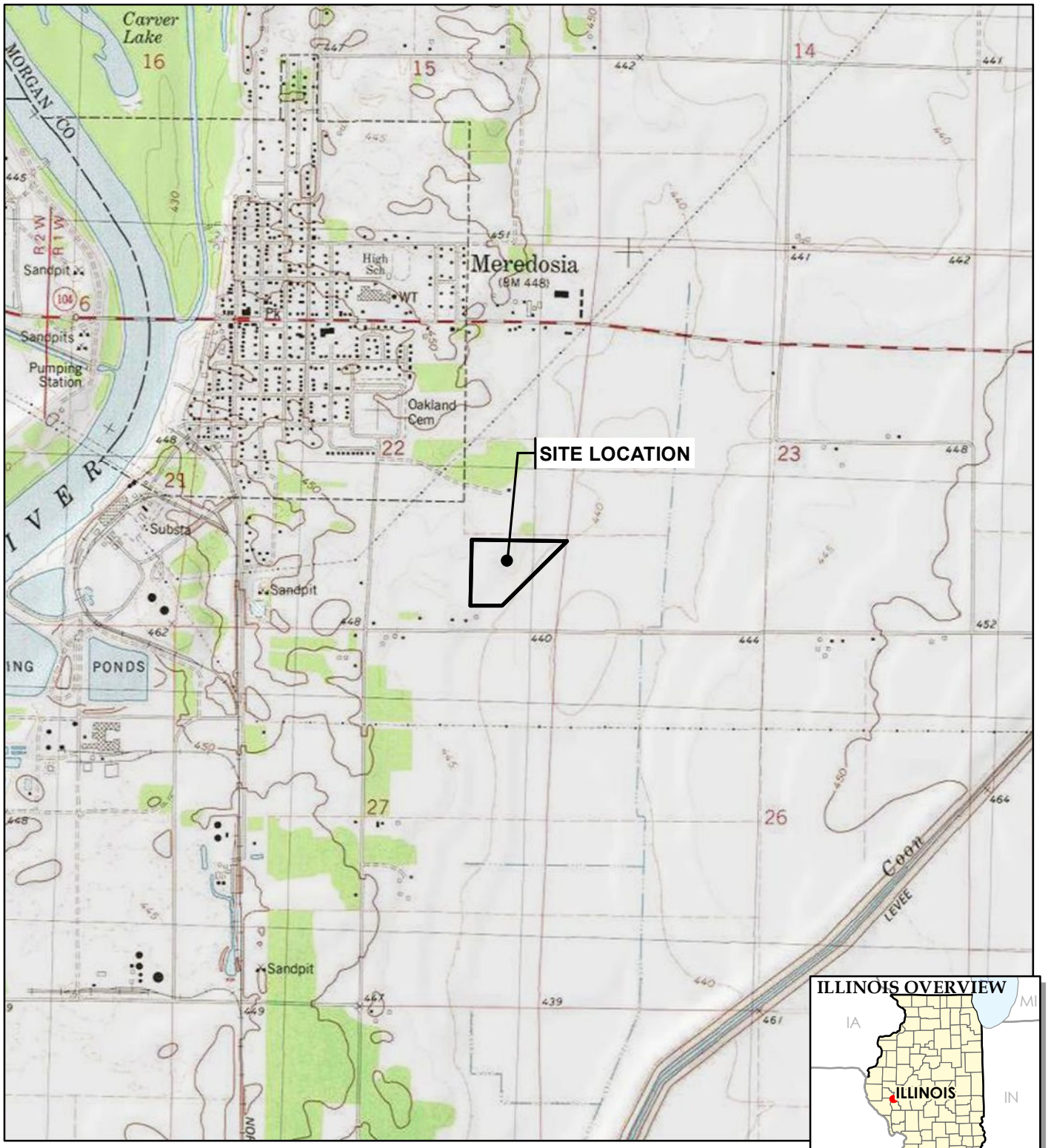

BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212
TRC - GIS

PROJECT:

PIVOT ENERGY
MORGAN SOLAR 1B
MORGAN COUNTY, ILLINOIS

TITLE:

SITE LOCATION MAP

DRAWN BY:	S. MAJOR
CHECKED BY:	L. GIESE
APPROVED BY:	G. PARISH
DATE:	MAY 2019
PROJ. NO.:	338330
FILE:	338380-001slm_UTM15.mxd

FIGURE 1B

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LEGEND

- STUDY AREA
- 54B - PLAINFIELD SAND, 1 TO 7 PERCENT SLOPES
- 588A - SPARTA LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES

1. BASEMAP IMAGERY FROM GOOGLE EARTH PRO, 2015
2. SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO SOILS DATABASE.

0 300 600 Feet

1 " = 300 '
1:3,600

Mapped Soils

Map Unit Symbol	Soil Series Name	Drainage Class	Hydric Rating %	% Of Study Area	Farmland Designation
54B	Plainfield sand, 1 to 7 percent slopes	Excessively drained	2	35.14	Farmland of statewide importance
588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes	Excessively drained	0	64.86	Farmland of statewide importance

PROJECT:
PIVOT ENERGY
MORGAN SOLAR 1
MORGAN COUNTY, ILLINOIS

TITLE:
SOILS MAP

DRAWN BY:	S. MAJOR	PROJ. NO.:	338330
CHECKED BY:	L.GIESE		
APPROVED BY:	A.LARSEN		**FIGURE 2A**
DATE:	MAY 2019		

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212

FILE NO.: 338380-003soils_UTM15a.mxd

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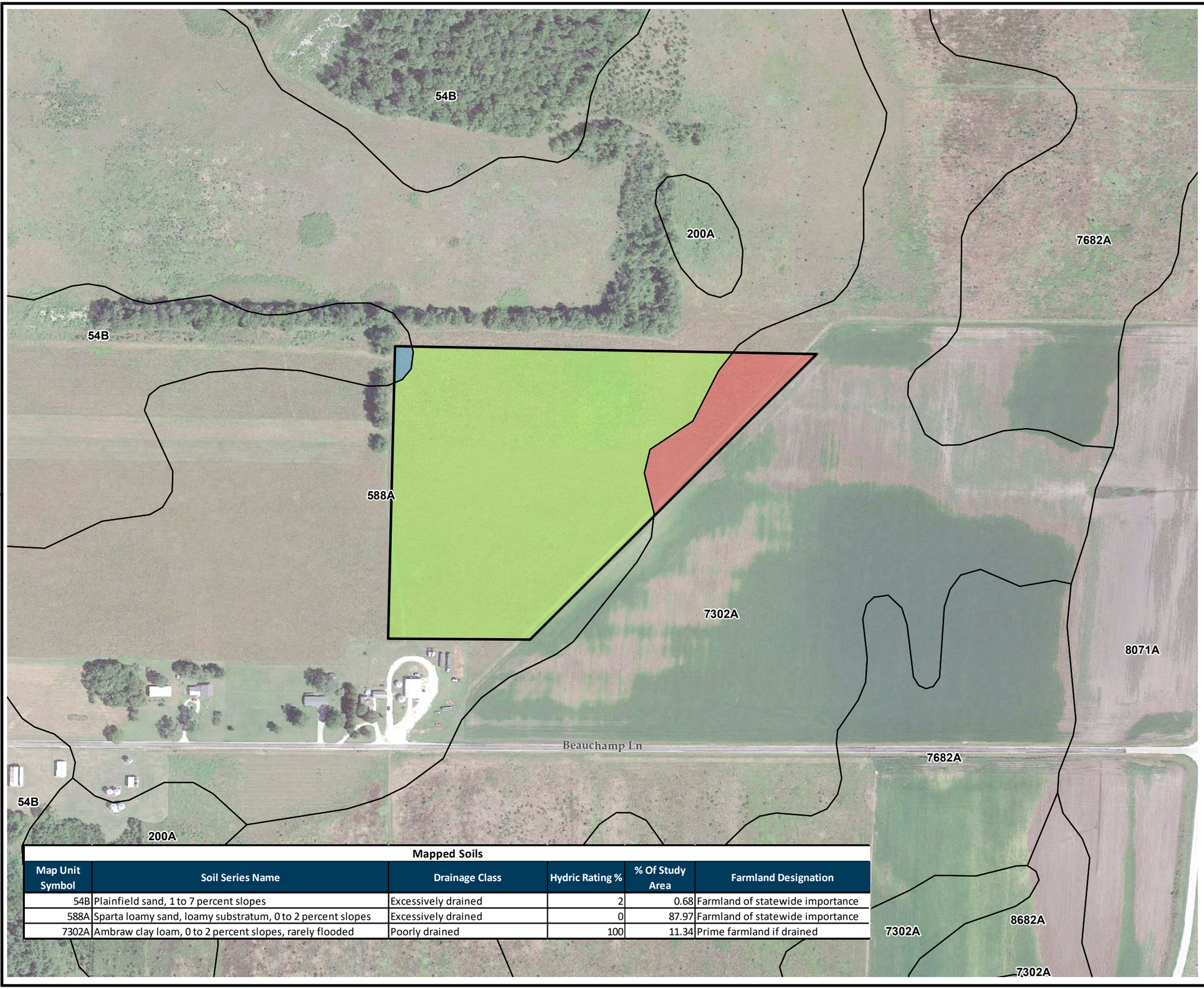
Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet (Foot US)
Map Rotation: 0

TRC - GIS



LEGEND

- STUDY AREA
- 54B - PLAINFIELD SAND, 1 TO 7 PERCENT SLOPES
- 588A - SPARTA LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES
- 7302A - AMBRAW CLAY LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED

1. BASEMAP IMAGERY FROM GOOGLE EARTH PRO, 2015
2. SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO SOILS DATABASE.

0 300 600 Feet

1 " = 300 '
1:3,600

Mapped Soils

Map Unit Symbol	Soil Series Name	Drainage Class	Hydric Rating %	% Of Study Area	Farmland Designation
54B	Plainfield sand, 1 to 7 percent slopes	Excessively drained	2	0.68	Farmland of statewide importance
588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes	Excessively drained	0	87.97	Farmland of statewide importance
7302A	Ambraw clay loam, 0 to 2 percent slopes, rarely flooded	Poorly drained	100	11.34	Prime farmland if drained

PROJECT:
PIVOT ENERGY
MORGAN SOLAR 1B
MORGAN COUNTY, ILLINOIS

TITLE:
SOILS MAP

DRAWN BY:	S. MAJOR	PROJ. NO.:	338330
CHECKED BY:	L. GIESE		
APPROVED BY:	G. PARISH		**FIGURE 2B**
DATE:	MAY 2019		

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212

FILE NO.: 338380-003soils_UTM15a.mxd

TRC - GIS
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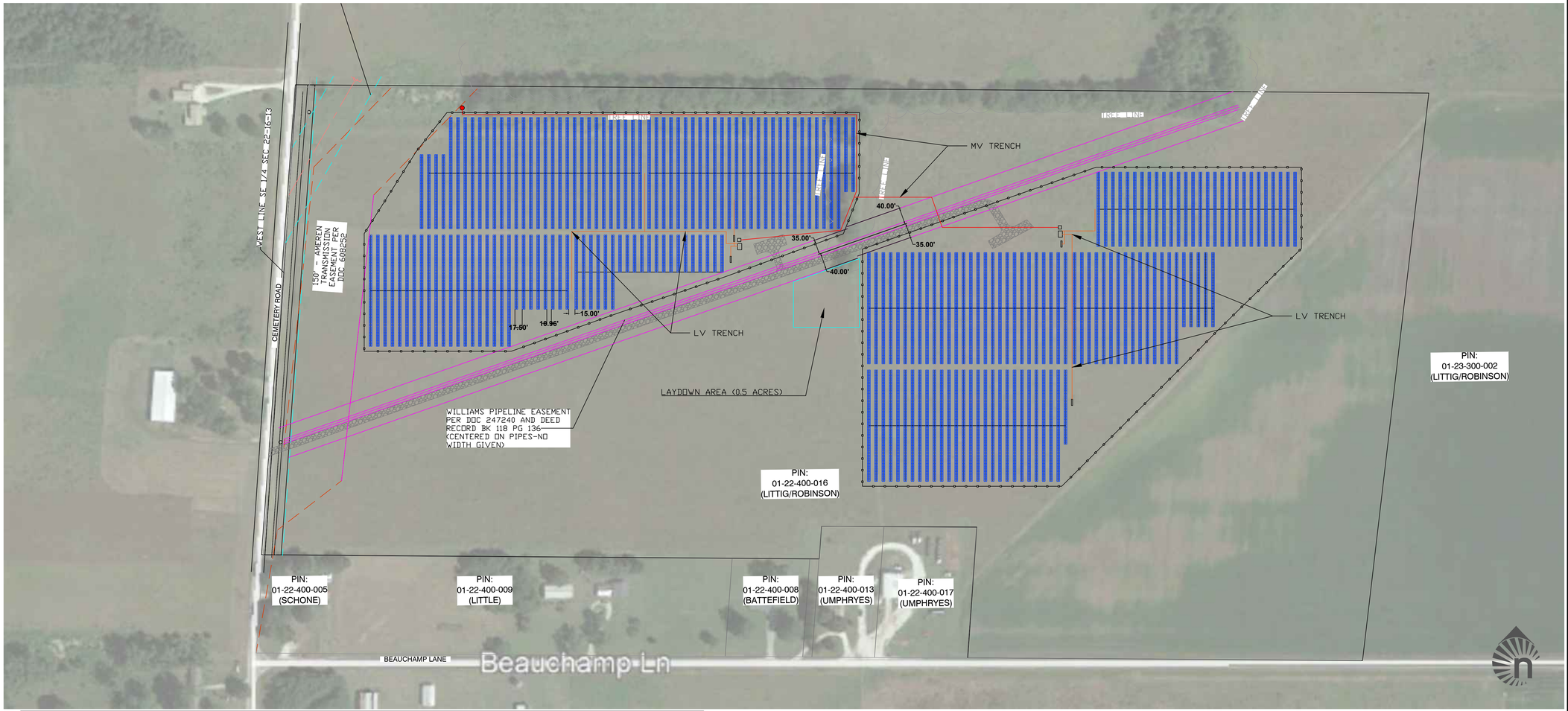
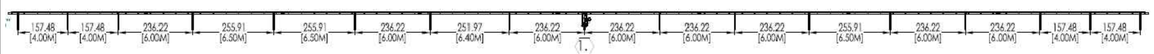
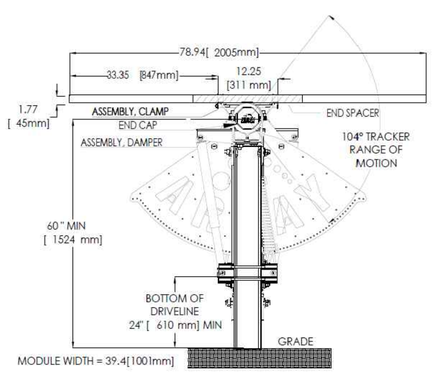
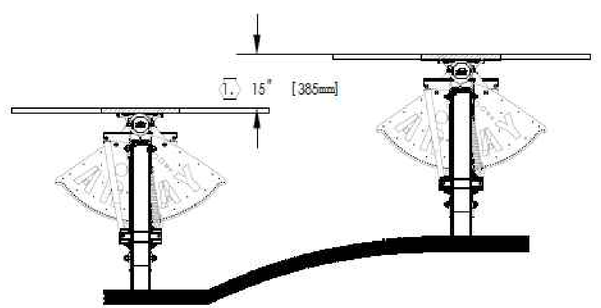


1. SEE MAP ABOVE FOR TRENCH AREAS
   LV TRENCH WILL BE 2' DEEP AND 1' WIDE ~1433 TOTAL FEET
   MV TRENCH WILL BE 2' DEEP AND 2' WIDE ~2031 TOTAL FEET
2. THE COMMON SHARED ROAD WILL BE 16' WIDE AND 1,837 FEET LONG COVERING 0.67 ACRES
   THE UNIQUE DRIVEWAY FOR THE WESTERN ARRAY WILL BE 16' WIDE, 80' LONG, AND HAVE A 20' WIDE HAMMERHEAD COVERING .068 ACRES
   THE UNIQUE DRIVEWAY FOR THE EASTERN ARRAY WILL BE 16' WIDE, 100' LONG, AND HAVE A 20' WIDE HAMMERHEAD COVERING 0.1 ACRES
3. TOTAL FENCED AREA IS 25.66 ACRES
4. THE AREA OF THE SOLAR PANELS (14,984) IS 7.388 ACRES
5. THERE ARE 2,775 6"X9" I-BEAM STEEL PIERS THAT WILL BE EMBEDDED TO A DEPTH OF 6 TO 10 FEET
6. THERE WILL BE TWO 10'X15' EQUIPMENT PADS AND TWO 8'X8' TRANSFORMER PADS
7. SEE DRAWING ABOVE FOR ROW TO ROW SPACING AND DIAGRAMS TO THE LEFT FOR PIER SPACING AND TRACKING MOTOR DIMENSIONS
8. THE SITE WILL HAVE A SINGLE SHARED LAYDOWN AREA OF 0.5 ACRES LOCATED AS SHOWN ABOVE



10364-001 90 MODULE FULL EXTERIOR ROW





SITE PLAN

SCALE 1/8"=1'-0"

Pivot Energy
1536 WYNKOOP ST. STE 400
DENVER, CO 80202
www.pivotenergy.net

NO	DRWN	DATE	REVISION	PRELIM. DESIGN	CHKD	DATE	APP'D	DATE
0	DW	6.13.19						

MORGAN SOLAR 1 AND 1B
39.82177, -90.55331
MEREDOSIA, IL 62665

DATE: 11.7.18

PROJ. NO.: TBA

PARCEL ID# 01-22-400-016
SITE PLAN

SOLAR ARRAY WORK PLAN

DRAWING NUMBER: X-2

SHEET NUMBER:

REVISION 0

Appendix B:
Habitat Survey

150 N Patrick Blvd., Suite 180
Brookfield, WI 53045
T 262.879.1212
TRCcompanies.com

Technical Memorandum

To:	Garrett Peterson Pivot Energy
From:	Laura Giese Senior Biologist
Subject:	Morgan Solar 1 and 1B Habitat Survey for Regal Fritillary and Illinois Chorus Frog
Date:	May 24, 2019
CC:	Dan Veriotti
Project No.:	338380.0000

Summary

TRC conducted habitat surveys for the regal fritillary and Illinois chorus frog within the Morgan Solar 1 and 1B project sites located at the northeast corner of Cemetery Road and Beauchamp Lane, Morgan County, Illinois. No wetlands or areas with temporary ponding were present within the Study Area. However, sandy soils were present and there are wetlands within 700 feet of the project sites. Violets were scattered throughout fields. Therefore, suitable habitat for the regal fritillary and Illinois chorus frog is present within both Morgan Solar 1 and 1B.

The following sections provide a discussion on project background, methods, and results.

Introduction

For purposes of consultation pursuant to the *Illinois Endangered Species Protection Act*, an evaluation was conducted for rare, threatened, and endangered (RTE) species within the Morgan Solar 1 and 1B sites. The Illinois Department of Natural Resources (IDNR) Ecological Assessment Compliance Tool (EcoCAT) was queried June 2018. The Illinois Natural Heritage database showed that two protected species may be within the vicinity of the sites: regal fritillary (*Speyeria idalia*) and Illinois chorus frog (*Pseudacris illinoensis*). Further consultation with IDNR occurred November 2018.

On behalf of Pivot Energy, TRC Environmental Corporation (TRC) conducted a habitat survey within the Morgan Solar 1 and 1B sites for the two identified species. The survey area is approximately 70 acres

and outlined on the map in Attachment A (Figure 1). The purpose of this survey was to document the presence or absence of suitable habitat for the two species mentioned above.

The habitat survey was conducted by TRC senior biologist Laura A.B. Giese, PhD. Dr. Giese is a Professional Wetland Scientist, Certified Forester and Certified Senior Ecologist. She is a USFWS Registered Surveyor for small whorled pogonia, harperella, and swamp pink. Dr. Giese has been conducting habitat surveys in the Midwest and East for over 20 years. As a volunteer she conducts surveys for the Wisconsin Department of Natural Resources (WDNR) Rare Plant Program. She also has conducted Level I and II surveys for the Karner blue butterfly.

Background

The EcoCAT indicated records for the state-listed threatened Illinois chorus frog adjacent to the project area. The Illinois chorus frog is a habitat specialist requiring sandy soils for aestivation. Habitats include sand prairies and sandy agricultural fields. The frogs emerge after heavy rains in early spring to breed in nearby flooded fields, ditches, and ephemeral (seasonally flooded) wetlands or fishless ponds. Tadpoles go through metamorphosis and leave the water to burrow in sandy soils typically by the end of June.

IDNR staff identified the presence of nearby Illinois chorus frog records, low-lying areas suitable for ephemeral spring flooding, and sandy soil within, and in the vicinity of, the proposed project footprint.

Also identified are records of the state-threatened regal fritillary within the vicinity of the proposed project footprint. The regal fritillary depends on violet (*Viola*) species as its obligate egg deposit site and larval food source. Regal fritillary larvae hatch in the fall and overwinter in litter near violet species, and then feed on violet species in the spring.

Methods

The habitat level survey was conducted on April 23 and 24, 2019 for the Illinois chorus frog and regal fritillary. The Illinois chorus frog habitat survey specifically evaluated for the presence of wetlands, areas with seasonally ponded water, and sandy soils. The location of identified wetlands and/or areas with ponded water within the project footprint were mapped. Also, wetlands located outside the project footprint, but within 1,000 feet of the project footprint, were identified using the National Wetland Inventory and desktop aerial photointerpretation.

The Regal Fritillary habitat survey evaluated for the presence of violet species. A meander survey within the project footprint and including an approximately 100-foot buffer was conducted to evaluate for the presence of violet species. When violets were encountered, a one-hundredth acre (~12-foot radius) plot was established to estimate the number of violets and absolute percent ground cover of the violets to establish a baseline measurement.

Representative photos of the project sites are included in Attachment B.

Results

The Study Area is primarily comprised of a field with native grasses and forbs. It appears the field has been left fallow for a couple of years based on a review of aerial imagery and establishment of woody species. Prominent species included: cheatgrass (*Bromus tectorum*), switchgrass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), common milkweed (*Asclepias syriaca*), henbit (*Lamium amplexicaule*), wild bergamot (*Monarda fistulosa*), bull thistle (*Cirsium vulgare*), and field pansy *(Viola bicolor*). Along the field edges woody species have started to encroach into the field. These included sumac (*Rhus typhina*), mulberry (*Morus alba*), and black locust (*Robinia pseudoacacia*).

Terrain appears to be relatively flat with surface flow trending toward the south, southwest and southeast.

Illinois Chorus Frog

The survey for suitable habitat included an evaluation of the Study Area for wetlands, areas of temporary ponding, and sandy soils.

According to the Natural Resources Conservation Service Soil Survey map (Attachment A, Figure 2) three mapped soil units are located within the Study Area. The soils mapped within the Study Area are listed on Table 1 below.

Table 1: Mapped Soil Units

Map Unit Symbol	Soil Map Unit Name	Drainage Class	Hydric Rating	% of Study Area
54B	Plainfield sand, 1 to 7 percent slopes	Excessively drained	2	22.12
588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes	Excessively drained	0	73.59
7302A	Ambraw clay loam, 0 to 2 percent slopes, rarely flooded	Poorly drained	100	4.29

The majority of the soils are mapped as sand or loamy sand. Auger boreholes in several locations confirmed the presence of sandy soils within the mapped units.

No wetlands or waterways are mapped within either of the project sites, based on National Wetland Inventory (NWI) mapping (Attachment A, Figure 3). A wetland and waterway delineation was conducted for Morgan Solar 1B April 2019 and no wetlands or waterways were identified. No wetlands or waterways were observed within Morgan Solar 1 during the meander survey conducted for violets. Also, no areas within either site exhibited characteristics of temporary ponding.

There are no mapped NWI wetlands located within the 1000-foot buffer (Attachment A, Figure 3). However, there are a couple excavated ponds (PUBGx) mapped just beyond the 1000-foot buffer.

Photo-interpretation identified an additional pond within the 1000-foot buffer and approximately 700 feet from the west side of Morgan Solar 1.

Based on the presence of nearby wetlands and sandy soils within the Morgan Solar 1 and 1B sites, there appears to be suitable habitat for Illinois chorus frog aestivation.

Regal Fritillary

The survey for suitable habitat included an evaluation of the Study Area for violet species. Four meander survey transects were traversed and violet locations identified (Attachment A, Figure 4). Nineteen violet locations were observed along the transects and the number of violets within a 12-foot radius plot at each location were counted. The number of violets per plot ranged from three to 13, with an average of eight. Absolute percent ground cover was approximately five percent of each plot. There appears to be more violets in the western portion of Morgan Solar 1, and in the northern portion of both Morgan Solar 1 and 1B. Violets were not common in the southern portion of either site.

Based on the presence of violets within the Morgan Solar 1 and 1B sites, there appears to be suitable habitat for the regal fritillary larvae.

Conclusion

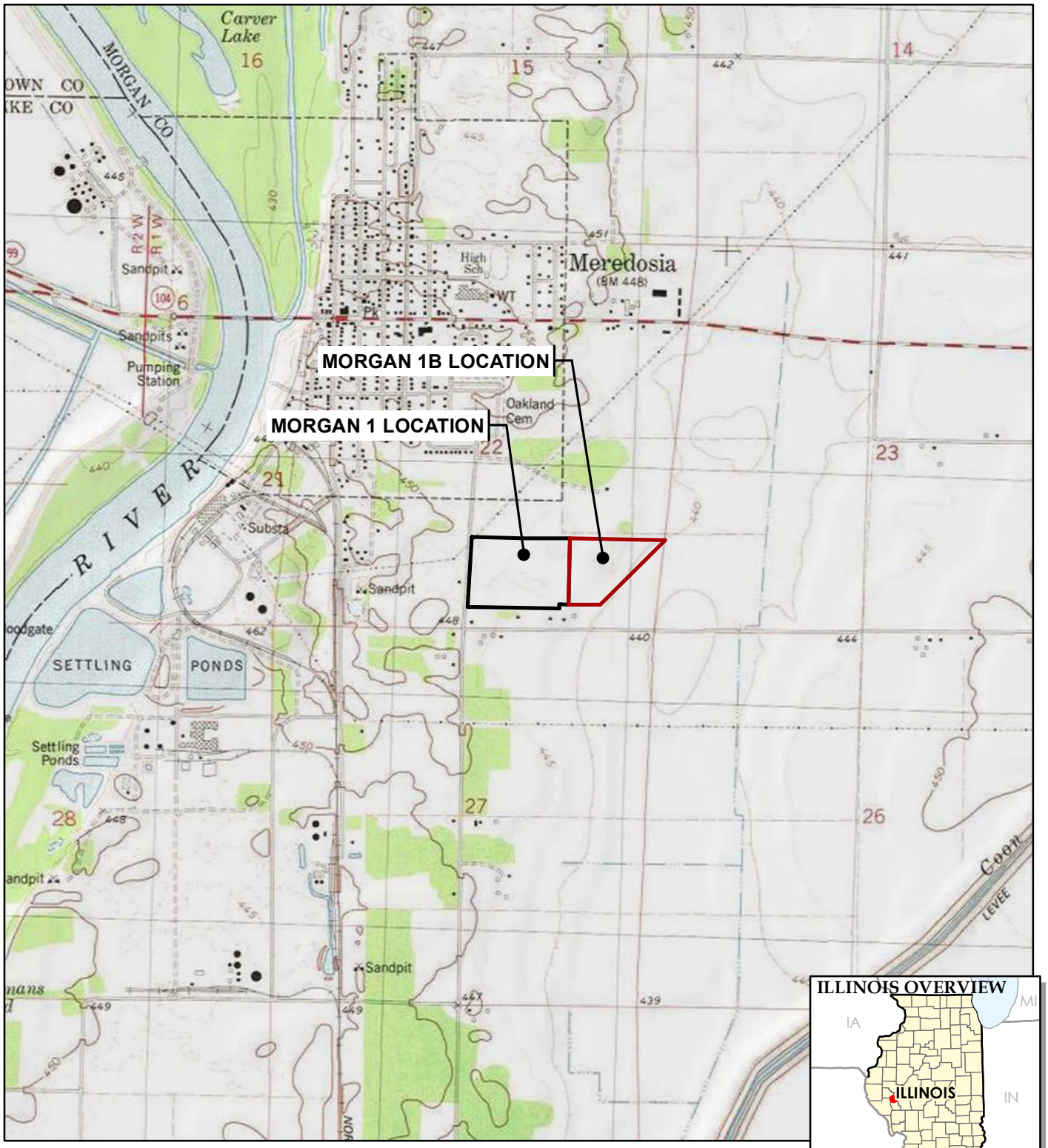
The habitat surveys conducted within the Morgan Solar 1 and 1B sites identified habitat characteristics suitable for the Illinois chorus frog and regal fritillary.

Attachments:

- Attachment A:
  - Figure 1 – Study Area
  - Figure 2 – Soils Map
  - Figure 3 – Wetland, Waterways and Floodplains Map
  - Figure 4 - Habitat Survey Map
- Attachment B: Site Photographs

ATTACHMENT A

FIGURES



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212
TRC - GIS

PROJECT:

PIVOT ENERGY
MORGAN SOLAR 1 AND 1B
MORGAN COUNTY, ILLINOIS

TITLE:

SITE LOCATION MAP

DRAWN BY:	S. MAJOR
CHECKED BY:	L. GIESE
APPROVED BY:	G. PARISH
DATE:	MAY 2019
PROJ. NO.:	338330
FILE:	338380-006HabitatSurveyslm.mxd

FIGURE 1

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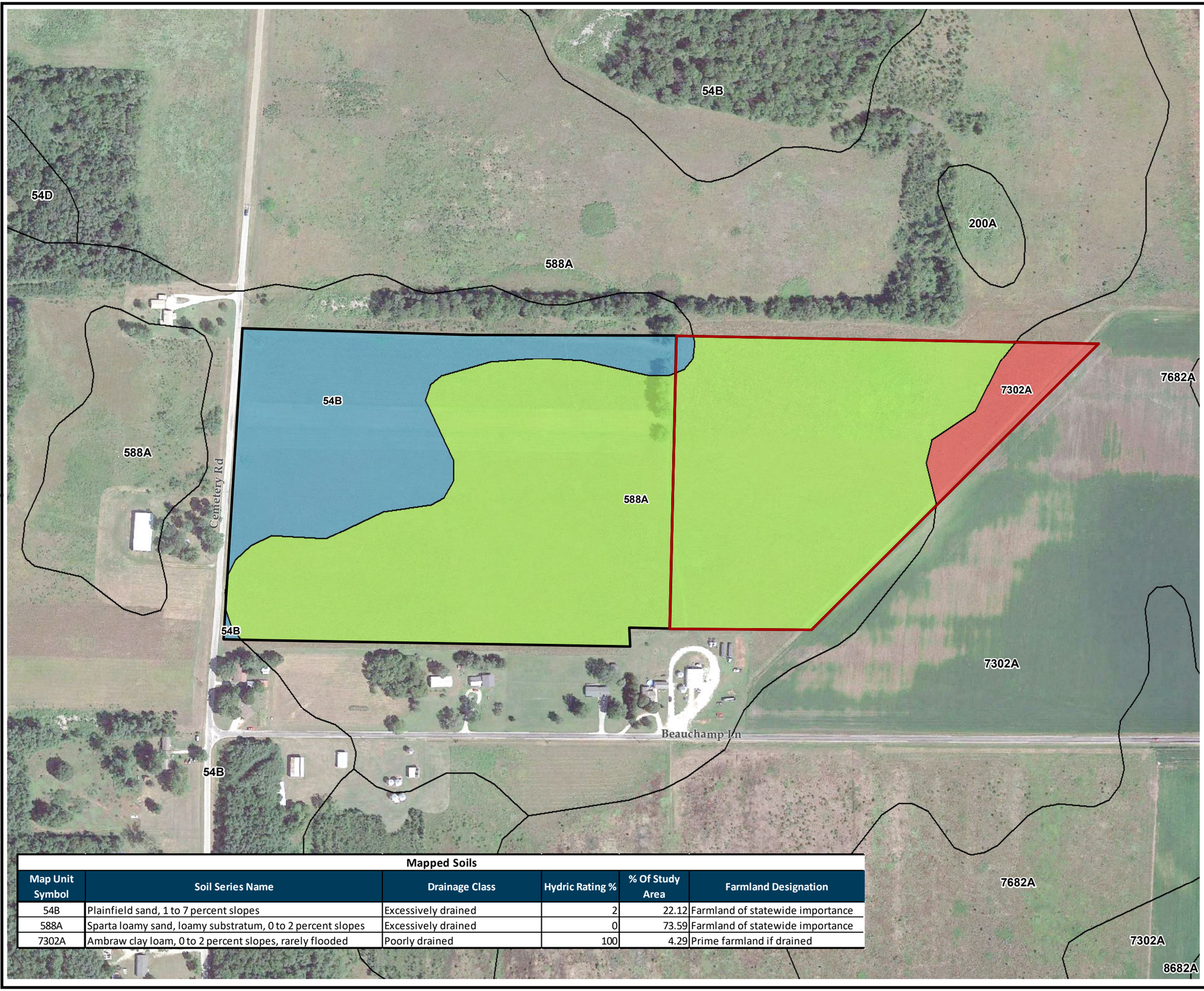

LEGEND

- MORGAN 1 STUDY AREA
- MORGAN 1B STUDY
- 54B - PLAINFIELD SAND, 1 TO 7 PERCENT SLOPES
- 588A - SPARTA LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES
- 7302A - AMBRAW CLAY LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED

1. BASEMAP IMAGERY FROM GOOGLE EARTH PRO, 2015
2. SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO SOILS DATABASE.

0 300 600 Feet

1 " = 300 '
1:3,600

Mapped Soils

Map Unit Symbol	Soil Series Name	Drainage Class	Hydric Rating %	% Of Study Area	Farmland Designation
54B	Plainfield sand, 1 to 7 percent slopes	Excessively drained	2	22.12	Farmland of statewide importance
588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes	Excessively drained	0	73.59	Farmland of statewide importance
7302A	Ambraw clay loam, 0 to 2 percent slopes, rarely flooded	Poorly drained	100	4.29	Prime farmland if drained

PROJECT:
PIVOT ENERGY
MORGAN SOLAR 1 AND 1B
MORGAN COUNTY, ILLINOIS

TITLE:
SOILS MAP

DRAWN BY:	S.MAJOR	PROJ. NO.:	
CHECKED BY:	L. GIESE	**FIGURE 2**	
APPROVED BY:	G. PARISH		
DATE:	MAY 2019		

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212

FILE NO.: 338380-007HabitatSurveysoils.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet (Foot US)
Map Rotation: 0
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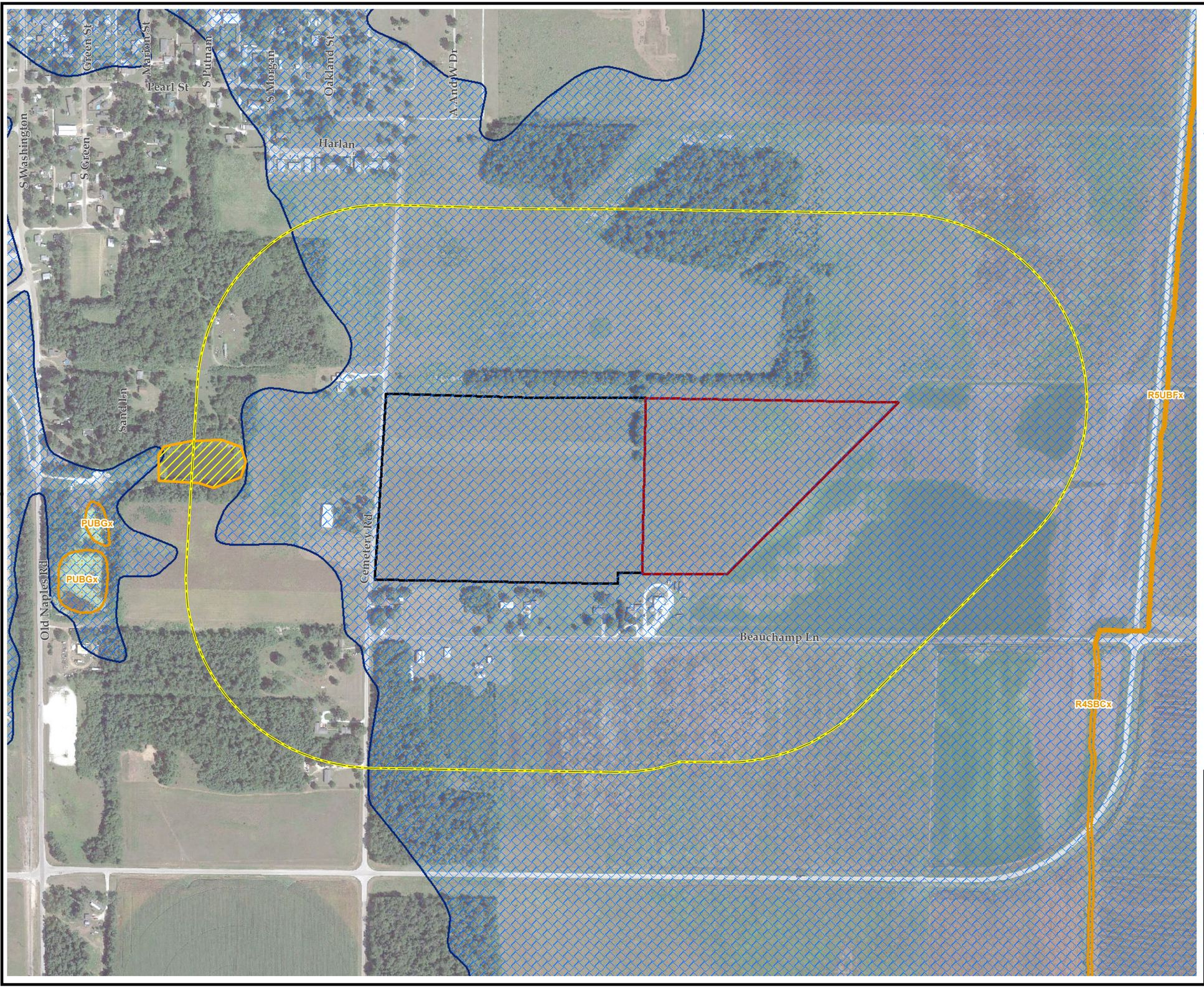


LEGEND

- MORGAN 1 STUDY AREA
- MORGAN 1B STUDY
- 1000-FT BUFFER
- NHD STREAM/RIVER
- NWI WETLANDS
- 100-YEAR FLOODPLAIN
- PHOTO INTERPRETED

1. BASEMAP IMAGERY FROM GOOGLE EARTH PRO, 2015
2. NATIONAL WETLANDS INVENTORY (NWI) DATA ACQUIRED FROM USFWS.
3. NATIONAL HYDROGRAPHY DATASET (NHD) DATA ACQUIRED FROM USGS.
4. FLOOD DATA ACQUIRED FROM FEMA NATIONAL FLOOD HAZARD LAYER (NFHL)
5. ALL SOURCES CHECKED, EVEN IF NOT VISIBLE IN MAP.

0 500 1,000 Feet

1 " = 500 '
1:6,000

PROJECT:
PIVOT ENERGY
MORGAN SOLAR 1 AND 1B
MORGAN COUNTY, ILLINOIS

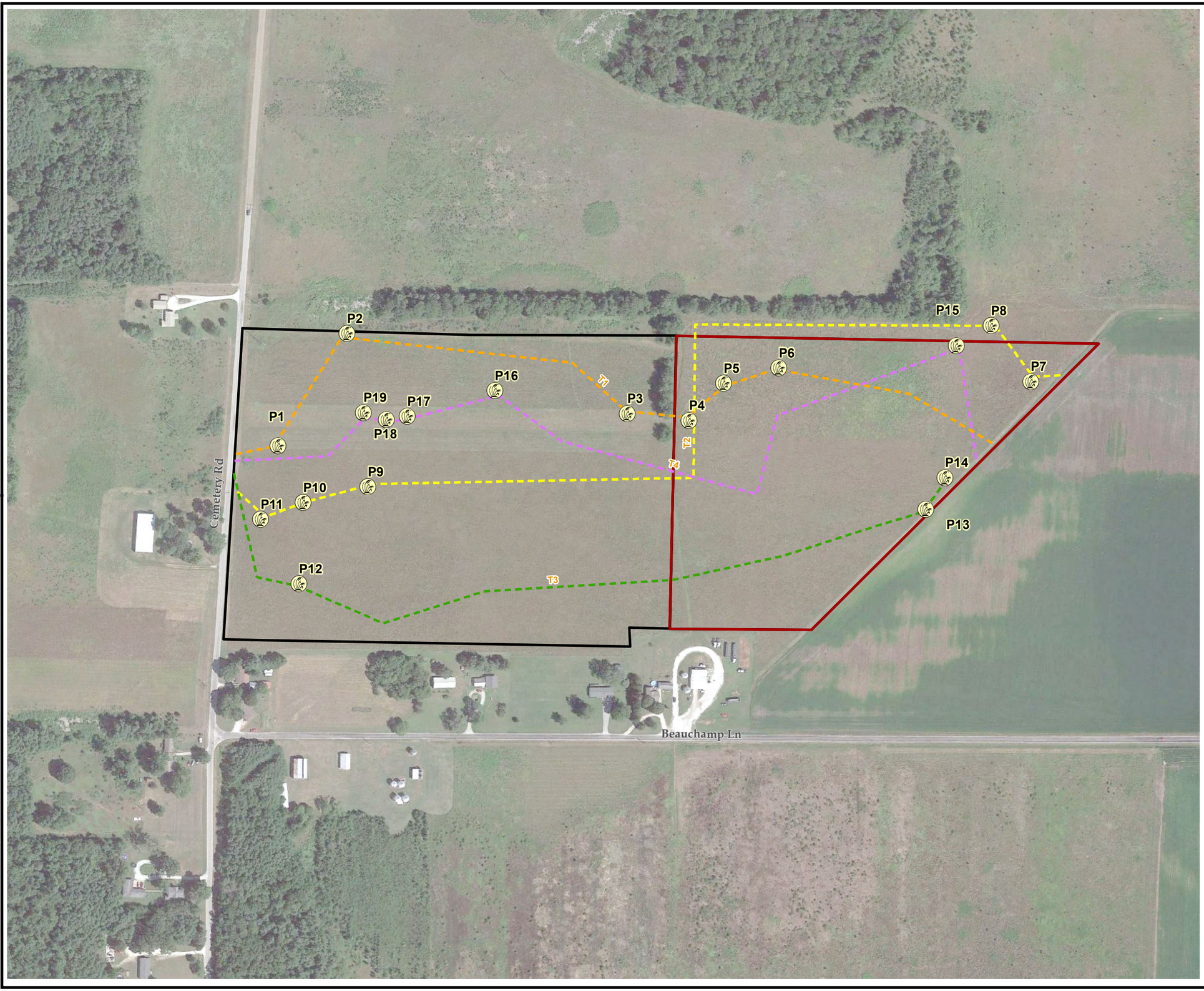
TITLE:
WETLAND, WATERWAY, AND FLOODPLAIN MAP

DRAWN BY:	S.MAJOR	PROJ. NO.:	338380
CHECKED BY:	L. GIESE		
APPROVED BY:	G. PARISH		**FIGURE 3**
DATE:	MAY 2019		

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212

FILE NO.: 338380-008HabitatSurveyWaters.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet (Foot US)
Map Rotation: 0
Plot Date: 5/23/2019, 09:02:55 AM by SMAJOR -- LAYOUT: ANSI B(11"x17")
Path: S:\11-PROJECTS\Pivot_Energy\Pivot\338380_Sites\338380_Pivot_IL\338380-008HabitatSurveyWaters.mxd



LEGEND

- MORGAN 1 STUDY AREA
- MORGAN 1B STUDY
- TRANSECT 1
- TRANSECT 2
- TRANSECT 3
- TRANSECT 4
- VIOLET SAMPLE POINT LOCATION

1. BASEMAP IMAGERY FROM GOOGLE EARTH PRO, 2015

N

0 300 600 Feet

1 " = 300 '
1:3,600

PROJECT:

PIVOT ENERGY
MORGAN SOLAR 1 AND 1B
MORGAN COUNTY, ILLINOIS

TITLE:

HABITAT SURVEY MAP

DRAWN BY:	S.MAJOR	PROJ. NO.:	338380
CHECKED BY:	L. GIESE		
APPROVED BY:	G. PARISH		**FIGURE 4**
DATE:	MAY 2019		

TRC
150 North Patrick Blvd.
Suite 180
Brookfield, WI 53045
Phone: 262.879.1212

FILE NO.: 338380-009HabitatSurveyMap.mxd

TRC - GIS
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Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet (Foot US)
Map Rotation: 0

ATTACHMENT B

SITE PHOTOGRAPHS

Site Photographs

Project Name	Site Location	Project No.
Pivot Energy—Morgan Solar 1 and 1B	Morgan County, IL	338380.0000

Photo No.	Date
1	4/24/19

Description

Representative view of the field in Morgan Solar 1.

Facing northeast.

Photo No.	Date
2	4/24/19

Description

View of woody species encroaching into the field along the northern boundary of the Study Area in Morgan Solar 1.

Facing west.

Site Photographs

Project Name	Site Location	Project No.
Pivot Energy—Morgan Solar 1 and 1B	Morgan County, IL	338380.0000

Photo No.	Date
3	4/24/19

Description

View of the wood line between Morgan Solar 1 and 1B.

Facing north.

Photo No.	Date
4	4/24/19

Description

Representative view of the wood line along the northern boundary of the Study Area.

Facing west.

Site Photographs

Project Name	Site Location	Project No.
Pivot Energy—Morgan Solar 1 and 1B	Morgan County, IL	338380.0000

Photo No.	Date
5	4/24/19

Description

Representative view of the field in Morgan Solar 1B.

Facing northeast.

Photo No.	Date
6	4/24/19

Description

Representative view of the eastern boundary of Morgan Solar 1B.

Facing southwest.

Appendix C:
IDNR Correspondence

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Microgrid Energy
Contact: Elizabeth Reddington
Address: 18 S Michigan Avenue
12th Floor
Chicago, IL 60603

IDNR Project Number: 1812354
Date: 06/26/2018

Project: Morgan Solar 1
Address: Cemetery Road & Beauchamp Lane, Meredosia

Description: Community Solar array for participation in Illinois community solar program.

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:

Meredosia Refuge INAI Site
Illinois Chorus Frog *(Pseudacris illinoensis)*
Regal Fritillary *(Speyeria idalia)*

Location

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

County: Morgan

Township, Range, Section:
16N, 13W, 22

IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

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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.

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EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 1812354

APPLICANT	DATE
Microgrid Energy Eric Phillips 1115 W. Patterson Ave 12th Floor Chicago, IL 60613	6/26/2018

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov
Bruce Rauner, Governor
Wayne A. Rosenthal, Director

November 29, 2018

Garrett Peterson
Microgrid Energy
18 S Michigan Ave
Chicago, IL 60603

RE: Morgan Solar 1
Project Number(s): 1904464 [1812354]
County: Morgan

Mr Peterson:

The Department has received your project submission for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and *Title 17 Illinois Administrative Code Part 1075*. Additionally, the Department may offer advice and recommendations for species protected under the Fish & Aquatic Life Code [515 ILCS 5, et seq.]; the Illinois Wildlife Code [520 ILCS 5, et seq.]; and the Herptiles-Herps Act [510 ILCS 69].

The proposed action being reviewed in this letter consists of the building of a ground-mounted solar array (EcoCAT submittal #1904464).

EcoCAT has identified records of two state-threatened species and an Illinois Natural Areas Inventory (INAI) site within the vicinity of the proposed project footprint. The Department has determined that adverse impacts to the **Meredosia Refuge INAI** site are unlikely.

EcoCAT has indicated records for the state-listed threatened **Illinois chorus frog** (*Pseudacris illinoensis*) adjacent to the project area. The Illinois chorus frog is a habitat specialist requiring sandy soils for aestivation. Habitats include sand prairies and sandy agricultural fields. They emerge after heavy rains in early spring to breed in nearby flooded fields, ditches, and ephemeral (seasonally flooded) wetlands or fishless ponds. Tadpoles go through metamorphosis and leave the water to burrow in sandy soils typically by the end of June.

Department staff have identified the presence of nearby Illinois chorus frog records, low-lying areas suitable for ephemeral spring flooding, and sandy soil all within and in the vicinity of the proposed project footprint. Due to the likely year-round presence of Illinois chorus frog within the project footprint, the Department has determined "take" (as defined under the *Illinois Endangered Species Protection Act* [520 ILCS 10/2]) of the Illinois chorus frog to be likely, and offers the following recommendation:

The Department recommends Microgrid Energy pursue Incidental Take Authorization (ITA) for the Illinois Chorus Frog for Morgan Solar 1 construction, installation, and operation.

EcoCAT has also identified records of the state-threatened **regal fritillary** (*Speyeria idalia*) within the vicinity of the proposed project footprint. The regal fritillary depends on *Violet* species as its obligate egg deposit site and larval food source. Regal fritillary larvae hatch in the fall and overwinter in litter near *Violet* species, and then feed on *Violet* species in the spring. In order to ensure no impacts to the regal fritillary, the Department offers the following recommendations:

In order to avoid encountering foraging regal fritillary, the Department recommends all construction work be conducted between October 15 and March 15.

In addition to these restriction dates, the Department recommends a qualified individual survey for Violet in all areas where vegetation will be cleared for solar farm construction, as Violet presence likely indicates presence of overwintering larval regal fritillary.

***If** either the restriction dates cannot be accommodated, **or** Violets are found within the areas of construction; the Department recommends Microgrid Energy pursue ITA for the regal fritillary for Morgan Solar 1 construction, installation, and operation.*

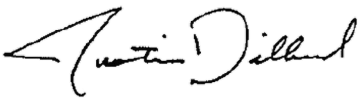
Please note, all correspondences pertaining to an application for ITA should be sent to the ITA coordinator, Jenny Skufca (jenny.skufca@illinois.gov) with the Department's Office of Resource Conservation.

Consultation on the part of the Department is closed unless Microgrid Energy desires additional information or advice related to this proposal. In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action 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.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal, and should not be regarded as a final statement on

the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

Please contact me if you have questions regarding this review.



Justin Dillard

Resource Planner, Consultation Services
Illinois Dept. of Natural Resources
(217) 557-6723
Justin.Dillard@Illinois.gov

cc. Jenny Skufca – Incidental Take Authorization Coordinator

Eric Phillips <ephillips@pivotenergy.net>

Consultation for Morgan Solar 1 (EcoCAT Proj # 1904464)

Dillard, Justin <Justin.Dillard@illinois.gov> Mon, Dec 3, 2018 at 3:00 PM
To: "ephillips@pivotenergy.net" <ephillips@pivotenergy.net>
Cc: "Skufca, Jenny" <Jenny.Skufca@illinois.gov>

Hi Eric,

I have responded to your questions for both projects below.

RE 1900667:
That project is an information request and as such is not reviewed by our staff. Information requests are not a substitute for a formal consultation, and that is indicated in the Hits/No Hits report that is generated by EcoCAT and immediately returned upon information request submission. If you submit for formal consultation for that project, termination should be immediately generated for you as there appear to be no nearby records. I am happy to remain a point of contact for you for that project.

RE Morgan Solar1 1904464:

Our Section does not strictly evaluate habitat, but rather the likelihood of species impacts based on various factors. Our determinations for both species were explained in the letter dated November 29. Illinois Chorus Frogs are regularly found in agricultural landscapes (https://wwv.inhs.illinois.edu/collections/herps/data/

ilspecies/ps_strecke/), are found in directly adjacent parcels, and the sandy soils required for burrowing are present within the proposed project location. Regal Fritillary are also found in similar sandy soil open areas, and if your site does not have violet species present, that negates our ITA recommendation if the winter construction can be accommodated. The Department is satisfied that a lack of violets on-site indicates absence of overwintering Regal Fritillary, however with adjacent records to the project footprint, we cannot say the same during the summer.

The November 29 recommendation letter serves as consultation termination. We simply offer recommendations for complying with state laws as they pertain to protected natural resources. Our recommendations may be incorporated or not at the discretion of county zoning & permitting, or the developer. In certain industries, it is common for a developer to contract with an environmental consultant to further evaluate a site being considered. Our Section can certainly undergo successive rounds of consultation based on new information, when provided.

Please let me know if I can be of further assistance.

Regards,

Justin

From: Eric Phillips <ephillips@pivotenergy.net>
Sent: Monday, December 3, 2018 1:27 PM
To: Dillard, Justin <Justin.Dillard@illinois.gov>

Cc: Skufca, Jenny <Jenny.Skufca@Illinois.gov>
Subject: [External] Re: Consultation for Morgan Solar 1 (EcoCAT Proj # 1904464)

[Quoted text hidden]

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Pivot Energy
Contact: Elizabeth Reddington
Address: 18 S Michigan Avene
12th Floor
Chicago, IL 60603

IDNR Project Number: 2002968
Date: 09/18/2019

Project: Morgan Solar 1 & 1B LLC
Address: 2068 Cemetery Rd., Meredosia

Description: Ground mounted solar array for participation in Illinois community solar program.

Natural Resource Review Results

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

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Meredosia Refuge INAI Site
Illinois Chorus Frog *(Pseudacris illinoensis)*
Regal Fritillary *(Speyeria idalia)*

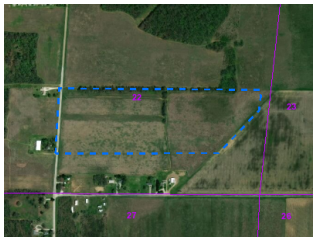
An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

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

County: Morgan

Township, Range, Section:
16N, 13W, 22



IL Department of Natural Resources Contact
Adam Rawe
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
Morgan County planning and Zoning
Dusty Douglas
345 West State Street
Jacksonville , Illinois 62650

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EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2002968

APPLICANT	DATE
Pivot Energy Elizabeth Reddington 18 S Michigan Avene 12th Floor Chicago, IL 60603	9/18/2019

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 125.00	$ 2.81	$ 127.81

TOTAL PAID $ 127.81

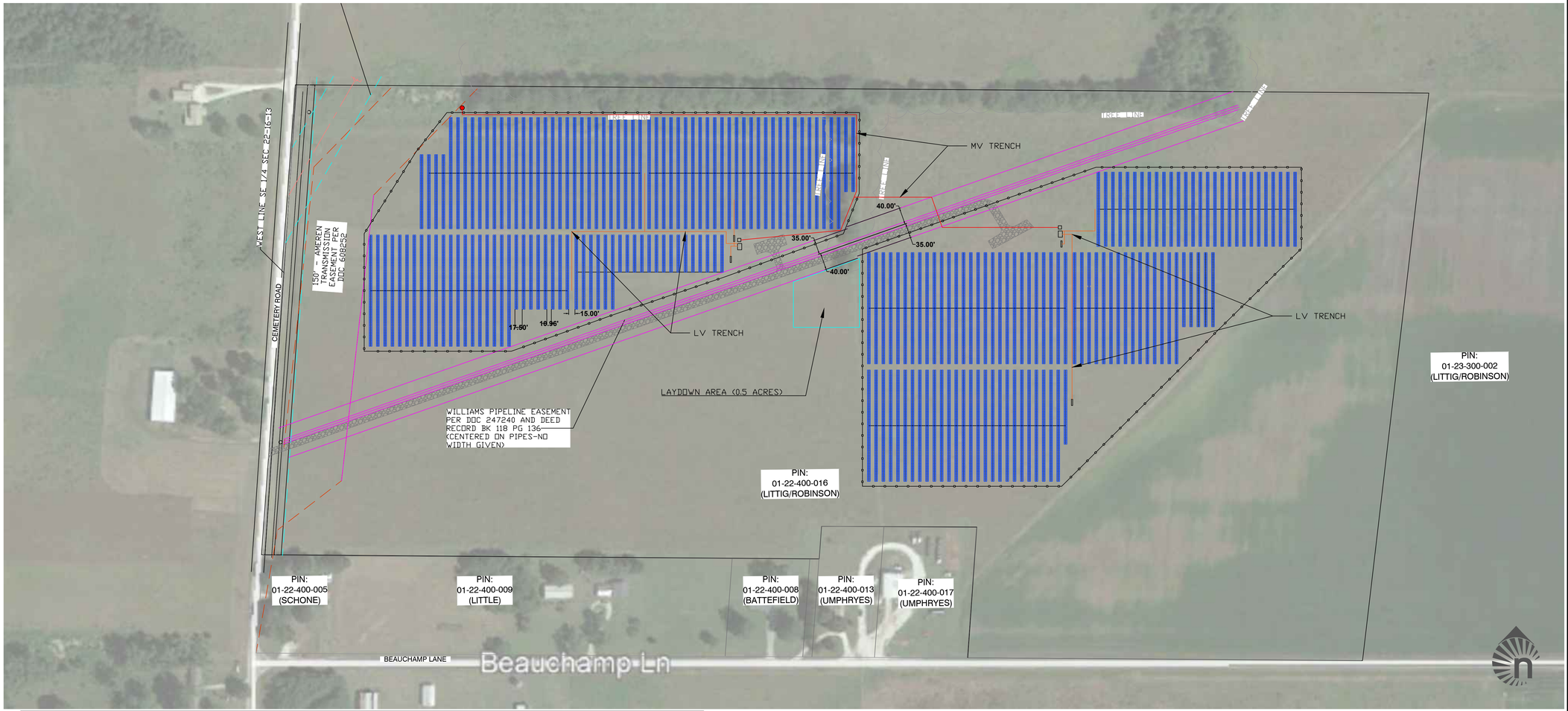
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

Appendix D:
Plant List

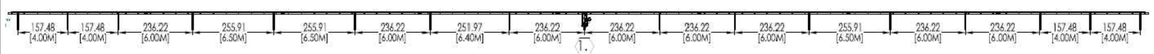
Wildflowers	C-Value	Seeds Per Square Foot	Percent by Weight
Asclepias tuberosa (Butterfly Weed)	8	1.6	16.2
Callirhoe triangulata (Clustered Poppy Mallow)	8	1.1	6.8
Coreopsis lanceolata (Lance-leaf Coreopsis)	8	1.1	3.4
Euphorbia corollata (Flowering Spurge)	4	2.2	11.3
Geum triflorum (Prairie Smoke)	10	1.1	1.7
Monarda punctata (Spotted Bee Balm)	4	2.2	1.0
Oenothera rhombipetala (Sand Evening Primrose)	5	1.1	0.5
Penstemon digitalis (Foxglove Beardtongue)	4	2.2	0.7
Pullsatilla patens (Pasque Flower)	7	1.6	3.4
Rudbeckia hirta (Black-eyed Susan)	1	1.1	0.5
Symphyotrichum oolentangiense (Sky Blue Aster)	8	1.1	0.6
Tephrosia virginiana (Goat's Rue)	8	1.1	18.5
Tradescantia ohiensis (Ohio Spiderwort)	3	1.1	5.8
Verbena stricta (Hoary Vervain)	4	2.2	3.3
Viola pedata (Birdsfoot Violet)	9	2.2	3.6
Viola pedatifida (prairie violet)	9	2.2	3.3
Viola sororia (blue violet)	4	3.3	5.0
Zizia aurea (Golden Alexander)	4	1.6	0.2

Grasses, Sedges and Rushes	C-Value	Seeds Per Square Foot	Percent by Weight
Andropogon virginicus (Broom Sedge)	1	2.2	1.2
Bouteloua curtipendula (Side-oats Grama)	2	1.1	4.0
Carex brevior (Plains Oval Sedge)	3	0.6	0.8
Carex muehlenbergii (Sand Bracted Sedge)	4	0.6	2.0
Eragrostis spectabilis (Purple Love Grass)	3	1.1	0.2
Koeleria macrantha (June Grass)	8	1.1	0.3
Schyzachyrium scoparium (Little Bluestem)	5	2.2	5.8
Sporobolus cryptandrus (Sand Dropseed)	3	1.1	0.1

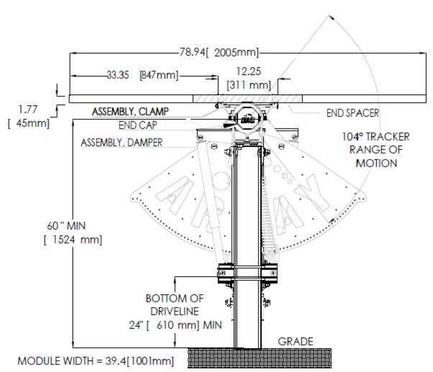
Appendix E:
Construction Details

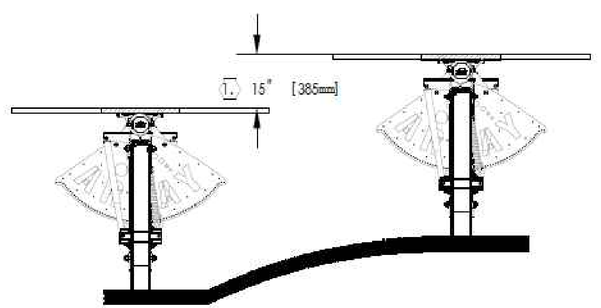


1. SEE MAP ABOVE FOR TRENCH AREAS
   LV TRENCH WILL BE 2' DEEP AND 1' WIDE ~1433 TOTAL FEET
   MV TRENCH WILL BE 2' DEEP AND 2' WIDE ~2031 TOTAL FEET
2. THE COMMON SHARED ROAD WILL BE 16' WIDE AND 1,837 FEET LONG COVERING 0.67 ACRES
   THE UNIQUE DRIVEWAY FOR THE WESTERN ARRAY WILL BE 16' WIDE, 80' LONG, AND HAVE A 20' WIDE HAMMERHEAD COVERING .068 ACRES
   THE UNIQUE DRIVEWAY FOR THE EASTERN ARRAY WILL BE 16' WIDE, 100' LONG, AND HAVE A 20' WIDE HAMMERHEAD COVERING 0.1 ACRES
3. TOTAL FENCED AREA IS 25.66 ACRES
4. THE AREA OF THE SOLAR PANELS (14,984) IS 7.388 ACRES
5. THERE ARE 2,775 6"X9" I-BEAM STEEL PIERS THAT WILL BE EMBEDDED TO A DEPTH OF 6 TO 10 FEET
6. THERE WILL BE TWO 10'X15' EQUIPMENT PADS AND TWO 8'X8' TRANSFORMER PADS
7. SEE DRAWING ABOVE FOR ROW TO ROW SPACING AND DIAGRAMS TO THE LEFT FOR PIER SPACING AND TRACKING MOTOR DIMENSIONS
8. THE SITE WILL HAVE A SINGLE SHARED LAYDOWN AREA OF 0.5 ACRES LOCATED AS SHOWN ABOVE



10364-001 90 MODULE FULL EXTERIOR ROW





SITE PLAN

SCALE 1/8"=1'-0"

Pivot Energy
1536 WYNKOOP ST. STE 400
DENVER, CO 80202
www.pivotenergy.net

NO	DRWN	DATE	REVISION	PRELIM. DESIGN	CHKD	DATE	APP'D	DATE
0	DW	6.13.19						

MORGAN SOLAR 1 AND 1B
39.82177, -90.55331
MEREDOSIA, IL 62665

DATE: 11.7.18

PROJ. NO.: TBA

PARCEL ID# 01-22-400-016
SITE PLAN

SOLAR ARRAY WORK PLAN

DRAWING NUMBER: X-2

SHEET NUMBER:

REVISION 0

Example foundation pile driving equipment.

Example foundation pile driving equipment.

Example fence section. Planned fencing will be seven feet high and not include barbed wire.

Planned fence posts are to be 6 inches square.

Appendix F:
Decommissioning Plan

EXECUTIVE SUMMARY

This Decommissioning Plan Report has been prepared under the requirements of Illinois Department of Natural Resources. The Decommissioning Plan Report, provides an overview of all activities during the decommissioning phase of the Project, as well as all activities related to the restoration of land, and water and managing excess materials and waste.

Properly kept solar panels, have an expected life of thirty (30) years, with an opportunity for a lifetime of fifty (50) years or more with equipment replacement and repowering. It has however, been assumed, that the decommissioning process will initiate upon the termination of the lease with the landowner.

The decommissioning involves removing the perimeter fences, any concrete foundations, the removal of steel piles, and removal of all metal structures (mounting racks and trackers), removing all PV modules, above- ground and underground cables, transformers, inverters, fans, switch boxes, fixtures, and otherwise restoring the premises to its original condition. If it is agreed upon with the landowner, the access road may be left in place for its continued use.

The decommissioning of the project components will follow any applicable municipal, state and federal regulations and standards. As with the construction, a manager responsible for safety will be present on site for the duration of the work.

The project owner will ensure that the decommissioning stage of the proposed facility, is carried out in accordance with requirements, and the measures/practices described in this report. This would include, but not be limited to:

- Providing timelines for the start and completion of the decommissioning activities;
- Keeping this report updated to ensure that when required a portion of the facility which is not operational due to technical failure can be properly decommissioned;
- Providing site restoration measures that would ensure that the nutrient content of the soil is restored, if necessary and if required for agricultural purposes;
- Providing restoration of the site as close to a preconstruction state as feasible;
- Providing a decommissioning cost estimate as well as the methods for ensuring that the funds will be available for decommissioning and site restoration.

1. Introduction

This Decommissioning Plan Report is being submitted to the Illinois Department of Natural Resources for review. Other reports included in the submission package include:

- Project Location Map
- Electrical Single Line Diagram
- Site Layout Plan

This solar PV projects will have a maximum name plate capacity of 4.0 MW AC. The project is a Adjustable Block Program Community Solar award recipient and will provide bill credits to residential and commercial subscribers.

2. Methodology

This Decommissioning Plan Report, provides an overview of all activities during the decommissioning phase of the Project, as well as all activities related to the restoration of land, water, managing excess materials and waste.

3. Decommissioning Plan Overview

Properly maintained solar panels have an expected life of thirty (30) years, with an opportunity for a lifetime of fifty (50) years or more with equipment replacement, and repowering. This report, however, assumes that at the decommissioning process will initiate upon the termination of the leases with the landowners.

The decommissioning involves removing the perimeter fences, any concrete foundations, the removal of all steel piles, and removal of all metal structures (mounting racks and trackers), removing all PV modules, above- ground and underground cables, transformers, inverters, fans, switch boxes, fixtures, and otherwise restoring the premises to its original condition. If it is agreed upon with the landowner, access roads may be left in place for their continued use.

The owner agrees to meet with the landowner prior to the lease expiration date, to ensure that it performs its obligations to remove its property and restore the premises. Within twelve (12) months of initiating the decommissioning, the owner will have removed the relevant components from the leased land.

3.1 Decommissioning During Construction (Abandonment of Project)

While not expected, and considered to be extremely unlikely, in the event that construction or operation activities cease prior to facility completion, with no expectation of construction re- start, the installed components will be removed, and recycled and the site restored in accordance with Equipment Dismantling and Removal, and Site Restoration procedure described below and in accordance with all applicable regulations. Decommissioning activities such as removal of cables and access roads will be conducted in consultation with landowner.

3.2 Decommissioning After Ceasing Operation

In the event that the operation of the solar farm ceases, the installed components will be removed, recycled and the site restored in accordance with Equipment Dismantling, Removal, and Site Restoration procedure described below and in accordance with all applicable regulations.

4. Decommissioning of the Renewable Energy Generation Facility

4.1 Equipment Dismantling and Removal

The project components consist of numerous recyclable materials, including glass semiconductor material, steel, and wiring.

When the project reaches the end of its operational life, the parts can be dismantled and recycled. All waste resulting from the decommissioning of the facility will be transported by a certified and licensed contractor and taken to a landfill/recycling facility.

4.1.1 Above ground Structure Decommissioning

In the event that the project requires decommissioning, the following sequence for the removal of the components will be used:

PV Sites:

Disconnect PV facility from the utility power grid;

- Disconnect all aboveground wirings, cables and electrical interconnections and recycle off site by an approved recycling facility;
- Removal of concrete foundations (if required). Electrical Equipment Pads and their foundations will be removed and recycled off site by a concrete recycler;
- Remove PV modules and steel structures and ship to recycling facilities for recycling and material reuse;
- Remove all waste;
- Remove perimeter fence and recycle off site by an approved metal recycler.

Inverters/Transformers:

- Disconnect all electrical equipment;
- Remove inverters, transformers, meters, fans, lighting fixture, other electrical components and recycle off site by an approved recycler;
- Remove all waste.

Access Road:

- Consult with landowner to determine if access roads should be left in place for their continued use.
- If access road is deemed unnecessary, remove access road and restored access road location as near as practical to its original condition with native soils and seeding.

4.1.2 Below ground Structure Decommissioning

- Disconnect all underground cables and transmission lines and recycle off site by an approved recycling facility;
- Removal of all steel PV panel racking.

This decommissioning plan is based on current procedures and experience. These procedures may be subject to revision based on new experiences and requirements over time.

4.2 Site Restoration

There are no water bodies (i.e., permanent watercourses, intermittent watercourses, seepage areas or lakes). As no water bodies are present and the renewable energy facility does not release emissions which could pollute the air and water bodies, no impact to aquatic environment is expected. As a result, no restoration of water bodies, either during construction or decommissioning, is planned.

Similar to the construction phase, soil erosion and sedimentation control measures will be implemented during the decommissioning period and until the site is stabilized in order to mitigate erosion and silt/sediment runoff.

The access road will be left at landowner's requests or graded to restore terrain profiles (as much as possible), and vegetated. If removed, filter fabric will need to be bundled and disposed of in accordance with all applicable regulations. These areas will need to be backfilled and restored to meet existing grade.

The decommissioning of the site will include returning the site to allow the total runoff from the site to be like preconstruction conditions.

4.3 Managing Excess Materials and Waste

During the decommissioning phase, waste materials will be removed in accordance with applicable local requirements, at a minimum; however, it is the goal of the owner to recycle all project materials as much as possible and to work with local subcontractors and waste firms to segregate material to be recycled. As an example, since the mounting racks are made up of manufactured metal, it is anticipated that nearly 100% of the above grade metal structures are salvageable.

The owner will be responsible for the logistics of collecting and recycling of PV modules and to minimize the potential for modules to be discarded as municipal waste. The module recycling program includes the glass and the encapsulated semiconductor material, which will be collected by the owner and recycled either into new PV modules or other products.

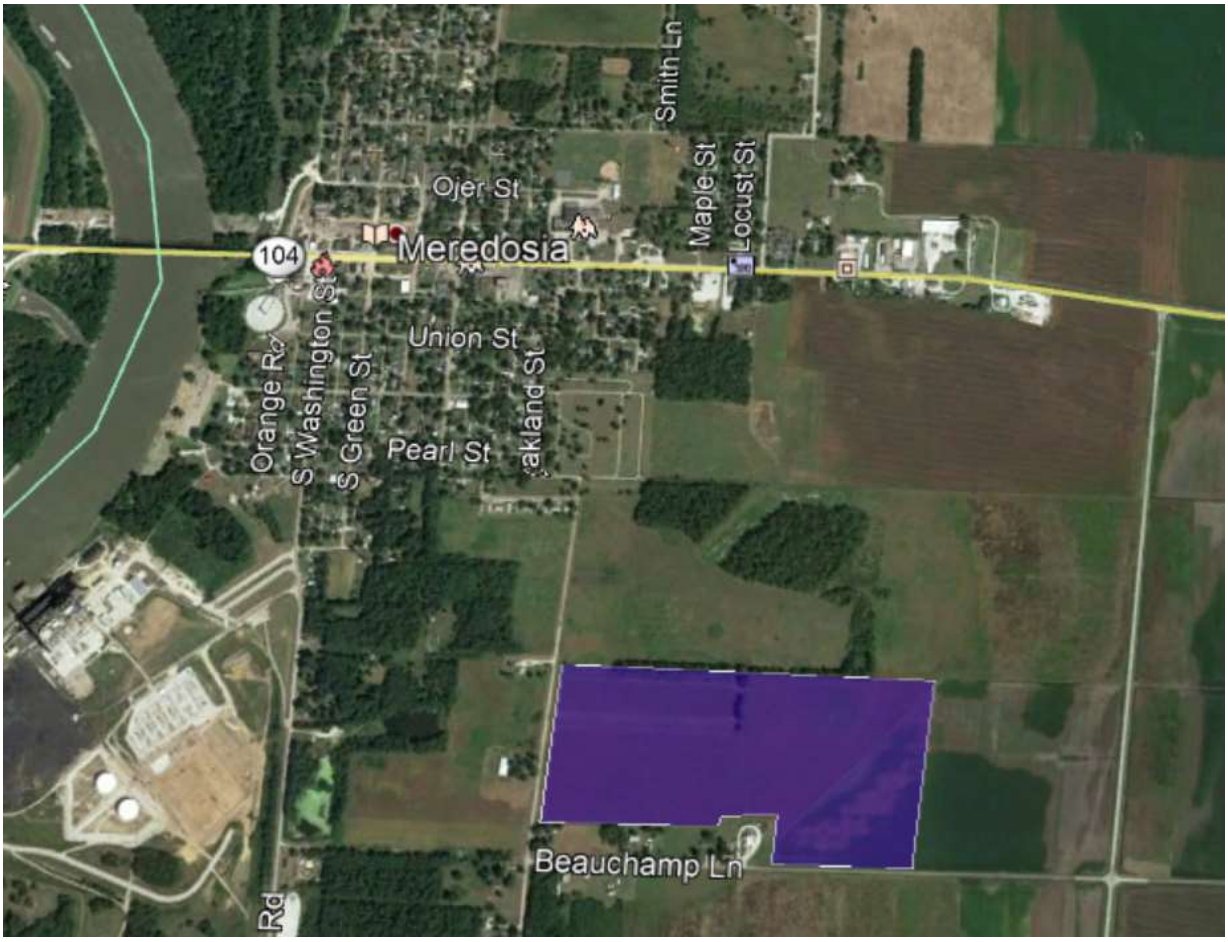
5. Decommissioning Notification

The process for notification of decommissioning activities will be the same as the process for notification of construction activities. The owner will coordinate with County officials, Zoning and Planning Board, Fire Department, and road commission to prepare for the decommissioning of the solar facility.

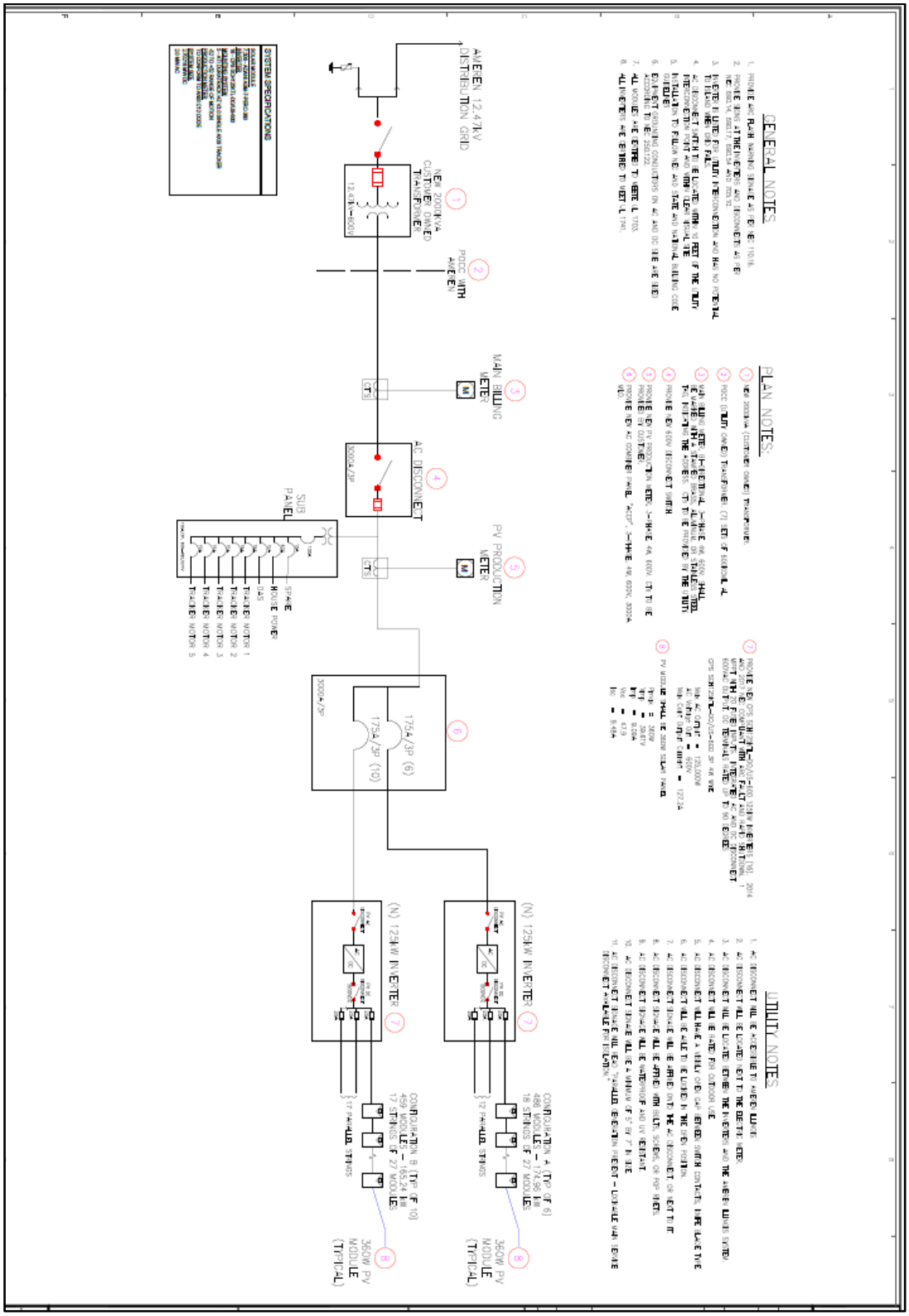
6. Decommissioning Approval

Upon completion of decommissioning owner will schedule a site walk with property owner and Planning and Zoning board officials to confirm decommissioning is deemed complete. At that time owner requests formal approval from all parties of decommissioning approval and release of any bond, surety, letter of credit, or escrow account that was held for decommissioning.

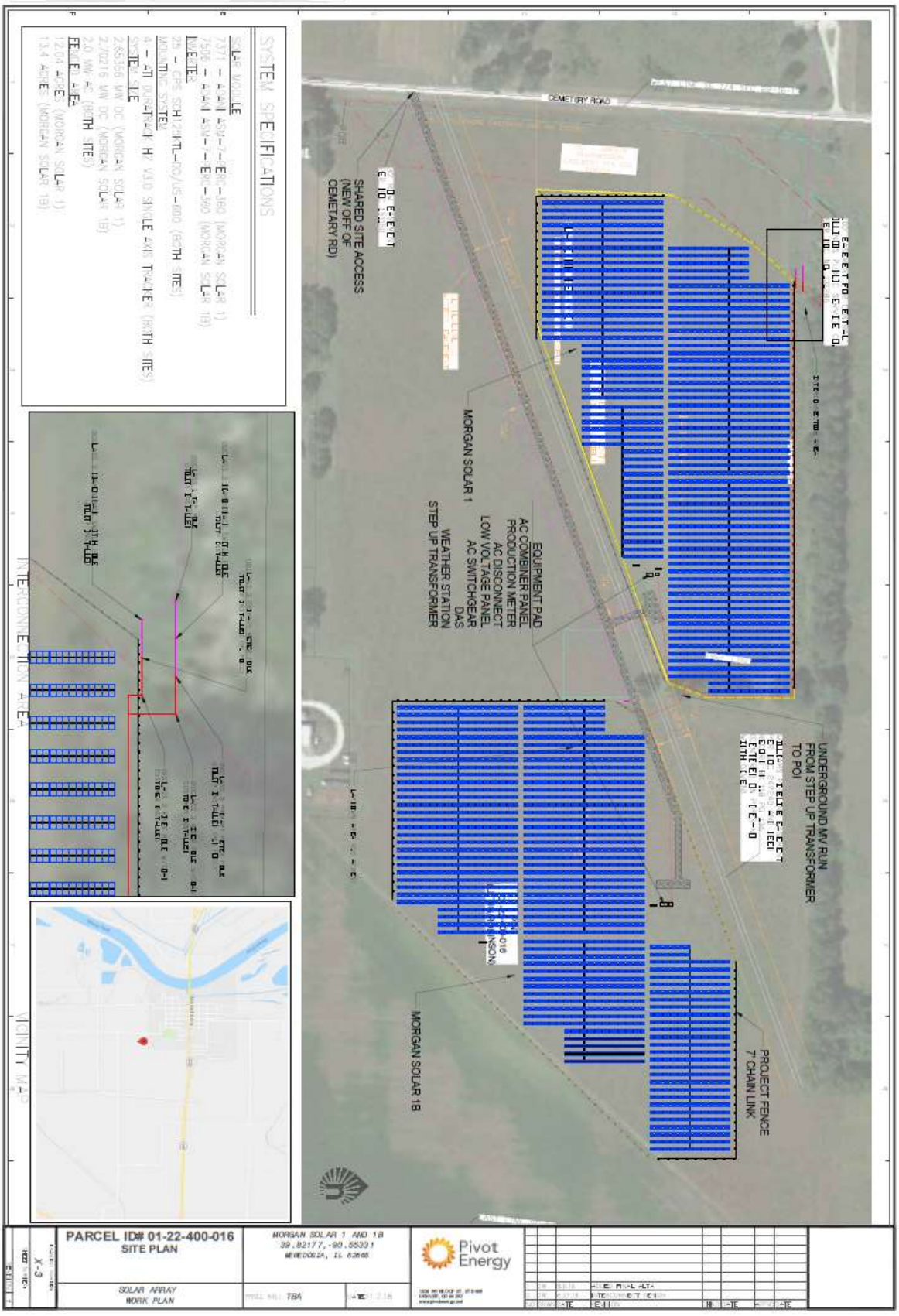
Appendix 1
Project Location Map



Appendix 2
System One Line Diagram
(typical of both sites)


GENERAL NOTES
PLAN NOTES
UTILITY NOTES
SYSTEM SPECIFICATIONS
AMEREN 12.47kV DISTRIBUTION GRID
NEW 2000kVA CUSTOMER OWNED TRANSFORMER
12.47kV-120/208
POCC WITH AMEREN
MAIN BILLING METER
TS
AC DISCONNECT
3000A/3P
SUB PANEL
PV PRODUCTION METER
TS
1754/3P (6)
1754/3P (10)
3000A/3P
(N) 125kW INVERTER
(N) 125kW INVERTER
CONFIGURATION A (TYP OF 6)
468 MODULES - 172.98 kW
18 STRINGS OF 27 MODULES
CONFIGURATION B (TYP OF 10)
459 MODULES - 165.24 kW
17 STRINGS OF 27 MODULES
360W PV MODULE (TYPICAL)
360W PV MODULE (TYPICAL)
HOUSE POWER
SPARE
TRACKER MOTOR 1
TRACKER MOTOR 2
TRACKER MOTOR 3
TRACKER MOTOR 4
TRACKER MOTOR 5

Appendix 3
Site Layout



Morgan Solar 1 & 1B Decommissioning Plan (Pivot Energy)